PLANNING PROBLEMS
OF
TOWN, CITY AND REGION
PAPERS AND DISCUSSIONS
1928

NATIONAL CONFERENCE ON CITY PLANNING
NEW YORK

PLANNING PROBLEMS OF TOWN, CITY AND REGION

PLANNING PROBLEMS OF TOWN, CITY, AND REGION

PAPERS AND DISCUSSIONS
AT THE TWENTIETH NATIONAL
CONFERENCE ON CITY
PLANNING

HELD AT

DALLAS AND FORT WORTH, TEXAS

MAY 7 TO 10, 1928

Published for the Conference by
WM. F. FELL CO., PHILADELPHIA, PA.
MCMXXVIII

TABLE OF CONTENTS

PAGE

President's Address 1
Edward M. Bassett, New York City.

Mass and Density of Buildings in Relation to Open Spaces and Traffic Facilities 7
E. P. Goodrich, Consulting Engineer, New York City.

Discussion 18

Building for Permanency 32
Charles H. Cheney, City Planning Consultant, Palos Verdes Estates, California.

Discussion 44

What is Comprehensive Zoning? 47
Harland Bartholomew, City Planning Engineer, St. Louis, Mo.

Discussion 71

Set-Backs or Building Lines by Zoning or Otherwise 73
Charles P. Fisher, Planning Engineer, Akron, Ohio.

Building Lines or Front Yard Requirements 79
Rollin L. McNitt, Dean, Southwestern University Law School, and Gordon Whitnall, Director, Los Angeles City Plan Commission.

Master Planning Under Recent State Legislation 85
Richmond D. Moot, Chairman, Planning Commission, Schenectady, N. Y.

Discussion 89

Four Planning Principles and an Outline for Planning Procedure in the Smaller Cities 102
Jacob L. Crane, Jr., Planning Consultant, Chicago, Ill.

Discussion 108

Legal Phases of City Planning in Texas 115
George C. Kemble, State Representative, Texas.

Discussion 118

Planning Progress in Three Texas Cities 121
El Paso. W. E. Stockwell, Planning Engineer.
Houston. L. B. Ryon, Jr., Member, Plan Commission.
Austin. H. F. Kuehne, Member, Plan Commission.

Discussion 123

Arousing the Public Interest in City Planning 125
H. A. Overstreet, Department of Philosophy, College of the City of New York.

PAGE

Spreading the Gospel of City Planning 137
Justin F. Kimball, Author of "Our City Dallas."

The Relationship of the Functions and Powers of the City Planning Commission to the Legislative, Executive and Administrative Departments of City Government 142
Alfred Bettman, Member, Plan Commission, Cincinnati, Ohio.

Discussion 159

The Planning of Undeveloped Areas 164
George H. Herrold, Planning Engineer, St. Paul, Minn.

A Western View of the Planning of Undeveloped Areas 171
S. R. DeBoer, City Planner, Denver, Colo.

Discussion 179

How Westchester County, N. Y., Made Its Park System 184
Jay Downer, Chief Engineer, Westchester County Park Commission, N. Y.

Airports and Airways and Their Relation to City and Regional Planning 189
John Nolen, City Planner, Cambridge, Mass.

Discussion 208

Can a City Plan Serve to Reduce Taxes or Debt? 214
George B. Ford, City Planning Consultant, New York City.

Discussion 222

Remarks at the Civic Luncheon 229

Resolutions Adopted by the Conference 236

Organization of the Twenty-first Conference 239

Topical Index 241

PRESIDENT'S ADDRESS

EDWARD M. BASSETT, New York City

This is the first address that I have made as President of the National Conference on City Planning. The Conference has been one of my devoted interests for the last twenty years. I think I have attended every Conference that has taken place in that period when I have been in this country.

The friendships which have been made among the members of this Conference are most precious to me. The instruction that I have received from the men of so many different professions and callings has been a privilege. Only a few lawyers know about this interesting field and few participate in it.

When you think that the ordinary lawyer goes to meetings of the bar associations and meets with people of about the same point of view, having to do largely with statutes and court decisions, no one from other professions or callings being in attendance, it is plain to see that there is not that horizon, that amplitude of touch that comes to us in our National Conference on City Planning.

At an earlier period of my life, I was active in politics in New York City, and went to some extent about the country in the affairs of that party to which I belonged. There was an interest and yet there was nothing to approach the stimulus, the all-around education which I have found in these associations with the city planners. When you think that our Conference is made up of people who have a somewhat altruistic point of view—architects skillful and experienced, devoting a large part of their time to this field of improvement of cities as places to live and work in, municipal engineers experienced in public works, structural engineers, sanitary engineers, specialists in parks and playgrounds, specialists in housing, statisticians and social students, city attorneys and other constructive officials and legislators, one realizes that no

other single field brings in such a wide human touch as this field of city planning. I tell you it makes me proud to be for a time the President of this Conference that brings so much brains and sacrifice to the welfare and upbuilding of this country.

But along with these different callings, professions, and points of view, we get many divergent slants and reflections. We don't all look at things alike. One would think this would produce serious disagreements, but not so. For twenty years, we have gone on in our work recognizing the point of view of the other man, working together and patiently trying to get the benefit of all these callings and professions, and in that way we have met with greater progress than would any one of those callings if meeting by itself.

Methods have been compared and threshed out until the worthy things have been obtained in legislation or in city planning practice.

The whole subject of main thoroughfares and secondary streets has been largely shaped in the twenty years of work of this Conference.

The subject of zoning in this country had its origin in this Conference. It was nursed along in the early days and now has spread throughout the United States, all with the help of this Conference.

The subjects of land subdivision, approval of plats, preservation of mapped streets, and regional planning—all of these subjects were either initiated or have been mainly put forward by this Conference.

Reserve powers of legislatures which would lie dormant and useless unless brought to life by enabling acts initiated by our Conference, are now invoked throughout the United States. We have helped to prove that these slumbering powers of legislatures can be used for the benefit of growing cities. The courts fell into line because they saw that new powers were needed on account of the new conditions that exist in great modern cities.

We do not go into all of the fields that have to do with cities. We do not specialize on administration of cities—education, taxation, hospitalization, traffic regulation, and the many other administrative features that make up a well-operated city. Our field

is city planning. City planning is the physical layout of the city which we try to make better so that living conditions and working conditions and movement conditions shall be better. City planning does not include this multitudinous array of subjects which we delight to discuss and which we properly discuss.

City planning, from my point of view, and I am talking now from my own point of view (others do not entirely agree with me), is what you can put on a plan. If you cannot put it on a plan it isn't city planning.

Nevertheless, in order to place sound proposals on a plan such as streets, parks, sites for public buildings, zoning districts, and public utilities which embrace all forms of movement, problems must be solved that relate to housing, to architecture and design, to the spreading of assessments, to the good appearance of public and private buildings. There are a hundred and one of those problems which are intimately related to placing the lines on the planning map, and although I would not say that they are parts of the plan, they involve a good or bad result and must be solved by the city planner in order to put the lines or boundaries on the maps.

I sometimes say the city plan is the dynamic map of the city because it exists under law or by sanction of law. The city plan stamps every parcel of land with a certain legal character that is different from the legal character of other parcels of land.

The business district in zoning is different from the residence district; it is stamped on the land. Land within a park is different from land within a street, and that differs in legal character from a site for a public building and all differ from private land. It is the city plan which shows the lines that separate the different kind of land characters, but to show them wisely requires all the skill of the architect, the municipal engineer, and the landscape architect.

The city plan is made up of what can be put on the plan or map. It is stamping qualities on land areas; it is done under laws and by official acts, whether it is a trolley car franchise or whether it is placing a park or a street or a pier head or a bulk-head line. In itself it does not embrace the quality of art and yet, if I am right in

judging that the quality of art in city planning relates to mass and proportion and repose, then in the making of these lines there is a field for art.

For instance, in the adaptation of the New York Central Railroad and Riverside Park, not now solved but to be solved, the work that is to be done there will embrace park grades, the putting of the tracks under a shelf which will be covered by the park, the elimination of grade-crossings, the whole being done by establishing these lines that I call city planning. Those lines can be made of good proportion and there will be an element of repose all resulting in beauty. The architect and engineer should cooperate to this end.

I want to come to another field where the introduction into city planning of the element of art, and perhaps beauty, involves serious problems—the regulation by law of private land and buildings. Regulation under the police power must relate to health, safety, morals, and the general welfare of the community. The courts refuse to consider beauty as a primary element in this sort of regulation, partly because they are not sure that standards of beauty can be agreed upon, and partly because the enforcement of standards of beauty would be arbitrary. It may be that fixing the limiting envelope of private buildings by zoning and leaving the arrangement within that envelope to the initiative of the architect, is the best way—better than suppressing individual freedom that seeks an expression of the beautiful. Maybe we will go further that way than if regulation by law tried to instruct the individual architect how he must build. In that respect we differ quite a good deal from European countries. I tried years ago to find out how they could bring about, for instance, a locality all of old-fashioned oak-beam houses in Bremen. I inquired around Bremen and no one knew how they did it. There was no law under which it was done. At last I discovered that it was simply because the building superintendent wouldn't issue a permit for any building in that locality except an oak-beam building, and there was no appeal from him except to the Kaiser. But in this country, where courts can overturn the decisions of legislative bodies, and where the police power

cannot be based on esthetics, this simple plan cannot be followed. But who can say that if the limiting envelope prescribed for health and safety is sensible and sound, and the development of beautiful results is left to the private initiative of architects, we may not go further in our cities than abroad, where official control of esthetics prevails? I prophesy that some of our American cities will in the course of the next century surpass in architectural interest and perhaps in beauty many European cities that have had their architecture regulated by law in its esthetic qualities.

I believe in the application of efforts for beauty in all our work; but in this country we must go hand in hand with the courts in our city planning progress. We have been progressing remarkably well the last twenty years and the next twenty years ought to show a result in good appearance such as has not been obtained in the past.

Have you ever thought that art to be real art is something more than haphazard efforts to beautify? In Athens it was life and death for the people of that city to have the gods on their side, and they propitiated the gods by sacrifice and by building structures that would be the most attractive and appealing. They did not get started on what developed into art so much because they had a sense of the beautiful as because they had a sense of self-preservation. They didn't want to be captured and made the slaves of some other little city country, and they believed that if they did not propitiate the gods, and keep them on their side, they would be beaten in war and enslaved. Anybody who will read Herodotus, the Greek historian, who lived during these conflicts, and who saw the rise of Attic art, will be convinced that it was the desire for self-preservation that began Greek art. They began with the temples to gods who would preserve them, and having started they went on with that individual initiative and wonderful artistic sense that produced precedents that the whole world has followed.

In medieval times, the building of those great Gothic cathedrals was not because some one wanted to make a beautiful building. The workmen and the people of those cities as well as the archi-

tects wanted to do something that would keep them right with their religious beliefs. Medieval and renaissance art was based on matters of life and death. It was serious.

"The hand that rounded Peter's dome
And groined the aisles of Christian Rome
Wrought in a sad sincerity,
Himself from God he could not free;—
He builded better than he knew;—
The conscious stone to beauty grew."

Today we do not seem to have that same motivation for beginning a new art. Making a picture, decorating a panel, may be the production of a beautiful thing by the hand of man and therefore it may be a work of art, but to create an art in the sense that the Greek temples or the medieval churches were made, there must be a basis of great necessity.

Now, I want to put before you that the great American cities have a necessity that approaches a life and death necessity. That necessity is congestion; it is street congestion; it is living congestion; it is movement congestion in all of its phases. The very vital breath of cities in America the next fifty years is going to depend on whether officials and citizens can solve the problems of congestion. In the solution of congestion we ought to have the same desire to add beauty that the Greek and medieval architects had. I believe that the progress of our cities the next twenty-five years will show that we can add beauty to the solution of these vital problems of streets, parks and buildings, the elimination of grade-crossings, the zoning of more open developments, and all those problems which we are now almost for the first time in the United States beginning to appreciate are the life or death of great cities.

I tell you, friends, I am proud to be one of the people who are helping along in this great movement. I stand for that element in city planning which will bring a beautiful result, but we want to come to it without forgetting that it must be added to the solution of the vital problems of cities.

What will be the highest praise of future Dallas? That the wise shall say the city plan of Dallas is excellent; yes, and more; that the public architecture is dignified, stately and suitable; that the public landscape architecture is simple, natural and invites repose; that the enterprise of the citizens of Dallas coupled with the skill of her architects has produced business buildings and residences that are healthful and beautiful.

MASS AND DENSITY OF BUILDINGS IN RELATION TO OPEN SPACES AND TRAFFIC FACILITIES*

E. P. Goodrich, Consulting Engineer, New York City

Introduction

This paper discusses certain fundamental needs for open spaces in and around modern cities. As a preliminary to the preparation of a plan for the future of a particular community, it is necessary not only to be familiar with the history and problems of that city but also to have general statistical information applicable to the future of *any* city.

The relative number and size of urban communities in any country follow definite mathematical laws. Part of the open space between towns is essential for the production of crops. Other areas must be devoted to watersheds. Inside the city limits, proper provision must be made for parks and playgrounds. Open space must also be left for roadways and sidewalks adequate to meet the needs of urban traffic. Rapid transit and transportation must be provided. Buildings must be so limited in height, bulk and spacing as to insure a proper access of light and air and to afford fire protection. The space within the buildings themselves must be sufficient to provide healthy living and working conditions for the occupants.

The quantitative analysis of such needs as these may well be termed the Science underlying the Art of City Planning.

Growth of Cities and Distribution of Urban Population

The analysis of population figures in urban groups of different sizes in the United States shows that the average density has in-

*The digest of Mr. Goodrich's paper which appears here was presented by John Ihlder, Consultant on Housing and City Building, Washington, D. C., and used as the basis of the subsequent discussion.

creased with time. For an estimated optimum total population of 200,000,000 with three-fifths in cities, and at an average density of ten persons per acre, the total urban area would be 18,750 square miles or a little over six-tenths of one per cent of the total area of the Continental United States. Of the balance of more than 99 per cent, very large areas are unproductive. However, the percentage occupied by cities compared with the total of farm, forest and grazing land does not reach one per cent. Since it is estimated that the United States will be only just about self-supporting with a population of 200,000,000, it is seen that open spaces around cities will in the grand aggregate be about 100 times the city area.

Farming Areas

In the New York region, comprising over 9,000,000 acres, there are 4,419,000 acres of farm land, of which 2,155,000 acres are improved for the production of crops. 30.6 per cent of the total area is thus under cultivation. This is the equivalent of 0.15 acres per person.

In the whole United States there are three acres per person devoted to staple crops, including hay and forage; and 0.07 acres under cultivation for market garden crops. Allowance must be made for the fact that the United States is a heavy exporter of wheat and other cereals.

Space Required for Water Supply

In the Northeastern United States 150 square miles of watershed area per 1,000,000 persons is disclosed for cities whose water consumption is in the neighborhood of 100 gallons per capita per day.

Recreation Facilities

Evidently, the quantitative determination of the acreage to be developed in public open spaces is a function of the density of population. There is an irreducible minimum acreage per 1,000 persons, which would be suitable for rural communities and for

the outlying residential areas of large cities. By the same token, there is a maximum acreage, which would be required for cities of very dense population. The practical difficulty obviously arises from the fact that where parks are least needed they are easiest to obtain; and where the need for them is greatest, it is hardest to provide them.

The writer feels that there should be sufficient park land to provide seven acres per 1,000 persons in large cities of dense population, and not less than thirty-five acres per 1,000 persons in small cities having low population density. A suggested distribution of recreation requirements for cities of medium size is laid down in the following minimum provisions:

TABLE I.—REQUIRED PARK AREAS

Group	*Park area, sq. ft. per person*
Children of pre-school age	50
Primary school children	100
High school pupils	150
Adults	200

Based on the age distribution percentages of 1920, in the United States this gives a requirement of 3.5 acres per 1,000 persons, which is deemed adequate for cities having a density of under seven persons per acre.

VEHICULAR TRAFFIC

Automobile Registration.—A curve giving the total automobile registration in the United States, by years, is not of direct value in estimating the trend in car ownership; but a curve giving the persons per car for each year can be readily analyzed and projected as to its future. It is estimated that this curve has an asymptote of roughly one car for each 4⅓ persons. It is interesting to observe that this figure, reached by statistical methods, is almost exactly the number of persons per family. A curve showing the persons per automobile should be plotted for any community in which any work of a city planning nature is being undertaken. It should be pointed out however that the traffic intensities will not increase directly as the number of vehicles, but more nearly

as the square root of the number of vehicles. Central traffic in New York City has been estimated by the Regional Plan of New York to increase as the three-quarters power of the registration.

Automobile ownership per 1,000 families varies only slightly in communities of different sizes in the United States. The data in Table II is taken from "Facts and Figures of the Automobile Industry" for 1927, published by the National Automobile Chamber of Commerce.

TABLE II.—AUTOMOBILE OWNERSHIP

Size of Community	*Cars per 1,000 Families*
Under 1,000	605
1,000–2,500	604
2,500–5,000	547
5,000–10,000	587
10,000–25,000	574
25,000–50,000	598
50,000–100,000	574
Over 100,000	540

The automobile registration per acre in communities of all sizes over 30,000 was found to be substantially constant, the value being 1.121 cars per acre in cities over 100,000 and only about 20 per cent less in smaller communities.

Maximum Traffic Capacity of Streets.—The open area required for street traffic will obviously depend upon the amount of such traffic where it is dense, but cannot be reduced below a certain minimum however light the traffic may be. The carrying capacity of roadways of different widths and types of use as disclosed by observation of American cities is shown in Table III. Need of access for purpose of fire protection dictates a roadway within about 200 feet of each building. Such roadway must be wide enough for a moving vehicle to pass a standing one. The irreducible minimum for traffic use is thus found to be two and one-half per cent of the gross area. The maximum figure will depend on the amount of traffic created locally by buildings of different kinds of use and of varying ratio of height to area, by the number of vehicles owned and used for pleasure and for other long haul purposes.

TABLE III.— MAXIMUM VEHICULAR TRAFFIC CAPACITIES OF VARIOUS TYPES OF STREETS

Type of Street	*Vehicles per Lane per Hour*
Through highways without grade crossings	1,500
Parkways	800
Unobstructed main highways with traffic regulated throughout their length	750
Unobstructed main highways of more than two lanes with traffic regulated only at strategic points	700
Streets with elevated railway columns, but no trolley tracks	700
Highways with four moving lanes and trolleys	600
Unobstructed two-lane roadways or highways	600
Highways with trolley on one side only	600
Highways with two or three moving lanes and trolleys	475
Streets with trolleys and elevated railway columns	400

Parking Areas.—Requirements point to the need of providing for such a large area for parking purposes as in most cases to make it highly questionable whether the community at large should undertake to set aside sufficient public space to care for it. For frontages other than office buildings and theaters, both of which are special problems, a parking limit of not to exceed thirty minutes would seem reasonable. Space will usually be available for all-day parking adjacent to industrial plants, and even in front of loft buildings (which rarely exceed ten stories) sufficient frontage will exist if all loading of merchandise is done on private land, and if parking be restricted to one half hour. Evidently, the lanes flanking the curbs should not be included when estimating the traffic capacity of a city street.

Local Traffic Capacity of Thoroughfares.—The local traffic capacity of streets is evidently dependent in part on the intensity of the through traffic, which can only be determined from a knowledge of the city layout, and from surveys made of local conditions and habits.

The tabulated values given in Table III for street capacities should be divided by 1.4 to obtain the average traffic per hour for conditions in American cities. The resulting figure should then be reduced by one-half, to obtain the local traffic capacity, if for estimating purposes it be assumed that the through and local traffic are of equal magnitude. This may be considered an average

allowance for through travel. Thus an unobstructed main highway of more than two lanes, with traffic regulated only at strategic points, may be estimated to accommodate:

$$\frac{700}{1.4 \times 2} = 250 \text{ local vehicles per lane per hour}$$

Densities of Local and Originating Vehicular Traffic

Preliminary Consideration.—The local and originating traffic can be expressed in terms of the building height and use. The relative areas and lengths of frontage in different Zoning Use Districts and the average length of the traffic haul constitute the most important influence on local traffic intensities.

Length of Traffic Haul.—Assuming a circular city with circumferential boulevards one mile apart and radial boulevards spaced at 45° intervals, and that there is an equal amount of originating traffic coming from each division lying between two radial and two circumferential boulevards, it is possible to determine the density of a vehicle distribution and on the basis of this density to show the average length of haul is roughly three-quarters of the radius of the city.

In the case of a square or oblong city, with a rectangular street plan, the average haul, for an equivalent density distribution, would be somewhat greater than for a circular city of the same area.

The above assumptions apply only to relatively small cities. For larger ones, it is found that the traffic between divisions varies inversely as the distance between them. For large cities having many square miles devoted to business and commercial uses, in which the density of originating traffic is therefore fairly constant over extended area, actual American traffic surveys have shown that the average haul may be taken as one mile. This figure was obtained in New York City and also in cities of about 150,000 in New England and Virginia. Building height evidently affects the average haul, since a concentration of use results in shorter trips. It seems safe to conclude that growth which adds simultaneously

area and building height to a city of 150,000 or more, simply increases the traffic area and density without altering the average value of the length of haul.

Residence Districts.—The total daily traffic per family in residence districts has been found to be $2\left\{\frac{\text{auto registration}}{\text{families}}\right\}0.2$, or about one vehicle per family per day for average conditions.

Outlying Business Districts.—Investigation has shown that the traffic created by outlying American business districts is the equivalent of one vehicle per day per front foot of business property. In almost all such districts it is the custom to use the upper stories for residence purposes. The resulting effect upon the street traffic will obviously be cumulative.

Industrial Districts.—Using data derived from many sources, the figures shown in Table VI have been deduced for traffic moving to and from American industrial districts.

TABLE IV.—LOCAL TRAFFIC IN INDUSTRIAL DISTRICTS

Type of Industrial District	*Commercial Vehicles per Front Foot per Day with Proper Lot Depth*
Light Manufacturing in Loft Buildings:	
Cincinnati	0.50
Bush Terminal	0.41
Medium Manufacturing Plants:	
Cincinnati	0.18
Newark	0.13
Heavy Manufacturing:	
Cincinnati	0.12
General Averages:	
Manhattan	0.18
New York City*	0.11
New Jersey Counties	0.04
Environs of New York	0.05
N. Y. C. & Environs	0.06
Elizabeth, N. J.	0.04

All the above figures must evidently be adjusted to allow for the proportion of the tonnage which is carried by rail, water and pipe line.

Calculated Traffic Intensities.—It is possible to compute the probable traffic intensities local to a section of an assumed city.

*Hudson, Union, Essex, Bergen, Passaic and Middlesex Counties in New Jersey are included.

With streets and avenues at an average distance apart of 400 feet, and with an average street width of 66 feet, a mile of street will have on its two sides 9,000 feet of frontage. Table VII gives the daily traffic which would correspond to this amount of frontage, devoted to each of several kinds of use.

TABLE V.—TRAFFIC IN VARIOUS USE DISTRICTS

Use	Traffic per Unit Length	Traffic per Mile	Traffic per 10,000 sq. ft.
Single Family Residence	1.0 vehicles per 40 ft. front	225	2.5 all floors
Apartment Residence	1.0 vehicles per 20 ft. front per floor	450	5 per floor
Local Business (no Resid.)	1.0 vehicles per ft. front	9,000	100 all floors
Loft Building	0.05 vehicles per ft. front per floor	450	5 per floor
Average Manufacturing	..	1,350	15 all floors
Outlying Heavy Manufacturing	..	1,000	5.5 all floors
Department Stores	0.05 vehicles per ft. front per floor	4,500	25 per floor
Theaters	4.0 vehicles per ft. front	36,000	200 all floors
Hotel—Usual Use	0.50 vehicles per ft. front per floor	4,500	25 per floor
Special function	4.0 vehicles per ft. front	36,000	200 all floors
Office Bldg. except 1st floor	0.10 vehicles per ft. front per floor	900	10 per floor

Required Street Widths.—Using the value of 250 local vehicles per lane per hour as a rough average of the local traffic capacity of a city street, (assuming an equal amount of through traffic) and taking a day of ten hours, the number of lanes required to accommodate traffic originating in a district consisting of a street one mile long, devoted to one use only, is as shown in Table VI.

It is evident at once that theaters should not be concentrated in a group. It is also evident that zoning regulations should limit rigidly the height of office buildings or else limit their distribution so that groups of buildings only one block wide and of lengths less than a mile are permitted; otherwise many branch and intersecting streets must be provided, each with much less intensive use, so as to carry away the traffic originating on the office building streets.

TABLE VI.—LANES REQUIRED FOR MOVING TRAFFIC

Use	*Required Number of Lanes for Moving Traffic*
Single Family Residences; Apartment Houses, 11 stories; Loft Buildings 11 stories; Average Manufacturing, Outlying Heavy Manufacturing	2
Apartment Houses, 20 stories; Local business with 2 stories of apartments; Office Buildings, 11 stories	4
Department Stores, 3 stories; Office Buildings, 15 stories	6
Department Stores, 4 stories, Office Buildings, 22 stories	8
Theaters; Department Stores, 8 stories; Office Buildings, 39 stories	14

Where a specific use does not extend for a full mile the traffic and the corresponding number of lanes may be reduced proportionately. For distances over a mile no additional width is required. When passing from one type of use to another, a transition may be made, but it should be graduated over at least a mile in length. Main thoroughfares must obviously be designed to care for all tributaries.

In determining street widths on the basis of the above method, a lane should be taken as ten feet, and a parking lane of nine feet should be allowed adjacent to each curb. Streets wider than six lanes of moving traffic should be provided with safety islands or parked strips in the center, to separate the opposing streams of vehicles.

The converse of the problem of determining the correct street width for a given building height and use is to establish limits on the heights to which buildings shall be erected, based on the traffic capacity of existent streets. Or, as a further application of the method, an existing distribution of building use and height can be analyzed and the theoretical traffic computed and compared with the known actual. This latter computation was made for that portion of New York City on Manhattan Island between 23rd and 42nd Streets and the two rivers. The areas devoted to different

uses were taken from the reports of the Department of Taxes. The building heights were estimated from detailed atlases. The factors derived above were then applied and the result adjusted to the known length of streets. The figure thus computed was found to vary from the traffic actually counted by less than 1 per cent in a total of about 125,000 vehicles per day. Similar computations with reference to the traffic and building bulk in downtown Cincinnati and Indianapolis gave results within four per cent for a total of nearly 100,000.

Open space requirements computed along these lines show a range from twenty per cent to fifty per cent of gross area devoted to street use, for residence and downtown business districts.

Transportation Facilities

Relative Use of Varying Transportation Facilities in Chicago.—A thorough survey of the relative utilization of different transportation facilities was made by Miller McClintock, in connection with the Metropolitan Street Traffic Survey of Chicago. The data in Table VII is taken from this study.

Table VII.—Comparative Use of Transportation Facilities—Chicago

	No. of Patrons	*Per Cent of Total*
Suburban Trains	18,742	19.5
Elevated Trains	32,419	33.8
Street Cars	25,191	26.2
Motor Coach (Bus)	10,980	11.4
Taxicab	1,902	1.1
Automobile	7,662	8.0
	96,082	100%
Automobile Parked at Curb	1,505	1.57%

Particular attention is called to the low percentage using automobiles, and the almost negligible percentage who arrive in private cars which are subsequently left parked at the curb.

Riding Habit.—In 1920, the author made a study of the streetcar and rapid transit riding habit in a very large number of cities both in the United States and abroad, which revealed that the total number of rides per capita per annum may be closely approximated by the expression:

$$\text{Total Rides per Capita per Annum} = 7.36\ {}_{p}0.31$$

in which p is the population of the city. This formula gives results which are somewhat too high for cities over 1,000,000 population. By this expression, it is to be expected that in an average city of 200,000 population there would be 325 rides per capita per annum; while in a city of 1,000,000 this number would increase to 535 rides.

Effect of Transportation Facilities on Required Street Space.— The relative use of the different means of transportation, and the Riding Habit, have a definite bearing upon the amount of open space required for streets. As indicated by the values in Table III, streets with surface or overhead transportation have relatively less motor vehicle capacity per lane, and hence a proportionately larger percentage of street space is required to accommodate a given traffic intensity.

Conclusion

The future welfare of cities throughout the world is dependent largely upon the establishment of adequate open spaces in and around them. The determination of the optimum amount and distribution of such spaces has been the object of this paper. Without proper provisions, such as are suggested herein, the development of cities will be fraught with the evils of overcongestion in the streets, and bad housing in the buildings. The longer that a city postpones action as to the needs of the future, the harder and more costly will it become to rectify the shortsightedness of the past.

DISCUSSION

John Ihlder, Washington, D. C.: In his paper Mr. Goodrich deals with one of the most important and one of the most difficult problems in city planning.

Its importance is obvious not only because a minimum of open space is essential to even a brief continuance of urban community life, which is dependent upon our ability to move about, but because there must be far more generous provision of open space than has been the practice if we are to assure the continued virility

and stamina of the American people, an increasing majority of whom from now on will be born and reared in our cities.

The problem is difficult because there frequently is an immediate profit to be made by individual land owners and developers through excessive density of building. Consequently there is an insistent, never ceasing, often plausible pressure for increased density. This usually has taken the form of inching-up, occupying a little larger proportion of lot area, going into the air a story or two higher; in recent years it frequently has taken the more spectacular form of sky-scrapers, which leap instead of inching. The very audacity of this recent form of land overcrowding has tended to blind us to its significance. Moreover we have been comparatively powerless to deal with it because it introduced unforeseen factors for which we were unprepared.

In combating the old inching-up process our attention has been concentrated upon individual lots and individual buildings. We were concerned almost entirely with securing adequate yard space and adequate light and ventilation. The adequacy of street traffic capacity, for example, caused us little concern except in a few sections of one or two cities. Consequently, though zoning regulation has functioned as a life preserver, we have not yet defined clearly and secured general acceptance of standards for open spaces in relation to buildings in terms of districts or in terms of the city as a whole.

It is to this important and difficult problem that Mr. Goodrich addresses himself.

Before going into the details of Mr. Goodrich's paper there are two points that should be emphasized so that we may keep them in mind during the discussion:

First: After listing certain needs, such as watersheds, parks and playgrounds, roadways and sidewalks, he says, "The quantitative analysis of such needs as these may be termed the Science underlying the Art of City Planning." I would raise the question, is a merely quantitative analysis enough or must it be supplemented throughout by a qualitative analysis?

He says later, "Evidently, the quantitative determination of the acreage to be developed in public open spaces is a function of the density of population," and adds, "there should be sufficient park land to provide seven acres per 1,000 persons in large cities of dense population, and not less than thirty-five acres per 1,000 persons in small cities having a low population density." How

does he arrive at these figures? He himself abandons the strict letter of his rule when he divides the population into age groups: children of pre-school age, primary school children, high school pupils and adults, and assigns a different park area per person to each group. And how does he know that an adult requires 200 square feet and a high school pupil 150? Do the adults themselves not call for qualitative analysis? Do those who live on Park Avenue in his city, who have automobiles, country club memberships and country homes, require as much park acreage as do those who live on Hester Street? Do people who live in the spacious suburbs of a typical American city require thirty-five acres of public park per 1,000 in addition to their private lawns and gardens while those who inhabit downtown apartments require only seven acres per thousand?

Second: Irrespective of and much more important than the question whether the paper under discussion presents data adequate to serve as the basis for scientific conclusions—we must, of course, remember that we have not before us Mr. Goodrich's whole paper but only an expurgated edition, though where tables are given they are complete as Mr. Goodrich wrote them—much more important than this is the question whether the *method* is sound and whether further work by this method by future students of city planning will yield worthwhile results.

Admittedly the omission of one significant factor in a problem may destroy the validity of conclusions based upon the other factors. And it may be that you will feel Mr. Goodrich has omitted significant factors. But that is a matter of detail to be considered in connection with the various sections of the paper. Assuming that no factors are omitted, is the *method* sound? And if it is sound, what are its possibilities and its limitations?

No American would question the value of statistics. Next to food, shelter and clothing they seem to some among us the most important element in our lives. They are used to prove our national greatness. But we are beginning to learn that while 2 plus 2 may be relied upon to produce 4, yet as soon as one places a noun behind the figures all the resulting fours do not necessarily have the same value. Four men in one group may have a very different value from another four, even if quantitative analysis shows that they are of exactly the same height and weight. Four parks in one city may have a different recreational value from four parks in another city, even if their individual as well as their com-

bined acreage is the same. Essential as statistics are, we have found that they can lead us pretty far astray if they are not interpreted by someone with enough knowledge to go behind the figures and point out their significance. Consequently it is important to evaluate the possibilities and the limitations of the quantitative method utilized by Mr. Goodrich.

One other point of general application should be borne in mind. The paper deals with conditions as they are. It presents data drawn from surveys of existing conditions. This, of course, is as it should be. The existing situation is the one with which we must deal. But what are we going to do about it? I get the impression that Mr. Goodrich is inclined to accept what is as approximately identical with what will be. Consequently he inclines to believe that future conditions will be mere mathematical projections of present conditions modified slightly, perhaps, by conscious community effort to secure a few specific improvements, such as increased park acreage. For example, he says, "The relative number and size of urban communities in any country follow definite mathematical laws." Is this belief sound or should we take into account a possibility that new factors in urban life may abrogate or at least modify his mathematical laws, may cause not only more urban communities with sizes differently distributed, but within those communities may cause changes in riding habits, in average length of haul and in volume of local traffic in industrial districts.

It seems to me that there is a lack of constructive imagination in the paper and consequently a lack of suggestion as to how we may deal helpfully with our present conditions. I say this with full recognition that Mr. Goodrich does indicate a number of specific things we may do to improve present conditions, specific things that have been widely discussed and more or less definitely studied. But these are to be accomplished by main strength and, inferentially, in opposition to economic forces. We have decided that they are desirable, therefore we are determined to have them.

I sense a lack of any conception that economic forces, studied, analyzed, guided, may contribute to such city building as we desire. There is, too, a lack of any thought that recent inventions, not yet fully utilized, may alter the relative importance of factors in building—decreasing the handicap of physical distance, for example, and thereby increasing the relative value to a building owner of light, air and comfortable access—and may lead to

changes in building practice that will make present statistics on street traffic obsolete. Statistics on automobiles are to him, like a primrose on a river brink, merely statistics on automobiles and nothing more. They apparently suggest nothing as to the effect the automobile already has had on urban development and, perhaps properly, it being still so much a matter of speculation, they do not lead to any inferences as to the effect the airplane may have. The city of the future, as Mr. Goodrich pictures it, is the city of the present with the same old forces, unmodified, operating to produce the same results but held on a somewhat shorter leash by law and by a somewhat more enlightened public opinion. He does not even suggest what changes in practice, if any, we may expect to follow the realization of present city and regional plans. Yet is there not indication that there will be such changes in the "set-back" or tower building, originally compelled by zoning regulation but now going on its merits and relieving us of much of our worry about light and air? The latest tower sky-scraper in New York is far better than the law requires.

Having dealt at such length with the paper as a whole I shall be brief in my comment on sections of it. Of course Mr. Goodrich realizes that many of his statistics are of local validity only. When he speaks of 150 square miles of watershed per million persons for cities in the northeastern United States he himself indicates that watersheds in the more arid southwest would have a different mileage, and he doubtless would admit that certain industrial communities require more water per capita than do other commercial and residential communities of the same population. When it comes to automobile ownership and registration, however, he seems to believe that immutable mathematical laws are again in force and gives us statistics which divide communities of 100,000 or under into seven classes, but which lump together all those exceeding 100,000. Would the "law" operate if classification were made above 100,000?

It may be that automobile ownership per 1,000 families on Manhattan Island is the same as in the city of Washington, and that the automobile registration per acre ("in communities of all sizes over 30,000 was found to be substantially constant") is approximately the same on Manhattan as in the District of Columbia; but I question it. The source from which Mr. Goodrich draws his data indicates that in New York City (the figures for Manhattan as distinct from the more sparsely settled Bronx and

Queens are not available) there are 14.8 persons per motor car (exclusive of trucks, taxis, and buses), while in Washington there are 4.5 persons per motor car. The same source indicates that there are 1404 motor cars for each of the 300 square miles in New York City and 1581 for each of the 70 square miles in the District of Columbia. If one includes all motor vehicles New York City has one for each 11.1 persons, the District of Columbia one for each 3.9 persons; New York has 1873 for each of its 300 square miles, the District of Columbia 1811 for each of its 70 square miles. The area proposition seems to work out better than the per capita. But while this is interesting how much or how little may we utilize it in dealing with the traffic problem of Manhattan or the downtown business district of Washington?

In discussing parking areas Mr. Goodrich says such large areas probably are required that it is highly questionable whether the community at large should undertake to set aside sufficient public space for it. This may be an illustration of the limitations of quantitative analysis unchecked by qualitative. Automobiles are automobiles, their number is more or less definitely known and so is the extent of public parking space. But may it not be that the purposes for which various groups of drivers seek public parking space vary so greatly and are of such different values to the community that some differentiation should be made among them? It is possible, for example, that free harborage for shoppers in a business district may be quite as valuable to the retail business of that district as municipal wharves have been to towns in times past. Using his purely quantitative method, however, Mr. Goodrich apparently senses no such distinctions but reasons only in terms of numbers—adjacent to industrial plants, all-day parking in business districts "a parking limit of not to exceed thirty minutes would seem reasonable." Thirty minutes may seem reasonable to Mr. Goodrich, but would it seem reasonable to the lady of the house or to the merchant who tries to keep her mind off the traffic cop?

In discussing densities of local and originating traffic Mr. Goodrich says, "Building height evidently affects the average haul since concentration of use results in shorter trips." I hope we may substitute the word "bulk" for "height" as bulk more closely approximates what we mean since tower or setback construction made height no longer synonymous with floor area or building population. But aside from this the statement seems to me to

convey a false impression. I presume it is based upon the supposition that a given working population, sheltered in sky-scrapers, would get at each other by riding in elevators or by taking short trolley or taxi trips, while the same population sheltered in four- or five-story buildings would have longer distances to traverse. Consequently the "average" haul on the street would be reduced.

Theoretically this sounds plausible, but actually is it so? How many people in a sky-scraper have business with each other unless they are all employees of one firm, like a great insurance company? What is the real measure of time and distance; is it from building to building or is it from desk to desk? Isn't riding in an elevator part of the "haul"; doesn't it take time and isn't it paid for even if covered by the rent? Long before all the buildings in a sky-scraper district are occupied by people in the same line of business —it is questionable if they ever will or should be—the predominant business finds it necessary to establish itself in another part of town—whereupon the "average" haul is lengthened. Witness Wall Street and Forty-second Street in New York, and the two banking centers of Philadelphia. It may be that the "average" haul of the Wall Street population is short, but its morning and evening hauls are long. Who besides a New Yorker is hauled for from an hour to two hours between his breakfast table and his office door? In smaller cities if all the commercial and professional population were sheltered in a small group of sky-scrapers would they be hauled at all except morning and evening, and what would that do to the "average"?

Robert Whitten, New York City: The factors that most immediately affect traffic volume and distribution are the number of motor vehicles owned, and distance. In making a careful traffic analysis and forecast for the Boston metropolitan area, the entire region was divided into 69 traffic districts, and the number of vehicles passing between each pair of such traffic districts determined. It was found that, in general, this interdistrict traffic varied directly as the product of the motor-vehicle registration of any pair of districts and inversely as the square of the distance between them. The general formula applicable to interdistrict, 10-hour traffic in 1927 was found to be:

$$T = \frac{R_1 R_2}{5500 d^2}$$

Where T equals number of vehicles, d equals the distance between any two traffic districts and R_1 and R_2 equal the motor vehicle registrations of the two districts.

In the Boston region a careful traffic analysis shows that each motor vehicle travels an average of 15.1 miles per day. This, for the 329,183 cars registered in 1927 gives a daily total of 4,971,000 vehicle miles. There are 1,288,000 one-way trips. This makes 3.9 one way trips per registered motor vehicle per day, and gives an average length of haul of 3.87 miles. The average length of haul for interdistrict trips was 6.34 miles, and for purely local trips 1.42 miles. The number of local trips constitutes 51 per cent of the total trips.

Roadway Capacity.—The data presented are good so far as they go, but we need to know more in relation to the effect of varying volumes of traffic upon speed of traffic. It is even more important to know the maximum volume of traffic that will permit the maintenance of a reasonable speed of movement than to know the maximum traffic that may be got through in a given time. This subject is sufficiently important to call for extended and careful scientific research on the part of some authority interested in traffic or planning problems.

Traffic Increase.—Mr. Goodrich tries to cheer us with the statement that street traffic will not increase as rapidly as the number of registered motor vehicles, "but more nearly as the square root of the number of vehicles." My own studies have led me to believe that traffic will continue to increase in almost direct proportion to the increase in motor vehicles. I agree with Mr. Goodrich that the growth of the automobile is slowing down. From a study of the automobile registration curves for various states and for the United States, I am convinced that a general deceleration started as far back as 1923. It seems probable that this deceleration will continue, and that for the United States as a whole the present cycle of growth will have reached its limit when there are about 273 cars to each thousand people, or in other words, 3.6 persons per car. At the end of 1927 there were five persons per car.

High Buildings and Traffic.—There seems to me to be a tendency to exaggerate the rôle of the high building in street congestion. To be sure the high building that darkens other buildings and has no permanent protection for the access of natural light to its own windows is a very serious evil, and should be prohibited. Also, the

high office building that has in front of it a less wide and capacious sidewalk than the entrance hall that good practice prescribes for the building itself, is an excessively high building for that particular site. Many theatres, or many thousands of square feet of department store area in a small district, whether the buildings are high or low, will create excessive congestion—both pedestrian and vehicular. By restricting the department stores to five stories instead of, say, ten and thus spreading the stores over twice the area, sidewalk congestion would be somewhat reduced, but the chief problems of vehicular traffic would not be greatly affected. The same number of vehicles would go to, from or through the district, and consequently the main problems of traffic congestion will continue despite all that can be effected through a reasonable control of building height and bulk. Height and bulk restrictions in a given center will not affect congestion, but may effect a moderate enlargement of the center.

Height Regulation.—I would rather base the argument for height regulation on the undoubted economic and social advantage of sunlight and open space, than on the somewhat dubious one of relief of traffic congestion. I believe that the height limit at the property line should not be more than 125 feet, and preferably not more than 65 feet. Above this base height the building of additional stories on the setback and tower principle should be allowed. This will give fair light conditions in the building and in the street.

Off-the-Street Loading Space.—The present general practice of using sidewalks and streets for loading purposes produces great congestion and continual traffic tie-ups. I suggest, therefore, that all large loft, department store or office buildings hereafter erected be required under zoning regulations to provide off-the-street loading and unloading space for all trucks serving the building.

Dwellings.—Detached one or two-family dwellings or row houses should have a width of open space, front and rear, equal to twice the height of the building. With adequate light front and rear, the side yard may be only one-half the height of the building. The orientation of the blocks for row dwellings or detached dwellings is of minor importance. Direct sunlight in half the windows during all the daylight hours is at least equal in desirability to oblique light in all the windows for a small part of the daylight hours.

Apartment Houses.—Multi-family dwellings, except in the present high value areas, should be required to maintain a 45 degree angle

of light for all windows, lighting living or sleeping rooms. They should not be permitted to cover more than 50 per cent of the area of the lot. Adequate play-yards should be required in connection with every multi-family house.

Standards of Open Space.—As to standards of open space for park and play uses:

1. Home Play-yards.—Normally, there should be a home play-yard and garden in connection with every dwelling or apartment house.

The area of the play-yard should depend upon the number of people or families to be housed on the lot and the intensity of land utilization appropriate to the neighborhood. Where land values are too high to admit of the setting aside of recreation space on the ground level, a minimum provision of such space should be provided on the roof.

The required yard or roof space should be permanently maintained as a private play-yard or recreation space for the joint use of the occupants of the building. Its use should be subject to rules prescribed by the owner and administered by the superintendent of the building in the same way that control is exercised over entrance halls.

A requirement of recreation space, based on gross floor area, will be a very effective means of furnishing a definite limit on the density of population.

The home playground is intended to supplement the public playground and playfield, not to supersede them. It will serve as an out-of-door breathing and sun-yard for mothers and babies, and as a convenient play space for the smaller children.

2. Neighborhood Parks.—Each housing development, land subdivision or neighborhood unit needs its small parks and playgrounds both for purposes of amenity and recreation. Not less than ten per cent of the gross land area of an ordinary residence neighborhood should be devoted to small park and small playground uses. This will be adequate up to a density of about twelve houses per gross acre. This would give a minimum of one acre for each 500 of the population. In an apartment house section of greater density than twelve families to the gross acre, this ten per cent standard for public open space would still be adequate if each apartment house were required to maintain adequate home play-yards and gardens in proportion to the number of families housed as above suggested.

3. Large Parks.—In addition to the home grounds and the neighborhood parks, there should be large playfields and large parks to serve a group of neighborhoods or the city as a whole. These large open spaces should occupy not less than five per cent of the gross land area of the city, and should provide at least one acre of large park and playfield area for each 300 people.

The above standards for home play-yards, neighborhood parks and city park would probably secure about the same aggregate amount of open space as Mr. Goodrich recommends. They are presented chiefly to stress the need for an appropriate distribution of these areas between the home, the neighborhood and the community at large.

Morris Knowles, Pittsburgh, Pa.: It is known that the volume of traffic probably will be roughly proportional to the estimated registration of automobiles, and that its distribution throughout the city will depend upon the probable future distribution of population. From such information certain approximations may be made,—guesses in many cases—as to probable future traffic on a proposed thoroughfare. The author, however, points to a rational, scientific method of design which, if elaborated and intelligently used, may be developed into standard practice for accurately analyzing or designing any part of the street system.

No doubt the method outlined is not intended to be complete but it should stimulate thought and effort toward determining the unknown factors involved. For example, the author has shown in Table V the probable daily traffic per mile of street devoted to specified uses, together with factors by which these figures may be adjusted for different building heights. Presumably, the traffic volume, here referred to, includes only the local or originating traffic—that contributed by the abutting properties. The figures given are most valuable and, along with similar data, as it becomes available from other sources, will probably be found helpful in traffic studies.

At the same time, it should be remembered that probably the larger component of total traffic within a given block will be not the local or originating traffic, but the through traffic; including in the latter term the cross-town travel between different sections of the city. To carry the author's study through to its logical conclusion, methods should be developed for predicting intra-city traffic between retail and warehouse districts; between factories and rail and water terminals; from different home areas to retail

districts and to factories. It seems reasonable to assume that analysis of existing traffic in a given city may safely be used in estimates of this kind for the future, although such results will of course have only a local application. By thus extending somewhat what might be termed the "rational method" of estimating traffic volume, it should be possible to develop a sound basis of design.

The volume of such traffic will depend, among other things, upon the distance between origin and destination, through routes available, condition of pavement, grades and similar factors. Development of methods for estimating this amount is possible and, in conjunction with the author's valuable information relative to local or originating traffic, should serve as a basis for intelligent design of the street system for future traffic requirements. Conversely, it should aid in determining what are reasonable intensities and uses of land, based upon existing or probable future traffic facilities.

CHARLES H. CHENEY, Palos Verdes Estates, Calif.: In Los Angeles we have long ago passed the state of having one automobile to every two and one-quarter people, and for many years we have had a saturated downtown district that could not absorb any more cars even if they wanted to come. This is just what has happened in Manhattan too. People are leaving their cars in the outlying districts and riding downtown on the elevated or subway or by some other means. It is not possible to give an intelligent answer to traffic problems by accepting traffic estimates made for monstrosities like New York.

On the Pacific coast, with one exception, our cities and towns have about 75 to 90 per cent single family dwellings. This is a very unique and a very precious situation. It means contented labor conditions because labor lives in wholesome and desirable homes of the best type. It is a situation which labor managers seek in locating new industries. I think we should plan our traffic and plan our arrangements of streets to maintain that kind of housing, and not to induce the development of apartment and tenement house conditions, which break down the best social law of America.

GORDON WHITNALL, Los Angeles, Calif.: With the advent of the motor vehicle there has probably been a factor of more significance introduced as an influence in city growth than most of us have yet appreciated. Mr. Cheney has referred to the saturation point in

downtown districts. We think on the Pacific coast we are beginning to see a new traffic tendency. Where one metropolitan receptacle, a downtown business district, has reached its point of saturation from the standpoint of access, persons who cannot get to that objective because of the inconvenience, do not forego the service of the commodity therein contained, but turn their radiator caps in another direction where they can find another service center. There is building up, in other words, a type of composite community with more than one business nucleus. Our population has actually assumed a quality that can be defined only as fluid. If the population in the great cities of the East can also be described as fluid, it flows, if at all, through the ruts provided in the form of rail transportation, whereas with us it comes like the rain from the heavens upon a broken topography. It finds its natural level in any direction and at any point desired.

JOHN IHLDER, Washington, D.C.: Admitting what Mr. Whitnall has said about the greater wheel fluidity of the population in Los Angeles, should not we all recognize that much the same condition exists in the most rutted eastern communities, and is not this a very real problem in the minds of the electric transit people, which has been forced upon them by the motor? I believe that we are building up new business sub-centers in the East because of this fluid, four-wheeled, self-directing part of our population.

L. SEGOE, Cincinnati, Ohio: Until very recently, city planning was mostly qualitative, mostly along the lines of general design, with very little basis for the determination or the dimension of facilities to be provided to meet the demands of future growth. If we accept the very valuable statistical basis which Mr. Goodrich presents as a new foundation for city planning, we will go to the other extreme and conceive the problem of designing the city plan as mathematical or quantitative. We will determine, for instance, the ultimate width of every street on the basis of business use. May I elucidate my point by referring to the design of a bridge. It would be wrong to design a bridge by thinking first of its individual elements. We must first determine its general design, appearance, elevation, and then when we know the part that each and every element in the structure is to play, we will have the basis for fixing its load and character of stresses.

E. E. CULBRETH, Raleigh, N. C.: Raleigh has only 40,000 people, but there is an automobile to practically every family

and neighborhood business districts are developing very rapidly. Purchasers are going to the outskirts of the city in their automobiles instead of to the downtown congested business district. Our railroads, both steam and electric, are finding it hard to make expenses. This practice has also the very desirable result of keeping down the congestion in the central business district.

JEFFERSON GRINNALDS, Baltimore, Md.: Just a little evidence of parking from Chicago. I am told that the merchants in the loop district of Chicago would not go back again to the old scheme of permitting parking because business has greatly increased since parking was prohibited. They have come to realize that the people who did park in front of their stores were not customers, but were downtown business men using the street for a garage.

EDWARD M. BASSETT, New York City: We must be careful about the standardizing of our conclusions on this subject of traffic. We must not get the impression that traffic congestion is found in those parts of the cities where there are high buildings. It is not always found in those parts of the city. Probably the highest buildings in the United States are in the Wall Street district in New York City, and yet in that locality there is the least traffic congestion on the street surface of any business district in the United States. Vehicles do not go there except to carry food, and to a very slight extent building material. On the other hand, I know of small places just out of New York City, where the buildings average not more than two stories and a half, which are centers not only of local but of through traffic, where the traffic transcends that of Wall Street by twenty or thirty times.

BUILDING FOR PERMANENCY

The Esthetic Considerations in a Master or City Plan

Charles H. Cheney, Consultant in City Planning, Palos Verdes Estates, California

This is the planning age. A new era is upon us—we have all sensed it. America confidently enters it; now become the richest nation on earth, with higher standards of living than man has ever known before, with a potential strength and courage vaster than any of us can comprehend, and withal new duties and responsibilities upon this and coming generations, that brook no little plans, no tinkering, no dalliance with half-way measures.

City builders, architects, engineers, of the country, this urban age faces you with stern responsibilities. Above all, remember that man must have the joy of living, the real pursuit of happiness which, after all, is only truly satisfied by a highly esthetic environment, as well as by sound social and economic conditions.

City planning is futile which does not keep ever first in mind its human purpose and objectives. At this, our 20th National Conference, it is more than time that we brought the country's attention back to those great ideals and, above all, those esthetic considerations of city planning which in succeeding generations will be the thing that our time is most judged by. Too long have we talked about the dry, mechanical processes of planning; too little have we emphasized the importance of the beautiful.

Economic, social and esthetic considerations are inseparable in any complete planning for the best urban life, or even for the best country life. It is true that this Conference in preceding decades found it necessary to emphasize economic and social considerations in order to have city planning established on a firm basis. The old

"City Beautiful" slogans and campaigns of 20 or more years ago lacked the solid economic and social foundations necessary to make them succeed, and we had to soft-pedal them until better public understanding of all three phases of city building was achieved. Now the country has caught up to us—in fact, the country is ahead of us; beauty has become the watchword of business and industry; city planners lag behind. Wake up, City Planners, or you will soon be cast aside for leaders with better grasp of the public demands of our time.

The Parts of the Master Plan—all Esthetic

Every item of the city plan (or master plan, as it is now often called for cities, counties or regions) must take the esthetic into account. A complete master plan of any area is generally understood to include the following major parts:*

Part I. The major traffic street plan.

Part II. The comprehensive zoning plan and ordinance limiting use, height and bulk of buildings; and other protective property regulations.

Part III. The transportation plan: railroad terminals, viaducts, grade separations, port and harbor developments, aviation fields, rapid transit, local surface cars and bus lines.

Part IV. The comprehensive school, playground and recreational system plan.

Part V. The comprehensive park system plan, with connecting parkways.

Part VI. The plan and program for better housing of people, including both housing codes and constructive housing schemes.

Part VII. Plan for public architectural groups, civic centers, educational and other buildings.

* See: "The California Planning Act of 1927" by the present writer, p. 8.

Part VIII. Plans and ordinances for the general improvement of the great run of private architecture, of environmental conditions, and increase of the amenities of life.

There are fundamental esthetic considerations which must be taken into consideration in each of these important parts of the master plan.

A major traffic street plan which neglects or overlooks the necessity of maintaining important vistas, of purposely shifting over to make opportunity for location of important buildings and groups "on axis," of providing for arcading or of harmonious block treatment of down-town architecture; of group planning in residence as well as business districts, is no solution of the city plan.

Zoning ordinances and building codes have more effect on architecture and landscaping than any other agencies. The glorious new architecture of New York, caused by the New York zone ordinance in its setback provisions for light and air, is one profound esthetic result of the city building of our time. Few people know that these regulations were deliberately worked out by some of the greatest architectural thinkers of our time, who had the esthetic importance of such regulations well in mind, at the same time as the economic and social objectives of zoning.

One of the greatest blights of our cities, one of the biggest and hardest problems to be solved, is that of the disfigurement and upset to surrounding property caused by railroads and other transportation agencies. Great economic losses result, with depressing and deteriorating influence upon the poor creatures of humanity who generally drift to the depreciated neighborhoods along railroad rights of way. There is also the great loss of time and inconvenience to whole cities by misplaced or outgrown yards, terminals and other facilities, that proper cooperation and planning, on the part of public and carriers, could make wholesome, esthetic and compatible with the reasonable amenities of life.

And so through all the items of the master plan the human equation—that subtle thing that reflects and controls men's souls, the esthetic—can and must be provided for.

Definition of Esthetic

Webster says simply that by the esthetic we mean the appreciation of beauty. Let us accept beauty as including necessarily truth, perfection, fitness, color, harmony, and generally, symmetry of form appropriately and attractively used.*

Architecture and planting, or the landscape art, build and clothe most all of the physical developments about us. They are the services of man most directly affected by city plans or master plans.

In judging good architecture (and here I would again add landscaping as well), as we have often said, there must be an essential quality of charm that may be called the soul of the structure. More profoundly and essentially does this apply to the great master plan of a city, county or region. Every such plan must have distinct character and charm, to properly fulfill its purpose. It must express the soul, the character and civilization of the people of the area it covers. How many city plans achieve or even strive for this essential quality of charm?

Gordon says that esthetics is a science, because it pursues the methods of science.† This should give comfort to those engineers, lawyers and others so gun-shy of the word "art," so fearful the courts will not "sustain" it. "A rose by any other name would smell as sweet." Let us not quarrel over nomenclature, provided humanity receives its due.

The Esthetic and the Police Power

Some of our best legal thinkers already see the "mind of the court," as it is called, trending strongly toward sustaining use, by public authority, of the police power for the accomplishment of the esthetic. Unfortunately, heretofore, we have had to attain what few esthetic ends we planned for by establishing economic and social reasons for them. Usually there are many such reasons, also helpful to the esthetic end, but such is at best a left-handed method.

* See Raymond: Essentials of Esthetics, pp. 34–36; and Bosanquet: History of the Esthetic.

† Gordon: Esthetics, p. 2.

We know that the courts follow rather than lead public opinion. In the last few years actual decisions have been coming down, in several parts of the country, recognizing the esthetic as a proper and necessary objective of public welfare. Of these we may best quote again that famous Minnesota case on zoning which says, of protecting residential districts:

"Another reason is that giving the people a means to secure for that portion of a city, wherein they establish their home, fit and harmonious surroundings, promises contentment, induces further efforts to enhance the appearance and value of the home, fosters civic pride, and thus tends to produce a better type of citizens. It is time that the courts recognized the esthetic as a factor in life. Beauty and fitness enhance values in public and private structures. But it is not sufficient that the building is fit and proper, standing alone; it should also fit in with surrounding structures to some degree."—(State vs. Houghton—Minn. 1920. Reported in 176 N. W. 159.)

In that remarkable book, "Things Which Are Seen," by Trystan Edwards, it is well said that the most important art to humans is beauty of person, and the next most important art is architecture, because it is most about us. All other arts he thinks of much lesser importance. Of communities he says:

"The esthetic ideal includes the moral as the greater includes the less, and it goes ill with every community which holds it in slight esteem. . . . Cities, of course, represent by far the greater part of the architectural achievement of the race. . . . Most people, instead of abandoning the city, would prefer to believe that by the improvement of its architecture and by the addition of adequate recreation grounds, parks and other amenities, it could be made a pleasant place to live in. . . . A noble street that is created at the bidding of a democracy is of profounder significance than a whole city laid out by a tyrant, for the former indicates the attainment of a high level of general culture. . . ."

This is the Planning Age

Evidences are aplenty that the new age, the planning age, is upon us. Social values are being readjusted to demand beauty and order, as well as health and convenience. Herbert Hoover says:

"That enormous losses in human happiness and in money have resulted from lack of city plans which take into account the conditions of modern life, need little proof. The lack of adequate open spaces, of playgrounds and parks, the congestion of streets, the misery of tenement life and its repercussions upon each new generation, are an untold charge against our American life. Our cities do not produce their full contribution to the sinews of American life and character. The moral and social issues can only be solved by a new conception of city building."*

An interesting story is told of Henry Ford, that some five or six years ago he said he would not give five cents for all the art the world had produced. Yet the past year sees Ford employing the best artists, and achieving a most beautiful car. Humanity will be served, and the esthetic has come into its own in America's largest industry.†

The relator goes on to say:

"We passed from the hand to the machine, we enjoyed our era of the triumph of the machine, we acquired wealth, and with wealth education, travel, sophistication, a sense of beauty; and, then we began to miss something in our cheap but ugly products. Efficiency was not enough. The machine did not satisfy the soul. Man could not live by bread alone. And, thus it came about that beauty, or what one conceived of beauty, became a factor in the production and marketing of goods."

Recent decades allowed the machine too much emphasis in our art, our literature, our lives, even in our city plans. Well rid of the so-called machine age, we can enter upon the new era of the planning age with great benefit, with relief in our minds and hearts. Higher and more human ideals are bound to prevail.

A great psychologist, Professor H. A. Overstreet, makes a similar observation:

"In recent years we have become accustomed to hear one typical criticism of ourselves—we are drab. We live on Main Street. We

* Regional Survey of New York City, Vol. 1.

† See: "Beauty the New Business Tool," by E. E. Calkins, The Atlantic Monthly, August, 1927.

pursue barren uneventful lives. Our towns are ugly. Or if not positively ugly, at least colorless. Can we capture or recapture something of the beauty of life that seemed to promise in the fascinating years of childhood? . . . An interesting age is ahead of us—an age of exploration and discovery."*

Planning Must Be in Step With the Times

To get in step with the times is therefore the immediate necessity of city planners. We must make more complete plans, embodying bigger ideals. Every zone ordinance, every street plan, every part of the master plan, must provide thoroughly and effectively for the perfection of the environmental effect, for the deliberate attainment of attractiveness and beauty. No superficial "city beautiful" campaign, or slogan to "plant a few trees" can suffice. The esthetic considerations and requirements of the city must be soundly tied in with the social and economic program. Some of these definite objectives to be obtained, or ideals, may be mentioned.

Esthetic Objectives

1. Plan for beauty. Deliberately and carefully, every item of the master plan must be thought of, from its inception, with regard to the effect, the beauty, that it will produce.

2. Plan for color. Human nature reacts sharply to color, which may be cheerful, pleasing, extraordinarily stimulating; but, as yet has been debased, desecrated most inhumanly, incontinently defiled, and purely because of carelessness, in most communities. Color can make or destroy even the best architecture; it can retrieve much of the worst. Color planning in cities will some day be as important as street planning.

3. Plan for individual character. Every city, county or region has something its very own, of life, subtle character, individuality. This is most precious. Its preservation and enhancement is the prime duty of every planner.

4. Plan generously. The new age, the flying age, now upon us,

* Survey Graphic, April 1, 1928.

opens demands of space unthought of, but which, however, must be met. The great communities of the past were those that planned on a large scale and built to a big mould. Now time and space have been annihilated. Industry, housing, even business, are certain to spread out over tremendous areas. We need wide streets, squares, parks and playgrounds. Vision and wise planning are required as never before. The Chicago Plan remains the greatest in the country, because of the generous scale on which it has provided for the future.

5. Plan architectural control of all buildings, signs and physical appearances. The general architecture, mass and appearance of all buildings, private as well as public, is essentially a matter of public concern. Enormous depreciation and waste result from the present unregulated system of building.*

6. Plan to maintain the "town picture." The community is entitled to preserve the outward characteristics which develop as a result of God-given natural beauty or of its being a community. The city needs protection from disfigurement, and the preservation of old buildings, of natural beauty, and architectural monuments. Many of the older communities of Europe have long protected these things. We have much to be proud of and preserve, in our old colonial buildings of the eastern seaboard, and in our Spanish colonial inheritance in California and the southwest, if we keep them inviolate.

America must build better cities. We are a rich nation, but a tawdry one in appearance. Our station in civilization demands and requires a better dress, our progress in education and culture insists upon a better environmental condition for our children and our children's children.

Remember that the architecture we leave behind us is the chief measure of our civilization. We must act promptly to insure that in the future, at least, no more such tawdriness, no more such ugliness, such lack of color, shall be tolerated in new buildings.

* See: "Progress in Architectural Control," by the present writer in Proceedings Natl. Con. on C. P., Washington, 1927.

Rating the Cities

To bring out how far American communities are falling behind we rated a few of the principal cities last year, according to the percentage of good architecture and good environment they seemed to offer. Some additional ratings are now given. We believe a frank and yet reasonably liberal board of inquiry would have to report on these cities, as follows:

Dallas, Texas	6%	Boston, Mass.	12%
Ft. Worth, Texas	6%	Los Angeles, Calif.	12%
St. Louis, Mo.	7%	New York City	12%
Chicago, Ill.	8%	Philadelphia, Pa.	15%
Oakland, Calif.	10%	Washington, D. C.	25%
San Francisco, Calif.	11%	London, Eng.	9%

Contrast with these some of the cities and suburban communities that have established definite architectural control:

Roland Park, Baltimore	95%	Nantucket (100 years old)	95%
Forest Hills, Long Island	95%	Yorkshire Village, Camden, N. J.	90%
Shaker Heights, Cleveland	80%	Paris, France	85%
Country Club District, Kan. City	75%	Amsterdam, Holland	85%
St. Francis Wood, San Francisco	95%	Santa Barbara, Calif.	40%
Palos Verdes Estates, Los Angeles	95%		

Most of the architects seem to think these figures are, if anything, too high. The Architectural Club of Los Angeles voted to give San Diego a rating of only 3 per cent, but I think this extreme.

The seriousness of the situation lies, however, in the fact that the percentage of new buildings, really esthetically good, is not increasing. In some cities it is even decreasing. The building inspectors tell us they are getting fewer plans today than formerly, by men trained to produce good design.

The Economics of Esthetics

The money value or economics of esthetics is a big factor in the present state of education of the public, and particularly of big business and property interests which have so much to do with moulding our cities.

But "Getting in step with beauty" is the problem now upon us,

according to Robert W. de Forest, great financier and President of the American Federation of Arts, who says:

"Big business has come to appreciate the cash value of research. Huge sums are spent on developing laboratories where distinguished scientists carry on experiments of no apparent relation to the products of their employers. The physical and chemical properties of these products are made thoroughly known, and constant thought is given to improving the selection of materials and the process of manufacture. Thus capital is generously employed in answering half of a question of which part still is left begging. That is the matter of attractiveness to the eye and to the touch. It should be answered only in terms of artistic capacity on a par with that of the scientific energy which is put into making the product right. Here is no trifling matter of buying pretty sketches only to have them botched in the castings and on the lathes; it is a problem of hard study and thorough experimentation in finding out the exact capacities of the machines and the materials, and then in working out the best possible designs under these limitations. . . . As big business comes to recognize its dependence on the artist, it is to be sincerely hoped that the artist will be as quick to appreciate these wider opportunities for expression."*

From the above ratings it would appear that approximately 90% and often more of the buildings in our cities are ugly and a detriment to our communities. In fact, 90% of present city construction may be classed as temporary building, because these ugly structures, as pointed out last year, are sure to be torn down, most of them in much less than 50 years. This is the greatest economic loss of our time. Why can't we grasp the fact that pioneering days are done—the country is grown up—although most of us do not seem alive to it yet.

Man destroys the ugly building or the ugly surroundings, as fast as he can. Only beautiful and attractive structures persist. Europe and older communities are attractive to us because they have been culling out for centuries, keeping the good, destroying the ugly. We will never be grown up as a nation until we do this as thoroughly and effectively, for ourselves.

* Review of Reviews, January, 1928.

Large real estate operators have learned this value of good design as yet only to a limited degree. A most practical and interesting contribution to the subject was made recently by Professor Eberle, of the University of Southern California, in his weekly business letter of the Eberle Economic Service for April 16, 1928, in which he valuated the esthetic and other items contributing to the intrinsic value of typical lots in ten large subdivisions around Los Angeles. The basis of rating the value was location, view and restrictions 45 points; environment and architectural control 10 points; landscaping 4 points; site value and accessibility, streets, topography, utilities and soil 41 points. Thus the so-called intangible attributes, including esthetic values, were rated as nearly two-thirds of the whole.

After establishing a comparison of average front foot price and unit foot price, he arrives at a unit foot intrinsic margin ranging from plus six for Palos Verdes Estates to minus fifty for Santa Monica. In other words, a business rating on esthetic values is set up in which the first tract is shown to be selling for 6 per cent less than its intrinsic value and the last one for fifty per cent more than its intrinsic value. This is a forward-looking step in establishing the economics of esthetics.

Riverside, California, a city of 30,000, has fine trees on every business street—an esthetic ideal of great satisfaction to its citizens and of no detriment to business interests.

Palos Verdes, California, has 25 per cent of its entire area in parks; has a complete master plan actually carried out over approximately five square miles of area, and a plan made for another 20 square miles of area; has set up complete architectural control with an art jury of the best architects, having veto power over every building, wall, fence, and sign in the community. Though now five years old, it has not a single ugly building or sign and its parks and street planting are the pride of the entire Los Angeles area. It is built for permanency—the esthetic is completely planned for.

Another community is Rancho Santa Fe, near San Diego, Calif.,

where 8,000 acres of orchard and farm land have been sold with complete architectural control over the design and color of every farm structure, as well as over buildings in the community center. Five years of such control has increased the desirability of the property so much and has attracted so many people of means to come here and live quietly and build country estates, that this orchard community is now becoming one of the notable estate developments of the West.

Unfortunately, the original protective restrictions put on more than five years ago were only to run for a decade. So the property owners themselves have now banded together to re-sign all of the two hundred or more owners to a permanent "protective covenant," which includes establishment of maintenance association, with maintenance tax for upkeep and enforcement, and a permanent art jury with veto power over all improvements, signs, etc. Already owners of more than 3,500 acres have signed adherence to this new and more complete scheme of protection.

This project is also notable for the fact that the original selling company (a subsidiary of the Santa Fe Railway Company) only sold to bona fide purchasers who would agree to improve their land within one year. This eliminated the vicious over-speculation in land which has ruined such a large proportion of our American real estate developments.

It is true that these last two communities are new and privately protected. But the objectives are the same as in the older places.

Increased Responsibility Upon City Planners

Thus city planners are now called upon to take increasing responsibility. A few have always realized their obligation for the esthetic, but their number is pitifully small. Now times have changed, the responsibility can be shirked no longer. False and short-sighted ideals must be dropped, our planless planning commissions revitalized.

We need many more trained men in city planning; men with an understanding and practical working knowledge of esthetic values,

as well as of economic or social problems, or the law. Much more use should be made of the trained architects and landscape architects of the country; their present influence is too small—largely, it is true, because of their lack of civic-mindedness.

No public authority should pay out any money, nor should any city planner accept any money for the making of a city plan or any part of it, which does not fully take into account the fundamental esthetic considerations here mentioned.

The city planners and the civic authorities who employ them must not let the country down. On us is the stern responsibility for the mould that future civilization will judge us by.

Cram once said "art is the measure of man." The esthetic ideals, then, which we instill in our city plans are the measure of us.

DISCUSSION

FRANK B. WILLIAMS, Attorney at Law, New York City: Beauty is indeed essential to life; city planning is the regulation of the physical features of the community for the encouragement of the fullest and best life of its members; therefore, beauty is an object to be attained by the city planner, a necessary element of the city plan. Beauty is not an excrescence, a bit of ornament put on here and there to the finished structure; it must be from the beginning a constituent of the product as a whole, inhering in its general lines and proportions as a component of its vital force. It is thus that God breathes life into His beings. And the artist—all true creators, city planners among them, are in a broad sense artists—can only approach His result by a humble following of the methods of the Great Creator.

I have been asked by Mr. Cheney to say whether the promotion of beauty is sanctioned by our law. My answer to that question is yes; and the rest of my time will be occupied in amplifying that assertion. And in taking your time to do so, I feel that I must ask of you a certain indulgence. Invariably, before an audience composed of the advocates of a special reform such an inquiry provokes a slight impatience. They feel the law to be an obstacle in the path to the attainment of their object. But law is in fact public opinion in the one and only form in which it has the official mandate of the public behind it. If the law does not sanction measures we urge in the public interest, it is really public opinion

and not the law which fails us, responding, perhaps, sluggishly, in this as in many matters to the public mandate, because the public itself is often half hearted even in the things of which it approves. We may, therefore, change the law by arousing public opinion, and until then must obey its dictates. Be patient with me, therefore, while I endeavor to state to you the law on this subject as it is.

My subject, already stated, may be restated as follows: Is the promotion of beauty a public purpose; and if so, which of the legal powers most useful in city planning may be employed for its attainment? And the answer, already given, may be restated as follows: Unquestionably the promotion of beauty is a public purpose, for which many of the great powers of the State, directly or by delegation to local governments, are constantly used. Thus at public expense art is taught in our public schools, art museums founded, public buildings decorated and public streets and parks adorned, the money for these purposes being raised by taxation without challenge from our judges. Similarly land for these and like objects is taken from the private owner without his consent by eminent domain. At one time some of these acts were questioned, but their validity is no longer in doubt.

There remains the police power under which private property is regulated without compensation. This power seems essential to efficient control for the public interest in cases—like the billboards, for instance,—where abuse is widespread and the benefits and burdens of regulation would be general; for in these cases court action with payment on an adequate scale is practically impossible. Except, however, by amending our State* constitutions, as Massachusetts has done,† the police power cannot be used for an æsthetic purpose. The reason for this attitude of the courts seems to be that public opinion does not as yet sanction without compensation to the private owner control which it does uphold when compensation is provided for.

Nevertheless, of late there has been some progress in this branch of the law; for our courts are holding with increasing emphasis that if the main object of a police rule be utilitarian, its incidental purpose may be the promotion of beauty or the prevention of

* There seems to be little danger that a decision of a state on this and similar questions will be overthrown by the Supreme Court of the United States. See Williams, Law of City Planning and Zoning, Macmillan, 1922, p. 22.

† Now Article L.

disfigurement.* In time, with the increase in education and general culture, public opinion will undoubtedly sanction the full use of the police power for æsthetics, with such restrictions as seem wise. Then the courts will change their rulings and uphold such regulation, without reversing their previous decisions; for this regulation will then be a public need recognized by preponderant public sentiment.

And much may be accomplished incidentally for the promotion of beauty under police power regulation based upon utility. For instance, to give one illustration among many, the main purpose of zoning, based upon the police power, is the promotion of utilitarian welfare. By zoning, however, bill boards may be excluded, as non-residential structures, from residential districts and confined to commercial neighborhoods. And the same is true of garages, filling stations, "hot dog" stands and so-called "amusement parks." In this way Massachusetts is proposing on state highways to reduce to a minimum these nuisances by confining them to specified localities of limited area; and there is no legal reason why similar results could not be obtained in the same way on all the rural roads in this and other states.†

BIBLIOGRAPHY

1. Bosanquet: History of the Esthetic.
2. Cheney, Chas. H.: Progress in Architectural Control. Proceedings National Conference on City Planning, Washington, 1927.
3. Cram, Ralph Adams: Walled Towns.
4. Cram, Ralph Adams: The Ministry of Art.
5. Edwards, Trystan: Things Which are Seen.
6. Gordon: Esthetics.
7. Hegeman and Peets: Civic Art. New York.
8. Nolen, John: The Place of Beauty in the City Plan. Proceedings National Conference on City Planning, Springfield, 1922.
9. Raymond: Essentials of Esthetics.
10. Unwin, Raymond: Town Planning in Practice—London.

*Welch v. Swasey, 214 U. S. 91 (1909); matter of Wulfsohn v. Burden, 241 N. Y. 288 (1925); Euclid Village v. Ambler Realty Co., 272 U. S. 365 (1927).

† See "Zone the State Highways," being Bulletin 146 of the Massachusetts Forestry Association, 4 Joy Street, Boston, Mass.

WHAT IS COMPREHENSIVE ZONING?

HARLAND BARTHOLOMEW, City Planning Engineer, St. Louis, Mo.

The Standard State Zoning Enabling Act, which has been followed in practically all zoning statutes, provides that "regulations shall be made in accordance with a comprehensive plan."

Presumably the term "comprehensive plan" implies a full and complete qualitative and quantitative study and analysis of city growth and the preparation of a scheme based upon such studies as will produce unity of composition as well as establish certain minimum desirable standards for individual structures. A zoning ordinance is not comprehensive merely because it contains use, height and area regulations, for these regulations may be decidedly inadequate or unsuited to the city's present condition and future need. A zoning ordinance is not comprehensive merely because it applies to an entire city's area, for the regulations may be entirely out of harmony with existing conditions or future needs. A zoning ordinance which is prepared entirely according to the desires of local property owners is not comprehensive, for there can be no understanding of nor basic unity in the plan.

The Standard State Zoning Enabling Act mentions numerous considerations to be taken into account in the preparation of a comprehensive zoning plan, among others lessening of congestion in the streets, securing of safety from fire and panic, promotion of health and the general welfare, provision of adequate light and air, prevention of overcrowding of land, facilitation of adequate provisions of transportation, water, sewerage, schools, parks, and other public requirements. The Act says that "reasonable consideration *among other things*" shall be given to "the character of a district and its peculiar suitability for particular uses." This does not mean that local conditions are the only determining factor in

the preparation of zoning regulations and maps. The broader considerations first mentioned above are the predominant considerations. Local conditions are important and must be taken into account, but they are not necessarily controlling considerations.

When is a zoning ordinance comprehensive and when is it not comprehensive within the meaning of zoning statutes, such as the Standard Act, is a question for the courts to interpret and determine. While no specific formula can ever be written, so much has been and is being done in the name of comprehensive zoning, and some very dangerous tendencies are in such evidence in cities, that a discussion of this subject would seem to be in order at this time. The courts have been very liberal in most instances in encouraging and supporting the adoption of zoning plans in American cities. Now that the basic question of constitutionality has been substantially settled by so many State Supreme Courts and finally by the Supreme Court of the United States, it behooves all of us concerned with the preparation and adoption of zoning plans to study more and more carefully the growth of our cities in order that zoning plans may actually fit the needs of those cities and actually come well within the meaning of the statutes authorizing such plans. If this is not done we will have small cause to complain of adverse court rulings invalidating hastily prepared or loosely drawn zoning regulations that are palpably based upon local expediency rather than upon comprehensive planning.

During the last ten or fifteen years we have learned much about our American cities. We have infinitely more still to learn. Our first zoning ordinances were liberal in their classifications of property and delineation of districts. This was obviously necessary because of the pioneering character of the work and the uncertainty of what the courts might say. Quite rapidly, however, we went to other extremes and prepared ordinances with great numbers of districts and the most minute regulations (such as the zones for undertakers in certain early California ordinances) which could scarcely be classed as comprehensive plans.

Subsequent practice has fairly well established the number and

types of use, height and area districts and regulations. A fairly typical outline of such districts and regulations may be suggested as follows:

REGULATIONS CONTAINED IN A TYPICAL COMPREHENSIVE ZONING ORDINANCE

A. USE DISTRICTS
   Single family dwelling
   Multiple dwelling
   Commercial (Neighborhood stores and shops)
   Light Industrial (Mixed commercial, jobbing and incidental or unobjectionable manufacturing)
   Heavy Industrial
B. HEIGHT DISTRICTS
   2½ story or 35 feet
   3 story or 45 feet
   6 or 8 story—75 or 100 feet
   10 or 12 story—125 or 150 feet (or volumetric equivalent)
C. AREA DISTRICTS
   Rear Yards
   Side Yards
   Front Yards
   Population Density

The number of districts included may vary somewhat, according to the size of the city. A small self-contained city obviously has very little occasion to get into elaborate industrial or multiple dwelling districts or regulations. On the other hand, a small city which is a suburb of a large metropolis may have as its principal zoning problem the determination of an elaborate set of industrial or multiple dwelling districts and regulations. Regardless of the size of the city, no standard formulæ can be followed. A full and complete knowledge of local conditions is essential to the drafting of a plan which is genuinely comprehensive and sufficiently well fitted to local conditions to warrant its support by the courts upon the ground of reasonableness in its application to individual properties. Some of the studies which should be made in advance of the preparation of a zoning ordinance are:

STUDIES TO BE MADE IN ADVANCE OF THE PREPARATION OF A ZONING ORDINANCE

Existing Uses of Land and Buildings
New Buildings Erected by 5-year Periods
Building Heights
Lot Widths
Front Yards
Population Density
Population Distribution
Topography
Computation of Areas (i. e., number of acres used for single family, duplex, four flat, row houses, multiple dwelling, commercial light industrial, heavy industrial, schools, public buildings and institutions, open spaces, streets and alleys, vacant land)

In addition to these studies there should be available a major street plan, a transit plan, a rail and water transportation plan and a park and recreation plan; in other words, a comprehensive city plan. Without such a comprehensive city plan, the framers of the zoning plan must make numerous assumptions regarding the future of the city in respect to all of these matters without the benefit of detailed information and study. Zoning is but one element of a comprehensive city plan. It can neither be completely comprehensive nor permanently effective unless undertaken as part of a comprehensive plan. If not so undertaken, the zoning ordinance becomes largely an instrument of expediency, subject to constant and often whimsical change. This leads to instability, uncertainty and ineffectiveness.

Comprehensive zoning must be an honest effort actually to control the growth of a city as an entity. Areas sufficient for single family dwellings, for multiple dwellings, for commerce and for industry must each be deliberately planned for with ample room for each to expand as reasonable growth may be anticipated, each in appropriate location. There must be a study of quantity and of BALANCE.

This suggests Two Fundamental Considerations involved in comprehensive zoning that might well be distinguished and which would well receive much further consideration, i. e.:

1. How much area is needed for each broad type of use and how shall it be arranged or balanced in any given community?
2. What regulations are needed in the several use districts to afford good relations between the individual structures?

Quantitative Studies for Zoning

In recent months we have seen numerous interesting and valuable studies* from different parts of the country showing the number of front feet of property actually in use for commercial purposes in various communities. These studies show a variation of from *15* to *90* feet of commercial property per 100 persons. The higher figure represents conditions in a highly commercialized or industrial city (often the center of a larger area whose population depends heavily upon the city as its principal commercial center). The lower figure represents conditions in a strictly residential community that is usually part of a metropolitan region. A large number of communities show an average of approximately 50 feet of developed commercial property per 100 persons. These figures give us a new and enlightened understanding of the possibilities of city planning and zoning, if we are able to understand them fully and can apply them intelligently.

This study of commercial areas in relation to population suggests many additional opportunities for research. A recent study in Washington, D. C., disclosed the fact that 67,137 persons (or 12.1%) out of an estimated population of 557,258 in 1927, occupied a gross area (streets and lots) of 243.5 acres, or 275 persons per acre. On the basis of similar density, the Los Angeles zoning ordinance would permit of nearly 20,000,000 people in its multiple dwelling district. Of course, Los Angeles will never develop an

* Two of the best summaries are given in the following:
"The size of retail business districts in the Chicago Metropolitan Region," by Coleman Woodbury, in the Journal of Land and Public Utility Economics for February, 1928. Bulletin No. 5, 1928, National Conference on City Planning.

apartment house district of density equal to that of Washington, but it is obvious that the provision of apartment house areas in the Los Angeles zoning ordinance has been out of all proportion to any conceivable needs. Mr. Gordon Whitnall in a recent article* pointed out that there was at least a 100% excess provision of commercial area in the Los Angeles zoning ordinance over and above any probable needs. What is true of the Los Angeles ordinance is probably true of the ordinances of most other large cities and even of many small cities where zoning districts are influenced by speculative interests rather than by impartial study of quantitative requirements.

The importance of quantitative studies as a basis for changes in the zoning ordinance is particularly well illustrated in the recent experience of Washington, D. C. The zoning ordinance for that city, drawn in 1920, provided rather limited opportunities for the continued expansion of the row house into the northwest and north districts. These are the districts chiefly developed for single family detached houses. By 1924, or thereabouts, all of the areas zoned for row houses, as well as those zoned for commerce, had been absorbed by newly constructed row houses. Instead of going into the northeast and eastern sections of the city for new row house developments, builders and real estate men called for change of more single family areas in the northwest and north into row house districts. The zoning commission was hesitant to make such changes, though somewhat uncertain of what was the wise course to pursue. In search of information, various statistical data were collected until today Washington possesses a knowledge of itself that is unequalled by any city. These studies, too numerous for discussion here, will probably be published as a part of the work of the National Capital Park and Planning Commission. The computations were made by S. G. Lindholm, now Zoning Engineer of the District of Columbia. The breadth and character of the study is indicated by the following list:

* "Supply and Demand in Business Zoning," by Gordon Whitnall, in the Community Builder for February, 1928.

ZONING INFORMATION GATHERED FOR WASHINGTON, D. C., STATISTICAL TABLES

Table 1. Use of Land, District of Columbia, 1927–1920–1910.
" 2. Use of Land by Districts, 1927.
" 3. Number and Types of Dwellings, 1927.
" 4. Number and Types of Dwellings according to Permits Issued July 1, 1920–December 31, 1926.
" 5. Housing in 1927 and 1920, and Building Permits Issued July 1, 1920–December 31, 1926.
" 6. Average Lot Area per Type of Dwelling and Percentage of Street and Alley Area.
" 7. Population Based on Housing Accommodations, 1927 and 1920.
" 8. Areas Vacant for Building in 1927.
" 9. Areas under Zoning Regulations.
" 10. Apartment House Sites Granted Building Permits, July 1, 1920–December 31, 1926, and their Location within Building Zones.
" 11. Apartment House and One- and Two-Family Dwelling Averages.
" 12. Exhaustion of Vacant Land and Increase in Population, 1927–1950.
" 13. Building Permits, Washington, D. C., 1910–1926.
" 14. Building in Washington by years 1921–1926.
" 15. Types of Dwellings, from Examination of Permits July 1, 1924–December 31, 1926.
" 16. Building Permits in Selected Cities, 1920–1926.

CHARTS AND GRAPHS

1. Growth of Population in Selected Cities.
2. Building Permits in Selected Cities, 1920–1926.
3. Comparison of Family Dwellings and Apartment Houses in D. C., by District.
4. Building Permits, D. C., 1910–1926.
5. Map of Housing Construction, 1921–1926, D. C.
6. Map of Vacant Areas, 1927.
7. Map of Semi-detached Dwellings, 1927.
8. Map of Row House Dwellings, 1927.
9. Map of Types of Dwellings, 1927.
10. Use of Land, 1927, D. C., by District.
11. Use of Land, D. C., 1927, 1920, 1910.
12. Lot Area per 100 Families, D. C.

Other Exhibits

1. List of Institutions Holding Land in D. C.
2. List of Apartment Houses.
3. List of Dwellings and Non-Residential Use, by City Squares.
4. List of Vacant Areas, by City Squares.

As a result of this study it was shown that only 2250 acres of vacant land were left in the single family detached house districts in the northwest and north, particularly in two large blocks of about 750 acres each in the northwest. On the other hand, it was shown that some area in the northeast and large areas to the east were vacant and available for row house construction. Various public improvements and improved transportation are needed to stimulate eastward growth, but the authorities decided it would be better gradually to develop these than to break up the already limited single family detached house areas of the northwest. A large present investment in detached single family dwellings would have been jeopardized. Greatly increased scattering of population outside of District boundaries into Maryland would have been encouraged and greatly increased transportation difficulties would have been invited. Much better balancing of city growth will result. These are much more powerful reasons than the fact that land values would have been substantially increased in the northwest district.

Even if the additional space for row houses could not have been provided within the city, it is doubtful if the economic loss sustained thereby would equal the economic losses of such unbalancing of city growth. As yet we have no yardstick with which to measure these intangible losses. That is one of the most important tasks now confronting the city planner. They may be no more difficult or elusive than the former enigma of how much commercial area to provide. These again are matters for research and study.

In 1918, at the time of the preparation and adoption of the first zoning ordinance in St. Louis, the second comprehensive zoning ordinance in the United States, a quantitative study of land and its uses was made. Since then a few cities have made similar

computations. The accompanying chart of land uses in the city of Minneapolis is an especially interesting example of such computations. With such figures for a large number of cities of varying size and character, it should be possible to make some interesting deductions with respect to growth tendencies and to pursue more closely the trail of economic and social losses. Do 125,000 people in Des Moines, for instance, scattered out over 56 square miles, produce economic waste or social gain as compared with 100,000 people in Schenectady occupying 10 square miles? Here is a variation in density of land occupation of about 5 to 1 in two cities of nearly equal population.

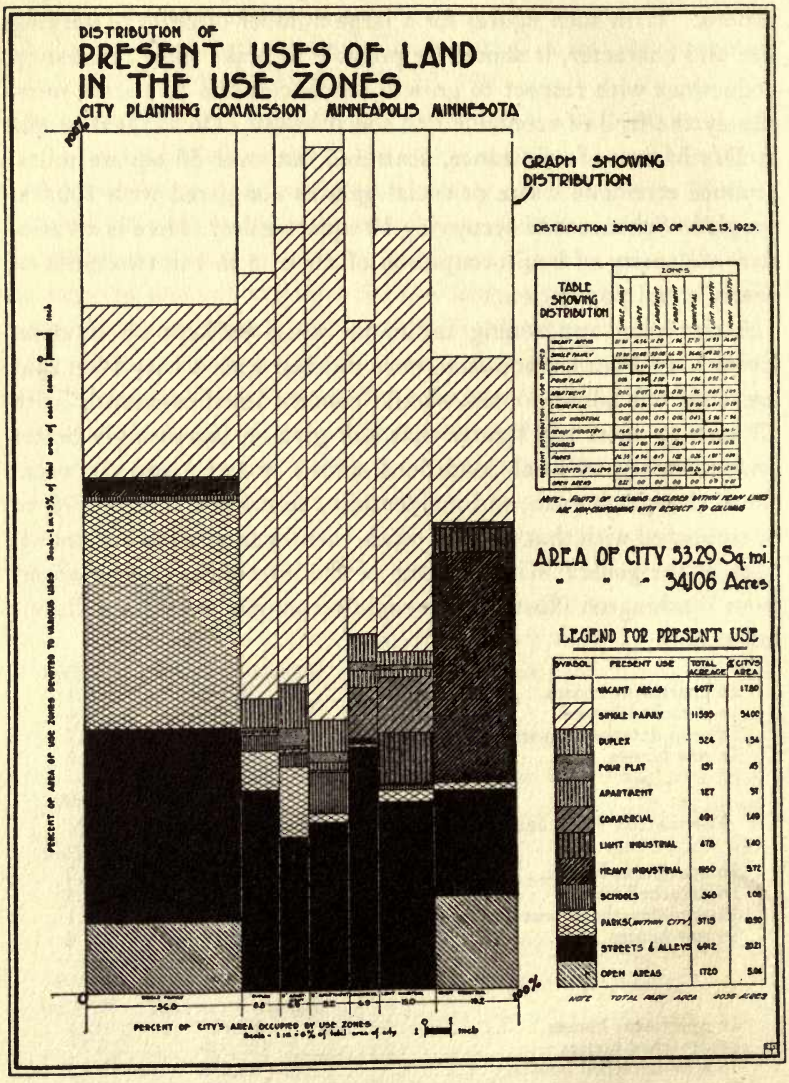
A city plan and zoning ordinance must be kept up to date. Every City Plan Commission, once finished with a City Plan that has been officially adopted, should concern itself constantly with all sorts of facts and figures that will give an increasingly better understanding of local conditions, afford proper bases for occasional changes in plan, and incidentally, contribute information to be compared with that of other cities, thereby increasing our knowledge of the general science. One of the interesting computations from Washington illustrating a rapidly changing set of conditions follows:

	Population in 1920	*Per Cent*
In apartment houses	30,352	7.1
In detached houses	57,513	13.6
In semi-detached houses	36,685	8.7
In row houses	298,655	70.6
	423,205	100.00

POPULATION PROVIDED FOR BY THE BUILDING PROGRAM OF 1920–1926

	Number	*Per Cent*
In apartment houses	37,785	28.0
In detached houses	42,526	31.5
In semi-detached houses	9,564	7.1
In row houses	45,171	33.4
	135,046	100.00

	Population in 1927	*Per Cent*
In apartment houses	67,137	12.1
In detached houses	100,039	17.9
In semi-detached houses	46,255	8.3
In row houses	343,827	61.7
	557,258	100.00


DISTRIBUTION OF
PRESENT USES OF LAND
IN THE USE ZONES
CITY PLANNING COMMISSION MINNEAPOLIS MINNESOTA
GRAPH SHOWING DISTRIBUTION
DISTRIBUTION SHOWN AS OF JUNE 15, 1925.
TABLE SHOWING DISTRIBUTION
ZONES
SINGLE FAMILY
DUPLEX
4 APARTMENT
APARTMENT
COMMERCIAL
LIGHT INDUSTRY
HEAVY INDUSTRY
PERCENT DISTRIBUTION OF USE IN ZONES
VACANT AREAS
SINGLE FAMILY
DUPLEX
FOUR FLAT
APARTMENT
COMMERCIAL
LIGHT INDUSTRY
HEAVY INDUSTRY
SCHOOLS
PARKS
STREETS & ALLEYS
OPEN AREAS
NOTE - PARTS OF COLUMNS ENCLOSED WITHIN HEAVY LINES ARE NON-CONFORMING WITH RESPECT TO COLUMNS
AREA OF CITY 53.29 Sq. mi.
" " " 34106 Acres
LEGEND FOR PRESENT USE
SYMBOL
PRESENT USE
TOTAL ACREAGE
% CITY'S AREA
VACANT AREAS 6077 17.80
SINGLE FAMILY 11595 34.00
DUPLEX 524 1.54
FOUR FLAT 191 .55
APARTMENT 187 .51
COMMERCIAL 491 1.43
LIGHT INDUSTRIAL 478 1.40
HEAVY INDUSTRIAL 1850 5.42
SCHOOLS 368 1.08
PARKS (within city) 3715 10.90
STREETS & ALLEYS 6912 20.21
OPEN AREAS 1720 5.04
NOTE TOTAL AREA 4036 ACRES
PERCENT OF AREA OF USE ZONES DEVOTED TO VARIOUS USES
PERCENT OF CITY'S AREA OCCUPIED BY USE ZONES
54.0
6.8
6.8
5.2
6.9
11.0
10.2
100%

The population in apartment houses increased from 7.1% in 1920 to 12.1% in 1927, while 28.0% of the population provided for in the 1920–1926 building program was in this form of construction. At first glance this would seem to call for generous areas for apartments in the zoning plan. Other computations, however, show that the 67,137 people living in these apartments and constituting 12.1% of the population occupy a street and lot area amounting to only 245 acres, or 0.7% of the city's area, but there are over 700 acres of vacant land now in the apartment house zones and many more where apartments could be built through replacement of single family dwellings. Evidently the Washington ordinance, like the Los Angeles ordinance, is amply generous in provision of space, though perhaps not quite as extravagantly so.

The space requirement for different types of housing accommodations in Washington is as follows:

LOT AND STREET AREAS PROVIDED

	Per Person	*Per Family*
In apartment houses, square feet	158	395
In detached houses	1367	7518
In semi-detached houses	498	2739
In row houses	362	1991

Some very valuable discussions of this subject have recently appeared in the American City Magazine.* This sort of computation is needed to show the amount of population growth provided for by the zoning ordinance.

WASTEFULNESS OF LARGE CITIES

As cities approach the million population mark, they become increasingly wasteful and less desirable places of abode. Taxes on land and improvements in New York City are almost exactly twice those in St. Louis on the basis of actual value—at least that is the experience of one person who pays taxes in each city. Certainly, it is doubtful if three-fourths of the population of Dallas, or any other moderate sized city, are unable to secure homes

* "How Intensively Must We Use the Land?" by John Taylor Boyd—American City—Nov., 1927, Dec., 1927, Jan., 1928, Feb., 1928.

that would be considered a minimum desirable standard for each family—as was said of New York City by the New York State Housing Commission. But with increased growth, Dallas may come to enjoy this and many other economic and social losses, unless there be vigorous comprehensive planning, based upon something besides expediency and land exploitation. San Francisco has a bonding limit of about $200,000,000, with projects proposed amounting to $335,000,000.* One city of about 100,000 population has absorbed about fifty (50%) per cent. of its bonding power for schools, and forty-five (45%) per cent. for water supply, leaving less than five (5%) per cent. for the city's share of the cost of all other public needs, such as sewers, drainage, public buildings, hospitals, parks, fire apparatus, paving, lighting and the like. All these things can best be described as a lack of BALANCE.

While this discussion may seem to have wandered considerably away from the topic of the paper, it may safely be said that there never can be comprehensive zoning or proper apportionment of capital expenditures, not to mention other things, until there is a comprehensive city plan and a continuous policy of adherence to and enforcement of the plan by successive short-lived city administrations. The smaller the city the more effective the plan. To say that the future cannot be anticipated fully is not to deny the wisdom of an early plan, for a good plan, revised at long intervals, will minimize losses far more than no plan, or a loosely drawn plan subject to random change.

PREREQUISITES OF COMPREHENSIVE ZONING

Within the limits of this paper it is impossible to discuss at great length the prerequisites of a comprehensive zoning plan. For purposes of brevity, there are propounded a number of questions that should be considered and answered before a comprehensive zoning plan is adopted in any city.

How long a period of time should be anticipated by the plan?

How large a population will there be?

* "A Capital Expenditure Program for San Francisco," by San Francisco Bureau of Governmental Research.

How much area will be needed to embrace all growth?

How much area will be required for dwellings, apartments, commerce, light and heavy industry?

How much area will be required for parks and open spaces?

Taking into consideration topographical conditions, present development and the city plan, how should these various uses be arranged to bring about a well-balanced city?

A second series of questions concerned with the relation of individual structures to each other should also be considered and answered.

How high should buildings be permitted to go?

What should be the minimum dimensions of side, rear and front yards?

How great population density should be permitted?

Let us consider each of these questions in the nature of an inquiry to be made by each city in the light of its own conditions, rather than to attempt to find a specific formula or solution in a particular case.

How Long a Period of Time to Plan For?

Major L'Enfant planned the capitol city of Washington for an ultimate population of 200,000 people to be reached in 100 years. The U. S. Census gave Washington a population of 231,000 in 1900. Despite lack of careful study and adjustment of the plan during a century of growth, the plan served its purpose exceedingly well and L'Enfant's judgment and skill have been fully justified. The vast growth to the north and northwest that has so unbalanced the plan of Washington in recent years had only just begun in 1900. It occurred through no fault of the plan. It merely emphasized the importance of broad gauged vision, expansion and enforcement of the plan as previously discussed.

With far more experience to guide us than was available to L'Enfant, we should be able to exercise similar foresight for a period of at least 50 years. No plan should contemplate a much shorter period of time. Despite rapid changes in transportation

methods, economic considerations will forestall rapid revolutionary processes of city growth and expansion.

How Large a Population Shall Be Planned For?

With few exceptions, American cities have followed more or less regular laws of growth. The phenomenal growth of Los Angeles or Detroit is due to special circumstances that obtain in few cities. The usual charts showing curves of growth based upon census counts and comparisons with those of other cities of somewhat similar size are a fairly safe guide for anticipating growth. Local utility companies usually possess information and population increase estimates of considerable value than can be checked against, as should also certain commercial indices, such as building permits, bank clearings, postal receipts and the like.

How Much Area Will the Future City Cover?

This is a question that has received little attention. It requires much careful study. Such study will be greatly simplified if all cities will follow the lead of a number that now require full improvements in land subdivisions, thereby avoiding the wasteful uneconomic and unsocial conditions attending past practices of land exploitation.

It is not to be expected that all cities will follow the same methods or degrees of expansion for we may note markedly different characteristics in cities of the East, Middle West and Pacific Coast. Further study and analysis, however, will produce valuable, if not finally conclusive, information upon which plans may be prepared, as in the case of Washington. Facts and figures from numerous other cities of similar size and characteristics will be of much more value than no estimates whatsoever.

Detroit has furnished an interesting example of how much area to plan for in its street and transit planning based upon a definite estimate of population for the year 2000, with a specific area in which such population is expected to spread itself. Information of the character here proposed will be of much value to any city in

the present vexed question of how far city boundaries shall be extended.

How Much Area Will be Required for Dwelling Purposes?

To answer this question, information is needed of the character collected in Washington showing the number of detached, semi-detached, flat, row and apartment houses and the amount of land occupied by each at stated intervals of the city's growth, together with a summary of present tendencies as illustrated by summaries for new structures erected in the past few years, preferably by five-year intervals. The Division of Building and Housing of the Department of Commerce keeps excellent records of building construction yearly for all cities and for different sections of the country that can be used advantageously for checking and for comparative purposes.

While we know that economic conditions are forcing increased apartment dwellings, the single family house is still being built in very large numbers. More attention will be given in the future to reduction of housing costs, of which sound city planning and zoning is a necessary concomitant.

We have overdone the efficiency apartment and have likewise often been prodigal in provision of land for detached dwellings. The future will or should produce more land for apartment needs and possibly some less for detached dwelling purposes.

The amount of *developed area* used for dwelling purposes for several cities is shown in the following table:

Minneapolis	47.0%
Memphis	42.9%
Kenosha	38.5%
South Bend	38.2%
Toledo	30.1%
Buffalo	27.1%
Washington	19.5%

Washington's percentage would be very much larger but for the unusual amount of public and semi-public lands. Toledo and Buffalo do not embrace all growth within their city limits. Here is a fair uniformity for cities of widely separated location, size and

characteristics. The percentage of developed area used for apartment purposes in Minneapolis, South Bend and Washington is less than 1%, being respectively 0.4, 0.18, and 0.7.

The assertion might be ventured that the average self-contained city will have from 35% to 45% of its developed area used for all dwelling purposes, with certainly not to exceed 5% of this for apartment use.

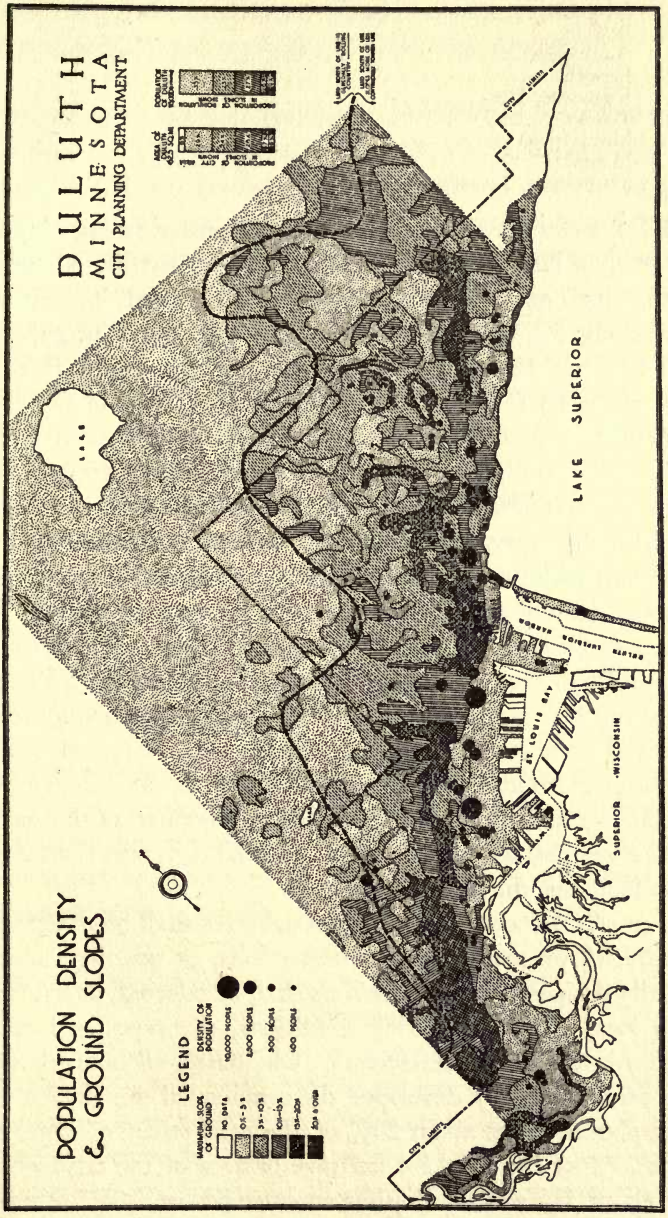
The arrangement of this 35% to 45% of area in the city's structure will depend upon numerous local factors and conditions, such as extent and intensification of present development, topographic conditions, location of industrial areas, disposition of open spaces, street park and boulevard plan and such. Generally speaking, industry follows the railroads, commerce seeks the center of traffic and residence takes what there is left. Residential growth seeks the more level upland areas and often divides itself or is divided according to types and value of structures. Transportation and communication being equal, a city will gradually round itself out into something of a circle or star-shaped area with the downtown commercial area as a center. Unequal communication and/or excessive speculation in land or buildings may cause excessive unbalancing, as in Washington, or unwarranted shifting and depreciation, as in St. Louis.

The most economic conditions are obtained where apartment areas are kept close in, flats, rows, semi-detached and detached single family dwellings separated into districts usually at successive intervals from the city's center. This statement will undoubtedly be challenged, but time will not here admit of further elaboration.

As an illustration of the effect of topographic conditions, the accompanying chart of population distribution in relation to ground slopes in Duluth is interesting and significant.

How Much Area Will be Required for Commercial Purposes?

Actual computations of the *developed areas* of cities of widely varying size, location and character show that rarely does commerce require in excess of 5%, as the following figures demonstrate:


DULUTH
MINNESOTA
CITY PLANNING DEPARTMENT
POPULATION DENSITY
& GROUND SLOPES
LEGEND
LAKE SUPERIOR
SUPERIOR
WISCONSIN

St. Louis	4.0%
Buffalo	3.0%
South Bend	2.9%
Kenosha	2.5%
Kirkwood, Mo.	2.5%
Toledo	2.0%
Minneapolis	1.8%
Memphis	1.6%
San Angelo, Texas	1.4%

The important consideration in comprehensive zoning is how this 5% or so of land zoned commercial shall be distributed throughout the city's area. It is not enough that we shall know it is approximately 5% of the area, or somewhere in the neighborhood of 50 feet per 100 persons. In Sacramento, where there was found to be 68 feet per 100 persons, 33 feet were in the central business district and 35 feet beyond. Observations in outlying residential districts in a number of cities indicate approximately 15 feet per 100 persons for local neighborhood needs. This checks well with the figures for suburban residential communities shown in the two tables referred to in page 7. A recent computation for the most densely populated apartment house district of St. Louis showed 55 feet per 100 persons. A similar computation for a large flat district showed 24 feet per 100 persons. Figures such as these should not be used, however, until there is very much more complete and accurate information to judge by. They indicate that there is proportionately more space required at the center for commercial use with gradually diminishing amounts as the outlying districts are reached, except where unusual concentration of population increases the demand.

As to whether certain main thoroughfares shall be zoned solidly commercial or merely their intersections, or whether areas for specially designed shopping centers shall be selected, depends upon much local study of existing conditions, the types of land subdivision in use and other factors. Obviously, all main thoroughfares cannot be fully developed for commercial use since a major street plan occupies about 20% of the total street mileage, hence about 20% of the total lot frontage or area of the city, whereas, only about 5% will develop for commercial use. The other 15%

is either going to be used for dwelling purposes of some kind, for public purposes, for industry, or else it will remain idle.

How Much Area Will be Required for Industrial Purposes?

It is difficult to estimate the amount of area required for industrial purposes, for cities in this respect take on widely varying characteristics and there is little actual information available as yet. In the early days of the development of this country, industry became concentrated in the cities of the Atlantic seaboard. Only in recent years have economic conditions forced the location of industry nearer sources of supply of raw materials and nearer the center of distribution of manufactured products. This accounts for the more rapid growth of the cities of the middle west, and more recently, the west and south. Industrial absorption of *developed* city areas show the following percentages:

Buffalo	25.7%
Toledo	22.3%
Kenosha	13.0%
South Bend	11.5%
St. Louis	11.0%
San Angelo, Texas	9.7%
Minneapolis	8.7%
Memphis	4.8%
Evanston	3.1%
Kirkwood, Mo.	1.0%

The distribution and arrangement of industrial area in any comprehensive zoning plan will be a matter of local study, depending upon probable rate of expansion, character of industry, topographic conditions, nature of railroad plan and the extent and arrangement within present areas.

How Much Area Will be Required for Streets, Parks and Open Spaces?

It has often been suggested that ten per cent. of a city's area should be devoted to parks. As a general rule of little specific value, that may be correct. The important consideration is the manner in which such space is distributed and designed for use. Without attempting to discuss this question, it is interesting and

significant to note that for most all the cities for which information is at hand between 40% and 50% of their developed areas is devoted to streets, parks and open spaces, such as public buildings, institutions, golf courses, and the like:

Washington	73.7%
San Angelo	62.1%
Memphis	50.7%
South Bend	47.5%
Minneapolis	46.5%
Kenosha	46.0%
St. Louis	46.0%
Toledo	45.6%
Buffalo	44.0%

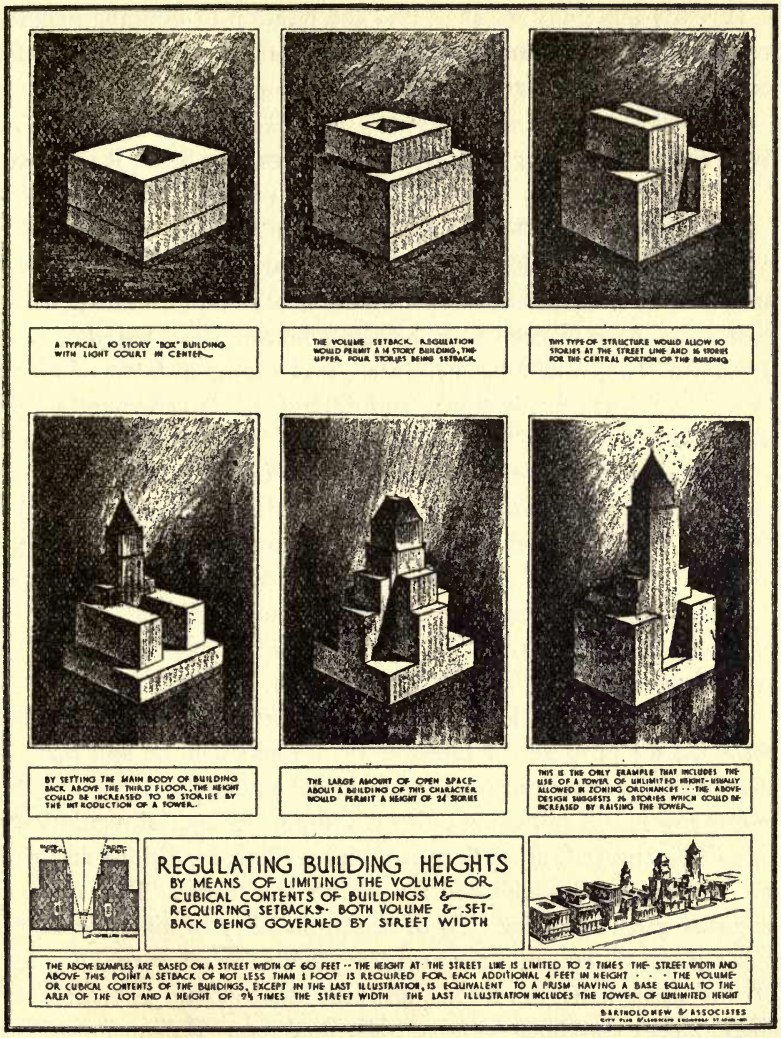
Washington is not a typical city. The ownership of property by the government and by various national institutions is exceedingly high. San Angelo is a small city in western Texas where the area devoted to streets is unduly high at this stage of growth.

The disposition and arrangement of parks and open spaces are again a matter for local determination depending upon topographic conditions, existing development, street plan, park and recreation plan and character of land subdivision control. Where possible, the city's area should be broken up by strips or wedges of open space, as suggested by Robert Whitten several years ago. This idea was shown you upon one of the slides of the regional plan of Washington last year. The topography of the Washington Region lends itself particularly well to this sort of planning—more regional in character, however, than local.

How High Shall Buildings Go?

This is a perennial question, but not quite so difficult to answer as it once was. In most cases low flat high limits are desirable and will be followed by the great majority of buildings substantially as follows:

Dwellings and flats	35 feet and/or 2½ stories
Neighborhood Commercial	35 feet and/or 2½ stories
Apartment	35 feet, 45 feet and/or 2½, 3 stories
Apartment	85 feet and/or 8 stories
Commercial and Hotel	125 feet and/or 10 stories
Commercial and Hotel	150 feet and/or 12 stories (or volumetric equivalent)
Industrial	85 feet and/or 8 stories



Where flat height limits of 150 feet are objected to, a substitute in the form of equivalent cubage on a volumetric basis with proper setbacks, as in the St. Louis ordinance, should satisfy all demand for great height without increasing the street traffic load. This idea is shown in the accompanying drawing.

Perhaps some day we shall find the relation of building height, volume and use to actual street capacity. If so, we can then modify our ideas of height regulation accordingly.

What Should be the Minimum Dimensions of Side, Rear and Front Yards?

How Great Population Density Should be Permitted?

Our land subdivision practices have largely fixed our zoning standards. They are not often desirable standards. The general custom of narrow deep lots, bringing houses close together and often producing waste back lot area, is changing in favor of wider lots of less depth for dwellings and flats of the detached and semi-detached variety. The three- and four-foot side yards of many zoning ordinances are unscientific compromises with old land subdivision practices. Side yards of five or six feet, with rear yards of twenty-five feet, should be established as a minimum for all new developments. This will give ten or twelve feet between houses at the side and fifty feet at the rear. These are minimum desirable standards for good living conditions for light, air and access and for open space for driveways, yard room and garden.

Front yards of at least twenty or twenty-five feet should be provided for purposes of recess from the odors, noise and dirt of the street, for grass and trees, and general amenity.

For row house and community developments special regulations should be enacted, according to the prevailing conditions and the zoning standards established for similar structures. This subject requires much study in view of the probability of much development of this character in the next few years as an offset to the worst of our apartment conditions and the uneconomic character of single family dwellings on large individual lots. Reliance must be made upon population density and upon good design, rather than upon specific yard dimensions. There are difficulties involved, but these are by no means insurmountable.

For apartment houses, our zoning standards for yards are universally deficient and totally out of harmony with common

decency. Our present standards are the result of an effort to apply yard requirements for detached dwellings which have been caught in the well-known vicious circle of increase of land value, more crowding of the land, further increase of land value, still more crowding of the land, and so on ad infinitum, or at least to the tune in many cases of less than 100 square feet of lot area per family.

The principal difficulty here encountered is that apartment houses generally have not been designed to associate with each other and, consequently, have seldom attempted to provide sufficient land. They contemplate getting part of their light and air from adjoining residences. Another difficulty is the almost universal lack of good housing laws. In Minneapolis, the zoning ordinance contains no regulations as to side and rear yards for these are found in the housing code. It was necessary to study only front yard dimensions and population density. This latter study was especially interesting and enlightening for it illustrated the lengths to which speculation will go and how much the public can be made to stand.

Records of all apartments were secured over a considerable period of years; the size of lot, number of apartments, number of rooms and similar information obtained. Year by year it was found that apartments were crowded upon the land with less and less lot area, until one year found most of those built providing less than 400 square feet per family, about half with 200 square feet per family, and several with less than 100 square feet per family. Then a public reaction must have set in, for thereafter scarcely any were built with less than 400 square feet per family.

A committee of this conference several years ago recommended 425 square feet per family as a minimum desirable standard of population density. This is a question that has really received no study and warrants much research. In the articles by Mr. Boyd, previously referred to, he well points out that the apartment being a more efficient structure, could well provide more, rather than less, area per building than the single family or flat type of dwelling.

How Shall Changes be Made in Zoning Ordinances?

This paper is already unduly long. It would be most incomplete, however, without discussion of one further matter, i. e., methods of changing zoning ordinances. The Standard Zoning Enabling Act provides that zoning ordinances may be changed or repealed from time to time by the local legislative body after public hearing. Where a certain percentage protest is filed against such change, a three-fourths vote of all the members of the legislative body is necessary to overrule such protest. This is what Mr. Bassett calls an element of stiffness and is highly desirable. It is not altogether sound, however. It makes no mention of preservation of comprehensiveness of the plan. It requires no study or report upon the wisdom of the change. If this comment may be construed as a reflection upon the judgment of local legislative bodies, let it be said that experience has shown more often than not that members of such bodies are usually more interested in "clients" advocating changes than in the preservation of the comprehensive plan. The local legislative body is not expected to be a technical body. Zoning is a technical subject and there should be a report upon the technical aspect of all changes before action by the legislative body.

The Standard Zoning Enabling Act makes no provision for a technical report and anticipates no permanent technical body, although it does provide that a City Planning Commission may be the Zoning Commission. To some extent this difficulty is anticipated by the Standard City Planning Enabling Act which provides that the City Planning Commission may prepare the zoning plan and presumably, since zoning is a part of the comprehensive city plan, no action contrary thereto shall be taken by the legislative body without report by the City Planning Commission and two-thirds vote of the legislative body to overrule. This is as it should be and the Standard Zoning Act should be amended accordingly.

Without this procedure, the best comprehensive zoning plan can be unbalanced and completely vitiated by a few ill-considered changes. There must be consideration of the effect of each change upon the plan as a whole, as well as its effect upon the local neighborhood.

Conclusion

In this paper no effort is made to prove anything. It is a plea for the preparation of more facts, more information that will be helpful in establishing comprehensive planning and zoning as the distinct science it should become. We have made much progress in the last ten or fifteen years. The public and the courts have been quick to recognize and approve. As yet we have merely scratched the surface of the social, economic and æsthetic possibilities of planning American cities. Comprehensive zoning is one of the most important elements of our work. Let us undertake it with thoroughness, with breadth of vision and with impartial judgment that neither discounts nor over-estimates the future of our cities upon whose well-being three-fourths of our people in the United States must depend.

DISCUSSION

John H. Adams, Chairman, Zoning Commission, Birmingham, Ala.: It may be a helpful supplement to Mr. Bartholomew's comprehensive paper to record the work of the Birmingham Zoning Commission in laying the foundation for a zone plan. On our Commission of five was a mining and consulting engineer, a building contractor, a banker of wide experience, and one of the largest real estate developers in the city. All of these men had spent a working life of from thirty to fifty years in Birmingham, and had seen it grow from a village of 3,000 to 275,000 people. For two and a half years each member of the Commission gave up two days a week, and the Chairman spent practically his whole time on an intensive study of all the essential conditions which must be known before a zoning ordinance can be drafted.

First, at our own expense, we visited a number of other cities which had zoning ordinances. Then we made the surveys covering the following items:

(1) A base map of the entire territory of 54 square miles, scale of 1,000 feet to the inch showing existing use of property within the city boundaries.
(2) Map of the undeveloped territory.
(3) A map showing white and colored occupancy (about 41% of our people are Negroes).

(4) A map showing existing multiple dwellings.
(5) A map showing the commercial area in Birmingham. This is badly scattered with small commercial or business centers in every neighborhood.
(6) A map of industrial and railroad properties.
(7) Height of buildings map (incidentally we had a good deal of a struggle over this question, and finally compromised on a height limit of two and one-half times the width of the street).
(8) Density of population map.
(9) A map showing existing front yards or building lines (in spite of cosmopolitan make-up of Birmingham we are anxious to secure or preserve adequate lawn space for our fine homes).
(10) A map showing existing and proposed thoroughfares. Our plan is to throw commercial traffic into the industrial section as far as possible.
(11) A series of maps showing assessed valuation in central part of city, and the expansion of the central business sections for the years 1900 through 1924.

In the preparation of these maps we had full access to the surveys which had been made by all the large corporations of Birmingham, and by the Board of Education. All this work was but the foundation for our zoning ordinance. I shall not go into detail, but as evidence of the success of the work, I have but to point out that out of 876 cases that have come before us, only two have gone up to the legislative body or City Commission, and in these cases the judgment of the Zoning Commission has been upheld.

SET-BACKS OR BUILDING LINES BY ZONING OR OTHERWISE

CHARLES P. FISHER, Planning Engineer, Akron, Ohio

It is desirable and expedient that open spaces or strips be provided between street lines and the alignment of buildings whereever practical and reasonable. Tacit or voluntary set-backs are not satisfactory. Unless restrained in a legal way, there is no assurance that buildings will not be extended beyond the lines of existing buildings or even to the street line. Legal set-backs may be established through private restriction or by municipal action through the police power or power of eminent domain. Each of these methods has its place and each may be used advantageously to promote city planning purposes.

Private restriction building lines in most cases are imposed when the land is first subdivided by inserting in the deeds of conveyance a restriction requiring buildings to set back a certain distance from street lines or by showing them on a recorded plat. The subdivider and the municipal platting authority should together fix the location of buildings with respect both to the front lot lines and side lot lines for the entire subdivision in accordance with the general scheme for its development. Ordinarily, along thoroughfares, a greater set-back should be provided where the frontage is to be used for residential purposes than on local or minor streets, in order to lessen the detrimental effect of traffic. Where the frontage is to be used for business purposes, the distance between buildings on opposite sides of the street should be not less than 110 feet, and if the street is not dedicated 110 feet wide, this distance should be obtained by imposing building lines on the recorded plat. Unless strictly drawn and vigilantly enforced by the beneficiaries, private restriction building lines may be and often are violated.

Eminent domain building lines may profitably be employed for the purpose of facilitating street widening and keeping down the cost thereof where the frontage is built up with buildings extending out to the street line. In these cases the municipality takes an easement or the right to keep the strip between the building line and the street line free from structures and for this easement the city must pay. This method is usually employed in the central part of the city where the street frontages are more or less solidly built up to the street line. This method has also been used in some cities in residence districts where all the buildings set back a considerable distance. In such cases the benefits conferred are usually determined to equal or exceed the damages resulting from the taking of the easement. Where conditions justify the use of this method, it would appear as proper to establish the building lines under the police power in connection with zoning regulations.

Building lines established under the police power do not constitute a taking of private property but are regulations only, imposed by the municipality for the promotion of health, safety, morals, or the public welfare. No money compensation is paid in these cases but—"He who is limited in the use of his property finds compensation therefor in benefits accruing to him from like limitations upon his neighbors."*

Building lines, or set-backs, established under the police power must be reasonable and must be applied in such a way as not to inflict undue hardship on the owner in the use of his property. They must bear a substantial relation to health, safety, morals, or the public welfare, but this does not mean that they may not incidentally contribute to the eventual widening of streets.

There are now nearly 600 zoning ordinances in effect in the United States. Many of these include set-back or building line provisions. Except in a very few cases it has been the practice:

(1) To establish building or front yard lines by a general provision in the text of the ordinance without giving definitely the building or front yard line for any particular street;

* Carter v. Harper, 182 Wis. 148.

(2) To make the existing alignment in any block, where a certain percentage of the frontage is improved with buildings, the building or front yard line and, where such percentage has not been built up, to provide that the building or front yard line shall be a line that is back of the street line a certain percentage of the average or normal depth of the lots in the block; but usually not requiring buildings to set back from the street line more than a certain number of feet in any case; and

(3) To establish building or front yard lines only in residence districts, as fixed by the zoning ordinance, except that in some ordinances they have been provided also in small local business districts that are entirely surrounded by residence districts.

The method set out in (3) above does not involve a complete survey to determine the set-back for each street, but merely sets up a rule by which the front yard, or building line, may be ascertained. To obtain the set-back required along any given frontage may involve much investigation and calculation and when determined it may be unsatisfactory. It does not permit variations on different streets or in different parts of the city. It applies for the most part to residential districts although there may be many other streets on which building lines may be just as advantageously and legally established under the police power.

Until a year or two ago the legality of police power building lines by zoning *in other than residence districts* was doubtful, but a number of recent decisions in different states and the action of the United States Supreme Court, in 1927, has sustained the validity of building lines wherever they bear a substantial relation to the public welfare. Certainly police power reasons for set-backs apply in business districts. The upper floors of many business buildings are used for residence purposes. The dust from the street and the fumes from motor vehicles will be somewhat lessened with the distance from the roadway. The fire hazard will be decreased; in areas of high buildings more sunlight will reach the buildings and the street surface. Keeping buildings back at the intersection of street lines prevents the creation of blind corners, and promotes traffic safety.

The reasonableness and legality of set-back lines on a particular street are not necessarily determined by the zoning use district in which the street is placed, but by a number of other factors, such as—

Dominant use of property, distance of existing buildings back of street lines, width of street, depth, width and shape of lots, nature of probable future development, the volume of future traffic on the street, effect of the building lines on the use and value of property, topography, existence of private restriction set-backs, etc. Many streets, particularly thoroughfares or through streets, are often placed in a zoning system in business or commercial districts, although they are almost exclusively built up with residences which are set back from the street lines. Many of these districts are transitional and may peculiarly justify set-back lines. Even when the district becomes largely business an open space along the street line under present day traffic and parking conditions may be much more useful for the development of the property than at the rear of the lot. It gives an opportunity for the owners in a block to set back walks and curbs and provide parking space for patrons' cars.

The regulation of the location of buildings with respect to street lines is such an important part of a zoning plan that several cities have included as an integral part of a zoning plan a comprehensive building line map which shows definitely the set-back required on each street in the city. This can be done only after a complete investigation of all the factors and conditions which govern the problem. The Akron Zoning Ordinance, passed in 1922, provides as follows:

"For the purpose of establishing front yards and regulating the location and alignment of buildings back of street lines and for the purpose of maintaining appropriate open spaces and adequate distances between buildings on the opposite sides of the same street, in the interest of the public health, safety, convenience and general welfare, building lines, as indicated and set forth on the Building Line Map which accompanies this ordinance and which is hereby declared to be a part hereof, are hereby established."

Provision for exceptions and a Board of Appeals or Adjustment to authorize them are essential for the maintenance and successful operation of a comprehensive building line plan. Situations will inevitably arise where it would be unreasonable and inflict undue hardship to require an exact compliance with the building lines shown on the map.

Up to January 1, 1928, or in a period of more than five years, the Akron Board of Zoning Appeals granted 131 informal applications to vary building lines in residence districts, 50 appeals, after public notice and hearing, to authorize building line exceptions in residence districts and 78 appeals to build beyond building lines in other use districts. Nearly all of the 131 "applications" granted were due to corner lots having changed or desiring to change frontage. Up to January 1, 1928, 25,849 building permits had been issued since the passage of the zoning ordinance. With one or two exceptions, the Board has permitted only one-story buildings or extensions beyond a building line in a business or commercial district, although about twenty thoroughfares have set-backs or building lines for a total of about twenty-three miles in business, commercial and industry zoning use districts. Some minor streets in these districts also have building lines.

In only one instance has a property owner attempted to have a building line set aside by the courts. When denied an appeal by the Board to build beyond a 10-foot building line in a business use district on the zoning map, he sought an injunction restraining the City from interfering with the construction of a building out to the street line. The Common Pleas Court, in finding in favor of the City, in January, 1927, said: "The Court must find that it is unable to say that this 10 foot set-back line bears no relation to the public health, safety or general welfare, or that, under the circumstances, it is clearly arbitrary or unreasonable." "Regulations and requirements that seem not only reasonable but necessary today would have been considered as intolerable and impertinent fifty years ago." On appeal to the Court of Appeals, the case was dismissed in February, 1928.

From a practical standpoint, a comprehensive building line map is a better method for securing and enforcing building lines under the police power than text provisions in the zoning ordinance. Private restriction building lines that do not conform to the rule of a text provision, may be accepted if proper and established on the building line map. Private restriction building lines on recorded subdivision plats, that have been proposed and approved by the City Planning Commission and recorded subsequent to the passage of the zoning ordinance, may also be established on the building line map by amendment.

A building line map is also more definite and meets objections that have been raised when text provision set-backs have been before the courts. It gives the exact set-back required in any case without measurements and computations. It is also more comprehensible. It is a graphic representation of the building line plan and the city-wide advantages of greater distances between the alignment of buildings, with open spaces back of street lines, can be more easily visioned and will probably be more readily accepted. Finally, a comprehensive set-back plan as a part of zoning, based upon a comprehensive survey and shown on a building line map in a definite way, will strengthen the validity of building lines established under police power.

BUILDING LINES OR FRONT YARD REQUIREMENTS

ROLLIN L. MCNITT, Dean, Southwestern University Law School, Los Angeles, California

GORDON WHITNALL, Director, Los Angeles City Plan Commission, Collaborating

As we approach this relatively new subject of "Building Lines" which for clarity and legal definition can best be termed, "Front Yard Requirements," it is essential to use the same firm legal foundation as in zoning. In fact, "Front Yard Requirements" are but one phase of zoning.

AS A MEANS OF STREET WIDENING

A thoroughfare plan that will serve adequately the enormously increased needs of the future is a critical problem for most cities. After streets are built up solidly with business buildings and apartments, the expense of greatly altering the street plan is so great as to be almost prohibitive. Yet it is apparent that the limited number of through routes for traffic in most cities will be inadequate for the needs of twenty to fifty years hence. Unless measures are taken in time, growth will be checked and cities may be faced with the alternative of stagnation or back-breaking financial burdens that could have been avoided by a little vision in street planning.

One of the greatest aids in street widening is the establishment of new street lines, operative upon removal or replacement of existing buildings, thus making it possible for a city to utilize the passage of time and to accomplish the widening at the least cost and at no damage to the property owner, except the enforced surrender of the land at the jury award. Setback lines should also be established at intersections of important highways, far enough back from the present street lines so as to eliminate the obstruc-

tion to vision, and thus reduce the hazards incident to motor vehicle travel. While there has been some suggestion in the legal decisions that the establishment of setback lines solely with a view of future widening is an unreasonable burden upon the private property involved, this constitutional objection does not obtain in this latter instance.

Reliance upon Doctrine of Eminent Domain

As early as 1893, the Missouri Supreme Court held invalid a statute authorizing building lines, because no provision was made for compensation to the owner of the property. Other courts followed this decision, and consequently it is not strange that text writers asserted the same doctrine.

Nor was the power of eminent domain invoked to carry out building line legislation without strenuous objection. It was contended that taking in such cases was for esthetic purposes, and that the power of eminent domain could not be so employed. This objection seems to be gradually losing force. We now find the power of eminent domain frequently resorted to for the purpose of establishing building lines, and the courts generally recognizing the validity of this process.

Validity under the Police Power

Many state courts have held that building line statutes are not sustainable under the police power. Some of these cases went upon the assumption that such building lines were established on solely esthetic considerations. But proponents of this type of legislation, as in the case of zoning, have persevered, and now we find a line of authorities, including the United States Supreme Court, upholding the constitutionality of this type of legislation as an exercise of the police power, and it may now be safely stated that municipal corporations under the police power have the authority to establish setback lines, provided they are reasonable under the circumstances, and that they have a substantial relation to the public health, safety, morals or general welfare.

The forerunner of this line of authorities is the decision of the Connecticut Supreme Court, in town of Windsor vs. Whitney (95 Conn. 357, 111 Atl. 354). The Connecticut Court justified this exercise of the police power, because *building lines provide adequate space for light and air, thus bettering the health and safety of the community and adding to the appearance and wholesomeness of the places fronting thereon, and, as a consequence, will act upon the morals and spiritual power of the people who live in such surroundings, and thus aid the people at large.*

Other decisions to the effect are Weiss vs. Guion (17 Fed. Rep., 2d series, 202), and Thille vs. Board of Public Works of the City of Los Angeles (52 Cal. App. Dec. 927). In a recent case on this subject decided by the United States Supreme Court, Mr. Justice Sutherland who wrote the opinion of the court in what has now become the leading zoning case, Euclid vs. Ambler Co. (272 U. S. 365), said:

". . . Upon that question the decisions are divided as they are in respect of the validity of zoning regulations generally. . . . It is hard to see controlling difference between regulations which require the lot owner to leave open areas at the sides and rear of his house and limit the extent of his use of the space above his lot and a regulation which requires him to set his building a reasonable distance back from the street. Each interferes in the same way, if not to the same extent, with the owner's general right of dominion over his property. All rest for their justification upon the same reasons which have arisen in times as a result of the great increase and concentration of population in urban communities and the vast changes in the extent and complexity of the problems of modern city life."

Setback Lines as a Part of the Comprehensive Zoning

Some cities have chosen to establish setback lines as a part of a comprehensive zoning ordinance, and there are recent decisions sustaining this method, notably, Harris vs. State [ex rel. Ball (Ohio) 100 N. E. 166], and Wulfsohn vs. Burden (241 N. Y. 288). A setback line cannot be established for a limited period merely.

This matter was determined in Curtis vs. Boston (Mass.) (142 N. E. 95). While suggestions of the abutting property owners are entitled to great weight, and while they must be notified before the line can be established, the establishment of the lines cannot be delegated to the property owners themselves. This was decided long ago by the United States Supreme Court, in the case of Eubank vs. Richmond (226 U. S. 137).

Comprehensive Plan

Just as zoning should follow a comprehensive scheme and be predicated upon a careful survey before its adoption, so, also, should the matter of establishment of setback lines receive as careful consideration. Each street should be carefully studied, both from plans, and from the situation on the ground. The width, depth, and shape of the lots abutting the street must be taken into consideration. Building lines may vary from five to forty or more feet, depending upon the facts disclosed by the survey, but the narrower the street, the greater should be the setback line. Owing to the difference in construction and the difference in use between residential and business districts, it is quite reasonable to provide for a setback line of greater depth in the residence than in the business districts. For a decision on this see Pritz vs. Messer (Ohio) (149 N. E. 30).

The Los Angeles Board of City Planning Commissioners recently commenced a survey of this subject, in an endeavor to establish some rules and policies upon the same. We have not finished this study, but we are of the opinion that setback regulations to be valid must always be consistent, and that under similar circumstances similar property should receive the same treatment. We feel that in order to formulate definite standards we must consider at least these three factors:

(1) Type of use zone.
(2) Width of street.
(3) Depth of lots.

We experimented with the method of declaring that on no street should buildings be erected closer than fifty feet from the center line. This theory seemed good, and may still prove sound, but there are practical difficulties. How can exceptions be automatically made when the depth of lot cannot afford such line? What about the sides of lots at the ends of blocks, where property faces on a cross street? What about cases where valuable business frontage at the end of blocks would have front footage sliced off? What about steep hillside development where 26 feet is the maximum practical width of street and abutting lots are wide and shallow?

In the case of business streets and traffic thoroughfares, this method will apparently work well, except in two types of cases: (1) How shall we provide for the existing "non-conforming" buildings? (2) How shall we provide for cases where the "taking lines" for future widening do not follow the original center line? The answer will probably be found when we discover by actually applied tests in typical cases where the red tape incident to adjustments is as great, or greater, than the task of establishing lines street by street.

This brings us to a consideration of the individual street method, which up to now in Los Angeles has been the usual method. Experience has demonstrated the futility of creating setbacks piecemeal, and without reference to a comprehensive plan and to definite standards. We are, therefore, trying now to get an answer to the question, "How much setback can be established, when and where and how?" by collecting valuable data that will reveal:

(1) What proportion of a lot can be held from building as demonstrated by actual averages?

(2) What, if any, variance exists in the proportion of built-over land on varying depth lots?

(3) What general average of "coverage" is found to prevail among the characteristic uses, as classified in the zone.

Conclusion

An examination of the authorities to date convinces one that setback legislation is rapidly being sustained by the highest courts in the land, as one of the proper exercises of the police power, and that resort does not have to be made to the power of eminent domain; and that if such legislation is worked out by the legislative body, with a well-defined policy, after a comprehensive survey of the district to be affected, and after due notice and hearing, as to avoid charges of discrimination, arbitrariness and unreasonableness, that courts will not interfere and set aside the legislative enactments.

Such legislation, if carefully prepared by the various cities adopting it, will rapidly justify its existence, and with the growing respect therefor already evidenced by the courts, it will continue to grow and prosper with public opinion.

MASTER PLANNING UNDER RECENT STATE LEGISLATION

RICHMOND D. MOOT, Chairman, City Plan Commission, Schenectady, N. Y.

There are certain fundamentals which are found in the Hoover Standard City Planning Act, and in the statutes of some recently adopted in some of the states. I want to discuss not so much the technicalities of legislation or of planning work, as the practical problems which confront a planning commission under these statutes.

First, in the appointment of the planning commission the one qualification for every member is a wholehearted belief in the future of the city and the willingness to work. There is no other qualification, whether it be wealth, social position, or official title which should admit them to membership.

Second, and perhaps the most important of the powers conferred by the statutes, is subdivision control. It is the practical means by which you put the plan into operation without public expense and produce cooperation between property owners and subdividers in their common interest, and in the interest of the public.

Third, is the power given to a municipality in New York State at least, to adopt an official map. This insures a city's development in conformity with the plan.

When our planning commission started to function in Schenectady, we had subdivision control to be sure, but we had no money and could not get an appropriation until the next budget took effect, six months away. Property owners immediately began to bring in plans for approval. We had no subdivision rules, no street or park plans, and yet were asked to approve subdivisions which might make or break the future of the city. Of course it was our luck to get the worst subdivision problems in the whole city

offered us in this first batch of plans. All we could do was to stave them off until we could get more information.

When we got an appropriation we voted it all to pay for expert assistance, and we started in immediately to prepare some of the basic features of a master plan, namely, a major street plan, a transit plan, and a park and playground plan.

Next we found that Schenectady had no accurate maps. The city was not triangulated or monumented for accurate survey control to establish either the location of old street lines or to locate new street lines. So in the midst of our attempts at subdivision control, we had to make a triangulation net to control the surveys and an accurate geodetic and topographic map which would show the elevations for sewers and street grades, and the true locations of the streets and property lines.

We received another appropriation from the Council during the year, and voted it all on a contract to start topographic work. The expenses of our commission were paid by the members that first year. That was five years ago. In about three years we got our master plan completed, together with railroad and industrial plans and a zoning ordinance, but we realize that a master plan is not a working plan. It shows the theory of the street and park development, but not to scale. It is what an engineer might describe as an outline drawing without dimensions. That is where many planning commissions think city planning stops. That is really where it starts. You cannot expect to get your plan carried out until you give to the builders accurate working drawings, not theories or guesswork; not leaving the question open as to which side of the street shall be widened, or how wide it shall be. You must give accurate specifications so that they know just where streets, parks, railroads, transit lines and sewers go, and why, and you must put them on the most accurate maps you can make.

In your subdivision control work, you will find that if you work out the solution of the subdivision problem before the subdivider comes into your office, you will not be in the very embarrassing position of saying, "That isn't right and we can't approve it, but

we don't know what you ought to do," because he immediately thinks that you don't know what you are there for, and he is right. And so it is necessary if you are going to do real city planning to go a step further than your major plans. You must reduce them to scale on accurate maps and fill in all the detail. You must work the problems out in advance of the public. You must get the jump on everybody. That is the secret of success in planning.

Did you ever stop to think how the plan of Washington, wonderful as it is, was ever put into effect? It was not by supreme court decisions on police power and eminent domain. It was the only plan. Everybody got used to it. It was a good plan that could stand on its own feet. Everybody got to thinking in terms of that plan and when they laid out streets or built houses, they followed it because it was all they had. It does not take a strong arm or a club to sell the city your plan, *if it is a good plan.*

In order to get the jump on our problem, we have plotted out in detail to scale on topographic sheets the future street lines for all street widenings for both major and minor streets. Any one may have copies of these sheets for the asking. Property owners are getting the habit of obtaining these sheets before they start subdividing. The psychology of the Washington plan is still good.

In 1926 the New York legislature gave us something still better in the legislative provision for the adoption of an official map by the legislative body of the city. This statute does not take any land or any easement in land, and does not produce the complication of condemnation proceedings, but it does provide that when the official map has been adopted there can be no building or rebuilding within the lines shown for the mapped street, unless the owner cares to run the gauntlet of a public hearing before the Board of Zoning Appeals, and get a temporary permit under such restrictions as the Board imposes.

We immediately prepared all the official map sheets, and took them to the Schenectady Common Council and got them adopted as the city's official map. We did the same with the Town Board of Rotterdam, because we have in Schenectady a population which

overflows the city line, and runs over into four towns and a village. The Town Board took five square miles in one gulp and asked for more. People in the other towns are urging us to hurry their maps.

The next step was to reduce these official topographic sheets by a photostatic process to a thousand foot scale, and make a tracing of the entire map as our working sheet, on which we are now going to start real city planning after five years' work.

There was an addition of about two and one-half square miles taken into the city three or four years ago, no sewers, no pavements, no water mains. The addition was laid out without any regard to street grades or continuity of street system. It was a mess. The city engineer was called on to prepare a sewer plan for that hodge-podge. We asked him to hold up work until we could get our maps. We started topographic work first in this Woodlawn addition, going out to the edge of the drainage area without any regard as to whether it was inside or outside the city. We then unscrambled as well as we could the street system which had been laid out, much of which was so bad that in fifteen years since the subdivisions were filed the owners hadn't been able to sell a lot. Property values were gone. They thought nothing of planning a street to a fence-line on a side hill and with no street connection at the top. The civil engineers who had laid out the property merely took the deed description and with a flat piece of paper and a ruler laid a subdivision out and charged a $25 fee. That is the way too much subdivision work is done in the United States. The subdivisions don't fit the topography or the dimensions on the ground.

When we came to check over the city engineer's sewer plan, because those sewer plans come to our commission under our New York law, we found that by the relocation of one street in one of the worst subdivisions, we could cut out about 1,000 feet of 48-inch sewer. In another place we took a big piece out of a 96-inch outfall for storm water. By that one piece of work we saved, on the 48 and 96 inch sewers, $200,000 on the cost.

We have brought back about a half million dollars' worth of property that had been ruined by improper subdivision. It would

pay for the topographic mapping several times over and all the master plan and zoning expenses of the commission thrown in.

Now, just a word about what we are going to use the new thousand foot scale map for. We are going to use it now as the control map for determining the school district boundary lines of all the schools. We are going to use it as the control map for redesign of the entire sewer and water system. It will be used by the telephone company for the location of wire centers and new conduit lines. The same is true for the Gas Company and the Power Company. It will be used as the basis for determining the proper location of all public buildings, fire stations, police precinct stations, mail routes, sewer and water lines, bus lines and car tracks. That is where our city planning begins after five years' work.

I just want to say again that the official city map statute is a work of genius. So far as I am concerned it ends all the research on building line setbacks. We are not urging street widening by ordinance and bond issue, but we are now getting voluntary setbacks to the new building line. In less than a year since the official map was adopted we have three new buildings costing about $1,000,000 built back on the new street lines shown on the official map. When a property owner invests his money in the plan and builds forty-four feet back from the present street line to do his part of the widening of that street, he is going to make his neighbors go back too.

We are putting the whole city of Schenectady, not merely one or two main arteries, into a process of evolution. We know that in our business section we have few buildings that will be standing in twenty years. If they are all rebuilt to the proper street lines, we are going to set a pace which I believe will be difficult for many of our wealthy competitors to equal.

DISCUSSION

CHARLES H. DIGGS, Executive Secretary, Los Angeles Regional Planning Commission: The California Planning Act, patterned after the Hoover Standard City Planning Act, became a law in

1927. The time has been too short for many cities to organize planning commissions under this act. However, five or six cities, among them being Riverside and Oakland, ranging in population from 2,000 to 300,000, have adopted it. The greatest stimulus this act has given has been to regional planning. Already the Monterey Peninsula and the Santa Barbara area have formed regional planning commissions, and others are in process in several California counties.

The Los Angeles Regional Planning Commission was established by the Board of Supervisors of the County in January, 1923, thus becoming the first *official* regional planning commission in the United States. The powers and duties of this Commission are:

(a) To make a study of the problems of the county with respect to residential and industrial districts, traffic conditions, public parks and boulevards, flood control, subdivisions, and, in general, with respect to those matters affecting the orderly growth and development of the county as one large commonwealth and to make to the Board of Supervisors recommendations for the solution of the same.
(b) To advise with the Board of Supervisors and other county officials with respect to their duties affecting any of the above matters.
(c) To seek to interest the various municipalities and other political subdivisions of the county in a joint effort to understand and solve the common problems of development confronting them and the county.

The Commission consists of five appointed members, who serve without compensation, and three members ex-officio: namely, the Executive Secretary (who is in charge of the staff), the County Surveyor, and the County Road Commissioner.

OUTLINE OF FIVE YEARS' PROGRESS

January 1, 1923, to January 1, 1928

The Commission cooperates with county departments, commissions, and citizens' committees which have planning functions.

It coordinates the work of 44 municipal governments, 25 local city planning commissions, 101 chambers of commerce, 63 civic improvement associations, and as many highway development associations. It has organized and sponsored the City and County

Engineers Association, the Association of City Planners, and the Industrial Trackage Committee. Its aim is to provide for the orderly development of the region.

Statistical Division

The object is to ascertain present conditions and trends. Compile relevant basic facts and figures. Area dealt with—Los Angeles County, 4,115 square miles; of this, roughly one-third is open territory, one-third is mountainous, and one-third is intensively used. Population: 1910—504,131; 1920—936,455; 1927—2,271,151. Property values 7 years ago, 1,275 millions of dollars; today, 3,337 millions of dollars. Such unprecedented growth demonstrates the need of active guidance.

Highway Section

Cooperates with the Road and Bridge Departments and with municipal governments. Tentative Major Highway Plan, now complete, calls for 3,000 miles to be 100 feet wide. Base map of County (1000 feet to the inch), 75% complete. San Gabriel Valley Highway Plan, same scale, complete. Calls for 543 miles of major highways (100 feet); of this, 49 miles are actually secured and 79 miles are under petition. Determining influence exerted in many specific projects.

Subdivision Section

Cooperates with Road, Health, Forestry, Surveyor's, Sanitation and Drainage Departments. Has acted upon 1,640 proposed subdivisions in unincorporated areas. Ninety-three per cent of Section decisions, based on standard requirements and uniform procedure, accepted without appeal. Total area involved, last 4 years, 55 square miles. Records show 75 to 80% finally recorded. (All in territory not controlled by any of the 44 rapidly developing municipalities.) Major and secondary highway widths secured without cost in recorded subdivisions on 85 linear miles. Street jogs eliminated; proper lot and block sizes assured; bad plans corrected.

Zoning Section

Cooperates with Fire Warden, Health Office, Sanitation Division, and Public Welfare Commission. First county-wide zoning

ordinance in U. S., enacted Sept. 12, 1927. Detailed zoning in effect, 5 square miles. Use surveys completed on 60 square miles; for half of this, tentative zoning schemes are ready to present at public hearings. Building permits issued by this Section afford means of effective control over all new construction. Estimated value, proposed construction under such permits in last quarter of 1927—$3,398,408. (All in unincorporated areas.)

Landscape Design Section

Detailed design of areas to be subdivided, with studies of economic problems involved in street layouts. Studies of relationship between street widths, roadway widths, and lot depths. Design of parks, playgrounds, recreational areas. Landscape design in grade separations and highway intersections. Completed Civic Center Street Plan; approved by City and County authorities.

Staff Artist

Cooperates with the Forestry Department, Road Department, Bridge Department and local civic bodies in: Designing and preparing illustrative data concerning County parks and parkways. Preparing perspective studies of maps, also of highway alignments and grade separation problems. Supervising the preparation of informational material used at expositions, conferences, and other public meetings.

Mr. Bassett: The new laws of the state of New York regarding planning boards and official maps were passed in 1926 and 1927. There are three laws substantially the same, one applying to all cities, one applying to all villages, and another applying to all towns. Every foot of the domain of New York state is now subject to these three permissive laws.

They were framed after a careful study of all the laws of the states and the operation of those laws. They relate to a control of the city plan. The city plan, in so far as it is protected, is the plan of streets and parks.

Now, this does not relate to the actual taking by condemnation. The acquirement methods are well settled in New York and all other states. The trouble always comes on the planning or laying out, as Mr. Moot said, of the lines on the city map.

The state law allows every community to establish an official city map showing streets and parks. The statute states that the

official map is established for the health, safety, morals, and general welfare of the community so as to bring it under the protection of the police power. The council, we will say, can take existing streets as a start, and establish that as the official map. This official map not only shows existing streets, but also can show the lines of mapped streets and parks. They don't become the property of the city because they are placed upon the official map. They are lines showing the intention of the city to take in the future by purchase, by condemnation, or by dedication, a city street or a city park, but as such they are protected under the police power.

One of the great hurts in all the cities of our country has been because wherever an official map of streets could be established, the owner could put up his barns and his houses in the bed of the mapped streets. If he cannot get a permit from the building commissioner, he brings action against the building commissioner and the court always says that he is entitled to his permit to put up a lawful building. Therefore the street is sometimes covered with buildings, and often becomes too expensive to open when the city wants to open it, and the owners surrounding who will be affected by the assessments say to the authorities, "Don't put the street there because all of the buildings will be condemned and the cost will be assessed on our land and it is virtually confiscation. Put the new street somewhere else." The result is that miles of mapped streets in some of our cities, especially Greater New York, have been made impossible by buildings going up, and when new streets were actually opened they had to dodge around corners. This practice has impaired many square miles of city streets of Greater New York, and in a lesser degree of other cities.

Consequently, this new law is aimed at preserving the integrity of mapped streets and accomplishes it in this way. No one can get a permit to build in the bed of a mapped street from the Building Commissioner, but inasmuch as he still owns the land of the street he is entitled to put up something. It must be regulation under the police power and not a taking which requires condemnation. Consequently, he must go to a discretionary board, the Board of Appeals, that has power over variances. This board is given the power to require that kind of building which will be the least injurious—e. g., frame instead of stone, without a cellar instead of with a cellar, one story instead of four stories—anything that in the discretion of the board will be the least burden. As

a matter of fact, property owners usually respect the street lines, and when they have this procedure to go through they will see what the city is driving at. So far as I know in any city that has adopted this new law, no one has yet gone to the Board of Appeals. But in order that there shall be no taking without compensation, this safety valve, this opportunity for a man to earn his six or eight per cent and taxes on his land, is given him.

But, like zoning, this is regulation and not a taking. In addition to its being possible to lay out new streets and preserve their integrity, this is followed usually by dedication so that the city gets the streets without expense. Why not? Property owners in the long run have got to pay for the streets which open up their land. They are glad, as Mr. Moot said, to have an opportunity to find well-mapped streets with official lines decided upon, which they can dedicate or cede to the city. Mr. Moot showed you how they are voluntarily giving the property to the city along street lines which are carefully laid out by authority instead of being laid out hit or miss by developers.

We have had one or two cases which have gone to court, but not to the higher court. We will all look with interest on what the higher court says. I must say in fairness that this particular phase of the new law is not free from danger in the courts, but the danger is not so great as the danger was in the early days of zoning.

Other points in the new laws are interesting. It is within the power of the planning commission to approve plats showing new streets, and when they approve such plat, the streets shown on the plat become part of the official map ipso facto. It is not, however, any dedication, and there is no requirement of dedication. When the owner files his plat showing streets, the commission may look it over, sit down with him around the table and require in proper locations the showing of a small park. No certain percentage is required. It would depend on the elements of the case. If, for instance, the owner has laid out a number of forty-foot streets and doesn't have to lay out any seventy- or eighty-foot streets, and consequently has some velvet left over, in many cases he will be willing to throw in small parks, and if he does not, the commission has power to require in suitable cases these small parks for playgrounds to be shown on the plat as a condition of approving it. That is not a taking of the land for a small park. The platter can write on it, if he chooses, that the park is not offered for dedication. It will then simply happen that when he makes deeds to his various

grantees, those grants will be affected by private easements over this plot that has been designated as a park, and when it is affected with a multitude of private easements, as you know, its value on condemnation is only one dollar, or nominal. But the result in those cases, experience has shown, is usually that the park itself is dedicated because the grantees have property in the neighborhood, and having an interest in the park, require sooner or later that it shall be held in common or else dedicated. The result is that here is a lawful method under the police power by regulation for the health, safety, morals, and general welfare of the people that streets can often be widened or created without cost, that small parks can in proper cases be obtained and that it will work out that the community will get these small parks without cost.

All of this is controlled with careful safeguards so that there will be hearings before anything is officially decided upon and with an opportunity for court review so that if anything is done that is arbitrary, it lies within the power of the court to adjust it. That is the same method that has worked so well in zoning.

The method outlined in the so-called standard city planning act put out by the Department of Commerce, Washington, for the preservation of mapped streets is this: A condemnation proceeding is provided to secure a public easement preventing structures in mapped streets. Then later, after the condemnation is over, say ten years later, if the city wants to open the street, it condemns again and takes what wasn't taken the first time, namely, a fee or an easement for street purposes. We in New York have had the power of doing this same thing for twenty years, and because it was cutting off the dog's tail by two cuts instead of one (every condemnation in Greater New York being expensive), we never used this method, although lawful (no doubt of that) and safer before the courts than this other method (no doubt of that), yet nobody in New York follows it because if we are going to do those things by condemnation we do it once instead of twice. The good feature of our new method is that it is working well and we think that it will not be hurt by the courts, but inasmuch as it is the subject of court adjustment by court review we hope that wherever its application is arbitrary the court will simply say, "Do it in a way that isn't arbitrary. We like your way but you went a little too far."

Just as in the case of assessment of property for taxation, the man whose property is assessed twice as much as it is worth doesn't

go to court to try to smash the tax law. He goes to court invoking its reviewing powers and shows the court that he is assessed for twice too much and asks the court to cut it in two and leave the assessment at what it ought to be. That is the power of the court we invoke in zoning and we also invoke it under our New York official map laws, namely, the adjusting power of the court, and we are hoping in New York that it will result in court adjustment whenever it comes up and not in any court annihilation.

I am very glad to review this matter in the way of discussion of Mr. Moot's very admirable talk. Schenectady is in my opinion doing work of the most progressive sort, and it is being done under the very masterful leadership of Mr. Moot.

S. H. HARE, Kansas City, Mo.: Does the New York statute impose upon the property owner an official plan for minor streets, and is there not some danger that private initiative and interesting variation in street design will be taken away?

MR. BASSETT: It was the intention of the framers of the law that only main thoroughfares should be placed on the official map and that other streets would be adopted as official only after consultation with property owners. As the law stands, however, it is optional with the City Council to adopt an official map covering only main thoroughfares or covering main thoroughfares and other streets.

By the New York method it is possible practically to secure new main streets without cost, for the City Council may adopt 100 ft. rights of way and thereafter the owners will work out, from time to time, the physical establishment of these rights of way. Some owners will dedicate land, some will grant it by deed, some will keep, for a long time, their present buildings which encroach upon the right of way, but when they build a new building they will not be able to get a permit for a structure which encroaches on the right of way without a special hearing before the Board of Appeals.

MR. MOOT: We included minor streets in our official map because we thought it the most practical plan to follow. It gave us something definite when dealing with subdividers. It gave our Engineering Department something definite when dealing with a sewer problem; and finally, it assured a better auxiliary street system to take care of traffic which no major street system can take care of alone.

A. O. Campbell, Chairman, City Planning Commission, Oklahoma City, Okla.: Many of the essentials in master planning procedure have been adopted by Oklahoma City. The Planning Commission is composed of nine members appointed by the Mayor for three years. The members of the commission are, as far as possible, non-partisan and without affiliations, business or otherwise, which will make them amenable to political influence. Although the commission is a legal body, its function is merely advisory; it has no legal way of enforcing its recommendations, and consequently, to be of benefit must have the confidence of the City Council, and work in close cooperation with it. Its major purpose is to work out a comprehensive plan based on the vision of the city and its requirements for fifty years in the future; a plan which will include certainly a system of main traffic arteries, of parks and playgrounds, and public building sites, and the establishment of business, industrial, and residential areas. Such a plan is fundamental in the city's development, the chart both of the Plan Commission and of the public, but can be carried out completely only after many years. However, Oklahoma City is fortunate in having already accomplished many of the details of the comprehensive plan.

Parks

It may be stated as good city planning doctrine that a city should have approximately 10% of its area in parks, and should roughly have one acre of park for every 150 of its population, and the parks should be distributed so that all parts of the city will be fairly served. Oklahoma City has an area of about 11,000 acres, and a population of 145,000. The total park acreage, exclusive of boulevards, is 2,275 acres, or 20% of the total acreage, and one acre of parks for approximately every 60 persons. The five largest parks are: Fair Park, 160 acres fully equipped for state fair and exposition purposes. Trosper Park, 620 acres of wooded land, including a nine-hole golf course and an 80-acre reservation for Boy Scouts. Southwest Park, 160 acres, 80 of which are used as a municipal aviation field, the rest is undeveloped. Northwest Park, 160 acres undeveloped. Lincoln Park, 640 acres of wooded land, with an 18-hole golf course, and a lake of 75 acres with bathing beach, bath-house, and adequate playground equipment. The four last-named parks were purchased by a bond issue in 1912. They are located one at each corner of the city's area, and five miles from the center, with a boulevard 200 feet wide circling the city and

running through each one of them. There are three smaller parks in the center of the city, two equipped for playgrounds, and the third known as Civic Center Park, a strip of land 2,400 feet in length, intended as a Civic Center and downtown park. This property was obtained this year through a bond issue in conjunction with the removal of the Rock Island and Frisco Railroad tracks.

Control of Subdivisions

In all cases where subdivisions are brought into the city, the Plan Commission requires: (1) That all proposed streets shall connect with existing streets in adjoining developed areas. If the existing streets are too narrow, the newer ones are laid out at a proper width. In nearly every case a width of 60 feet is required. The corners at intersections must be rounded. (2) Where the extension of a main boulevard traverses the subdivision, the width of the boulevard depends on the estimate of future needs. They vary from 60 to 150 feet wide. (3) A building or setback line of at least 30 feet is insisted upon. Exceptions are rare, and are permitted only where the lots are less than 125 feet deep.

(4) Public utility spaces 10 to 12 feet in width must be deeded, or at least an easement granted, through the middle of all blocks for sewers or any other common needs. In all cases this space is grassed over and planted, thereby creating a continuous yard from street to street, and eliminating the old system of unsightly alleyways.

(5) Five per cent of the total area of each subdivision is required for park purposes. We insist that the land be deeded to the city for public use with no reversion clause. This is to prevent the sale of the land subsequently for private use. Many instances can be cited of unwise sales of public land. In my judgment, in ninety-nine cases out of one hundred it is a mistake for the city to dispose of any public land.

We cannot legally insist on this 5%, and so far as I am able to learn, the Oklahoma City Planning Commission is the first to adopt this policy. We are not particular in what part of the subdivision the 5% is situated, but we do insist that if the total area is small, say 5 to 10 acres, the 5% shall be in one piece. We suggest that it be woods, ravine, or rough area, which is least valuable for plotting purposes. We try to convince the owners that the remaining land will be more valuable because of the deed of 5%. If this fails, we

appeal to their civic pride, and if this fails, we use "the big club," together with considerable tact. We say, in other words, that the many things that a subdivider wants from a city will be forthcoming only if the deed is made.

Zoning

Particular consideration has been given to the location of suburban business and industrial areas, so that they will serve the largest number of people, and at the same time do the least damage to surrounding residential property. Rather than create new locations for business or industry, we have adopted the policy of enlarging existing centers. Since the details of zoning are almost a daily concern, we have created a Zoning Committee of the Commission, consisting of three members, and the City Planning Engineer, which in all cases visits the location where the changes are contemplated, making a complete study of the surroundings, and the present and future needs.

George W. Melville, Cincinnati, Ohio: It seems to me that the five per cent method described by Mr. Campbell is almost sure to bring about a hodge-podge result. There will be small scattered and non-related public holdings, neither particularly suited nor adequate for any kind of public use. The better and more legal method is for the planning commission to prepare a comprehensive open space map, and then, when the plats or subdivisions are brought in for record, the developer can be shown the open space proposals, and in the majority of cases, he will be glad to make a contribution out of his holdings toward future open spaces. Such an open space map is part of the Cincinnati city plan.

In almost every large subdivision there are pieces of land that because of the rough topography cannot be used profitably for residence purposes. If these are dedicated to the public use, they will add value to the subdivision. The combination of an open space map and an agency which has jurisdiction over new subdivisions, should produce, without any five per cent provision, dedications of desirable open spaces. We have been surprised to find how many of these small places can be readily assembled.

Mr. Bassett: Of course, there is a great deal in the point that five per cent chosen here and there at the will of the developer would be in the wrong places or where it might be a burden to the city to develop and maintain.

Mr. Campbell said that they required a grant, not a dedication. That would mean by deed for public purposes. If that deed were accepted by the city, it would be tax exempt. Consequently, there would be a little piece here and there, tax exempt, which it might be a burden to the city to maintain. But we all know without much analysis that the plan is unlawful, and in every state of the United States the developer can refuse to do it because it is requiring him to give land for a public purpose as a condition to doing a lawful thing, namely, to have his development filed and to go ahead and grant his land. It is an indirect way of taking property for public use without confiscation. It is arbitrary, unreasonable, and void, and will probably be so declared in every state of the United States where the developer chooses to bring it before the court.

That is why I said that it is a strong arm method which you can sometimes get away with in a community where people do not know their rights, but surely officials are elected to advise citizens as to their rights and to do their work in accordance with lawful rights and not with a club.

I deplore those methods very much. If city planners throughout the United States cannot make progress by lawful methods which will be approved by courts, then we better slow up and go only as fast as lawful methods will allow us. Unlawful methods in the long run will bring about more lack of confidence and more setbacks to city planning than almost anything else that can be done.

F. W. Fletcher, Orlando, Fla.: Many of our large subdivisions are sold by unit, that is, in a total area of a hundred acres only twelve or fifteen acres are offered in one unit. It is our practice to persuade the subdivider to dedicate one block in each of these units for open space, on the theory that the subdivider can charge a little more for his lots if the purchasers know that their children are to have a space nearby in which to play.

Miss Margaret McLean, Fort Worth, Texas: The National Playground and Recreation Association have made a very close study of the question of parks and playgrounds, and they have told us that the minimum amount of space for playgrounds should be ten acres, but we all know that there is no room for planting on such a restricted area, and that without planting, the play space is bound to become an eyesore. Our experience in Fort Worth has been that small areas have been the most expensive part for upkeep of our park system. They are not large enough for play space, and

can be only beauty spots. I believe in beauty spots, but I believe we should try to make them large enough to serve the double purpose of play and beauty. I beg of you not to let the subdividers give you a lot of little tracts of land which will only clutter up your park system, and use up your money. It is the policy of our park board not to accept small areas or triangles, but in several instances the subdividers have without our knowledge or consent, dedicated the land to the city for park purposes, and the people who buy the land buy it with the understanding that the area is going to be a park. What are we to do in this situation?

MR. BASSETT: In my judgment that is not a problem. Your city need not accept the dedication. The acceptance of a dedication is a formal legal thing. Your City Council must pass a resolution accepting the land, or in lieu of the resolution it must perform those acts which can be taken as an acceptance of the dedication, such as putting in lamp-posts, putting in a sewer, grading the land or planting it. The answer to Miss McLean's question is, have the city refuse the dedication.

ERNST FREUND, Chicago, Ill.: Is not the question of equities of the purchasers also involved? They may not know that the city has not accepted the dedication, and should not notice be served on them in some way that there has been no acceptance?

MR. BASSETT: Mr. Freund's point is excellently taken. The Park Board has the duty, if it wants to avoid dedication, to see that the Council refuses it, and to see that notice is given to prospective purchasers of the refusal.

FOUR PLANNING PRINCIPLES AND AN OUTLINE FOR PLANNING PROCEDURE IN SMALLER CITIES

JACOB L. CRANE, JR., Planning Consultant, Chicago

For the purpose of this paper I should like to state, or perhaps I ought to say re-state, some of the principles which, it seems to me, should underlie all practical city planning work, and which apply with particular emphasis to the smaller cities. These principles go a long way toward controlling planning procedure step by step.

First of all, a good city plan should reflect the sound ideals and ambitions of the city for which it is prepared, and not only the preconceived theories of city planning as pronounced by the planning expert. This point is illustrated by the story of the wounded soldier who found himself in a hospital being measured for a coffin. He sat up on his cot and objected that something was wrong because he really wasn't dead, and the nurse replied, "Lie down there and be quiet. Do you want to make a fool out of the doctor?" It strikes me that a good deal of city planning publicity work and what is termed public education is unconsciously aimed at cudgeling the public into an acceptance of the city planner's theories of what the city should become and of the means to attain that end. The converse of this point of view is in reality more nearly sound. The "publicity" campaign should be aimed to arouse the citizenship to a free consideration of the city's destinies and problems and the city planner should properly be sensitive and responsive to the townspeople's own ambitions and ideals and not solely to his own.

There are, of course, two arguments against this suggested point of view: first, the danger that what I have called the townspeople's ambitions will resolve themselves into the purely material ambitions of individual property owners and business interests, and

second, that the characteristic joint ambition of the American town does not permit of the application of the ideal type of city planning theory. In answer to the first of these arguments I would say that if the citizens are given a good opportunity during the preliminary discussions to formulate their ideas of the town's development, there will be no lack of consideration for the city's welfare as a whole, and that the unsocial objectives of individuals can be readily sorted out. To the second argument I would ask, who can say precisely what the soundest city planning theory for a town may be unless it is the ideals of the community itself?

An illustration of an important basic new idea just now emerging from obscurity in the public consciousness is the tendency to face residences away from the street, placing the service entrance toward the road, reducing the size of the front yard, and facing the living quarters to the "rear," where the private play space and gardens may be developed. This idea may vitally affect the future city planning of our towns, and in my opinion the tendency is a good one. The point here is that too arbitrary zoning, building and platting regulations, although conceived in good faith, might serve as an obstacle to this logical and desirable tendency.

The American city is unlike any of the city types for which the earlier city planning theories were developed, and, furthermore, its destiny as a physical organism is still obscure except in so far as we can appraise the significance of the underlying factors and tendencies and popular ideals which emerge year by year. It is my feeling that while more time and trouble and sensitiveness on the part of the city planner are required to put this principle into effect, it nevertheless remains a principle that the American city will achieve its destined sound and characteristic development only if the city planner and the city plan reflect as fully as possible both the expressed and half-unconscious ambitions of the people themselves. Obviously, this principle applies with greater applicability to the smaller city, where it is more nearly possible to get at the public sentiment than in the heterogeneous larger cities already prematurely crystallized in their physical form.

The city plan, then, should interpret and formulate and devise means for putting into effect what we may call the popular image of what the city should become. The city planner must, of course, suggest directions which the popular idealism may take, but his real job is to establish practicable plans and procedures toward the realization of a sound popular ideal. In doing so, however, the second principle appears, namely, that the greatest advantage of city planning for the growing American town lies in what we may call the guidance factors, and not in the proposals for costly reconstruction. By guidance factors I mean building codes, zoning ordinances, subdivision control, supplemental lines, guidance in the acquisition of public lands at an advantageous time, and control to prevent undesirable conditions from growing worse, particularly in such matters as the location and arrangement of buildings along streets which require reconstruction for widening. For two reasons this principle applies with special emphasis to the smaller city. Such cities are not financially capable of carrying out elaborate wrecking and reconstruction plans. And since their major development is still ahead of them, the proportionate value of the guidance features is even greater than in the big cities. For the sake of the planning program itself there should be special emphasis upon those features of the plan which control new building and new development because through them critically important objectives can be attained at little or no cost to the community, which in itself tends to stimulate public interest and support for the entire project. These guidance or control elements of the plan are frequently found to be more urgent than the elements calling for expensive clearing of land or reconstruction, because by virtue of them the otherwise inevitable danger of creating conditions which will later require rebuilding is largely avoided.

From the planning point of view cities vary greatly in their degree of maturity, and this variation seems to be more or less independent of their actual age. I have found comparatively old towns quite immature in their planning outlook, and quite in-

capable of utilizing more than the most elemental planning control. On the other hand, I have found growing cities of considerable size as yet young in years but mature in their civic outlook and capable of going far with city planning programs. Some of the factors controlling this situation are the character of the population, the nature and quality of the city government, and even the type of public education. From this consideration the principle emerges that for each city the planning proposals made for adoption should be in scale with the city's capacity for applying them. This is true in determining the degree of elaborateness and complexity of the zoning ordinance, the subdivision control, the proposals for acquisition of public land, and perhaps, most of all, with the suggestions for projects which require the unusual expenditure of public funds on street widenings. Again, this principle applies with particular force to the smaller cities, where it is possible to appraise with fair accuracy the city's capacity for utilizing a city plan and where the necessity for moderation in the proposals is greater because of the smaller funds which will be available.

Finally, I would like to lodge a protest against what has seemed to me to be premature crystallization of city planning theory, particularly when put into effect through specific legal regulations. Every phase of American city planning is and should be considered to be still in the process of formulation, and both the city planner and city governments should not only make it possible for plans and ordinances to be revised, but should actually encourage the instigation of new principles, so long as these principles have to do with the sound logical development of the city as a whole. The imposition of platting regulations requiring road dedications of a certain width on all section lines and half section lines without a definite plan to guide the location of the roads, the acceptance of the theory that a certain type of building will always be characteristic and necessary, for example, tenement-like apartment houses, and reliance upon any one type of transit as permanent and exclusive of all others, are typical of the kind of thing which I have in mind. It has occurred to me that the rigid ex-

clusion of all industry from residential districts may eventually militate against both a desirable type of industrial development and against the soundest physical growth of the city. There are many examples of craftsmen type of industry which would suffer materially if required to locate in the dirtier industrial districts and which might appropriately be placed in residential districts with plenty of growth around them, with considerable advantage both to themselves and to the workmen and their families who have to go to and from these factories. In general, the problem of transportation for factory workers tends to increase as industrial districts are limited and residential districts grow farther and farther from the places of employment. These are only incidental illustrations of the principle that the whole city planning movement should be free to accept modifications in accepted theories as time goes on and new tendencies arise. For the smaller cities, where there is still the opportunity to take advantage of new knowledge and new devices, this principle is particularly valuable.

The four principles above stated are, I realize, subject to discussion. It is by such discussion, instead of by plodding along accepted channels, that the science and art of city planning will develop and more nearly fulfill its greatest usefulness.

To reduce this abstract discussion to concrete suggestions for carrying out a city planning program in a smaller city, the following outline is given, with the qualification that it should be varied to meet individual local conditions:

First—Authorize by ordinance and organize a City Planning and Zoning Commission—not a Zoning Commission only, nor separate commissions for zoning and city planning. The commission should be small in number, ordinarily not to exceed nine, and should have a personnel of the highest qualifications representing various interests. It is desirable that the Mayor, at least one member of the City Council, the City Engineer, the City Attorney, and a member of the Park Board be included.

Second—The commission should hold preliminary meetings to formulate the principal city planning problems; to determine the

amount of necessary funds which should be appropriated for their work; and to draft an outline of advisory committees which may work with the central commission.

Third—Ask the City Council for a definite appropriation for the first year's work with a statement of anticipated needs for succeeding years.

Fourth—Engage an experienced planning consultant.

Fifth—Initiate a program for presenting to the public the development problems of the city and for securing as specific reactions as possible to these problems and to the general question of, "What kind of a city shall we develop here?" Questionnaires and meetings with individuals and committees have been used to good effect.

Sixth—Get consultant's immediate advice on temporary control measures, such as interim zoning ordinance and preliminary platting control, and submit recommendations to the City Council on these measures.

Seventh—As each section of the plan develops and becomes ready for adoption, secure as full public discussion as possible before presenting work to city for passage. Neighborhood meetings and meetings with civic clubs and individuals have been found valuable.

Eighth—Do not be satisfied with the mere presentation of report and plans, whether or not published. So far as possible present to the City Council concrete recommendations, ordinances and plans which may be officially adopted, and follow them through to adoption.

Ninth—Publish and distribute widely the reports and plans on the entire project.

Tenth—Do not consider the Plan Commission's work finished when the plans are done, ordinances adopted, and report published. The Commission should be a permanent institution, with several specific duties, such as examination of subdivision plats, and even more important duties in initiating modifications of the plans and ordinances and entirely new projects.

The above outline does not include a great many details which will follow as matter of course if a consistent, consecutive program is carried out, such as the creation of Boards of Zoning Appeals, and conferences with other public authorities, such as school boards and park boards. In my experience city planning has been greatly delayed in many towns because no one seemed to have a definite idea of precisely what steps to take in getting the work started. After a definite program, such as the one outlined, is adopted, the earlier inertia rapidly disappears and the project goes forward by its own momentum.

DISCUSSION

STEPHEN CHILD, San Francisco, Calif.: Probably for all cities over 100,000 population it is best to have a separate city planning department administered by the city plan commission; but such a department is out of the question in a very large number of smaller communities. Nevertheless, these smaller cities and towns need to plan intelligently and to follow up the plans as continually and patiently as the larger cities.

The usual practice today, even in the smaller cities, is to employ a city planning consultant who puts one of his associates in charge of the local office. This is all very well for plan making, but when it comes to the follow-up work it is certainly better to have it done "at home" and not from some distant expert's office, or even from his temporarily established local office. I want to suggest a fundamental definite method of carrying on for the smaller city.

Let us start with a citizens' advisory committee on the city plan. It may be a committee of the chamber of commerce. This committee employs a city planning consultant whose first job is to help the advisory committee "sell" city planning to the community, and thereafter to draw up a city planning ordinance under which an official plan commission is appointed with a modest appropriation. The consultant is now retained as the adviser of the city planning commission, but only as adviser. The job of making the city plan is not turned over to him. The organization of the commission is completed by the selection of an efficient secretary. The first task of the commission is to make a comprehensive survey as a basis of the city planning program. The time has now passed when this job can be done by a city planning expert

after a two or three weeks' visit. The new procedure which I recommend will put the collection of data for the comprehensive survey in the hands of the city engineer and the secretary of the planning commission, under the general supervision of the city planning consultant. It is likely that the city engineer will need a city planning assistant and for this position a graduate of one of the well-known city planning schools is suggested. The actual field work of investigation and the drafting of plans is done at the expense of the city through the engineering department and is subject to no charges on the part of the consultant, his retainer being on an annual or monthly basis only. As the survey progresses a start is made upon the major street plan study; also upon the preliminary zoning studies and the other elements of a comprehensive planning program.

This method overcomes most of the drawbacks incident to the usual planning procedure. Suppose the council turns down a street widening scheme which is an essential part of a major street plan, or suppose that the people vote against a bond issue for parks—these are but temporary set-backs. Sooner or later, if the comprehensive survey is well done, these projects will be carried out, though no doubt in a modified form. But if all the data is at hand and the consultant, under the terms of his contract, is also at hand, he can more readily see to it that the modifications are reasonable and that the program is substantially carried out. The same is true with all other phases of the planning program, particularly zoning. I believe that the procedure herein proposed will go far to overcome the opposition of public officials. Who can blame the city engineer and other officials—the men on the job who know their city—for exerting their influence against plans prepared after only hasty study by a visiting city planner? If the consultant works with the city engineer from the start to the finish, and that means as long as the city continues to grow, we will cease bungling and get results in our planning.

Lawrence V. Sheridan, Indianapolis, Ind.: Mr. Bassett remarked that city planning consisted of those things which could be drawn on paper. That is, city planning has to do with the physical layout of the community, and physical elements can be reproduced to scale in the form of maps, plates and drawings.

The reaching of decisions as to the form and details of plans requires a great measure of preliminary and preparatory thinking.

The development of a city plan is not unlike the process of thought entailed in the working out of a military campaign. The United States Army, through its service schools, has standardized a method of logical analysis which is applied to every tactical problem, large or small. This consists first of an estimate of the situation in which every force available to the commander is considered and compared with forces possessed by the enemy. The plans of action open to each side are studied. With thorough knowledge of the situation it is possible for the commander to reach a decision which is most likely to be successfully accomplished. All of this estimate is, of course, based upon a clear understanding of the mission of the particular unit. When the decision has been reached, a plan of action is prepared in standard form, clearly stating the mission and assigning duties to units of the command. The point to be emphasized is that this process of thought is logical and is designed to obviate the possibility of overlooking matters of importance.

The city planner can profitably follow a similar line of reasoning in developing plans for the city. First he must know the mission of the city. Is it predominantly of an industrial type, a residential community not catering to industry, a combination of these, or perhaps of some other character? When its present and future character is known, every factor bearing upon its development, either favorably or unfavorably, may be analyzed and an estimate of the situation made. The city plan itself is much like the army commander's plan of action in form. It assigns certain duties to the thoroughfare system, others to parks and recreation, to zoning and other elements. Each performs a certain combination of functions designed to aid the city most thoroughly to carry out its mission.

A city plan in itself is not of great value. It is a means to an end. The accomplishment of its recommendations is the ultimate result to be attained. Great care should be exercised in preparing city plans and they should be presented in the most attractive way possible. This enables the public to visualize the proposals set forth. Nevertheless, the completion of the city plan report, just as in the case of the army commander's plan of action, is merely the beginning of the action. From then on constant energy must be directed to accomplishment. Every portion of the plan which is carried out will make the next element easier.

The talk this evening is to be illustrated with slides which show what has been done in accomplishing city planning development

in many cities. These slides include before and after views of projects in St. Louis, Indianapolis, Dallas, Boston, St. Paul, New York, Kansas City and other cities. The subjects include street widening, subdivision planning, parks and parkways, school grounds, railroad revisions and surroundings of railroad stations. They clearly show the value of accomplishment.

JOHN NOLEN, Cambridge, Mass.: The greatest failure of our city planning movement is the fact that we have not, generally speaking, been able to move the smaller city into planning activity. The low percentage of small cities which have undertaken in a substantial way the solution of their problems is one of the most discouraging things that we have had to face.

The city planning problem of the smaller city is no different from that of the larger city except for three things. The first is that to a very much greater degree, so much greater that it is like a different thing, city planning in the smaller city is a preventive process—in the larger city it is a corrective process. The vice-president of one of the largest insurance companies in the world, who is serving on the Mayor's Committee on Plan and Survey in New York City, said just the other day, "When I consider that the program which has been submitted tentatively to our Committee proposes to spend in corrective work in New York City nearly two billion dollars I become pessimistic."

The second thing is that the standards of human welfare, of efficiency, and convenience in the transaction of business are in inverse ratio to the size of the city. High city planning standards for the small city—low standards for the big city. If it is good as the general standard that there should be one acre of open space for every 200 of the population, we will do well in New York City to get one acre for 400 or even 600. These standards are not merely quantitative. Little cities have great opportunities for preserving their individuality. For instance, the little city in Texas can and should always be spacious, but it will always be spacious only if the effort is made while the city is small.

The third difference is that city plans can be carried out in the small city at low cost. If you will study the question of long term financial budgets, you will see that a very substantial sum, even with relatively small cities, is necessary for the accomplishment of physical improvements, and when you get up to the large cities, the amounts sometimes are staggering.

I believe Mr. Crane is right in saying that city planning ought to be a cooperative job. One of the things that the city planner can do most successfully in the smaller city is to become a sensitive and skilful instrument to interpret to the community its own ideals and its own tradition, and to bring out its individuality. The larger city loses its city consciousness to such an extent that it is exceedingly difficult to find out what it does express. It has been an inspiration to me to talk with the selectmen, the town clerk,the town engineer, and try to grasp some of the mastery that they have of their local situation.

Those of us who have come through twenty years of city planning have been educated by two great influences. First, these Conferences and Institute meetings, the latter of which may be called a remarkable post-graduate school, and secondly, by contact with the rank and file of thinking men and women who are concerned with their own communities. May I emphasize in closing the importance of stirring up the smaller community to city planning activity?

CLARK WARBURTON, Houston, Texas: The primary reason for the inefficiency of our modern business centers is the survival of a system of land tenure which was well adapted to the village life of the eighteenth century, but which is badly adapted to the urban life of the twentieth century.

As a result of individual home ownership it was necessary, in order to install improvements, for home owners to act cooperatively, and since the city government seemed to be the most suitable organization for collective action, the habit grew up of expecting the city to do all the paving, to lay all the sewers, to build the water mains, and to grant franchises for gas mains, for street-car service and electric light lines. In a small community such city activities are essentially cooperative and are carried out with a great deal of civic pride. As cities grow, however, and citizens no longer know each other, this becomes a grab-bag method, with sectional and personal disputes over the location of improvements and over the burden of tax assessments. Due to political influence and other kinds of pressure, there are irregularity and lack of coordination in the installation of improvements.

The city is expected to grow, but there is great uncertainty as to how fast or in what direction. As a result of this uncertainty, the purchase of a home-site is a speculation. Many lots are bought and held out of use, and others are occupied with the expectation of

selling out and moving on within a few years. Lot owners in either case are not interested in the neighborhood, and this is the principal reason for neighborhood neglect. When business actually encroaches, even those residences which have been well-kept are allowed to decay. These areas in transition are the slums of our cities, with no neighborhood activities, where gangs develop.

To alleviate these conditions, two modes of relief are in use today—the modern subdivision, and city zoning. But these methods do not touch the source of the disease. They have not separated the purchase of a home from the purchase of a speculation. They have not eliminated the sluminess of transition areas, they have done nothing to foster the unified development of business centers, and only a little to eliminate the grab-bag system of obtaining civic improvements, or to stimulate private initiative in community building and community maintenance.

If this diagnosis is correct, it means that we need an entirely new type of city planning. The first treatment is the adoption of an arterial street system, extending over the present area of the city and for several miles outside. Arterial streets should be located from half a mile to a mile apart, bordering instead of running through business and industrial communities already developed, and built with due regard for the location of transit lines and topographical features. They should be strictly limited to through traffic with a speed of from twenty-five to forty-miles per hour, with traffic circles or grade separation at intersections with each other, with openings of other streets into them infrequent and carefully arranged, and financed in total out of general tax funds.

Such an arterial street system along with parkways, streams, and railroads, divides the city into sections or communities of varying size and shape, perhaps typically about a square mile in area, each of which may be designated in the basic zone plan as residential, residential-industrial, business, or reserved for civic and recreational purposes. Having provided the necessary arterial streets and main line sewers, and having provided for the general arrangement of the city, the proper scope of municipal action has been reached. I believe cities should withdraw from the building of streets and parks within these residential and business communities, leaving the residents and property owners free to develop their communities in their own fashion. The result of such a community development from within would be a stupendous release of private initiative, variety instead of uniformity, vast experimen-

tation, a healthy rivalry between communities, a strong sense of community consciousness, and the elimination of the grab-bag system with its political graft. A city planning commission could, of course, cooperate with the residents of each community in drawing up building regulations, selecting park sites and designing the community street system.

LEGAL PHASES OF CITY PLANNING IN TEXAS

GEORGE C. KEMBLE, Assistant City Attorney, Fort Worth, Texas

In 1923 the Legislature passed its first important planning enabling act. This was what is called the Street Widening and Opening Act by District Assessment. It permits the acquisition of land for street purposes, either by contract or condemnation, and the assessment of the cost of such property against a benefited district. We have found that the condemnation method is the better one, because this insures uniformity of values. It would be grossly unfair to buy land at a cheap price from one owner and be forced to pay a higher price to his neighbor. A Board is appointed by the courts, composed of three disinterested freeholders in each case, usually the same Board for the entire project, to determine the damages. If an owner's property is to be acquired in its entirety, the damage is its reasonable market value as of the date of condemnation, which is comparatively easy to determine. But when only a portion of the land and improvements are taken, we find a more complicated situation. In Texas the law seems to be well settled that the owner is entitled to the value of the portion taken and any damage to the remainder. If the remainder is enhanced in value this cannot be offset against the value of the strip taken.

If a portion of a building is to be taken, it seems to be the rule in Texas that the owner is entitled to the cost of wrecking the necessary portion thereof, the cost of replacing the wall taken and the value of a cross-section of the building of the width of the strip taken, less depreciation based on the age of the building. If there is a lessee, he is entitled to the damage to his lease, but whatever damage is paid the lessee should be deducted from the value of the cross-section paid the owner.

When the cost of the property has been ascertained, the Commissioners then define the benefited district and the cost to each owner. A date is set for hearings and property owners are notified. After the hearing a report is made to the legislative branch of the

City Government and a formal Ordinance passed levying the assessment on the property. The only question before the Board is one of actual benefit to the property in the district and of uniformity in assessment according to the amount of benefit. The entire cost of the improvement may be assessed against the owners in the district.

The greatest difficulty in these assessments is that some of the property may be the owner's homestead. If this be the case, no lien is created by the assessment. In Texas, a person's homestead can be sold at forced sale only for taxes and improvements. But a contract must be signed by the owner and his wife before it can be sold for improvements. The courts hold that an assessment for improvement is not a tax, and consequently, if a home owner desires, he can defeat the lien. My suggestion is that the homestead law be amended to make homesteads subject to assessment for public improvements without the signature of the owners. A homestead in Texas is a piece of property in which a man and wife live or intend to live in. The only limitation in value is that the lot may be worth only $5,000 on the date designated as a homestead. There is no limit to the value of the improvements situated thereon.

After the land is acquired, the next step is to pave the thoroughfare or portion thereof. The cost of paving may be assessed only against the abutting property and the homestead rights may be claimed as in the widening assessment. The law should permit the city to assess paving against a benefited district, because in paving a cross street the lots are usually long and do not benefit any more from the pavement than the inside lot next to them, which bears no part of the cost.

The Legislature in 1923 gave cities the power to assess the cost of ornamental street lighting systems against the abutting property on the street on which they are placed, after a hearing as in paving. Under the present law in Texas, the land may be acquired, the street paved and lighted by assessment without cost to the city, except for paving the intersections.

The legislature of 1927 passed a series of planning acts. Among these was one permitting the establishment of building lines by cities of more than 15,000 population. Under the terms of this act the city acquires the building line easement by eminent domain. The procedure to be followed under this method is to condemn the property in the same manner as in actual street widening. It occurs to me that this plan is as unworkable as the old plan of zoning by eminent domain, and that building lines had better be established under the police power. I understand that this subject is to be discussed at one of the sessions of the Conference.*

We are indebted to the past Legislature also for our platting law. Under this law all subdivision plats must first have the approval of the Plan Board, both within the city limits and within a five-mile radius thereof. It is made a criminal offense to record such a plat without the approval of the Plan Board. This law only applies to cities in excess of 25,000 population and does not deal with mapped streets.

The Legislature of 1927 also permitted the acquisition of park land by eminent domain and assessment of benefits in the same manner as street widening. This applies only to cities of more then 12,000 population.

A Zoning Act was also passed by the Legislature of 1927. This was based largely on the so-called Hoover Act, and I believe it will be held constitutional. Since the "Spann" case we have believed zoning to be impossible in Texas, but the Spann case was the worst kind of piecemeal zoning. The case never should have been presented to the court. In the case of the City of Wichita Falls vs. Continental Oil Company, decided by the lower court on March 21, 1928, the ordinance which was interpreted by the court goes much further in the protection of the rights of property owners, although it does not contemplate a comprehensive zoning plan and is therefore piecemeal zoning. The lower court has found the ordinance a valid exercise of the police power. Even if the Supreme Court should reverse the lower court, there is still hope for zoning since the last legislative act on zoning has not yet been construed.

* See "Building Lines or Front Yard Requirements," p. 79.

I would recommend a comprehensive zoning plan after a careful survey made by experts and sincerely believe that this will meet the approval of all courts.

DISCUSSION

S. HERBERT HARE, Kansas City, Mo.: For those from without the state, it is well to explain that the occasional omission of paving in front of properties throughout the cities of Texas, is the result of the Homestead Law, the owners of these properties having claimed a Homestead exemption. The Homestead Law helped in the upbuilding of the state, but is now holding back progress along city planning lines. The amendment of 1927 to the Street Opening and Widening Act which provides for the distribution of assessments for fifteen years, will probably tend to reduce the number of claims for exemption under the Homestead Law.

The platting laws give cities of 25,000 population or more, control over subdivisions within five miles of the city limits, but it further provides for cities of less than 25,000 that they may take advantage of the law by a vote of the people. The law provides as penalty a fine for the County Clerk who records a plat without the proper endorsements, and also makes it unlawful for a city to connect utilities with land for which the plat has not been approved. To exercise intelligently the powers created by these laws, there should be prepared in every city the following information as a guide:

1. A major street plan which should, if possible, be an integral part of a complete city plan.
2. Rules and regulations governing platting.

The law providing for acquisition of park land by eminent domain and assessment of benefits over a district, may prove of considerable importance if the difficulty of the Homestead Law is overcome. The benefits of this law apply only in cases of *condemnation* of land. At present most of the park land in the state is being acquired by direct purchase. One advantage of this procedure is that an entire tract of land can often be purchased for the same price as a portion of it, and the portions not needed for park use can be disposed of, often at a profit. This gives more freedom in the designing of the boundaries of parks, often making it possible to establish a boundary street with direct lot frontage rather than using a rear line as the park boundary. Condemnation for park purposes definitely fixes the use of the land and as there are no powers of "excess condemnation" in Texas, a portion of it cannot be disposed of. Aside from this consideration the fixing of the use

may be a considerable advantage in that it might prevent inroads on park property for other public uses in the future. Condemnation is seldom cheaper than purchase but relieves public officials of criticism because of the price paid.

The Texas Zoning Act follows the Standard Zoning Enabling Act prepared by the Department of Commerce, except in a few details. Like the Standard Act, it provides that a three-fourths vote of the City Council is necessary to pass an amendment in the case of a twenty per cent protest by interested property owners. The Texas law states that the protest shall be, "signed by the owners of twenty per cent or more, either of the area of the lots included in such proposed change, or of those immediately adjacent in the rear thereof, extending *two hundred feet* therefrom, or those directly opposite thereto, extending two hundred feet from the street frontage of such opposite lot." This provision makes it difficult to amend the zoning ordinance, and safeguards the rights of all interested property owners.

The Texas law provides that the Zoning Commission may be the City Planning Commission. This is very desirable for two reasons: First, zoning is an integral and inseparable part of city planning, and should, whenever possible, be developed as a part of the comprehensive city plan. Second, the City Planning Commission may be, and should be, a permanent body, since city planning is a continuous process. A zoning ordinance as well as other phases of city planning requires more or less continuous administrative attention. Neither the Standard Act nor the Texas Law requires that amendments be referred to the City Planning Commission or to the Zoning Commission. Where the Zoning Commission is the City Planning Commission, and this body is permanent, I think it is desirable that the ordinance provide for referring amendments to the City Planning Commission before acted upon by the governing body. The members of the Commission who gave a great deal of study to the preparation of zoning maps and ordinances should be most capable of interpreting them.

The Texas Law provides for a Board of Adjustment in conformity with the Standard Act. This board is to be composed of five members, but it does not say as to who shall serve. While I know that many good authorities do not agree with me, it has always seemed to me that at least three of these members should also be members of the City Planning or Zoning Commission. The objection to this as stated is that they are passing on their own work in a judicial capacity. It seems to me more that the Board of Adjust-

ment is merely interpreting the ordinance in its application to unusual cases, and from this point of view their work is simply a continuation of the drafting of the ordinance, which ordinance could hardly be worded to apply to all conditions.

In the application of this Zoning Law to the State of Texas, the standards used by other states should not be slavishly copied. Texas has an area of over 260,000 square miles, which is more than the aggregate area of all the New England and Atlantic States. It has a population at the present time of less than the City of New York. Under these conditions it seems unfortunate that the cities of Texas should be building the high buildings, which may be necessary on the Island of Manhattan, but which are out of place in a sparsely settled region or state. The cities as well as the property owners, would in the end be better off if the buildings were limited to a reasonable height. Both from the standpoint of light and air, and from the control of traffic congestion in the streets, limitation of building heights is justifiable. The climatic conditions of Texas should dictate more ample open spaces in the form of yards and courts than is customary in the more congested centers of the north and east.

Recent checks in various cities seem to indicate a tendency to "over-zone" for certain classes of property, particularly for business and apartment house areas. Additional information is rapidly becoming available as a guide to the proper proportion of cities to be zoned for various purposes, and Texas is in a position to profit by this information. The power to zone beyond the city limits in the same way as the control of platting, would be very desirable, and it is hoped that such legislation can be provided in the future. Much of the troubles of our city, not only in the laying out of streets, but in the indiscriminate uses of property, occur beyond the city limits previous to the inclusion of this area within the city control.

Other legislation may be desirable in the future, particularly a provision for regional planning. Many of the cities have a metropolitan area, in some cases including other smaller communities, which should be planned as a unit with regard to main lines of traffic, transportation, sanitary and storm drainage, water supply, park and recreational provisions, and other considerations in which the various parts of the district are interdependent with other parts. The Fort Worth and Dallas district would offer an interesting problem in regional planning.

PLANNING PROGRESS IN THREE TEXAS CITIES

EL PASO

W. E. Stockwell, Engineer of El Paso City Plan Commission

El Paso has unique topography. The city is at the head of the El Paso Valley, just below the pass from which it gets its name—El Paso del Norte. The rocky ridge of Mt. Franklin projects into the city, dividing the old city down by the river from the new residential area. The shape of the city is something like a dumb-bell, with one of the bells much larger than the other. On each side of the ridge the tablelands break off sharply into the valley and present great difficulties in city building, but also an outstanding opportunity. On the sharp escarpments is an ideal location for a rim road which has already been planned, and this road will be extended to a mountain drive rising 500 feet above the city. Both the rim road and the mountain drive are within the city limits and only one-half mile from the city center.

The planner of El Paso was George E. Kessler, who unfortunately died in the midst of his work. We have, however, finished the plan in a way which we think would meet with his approval. Among our development problems is grade-crossing elimination. The transcontinental traffic of the southern railroad route passes through the handle of the dumb-bell, which is nearly two miles long and only three blocks wide and has very few traffic crossings. Negotiations are now under way with the railroad for a solution of the grade-crossing problem.

On a highway system we have made considerable progress with the cooperation of the county in widening some of our principal thoroughfares and opening and paving others. We have developed a memorial park out of the desert hills where formerly there was nothing but toads and cacti. Our largest city park has been greatly enlarged and improved. It is interesting that a large

portion of it was reclaimed from a city dump. The Mayor recently appointed the Robertson Committee, copying the example of Dallas and its Ulrickson Committee, and we expect from it a budget for public improvement for the next ten years which will include the carrying out of much of the city plan, at least in its immediate objectives.

HOUSTON

L. B. Ryon, Jr., Houston City Plan Commission

Houston owes its growth to its location on an arm of the Gulf of Mexico, called Buffalo Bayou. It has always been an exporting center for cotton, rice and wheat, and the development of this trade along the Bayou, with the advent of the railroad, caused Houston to become a railroad as well as a shipping center. The period of rapid growth began in about 1903, and in 1910 the population was almost 79,000. At this time Mr. A. C. Comey, of Cambridge, made a city plan which was distributed widely, but unfortunately the backer of this enterprise, Mayor Baldwin Rice, went out of office, and nothing was done about the plan. The discovery of oil in the vicinity of Houston greatly increased its wealth and its expansion. In 1915 Buffalo Bayou was widened to 150 feet and deepened to a channel depth of 25 feet. Harbor facilities were constructed by the municipality and are today owned and operated municipally.

A city plan commission was appointed in 1922, to which four definite tasks were assigned—a major street plan; a civic center; a system of parkways; zoning. This commission produced a preliminary major street plan, a plan for a civic center, and plans for parkways along the Bayou and a circular drive around the city. A survey of existing building heights was also made, but a zoning ordinance was never completed because the city was advised that such an ordinance would be illegal until a proper state enabling act was passed. The work of this commission was considered complete and it was disbanded.

After the passage of suitable city planning legislation by last

year's legislature, a new planning commission with Mr. W. C. Hogg as Chairman, six other voting members, and two ex-officio members, was appointed. The first work of this commission was the preparation of a zoning ordinance which is now about ready for preliminary hearings. The commission also passes upon all subdivision plats within the city limits and for five miles beyond.

AUSTIN

H. F. KUEHNE, Austin City Plan Commission

The City Council of Austin has just recently adopted an official city plan prepared under the direction of the Plan Commission. Its next task will be to prepare a zoning ordinance. Nature has given Austin a beautiful site. The city is divided into three sections by two large drainage areas or creeks, which are now the most undesirable parts of the city. In accordance with the park plans, they are to be reclaimed and made into parkways which will join with the parkway along the Colorado River and other boulevards to make a park drive encircling the city.

The dominant feature of the city is the state capitol, located on a considerable elevation and visible for many miles around. Here will be our civic center. The plan as adopted contains, besides the parkway features, a complete major street system, a plan for the location of public buildings, particularly school sites and fire stations, and a plan for the surrounding region showing existing and future main thoroughfares leading from the city.

DISCUSSION

MRS. W. R. POTTER, President, Texas Federation of Women's Clubs: The Texas Federation of Women's Clubs has been deeply interested for a number of years in the subject that you have been considering here. We have had a department known as "Parks and Playgrounds Department," which, during Governor Neff's administration, was responsible for creating a great deal of interest in the establishment of parks throughout Texas, and in the preser-

vation of many of our historical and scenic spots. This department now proposes, with the cooperation of the citizenship of our state, to establish county parks all over the state.

As an organization we have learned that we can no longer conduct our work in a haphazard way. We must concentrate. We must depend largely upon community spirit, without which none of our cities or towns can hope to reach a high stage of success. Is not one of the lessons that you would have us learn in Texas with its young and rapidly growing cities, that even the very smallest town should be planned with a view to becoming a city some day? In this planning for better cities, and in the building of parks and playgrounds, and in any of the many things that contribute to a higher citizenship in Texas, you may depend upon the cooperation of the Texas Federation of Women's Clubs.

AROUSING THE PUBLIC INTEREST IN CITY PLANNING

H. A. Overstreet, Head of the Department of Philosophy, College of the City of New York

I have been asked to treat my subject from the point of view of a psychologist. The problem is: How can we get a community intensely interested in the issue of city planning? Well, the first thing that a psychologist would ask would be: How can we get any one intensely interested in anything? There are a number of answers to be given to this question.

Seeing Is Easier Than Thinking

In the first place, we must present our subject in ways that most swiftly and effectively reach the average mind. The thing that we are fairly convinced of is that most persons are visual-minded. They "see" ideas far more quickly and powerfully than they "think" ideas. A page of printed matter appeals to the thinking power of human individuals. A page of pictured material appeals to the visual power of human beings. We now know that the latter appeal is far more instant and far more effective. Hence, in every possible way we should attempt to make our appeal to the visual-mindedness of the community.

This can be done in the first place by significant pictures, pictures, I mean, that instantly tell the story. Some pictures, as we know, are not significant at all. They do not arrest the attention of the average observer. They might be called static pictures. Beautiful in themselves, they tell no story. Sometimes a story can be told by contrast, as, for example, when over against a model

Author's Note: This paper in its first tentative form was read at a meeting of the Snag Club, in New York City. So many penetrating suggestions were received that, as a result, the paper was very largely reconstructed for the Dallas meeting of the National Conference on City Planning. The writer wishes to thank the members of the Snag Club for their helpful criticisms.

apartment there is set the picture of sordid tenements. Or a story may be told in several pictures. It is true, also, that the human element in a picture inevitably adds to its arresting interest. Another way of visual presentation is by graphs, curves, etc., that tell the difficult story of statistics in ways that are at once appealing and capable of being grasped.

I learned recently of a superintendent of schools in a New York community who came in upon what seemed to be a completely hopeless situation. For years and years appeals had been made to the community to build better schools, but there was the constant cry that this would require the raising of taxes. Apparently the apathy of the community could not be stirred. But this superintendent came in with an asset and a technique. His asset was a charming personality. His technique was an almost uncanny ability to put figures into pictures in such a way as both to startle and convince. By graphically indicating the relatively low position of that community with respect to others, he won his battle in a very short time, with a result that the community now has a school system far superior to that of the long years of apathy.

Repetition and Inevitability

There is a second important consideration. Advertisers have long since learned that mere repetition has an almost compelling effect. "Say a thing enough times and people will at last believe it," has come to be a kind of axiom in the advertising profession. The same thing should be true in matters of public welfare. Say "city planning" enough times and people will take it for granted that city planning is one of the accepted procedures in our civilization. We know that this is true of other things like parks and playgrounds and public libraries. There was a time when there were no public libraries. But the public library is now so profoundly a part of our civilization, that not even the most backward-minded person would dream of denying its place in a modern community. We simply, therefore, have to go on taking for granted that an up-to-date city will have its city plan.

Very often, in life, there is a power that comes from sheer confidence in the inevitability of what one is doing. To be assured that city planning is the only rational point of view in a modern community is to have nine-tenths of the battle won.

Dramatic Presentation of Facts

Let us turn now to the far more difficult matter of presenting the facts. A friend writes me as follows:

"I attended a meeting of the ———— Chamber of Commerce when the city planners' first report was introduced. There were pages and pages of printed material, the result of two or three years' study. The first effect of this seemed to be to discourage those citizens who were ready to take an interest but who did not have time to study so complex a report. A complex report, such as a city plan, must be broken down to its important elements for effective presentation."

I think that tells the story in a nutshell. I have read papers on city planning, and I confess that they have often bored me stiff. You likewise have been bombarded with admonitions from various public or private bodies to do your duty in the way of city planning, and I do not doubt that you too have at times been bored stiff. Why? Because with a wealth of facts at their command, few have seemed to realize that the next essential was to whip those facts into such attractive shape that he who ran might easily read. The report of a city plan ought to read like a novel; too often it reads like a half-resuscitated law book. The city planner must, then, either himself learn the art of dramatic literary presentation, or he must hire some one who possesses this art. Certainly, to ask the public to read pages on pages, especially if set in small print and in forbiddingly solid make-up, is, at the outset, to condemn the whole enterprise to the waste-basket.

II

There is another factor in the situation, of which city planners, as a rule, take little account. They think of the person to whom

they are to appeal as an individual solely, and they treat him altogether as such. They send him a letter or a pamphlet or a newspaper article or they show him a picture on the screen. The appeal is to him, the human atom.

But the human individual as a single atom is never very effective. Why? Because man is essentially a social animal.

Voluntary Groups as Centers of Power

We sometimes forget this. We think of this country as made up of a number of individual citizens, who, every so often, go individually to the polls and cast their votes. We think, therefore, of government as being carried on by the support of individual citizens. Nothing is further from the truth. Where an individual is purely an individual, he is about as powerless as any being can possibly be. How is vigorous political action carried on in this or any other country? The centers of power will be found in those voluntary groups of people who have joined themselves together for the purpose of carrying out their aims. Take Tammany Hall as one example. Take the League of Women Voters as another example. In both cases, through the combination of individuals into groups, power is achieved. Why is this? Because we like above all to be with our kind, to work with our kind. There is real joy in the stimulus to achievement that comes from the presence of our fellow men. Hence, if we wish people to do things, we should seek first of all to get them in their social groups. Then the doing is not only more powerful, but it is so profoundly liked that it becomes the joyous part of the life of those that do.

Suppose we apply this idea to our enterprise of city planning. Suppose, in other words, we try to reach the individual, not as an individual solely, but through the vital group or groups to which he belongs. He is a member of a Rotary Club? Then whatever comes to him in his Rotary Club meeting will have significance. She is a member of the Woman's Civic Club? Then whatever comes to her in her club meetings will enlist her interest and enthusiasm. The aim of an astute publicity director should be to get his message

across to these voluntary groups in a community. When the interest of a voluntary group, like a church society, or a teachers' federation, or a woman's club, can be enlisted, one has the whole power of that group back of the idea and the individuals are carried enthusiastically along. The pride of the group is involved, and the pride of the group pushes the project into success.

The Mistake of Telling Other People What They "Ought" to Do

But there is another matter to be noted in this connection. The trouble, I find, with many public-minded people is that they "tell" other people what they "ought" to do. That gives them an air of superiority, but it makes the others feel uncomfortably inferior. Suppose, now, that we go to a group and say: "Gentlemen (or ladies), some of your best citizens have for a number of years been working over a plan for the reconstruction of our city. The plan is completely finished and is herewith presented to you. We ask for your approval." I venture to say that that is about the worst psychological tactics that can be employed. Why? Everybody likes to feel that he is not simply being regarded as a purely passive acceptor of what is offered to him. He likes to feel that he, too, has a constructive part in the making of what is to be made. Hence, psychologically, it is most important that any city planning body, going to the various vital groups in a community, will take what might be regarded as a fairly complete but still tentative plan and present this plan to the groups, asking for their consideration and their constructive suggestions. Such an approach is psychologically powerful, because it instantly appeals to the civic pride of the members of the group. They are asked to contribute their wisdom. As a matter of fact, in most cases, if the plan has been carefully thought out, there will be no suggestions, for the simple reason that each suggestion will involve so many other changes that the task will at once appear too difficult for an ordinary citizen. But the very asking of the members of the group to make suggestions will arouse a friendliness toward the plan, not other-

wise, perhaps, to be achieved. This matter of working through the voluntary groups in a community has by no means been utilized to the extent that it deserves. I believe, however, that we are going to think of citizens more and more as group citizens, not as atomic individuals. As we think of them in this manner, we shall increasingly bend our energies toward enlisting the vital groups of a community in the support of our enterprise.

The idea which we have just been discussing is far-reaching in implications. The weakness of modern political life lies in the fact that the older group formation of our social life has been disintegrated into a kind of futile atomicity. New England town government was powerful town government because the New England town was an integrated group. Neighbors knew each other, they played together, worked together, bought and sold together. Hence, when they came together to talk matters over, they knew that they all "belonged." But now, in our cities, neighbors are not neighbors. They are simply human integers in spacial juxtaposition. They do not know each other, they do not play or work or buy or sell together. Hence, in large measure, vitality of interest has disappeared from our communities. The great problem, perhaps the greatest, that we face is the revitalization of our community life. I know of only one really effective way in which that revitalization can take place. That one way is through encouraging group membership and through enlisting groups in the vital community projects.

The Leaders and the Led

Of course, in doing that we shall not perform the rather stupid act of going to a group and making speeches to them. We shall remember that every group has a leader. And we shall remember that the pride of a leader is not to be treated lightly. The publicity director who understands human nature will seek first to enlist the hearty cooperation of the leader in the group before he dreams of presenting himself to the group as a whole.

This matter of leaders deserves a further word. A man of rather

wide experience in public affairs writes me as follows: "The public mind follows leaders. Find the man who owns lots of property and he is apt to have a strong influence with the banks and contribute handsomely to the campaign expenses of the mayor. Find the banker who holds most of the notes of the merchants of the city. Find the man who has the power to make political kings and you will then have the instruments to put across the city plan."

There is no doubt whatever that society is made up essentially of leaders and led. Most of our effective work, then, must be with the leaders. They are the active, controlling minds. If we can persuade them, most of the battle is won. Nevertheless, it is most important to remember that the persuasion of leaders is not enough. We have ahead of us the problem of educating the community. A plan ought not to be put over on a community when that community is completely unprepared. Hence, the double work must be done of persuading leaders, and, through them, persuading and educating the groups of our citizens.

III

Appealing to Fundamental Wants

But now we come to what is, perhaps, the most fundamental matter of all. You may present a plan, but unless you do more than enlist the intellect, very little is likely to come of it. I said at the beginning of this paper that most people do not think with their minds, but with their eyes. We might now say that most people do not act from their reasoning power but from their emotions. The task of a publicity director is to arouse people's emotions.

How can that be done? The answer is: by appealing to what people fundamentally want.

Self-Preservation

What do people fundamentally want? Perhaps the most basic want is security of life. It roots in what we call the instinct of self-preservation. Has city planning any relation whatever to this universal instinct of self-preservation? Will a better-planned city

make for better health? Will it make for greater safety? Will it make for greater convenience, the saving of time and energy? Will a more beautiful city have any noticeable effect upon the health and wholesomeness of our lives? If we can vividly show these things to be true, then we at once have a powerful hold upon what men fundamentally want.

Happy Family Life

A second fundamental want is a happy family life. This roots in the instinct of reproduction. Can city planning be tied up in any way with this basic want to realize joy in family life? Is there to be a chance for better housing, for more delightful parks, for better playgrounds, for more up-to-date and sanitary schools, for cleaner streets, for better transportation to and from work? The city planner should ask himself this question: What will this plan mean for the families of this community? And having answered that question for himself as vividly as possible, he should tell the story with a power that arouses emotional response from the families of his community. In this, as in all other respects, the city planner must get beneath the skin of the citizens of his community. He must feel their wants. He must sense their needs. He must, in short, forget his *own* point of view and find theirs.

Instinct of Curiosity

There is another fundamental want of men. It roots in the universal instinct of curiosity. Men sometimes give their lives for curiosity. They go exploring. They spend years of their lives attempting to discover in the field of science or of medicine. Can city planning make any appeal to this quite basic instinct of curiosity? That is a nice question which I think most persons in the community fields have not sufficiently probed. How can we arouse expectation in a community? How can we keep them guessing as to what the next move is going to be? How can we get them alive with interest as to what can be done in this section or in that section? A publicity director who has a dramatic sense will know

how to keep the community in eager expectation as to what is to transpire.

The Acquisitive Instinct

Then there is another fundamental want in men. It roots in the instinct to collect or hoard. It is, of course, one of the most powerful instincts in life. Can it be tied up with city planning? When a citizen says proudly that we now have five boulevards in our city, where previously we had had but one, I think we may assume that he is proud of the addition of the four boulevards to the original one. When a citizen can speak proudly of the ten parks in his community as over against the two or three of previous years, he is again responding to this basic instinct to collect. It is not difficult to arouse men's interest in the successive addition of good things to the community. How many playgrounds? How many schools? How many museums? How many hospitals? How many milk stations? How many modernized prisons? "Can't we have more of the good things?" is a question that instantly arouses men's affirmative response.

Pugnacity and Competition

Then there is a fourth fundamental instinct, called the instinct of pugnacity. Men fight as brutes, but they also fight as civilized human beings. When one fights disease in a community, one fights. When one fights ugliness, again one fights. May not the community project be pictured in the form of a fight against the various evils that prevail in our life, particularly the evils of wastefulness, of hindsight rather than foresight, of planlessness and disorder?

Again, when we compete, we fight. May not a community rather proudly compete with other communities in the bettering of its city? May it not compete with its own past history? To appeal to pugnacity in one way or another is to have a powerful leverage upon men's interest.

The Imitative Impulse

There is another powerful impulse. It is the impulse to imitate. The fashions illustrate this. You have a panama hat? I want one also. You have a motor car? I am miserable until I have one too. Cannot this impulse be utilized in stimulating a desire for city planning? Community X has done this. Look at its strikingly beautiful pictures. And Community Y has done this. Shall not our own community do likewise? There is a deep pride in men and women not to be out-of-date, not to be back numbers; to be in the forefront of what is latest and most approved. City planners, no doubt, could make a powerful appeal if they utilized this instinct by showing what other communities were doing in other parts of the country and other parts of the world.

The Instinct to Construct

Then there is another profound want. It roots in what we call the instinct to construct. It is the wish to see things grow, to improve, to build up. City planners, of course, will naturally stress this. But can they not stress it in such a way as to make every individual in the community feel that he and his fellows are pushing a plan which will make for the rather splendid improvement of their community. The point is not to *tell* them such and such are needed, but to arouse in them an enthusiasm for something greater and finer of which they themselves will be proud.

Touching Men's Imagination

Let me dwell for a moment upon this matter of arousing enthusiasm. It is really a matter of stimulating in the citizen a glowing imagination. And here, perhaps, is where city planning often fails most lamentably. As the friend last quoted writes me: "Is anything less attractive, more insipid, could anything leave the imagination colder, than the very name City Plan? Imagine Ford advertising an 'automotive vehicle for transportation,' instead of 'miles per hour,' 'four-wheel brakes,' etc. Who under heaven wants to pay real money for anything that is called 'City Plan'?

It needs explaining. It needs apology." What my friend quite rightly means, of course, is that the term "City Plan" suffers from two defects. First, it is abstract, it presents no instant, vivid picture, like "four-wheel brakes." Second, it is intellectual, not emotional in its appeal. To be sure, an intellectual appeal is not to be despised, but if we wish to arouse a citizenry, the appeal, as we have already indicated, must touch their vital enthusiasms.

In the earlier years of this movement, a term was used which did, in a sense, touch men's imagination. It was the term, "the City Beautiful." The term was not altogether a success, for in red-blooded he-man America, the word "beautiful" still had the connotation of femininity. I think, however, we are outgrowing that rather crude stage of masculinism. We are being educated up to the point where we can feel that it is not a disgrace for masculine citizens to believe in beauty. A term proposed the other evening by an architect, was "the City Beautiful and Livable."

I make no plea for that term or any other. I simply suggest that one of the basic needs for this entire movement is a discovery of a name that will instantly arouse the imaginative response of the community.

Envisaging a Community's Possibilities

City planning, I take it, is more than engineering, more than the laying-out of streets, of charting distances and plotting squares. It is an attempt to envisage a community in the full beauty and reasonableness of its possibilities. It is an attempt to build a community cosmos out of relative planlessness and disorder. It is an attempt to take this sorry scheme of things entire and mold it nearer to our heart's desire. It is an instance of man the creator facing his fairly resistant world and shaping it to possibilities yet unrealized.

It is an enterprise, therefore, that ought to be about as inspiring as anything in life. If figures are needed to tell the story, let us by all means have the figures. If blueprints must be drawn to make the layout clear, let us by all means have the blueprints. But,

above all, let us have the imagination back of the thing and inspiring it. For man does not live by streets alone nor by real estate valuations. He lives preëminently by his ideal of what a richer and happier life should be. The task of the city planner is to make him envisage this ideal in a fairer city, towards which the past and the present serve but as preparation and promise.

SPREADING THE GOSPEL OF CITY PLANNING

JUSTIN F. KIMBALL, Author of "Our City Dallas"

There is one phase of public education which is peculiar to a democracy. In order to exist this type of nation must educate generation after generation of citizens trained to rightly exercise sovereign powers in statesmanship. The public schools of America exist primarily for the purposes of defense of the realm, for self-perpetuation of the state, and for an insurance policy against the menace of an ignorant citizenry. The first and chief desideratum of the American public school system is an intelligent citizenship, informed as to our institutions and our problems, and interested in the public welfare and public safety, and this citizenship is no dead academic dry-as-dust affair of the classic past—it is as lively an adventure in statesmancraft as this old world of ours has ever known. This means that the public schools must escape the dead hand of traditional scholarship; that history must be studied for the sake of today's and tomorrow's needs.

This American citizenship in actuality is always in a local setting, frequently an urban setting, and always facing definite local problems. The training for this citizenship should likewise always be in touch with actualities. There is no intellectual deprivation in this—in all the history of the world there has been no citizenship so interesting and stimulating from an intellectual point of view, so manifold and varied in appeals to social and scientific interests, so intricate in functions and relationships, as in a modern American city in this twentieth century.

Yet in all these matters the essential problems of citizenship remain at base the same—what to do, how to vote, whom to trust, and how to make our countryside, our village, our town, our city, our county, our state a good, safe, sane, beautiful, wholesome,

attractive, and stimulating place in which to live with one another without trespassing on one another.

Judging by the cityward trend of Americans for the last hundred years, the most important consideration in the curriculum of most of our American public schools is a study and understanding of those problems that have come to be known as city planning, but which pertain with equal force and logic to the countryside. No more suitable subject can be conceived wherewith to meet the aims and justify the existence of tax-supported schools. Incidentally, it is infinitely better psychology to study live material of this type than to place in the hands of young Americans studies whose chief merit would seem to be Mr. Dooley's criterion: "It makes no difference, Hinnessey, what you teach a boy so long as he doesn't like it."

The disappearance from many American schools of the old "Civil Government" courses, and the increasing development of courses in "Community Civics," often with reference to local problems, indicate the immediacy of the opportunity among American schools. The need of such courses is infixed in the very genius of the institution itself.

What has this to do with this body here? If you are to serve your nation and your generation most widely and most wisely with those ideas which are your own peculiar contribution to our civilization, then it is necessary that you intrust them to the mind of youth. The place to preach the gospel that better cities cost less if wisely planned is in the American high schools. Establish the right mind-set before the ideals of civic beauty are warped by selfish interest in the exploitation of some particular real-estate project.

Great as has been the beneficent contribution of this group of men and women to our national civic welfare, this contribution will not have achieved its full possibilities and permanence until every urban child shall have been given some glimpse and insight into the far-reaching vistas of city planning during the days of his youth, for it is only during youth that ideals have unfettered growth.

Such a contribution as this to the educational ménu of our youth will be helpful to their training in school, stimulating intellectually, and a patriotic service to future welfare of our people.

The education of the adult population to the urgent problems of city planning is an entirely different task, vastly more difficult and delicate and far more pressing in its immediate urgency. So far as its value to human needs is concerned, a mediocre city plan well understood by the general public and in process of accomplishment is of infinitely more avail than one marvelous in its artistic conceptions, in scientific and economic features, a masterpiece of technical skill, but embalmed and entombed in the mausoleum of a dignified official report, accessible only to a favored few, and forgotten by them. Some of the most meritorious city plan reports in our nation in their practical functioning are playing about the same part that a beautifully embellished, highly scientific book on cookery would accomplish in the kitchen of an untrained, illiterate cornfield darky. Its effective value is almost exactly nil.

The project of a city plan in America is usually inspired and promoted and financed by a small group of forward-looking citizens, in their vision years ahead of the great mass of voters who must be won to a steadfast and enduring faith in the plan. For it is through the favor, the votes, and the taxes, of the general public that the plan must be finally financed and brought to consummation. The progress of any kind of project of far-reaching change in a democracy is a perilous one; not only must those in power for the moment be won to it, but its favor must be so implanted in the minds of the voters that it shall not be lost to sight and mind in the kaleidoscopic changes of local politics as the years go by. The people have proverbially short memories and fickle favor. The American public is too often like a great child, tickled with a new toy, and forgetful of those things that endure. The incoming municipal administrations are always chiefly attentive to the latest local political bauble of the moment and not to those things whose results, however important, lie far in the future. Plans whose final end is in some future administration tend to receive

scant consideration. So it often happens that a great city plan report, costly of effort and money in its preparation, with tremendous potentialities in its vision and conception, lies as inert and ineffective as King Tut in the lonely splendor of his princely tomb.

What avenues of education to the adult voting group are available? The first answer that always comes to mind is the press. In such service the newspapers are of the highest value; their motives may be safely relied upon as highly patriotic and public-spirited; they are uniformly willing and mighty educational agencies in such a cause; yet in the very nature of things they have decided limitations unless some devoted soul owns a newspaper and dedicates its staff and columns indefinitely to the consummation of the project. Happy is the city thus blessed. Aside from this unusual contingency the educational power of the press is limited because of the fact that a matter in order to find a place in the columns of the press must be *news*, and the most useful facts soon lose the zest of novelty. The multiplication table is indispensable to civilization but no newspaper commits the idiocy of printing it. The Ten Commandments are not often seen in daily newspapers—though in some circles they might be regarded as novel.

A place in a school curriculum is not nearly so spectacular as a front page in the daily paper, but in the long run it is tremendously more effective, because it is continuous, it inoculates each individual as he passes, and it patiently abides its time. Witness the W. C. T. U., the school physiologies of a generation ago, and the Eighteenth Amendment.

If a city plan project is to find an enduring place in the local newspaper columns, it must be connected with some continuing source from which there shall frequently emanate *news items about folks*.

Is there then an educational avenue to the adult generation? In most cities such an avenue must be planned and created for this sole end and purpose. It must be a self-perpetuating body of patriotic citizens serving without pay, but with a paid staff to handle the drudgery of details and to act as a fly-wheel to carry on

between the impulses of the various group meetings. It must be a body far enough removed from the personal political fortunes of those who tenant the city hall to be able and willing to carry on through the vicissitudes of shifting local political changes. This body must be broad enough in its personnel and social contacts to touch every group and stratum in the city—not alone to sell the city plan to all the voters but also to make known to the city planners the needs and hopes of all these classes and groups. This body must have in its number some of the wisest and most trusted citizens among the wealthy, and some of the most human and best loved souls among the humbler ones of the city. This body must have among its members some with flaming enthusiasm, and other souls with dauntless patience and defeatless courage for the cause. It must think and plan and talk and make news for the papers not only in terms of months and years, but with foresight and patience sufficient for decades. And the only pay the body may expect will be in the exceedingly fine gold of a sense of duty well done.

In Dallas we call this body the Kessler Plan Association—and from it and through it by the grace of Dallas newspapers have come the news items that have made Dallas men and Dallas women and Dallas children of all callings, creeds, and ranks believe in a city plan for a bigger, finer, better, happier Greater Dallas.

THE RELATIONSHIP OF THE FUNCTIONS AND POWERS OF THE CITY PLANNING COMMISSION TO THE LEGISLATIVE, EXECUTIVE AND ADMINISTRATIVE DEPARTMENTS OF CITY GOVERNMENT

ALFRED BETTMAN, Member, Plan Commission, Cincinnati, Ohio

THE GENERAL PURPOSE OF CITY PLANNING

A city plan is a master design for the physical development of the territory of the city. It constitutes a plan of the division of the land between public and private uses, specifying the general location and extent of new public improvements, grounds and structures, such as new, widened or extended streets, boulevards, parkways or other public ways of transportation or communication, the general location and extent of public utilities and the location of public buildings, such as schools, police stations, fire stations; and, in the case of private developments, the general distribution amongst various classes of uses, such as residential, business and industrial uses. The plan should be designed for a considerable period in the future, twenty-five to fifty years. It should be based, therefore, upon a comprehensive and detailed survey of things as they are at the time of the planning, such as the existing distribution of existing developments, both public and private, the trends, that is, the trends toward redistribution and growth of population, industry and business, estimates of future trends of growth and distribution of population and industry, and the allotment of the territory of the city in accordance with all such data and estimated trends, so as to provide the necessary public facilities and the necessary areas for private development corresponding to the needs of the community, present and prospective.

The necessity of city planning might be stated theoretically as simply an illustration of the value of planning which runs through

all of life and all human activities. It would represent but an application of the belief that intelligence is as necessary in the physical development of the territory of an urban community as elsewhere in human affairs. The proof of this need, however, does not rest upon any theoretical speculation; experience amply demonstrates its imperative nature.

The actual governmental activities of any community must necessarily be specialized and distributed amongst various organs of government, as, for instance, the school board, police department, highways department, the park department. Public utility property has, when privately owned or operated, a legal status somewhere between a purely public activity, in a governmental sense of "public," and a private activity, having some of the characteristics of each. The conduct of these activities is reposed in organs separate from the public governmental organs and is divided, by reasons of specialization, amongst various corporations, such as the street railway company, the gas company, the electric company and so on. Private developments may be said to be in charge of as many separate organs as there are individuals or at least as there are land owners. Experience demonstrates that each of these, whether the separate governmental organ such as the highways department, or utility organ such as the street railway company, or the individual organ such as the individual landowner, proceeds with the location of its particular parts of the community plant primarily from the motivation of the immediate results or successes of its particular line of activity, with such adjustments to the remainder of the plant as it deems necessary for the success of its own part, but with little likelihood either of conceiving of the whole city as a unitary organism or of a sufficient knowledge about the factors of the whole community problem.

Wasteful maladjustments are the result. Streets built long before needed or streets built belatedly long after needed; streets too narrow for the service which they are called upon to render or streets wastefully wide; streets which do not fit into each other; intensive population development without recreational or other

open spaces sufficient for minimum health, recreational or decency standards; public grounds or buildings, such as police stations, school buildings, playgrounds, at a distance from or at the edges of instead of in the center of the territory to be served. There is no need for citing further illustrations. Unplanned cities become aggregations or congregations of these wasteful maladjustments. Some of these wastes become incurable, no matter how much would be expended; some are curable only at excessive cost. All of them produce maladjustments in the life of the people, with the accompanying congestions and inconveniences, low health standards and absence of amenities.

The lesson to be derived from this experience is the same as the conclusions derived from thinking abstractly about the need of planning, namely, that the problem of the extent and location of every type of development of, or on the land within the city is so integrally related to the development on, or of every other part of the land within the city, that these wastes and maladjustments, with their financial and human costs, can be avoided only if the development of the whole territory take place in accordance with some master design which has, by a process of envisaging the whole, provided for the coordination and adjustment of the parts.

The modes of governmental organization and activities for the accomplishment of planning, and the relationship of the city planning commission's functions and powers to the legislative, executive and administrative departments of the city government follow as a logical result of the consideration of the need and purpose of city planning.

The City Planning Commission

Practically everywhere in the United States in which there is official city planning, the function of making the city plan is reposed in a body specially created for the purpose and entitled the city planning commission. This body should be and is generally appointive, as distinguished from elective.

The necessity for such an independent governmental organ for the making of the plan obviously arises from the nature of planning

as above summarized. Every other organ of municipal government has charge of some specialized type of physical development or administration activity; the park department of parks, the highway department of highways, the sewer department of sewers, and so on. Each of these is inevitably partial to its particular type. The adjustments of every type of part to the plan of the whole can obviously be well done only by an organ more interested in the whole than in any type of part.

Furthermore, the administrative official is much too busy with the details of getting things done daily, his mind and heart and energy are too much consumed by the necessary detail of the daily task, to leave much over for planning for a long future period, which to him will always be a subject not so pressing as the more immediate matters which are brought to his attention, require his action, and consume his time and capacity.

Furthermore, the administrative and legislative officials, such as the city engineer or members of the city council, are under not merely the pressure of getting visible things done soon, but also under all sorts of pressures to give weight and consideration to factors of a political nature. The location of a playground may be thought about in terms of more or less scientific adjustments to the sort of factors which are taken into account by a city planner or in terms of what the neighborhood clamors for or what the vocal portion of the neighborhood clamors for; and no city administrative official or legislative body can, in the nature of things, escape from the controlling or powerful influence of the latter type of consideration.

Indeed, officials elected for a short term of office, by the very theory of their election and term, are expected to place emphasis upon doing things during that term, accomplishing visible results during that term and producing contentment of constituents. The time element is all important, and an emphasis on producing something today, as distinguished from planning for tomorrow, would seem to be the normal conduct of officials elected for short terms of office.

What is needed, therefore, is some organism freed from these daily pressures for tangible and visible results today, satisfaction of political pressures of today—some organism relatively aloof from these, with such a position in the governmental structure as will place upon it the duty and give it the opportunity for performing the duty of thinking calmly for the future, thinking in terms of the whole community and of all the community's activities, without partiality for today over tomorrow or for one type of community development or service over another. This is the all-sufficient reason for the appointive city planning commission as the body to make the plan.

Almost all who have discussed the matter at all agree that the making of the plan, in the sense of directing the surveys, gathering the data, drawing the maps, stating the recommendations, should be the function of the planning commission. The plan in the making is a harmless affair which does not interfere with anybody's doing and building as he may please. Making it the plan of the city, however, that is, giving it a recognized status as an instrumentality of influence in the actual physical development of the city, in other words, its adoption as a city plan, is a step subsequent to the mere making of the book and the maps, a step not quite so harmless, a step which may make things a little difficult for those who wish to do as they please with and on the land within the city. In regards to this step of adoption, there may be said to have arisen some difference of opinion on the question of whether the power of adoption should also be reposed in the city planning commission or should be reposed in the city council.

If the above analysis of the function and purpose of the city plan and of the normal nature of the outlook, methods and activities of the administrative and legislative official be sound, then it would seem to follow that the adoption of the plan should be the province of the planning commission and not of the city council. The busy council could not possibly participate in the surveys and data and studies which enter into the making of the plan. Without that participation, an understanding of the plan would be difficult. The

city council would necessarily have to act without a thorough knowledge of that which it is doing. Furthermore, if the plan be really a plan, comprehensive both in its territorial extent and in its subject-matter, and if it be subjected by council to anything like a searching analysis, inevitably current political considerations and pressures would arise and cause modifications of the plan for the satisfaction or appeasement of these immediate political considerations and pressures, modifications which might be quite mistaken if considered from the point of view of long time good planning. Furthermore, the personnel of any city council is temporary, elected for two, three or four years. The basic theory of these short elections is that any specific council shall have the right to bind its successors by legislation or by expenditure of then existing public funds, but shall not have the right to bind its successors as to what future funds shall be raised and spent or what and where future public improvements should be located. In case of a political overturn, the newly elected council might well feel that it would have the right to throw over a plan adopted by its predecessor.

Planning is a function distinct from either legislation or administration. For reasons above summarized, the exercise of this function is as essential for good community results as the exercise of the administrative or the legislative. The governmental organs with jurisdictions over the exercise of the planning, legislative and administrative functions respectively should be separate, each chosen in a way and for a period and each equipped by staff and finances for the capable performance of its respective function. Those who deny this functional division, who deny that planning is a separate function, impliedly, though they do not admit it, repudiate planning. Many things are called city planning which are simply pieces of engineering upon some specific project under consideration. In the absence of a city plan, the location of a particular street or bridge is not city planning, even though a city planner be engaged to decide it. The general design for the coordinated and adjusted location of future structures of all or many

types; that is city planning, and that is something different from legislation or administration.

Living up to the plan, that is, actually constructing public improvements in accordance with the plan, will require a friendly attitude toward the plan on the part of the council and a gradually better understanding of it. Councilmen, like other human beings, are jealous of their prerogatives. If council have no participation whatever in the process of making the plan, there might grow up an animosity or indifference or a feeling that the planning board is an intruder. This brings us to a consideration of the representation of administrative and legislative officials on the planning board.

Representation of Legislative and Executive Officials in Membership of Planning Board

The chief executive of the city may be the mayor or city manager, though there is a considerable difference between the functions and powers of the elective mayor and the appointive city manager. The executive department of the city government has some official in the nature of the head of the department of public works and includes many departments which construct public structures and improvements. The legislative body is continuously engaged in determining upon the construction of public improvements or structures or the granting of franchises for public utilities. The political leadership of the community may be in the mayor, manager or other chief executive. He who holds a position facilitating leadership has or may have great power to produce public enthusiasm or public distrust. The executive departments have, in the course of their work of planning specific improvements, great power to promote or frustrate the locating of public improvements in accordance with the city plan. The legislative department generally has the final word as to what improvements and utilities shall be built and where. In short, the actual development of the territory of the city in accordance with or in violation of the plan lies, as a matter of political or legal power or both, in the executive heads of the city or the legislative body or both.

For this reason it is obviously quite important, firstly, that there be a liaison, friendly diplomatic relations, between the planning body and these other departments; secondly, that there be in the executive or legislative department some one with sufficient knowledge about the plan to take it into account and explain it to his own colleagues; thirdly, that these other departments have the friendliness which comes from some feeling of participation; and, fourthly, as the planner of the location of a structure needs to learn the operating problems from the operator, so the planning commission needs to learn from the operating departments the operating and financial problems which must be taken into account in any intelligent planning. For these reasons, both the legislative and executive departments should be represented. The member of council should be selected by council. The member representing the executive department should either be the chief executive himself or his appointee. As to whether this appointee should be the chief engineer or a member of the park board or some other type of official, no uniform rule is advisable. The number of these ex-officio members of the commission is also a matter which may well be varied, subject only to the rule that they do not constitute a majority of the commission and that at least a majority of the commission and advisably the chairman be free from the pressures on time and energy and the political pressures which, as we have seen, make it difficult for the current administrative and legislative officials to do planning, in the sense in which we use planning.

The Legal Status of the Plan

The making of the city plan is only the first step in the work of the city planning commission. Indeed, the plan is never complete. It needs constant additions and enlargements, both as regards subject matter, space and time. One can hardly imagine a city plan so comprehensive in subject-matter that it will not require from time to time the inclusion of additional types or classes of physical developments. Furthermore, the urban region is always spreading even though the political boundaries remain stationary

and, as the urban region spreads, the problems around the boundary become intensified and their relationship to the areas beyond the political boundary become more obvious and pressing, thus requiring a constant enlargement of the territory covered. As to time, a plan may be for twenty-five or fifty years. Some of these years go by and the problem of keeping the city's physical development designed for long periods requires constant time projections, that is, additions or extensions to cover future years not envisaged in the original plan. This enlargement and extension of the plan is obviously the function of the planning body.

Secondly, the plan constantly needs amendment. A plan so perfect as to be beyond the need of amendment is inconceivable in even a static world. The world of the American city is not static and new developments are coming up to which the original plan needs adjustment. A new union station, for instance, may not have been included in a plan but may develop as an actuality requiring adjustment of streets and zoning and utilities. Furthermore, the plan constantly needs interpretation, interpretation to officials, interpretation to property-owners and interpretation to the public. For obvious reasons the planning commission is the body best fitted for this service.

Thirdly, between the making of the master plan and the actual locating, installation or construction of the specific physical structures, whether public or private, there usually is an intermediate stage whereby the rather generalized location in the plan is made more definite or areas which on the master plan received only the general locations of major features, such as arterial highways, need to be planned in greater detail in order that the developments about to take place, public or private, may have the guide of a greater detail or exactitude.

Fourthly, there is a part and a necessary part to be played by the planning commission in the actual process of applying the plan, that is, of causing public or private structures to be located in accordance with the plan or preventing their location in violation of the plan. It is in reference to this function that there arises

the problem of the legal status of the plan about which some difference of opinion has arisen, the issue being, shall the status of the plan be purely advisory, so that its effectiveness is dependent solely upon the willingness of the constructing officials or agencies in charge of the locating of improvements to look at the plan or listen to the city planning commission; or, shall the plan be given a legal status somewhat stronger than merely advisory, compelling at least the looking at the plan, taking it into consideration, arguing about it, hearing about it, listening to the planning commission.

This problem involves a somewhat separate discussion of the application of the plan so far as public structures are concerned from its application or enforcement to or on private property.

Legal Status of Plan as Regards Public Improvements

The statutes of some states and the model enabling bill drafted by the Advisory Committee of the Department of Commerce provide substantially as follows: that after there is a city plan officially adopted by the planning commission, no new public improvement (new, as distinguished from a mere reconstruction or replacement or repair, and consequently, new in the sense of involving the problems of extent and location) may be authorized or constructed unless its proposed location and extent be submitted to the planning commission. If the planning commission approve, then the council or executive officials or other bodies in charge may proceed to go ahead with the locating and financing of the improvement, by whatever procedure or by whatever vote usually governs them in the case of such type of improvement. If, however, the city planning commission disapprove, then the effect of that disapproval is analogous to a suspensory vote, and this disapproval may be overruled by the council or other body in charge of the matter by a two-thirds vote of its membership. It will be seen that the two features of this status of the plan are firstly, that the problem of the extent and location must be submitted to the planning commission and, secondly, that if the planning commission disapprove, a two-thirds vote of the legislative body is required.

Those statutes which do not contain some such provision give to the city plan a minimum advisory status and to the planning commission a purely advisory function, hearing or reading the advice being left entirely to the volition of the officials or bodies in charge of the proposed improvement and the taking of the advice being dependent upon this same volition expressed by whatever is the usual vote for expressing volition upon the particular type of matter under discussion, whether that be a majority of those present at the meeting or a majority of all members or two-thirds of such members. Either system gives to the plan or planning commission a legal status which, in the final analysis, is only advisory, the difference being as to the extent that the advice be sought and listened to and considered. A city council is continuously engaged upon numerous projects involving location, streets, street widenings, street vacations, street extensions, sewers and fire stations and police stations and so on. It is a body hard pressed for time. If there be no requirement of submission of matters to a planning commission or consultation with the planning commission, the result is apt to be that all except a few striking big matters, such as a new union station or a new big bridge across a river, will be dealt with in a routine manner, going through without any thorough consideration of the location problem; and it is the accumulation of these numerous relatively quiet or obscure projects that produces good or bad city building quite as much as if not more than the big ones. The habit of submission of the location problem to the planning commission brings about a habit of consideration of the city planning factors which is healthy for all concerned and for the community. The habit is not likely to be acquired unless there be some compulsion. There is nothing inconvenient about the habit. Most matters go through the planning commission with little delay, if any. These few matters which cause controversy or extended discussion are apt to be instances in which controversy or extended discussion is needed, and some of these would not receive this healthful treatment if there did not exist the legal compulsion to submit the matter to the planning commission and to discuss it, at least, from the city planning point of view.

Enforcing City Plan as to Private Property-zoning

The zone plan is a portion of the city plan. It and the remainder of the city plan are as integrally related as are any other major features of the plan. Many American cities have made zone plans without a comprehensive city plan, not because such procedure was fundamentally correct, but for reasons of local politics or the state of local interest in city planning. The making of the zone plan, therefore, is the making of a part of the city plan and the appropriate province of the planning commission. The carrying out of this feature of the plan, however, involves its application to private uses of private property and consequently requires legislation. That legislation regulating private conduct shall be enacted by elective bodies, is a fundamental political and constitutional principle in the United States. Consequently the zone plan can come to be actually applied only through a legislative act, a zoning ordinance or by-law. The considerations above discussed in relation to the application of the plan to the location or extent of public improvements apply equally to the application of the plan to zoning regulations, leading to the same conclusion, namely, that, though modification of the zone plan or departures therefrom should be within the power of the legislative department of the city government, the exercise of that power should not take place until the matter has been submitted to the planning commission nor over the planning commission's disapproval, except upon the vote of more than a mere majority of the legislative body. There is nothing in such requirement contrary to fundamental political principles, for requirement of a two-thirds vote of a legislative body is quite a normal and traditional feature of our constitutions and charters, as, for instance, the vote necessary to overrule an executive veto or to issue bonds without approval of the electorate.

Land Subdivision

Zoning affects the use of private property which remains in every respect private. In the subdivision of land for sale and building

purposes, we deal with the attachment by the private owner himself to land owned by him of a public legal status or a status which will inevitably develop into a public one. In order to divide his land, he ordinarily will need to provide for streets, which streets he may desire to dedicate to the public so that they become public streets or which will inevitably in course of time become public streets even though at the beginning the owner may desire to place them in the status of private easements. In other words, in the subdivision of land we have to deal with those strips or spaces which constitute, in legal status or actuality, a portion of the street or public open space system; the distinction between streets originally constructed by the public and the streets which are originally laid out by the subdivider, being largely a difference of origination or initiation.

In order that those portions of the street and open space system which originate in the subdivision of land by private land owners be adequate and well adjusted to each other and the city plan, there is need for some control or regulation of the layouts. What part of the governmental machinery shall have the jurisdiction and function of this control or regulation of subdivision of land? What shall be the limits of the control and the procedure? As the control involves the application of planning principles, as well as the application of the city plan itself, the answer would seem to be that the city planning commission is the appropriate body in which to repose this jurisdiction; and that is gradually coming to be the prevailing practice in American legislation. The regulation should not be limited to street widths and locations, as these are, in turn, integrally related to the prospective population of the territory of the sub-division, and this prospective population is intimately related to the dimensions of the lots. In this problem of the dimension of lots, not merely convenience of adequate street system is involved, but also recreational spaces, population congestion and standards of health, safety and welfare.

In legislation on this subject, the planning commission is usually required and should always be required to formulate and apply

general rules and regulations setting forth the standards which it will apply to the individual subdivisions. In promulgating these regulations and in applying them and in passing upon subdivisions, the planning commission is performing a function which is not merely advisory but which is administrative in its nature, perhaps even approaching the legislative. The jurisdiction of this nature granted to planning commissions, however, is not different in kind from the jurisdictions granted to other types of appointive commissions, such as interstate commerce commissions, public utilities commissions, boards of survey and others. And as the grant of power to the commission comes from an elective legislative body, which in its legislation specifies or should specify the procedure and limits of the regulatory power, there is here no violation of recognized fundamental American political or constitutional principles.

When it disapproves a subdivision layout, the planning commission in effect decrees that the strips of land which the subdivider proposes as public streets shall not, in the particular locations and to the particular extents shown on the subdivider's plat, be accepted as public streets. Should this jurisdiction be final? In the end, is not the determination of the location of public streets either so legislative in its nature or so traditionally within the sphere of municipal councils that the final word should lie with these municipal councils? While there is room for a difference of opinion as to the answer to this question, the better answer is probably in the affirmative, that the council should have a right to accept as a public street any strip of land which it desires to so accept. For reasons given in regard to streets and public structures laid out and paid for by the public and to zoning, the two-thirds rule regarding the overruling of the planning commission is even more appropriate to or necessary in the matter of accepting plats which have been disapproved by the planning commission.

Buildings in Mapped Streets

The mapping of streets, that is, the indication on maps or plats of the lines of future streets or street widenings is initially, at least,

quite appropriately the province of the planning commission, being, in its nature, a detail stage in the process of city planning and an intermediate step between the original master plan laid out in the large and the actual legal steps for the acquisition of the land and the opening of the streets. The enforcement of the protection of the mapped street against buildings must be done either by an exercise of the power of eminent domain or by an exercise of the police power, both of which are legislative in nature and therefore not properly falling within the province of an appointive planning commission. As the exercise of these powers will involve either the taking of private property or the regulation of private property, they necessarily involve the determination of what property is to remain private and what is to ultimately become public as a street, and consequently, the plat or map ought at some stage of the proceedings for the protection of the mapped streets require the approval of the legislative body of council. The two-thirds rule requisite for overruling the decision of the planning commission is as appropriate here as in every other phase of city plan execution.

Relation of City Planning Commission to Non-municipal Governmental Bodies

Various non-municipal governmental bodies determine upon improvements or construct improvements or finance improvements which lie within the territorial limits of the city. In the county seat, for instance, the county erects county public buildings. There may be streets or roads within the city which have the status of county roads or state highways and are constructed by the county or state. Public utility commissions customarily have some jurisdiction over the location of certain utilities. In short, within any city there are some public constructions or authorizations which do not fall within the jurisdiction of the municipal officials.

These, however, form as integral a portion of the city plan as any other structures. The need of coordination and adjustments by means of planning principles and a plan is increased rather than removed by the divisions and segregations of governmental juris-

dictions. The adjustment, for instance, of the location of a state highway to the other types, kinds and features of the city's physical development is just as necessary as in the case of a city street. The location of a county court house presents the same planning problem as does that of the location of a city hall. Consequently, the laws specifying the power and jurisdiction of planning commissions should include these non-municipal structures. There are, perhaps, theoretical objections to and there are certainly practical political obstacles to giving the city council the power to determine whether the city planning commission's decision shall or shall not be final in the case of a structure whose construction and financing is to be by a non-municipal governmental organ. The particular body, be it county commissioners, state highway board, state legislature or what not, which has authority by law to make the final determination as to the construction and financing of the improvement probably should not and practically cannot be deprived of that power. The requirement of a two-thirds vote to overrule the planning commission has the same virtues in these cases as in those of structures built by the local community itself.

One City's Experience

This then is the general statement of principles concerning the relations of the planning commission to the legislative and administrative functions. Their significance can be better understood if a brief description be given of their concrete workings. The Cincinnati city plan was adopted in 1925, and since that time there has been in force the requirement that the location and extent of all new or additional public improvements shall be submitted to the planning commission and that at least a two-thirds vote of council is necessary for the overruling of the commission's disapproval. The planning commission consists of seven members, of whom one is selected by the city council from its own membership and another is the city manager. The planning commission meets every week, its sessions usually being about two hours in

duration. There are special meetings and some field work. Lack of a quorum is almost unknown.

Every week there is a calendar containing from six to fifteen items, falling predominantly in three classes of problems, namely, zoning amendments, subdivision plats, and public improvements. The submission of these matters involves no delay. An ordinance, as, for instance, the first measure determining a street construction, is the one submitted and this takes place long before council itself has reached the stage of actual passing the necessary legislation for construction and financing, so that construction and financing are never delayed. In the case of ordinances accepting streets laid out by private subdividers, they receive their first reading in council, are then referred to the planning commission, which passes on them in time for council's next meeting. Of course, this speed is possible only where there is no controversy; but that is usually the case.

In zoning amendments, there has never arisen one case in which the opinion of the planning commission was overruled or received an adverse vote of even a majority of the council. In only one case dealing with subdivider's streets has the council overruled the planning commission. That is all that has occurred in the way of difference of opinion between council and commission, although many zone map amendments, street vacations, acceptances of street dedications, establishment of street and roadway widths, and street realignments have been submitted. Many of these items were initiated by or recommended in advance by the planning commission. The legal necessity of submission to the planning commission has undoubtedly operated to prevent some proposed departures from the city plan from coming to a head. Everything has run smoothly and promptly, while at the same time the city plan has been carefully protected.

There has been one controversy of a somewhat strenuous nature between the planning commission and the county commissioners who were proposing to build an enlarged viaduct which constituted part of a street, which street had been designated by the state

highway department as a state highway. The difference of opinion related to both length and width of the proposed viaduct. The statute required the city council's consent to the county's plan and the city council submitted it to the city planning commission, which refused to approve the proposed relocation of the viaduct. Thereupon council voted upon the question, with the result that a majority consented to the county's plan but more than one-third adhered to the planning commission's disapproval. Then a suit was filed in the Supreme Court of Ohio, which finally held that the city planning law did not govern this viaduct, basing the decision upon the principle that a state highway is exempt from city planning control or regulation. This decision presents a legislative problem of great significance to city planning, which may be broadly stated: Shall structures built within the city by non-municipal governmental agencies (county, district, state, federal) be subject to the same degree of regulation by the city planning authority as those built by the city itself, and, if not, how shall the adjustment and coordination between these structures be brought about, this coordination and adjustment being obviously a planning problem and necessary for the orderly and efficient development of the territory of the city?

A planning body may not always fully realize the planning function or successfully resist the pressure to devote its energies to immediate projects of the city administration and may let itself drift into being an arm of the administration rather than an independent planning organ. In the long run, good city administration cannot be maintained unless the planning function has been performed and is being performed by some such methods and relationships as have been described in this paper.

DISCUSSION

LIEUT. COL. U. S. GRANT, 3D, Executive Officer, National Capital Park and Planning Commission, Washington, D. C.: This question which has just been presented is to a great extent a problem in the reconciliation of different mental attitudes; the

attitude of the city planner who sees the errors of the past methods and wishes to abandon them and introduce new methods, with the attitude of the city official who seeks to accomplish what is absolutely necessary in an administrative way without arousing unnecessary opposition and who often has an ingrained objection to "new-fangled" ways. The difference in these points of view may even go so far as to differ in the basic idea of the kind of city it is desired to develop, and so of the goal towards which all zoning and city planning should be directed. The resultant action at the end of a period of years will not be a straightforward solution sought by either point of view, but a series of half-way measures modified by much inaction and many postponements, such as have been practicable and expedient in each disputed case.

The obvious first step is the bringing together, in the membership of the planning commission itself, of persons of both points of view in such administrative relationship as to provide for the general control of the commission by the correct principles of city planning, and yet assure the city officials of such influence and such a hearing as to give them a sense of protection for what they feel is the practical point of view.

However, I venture to submit that this is only the first step and does not go far enough. Where the higher city official is elected or appointed, he usually holds office for only a term of years. He can hardly be an expert in the practical workings of the various city departments, and must depend upon his subordinates for advice and for carrying out his final decisions. These subordinates are nearly always employees of long service who feel that they are experts in their own lines, and that the methods and routine they have established are the best. They will almost always resist the changes which city planners will try to impose upon them.

In many cases the city surveyor, who for years has been securing an efficient and to him thoroughly satisfactory development of a rigid grid-system street plan, will find it difficult to concede any advantage to an irregular street plan, even though it saves interesting topographical features, brings about a pleasing variety and individuality in the development of residence districts, and promises a very material saving in the costs of urban development, both to the community and to the individual land owner. Similar doubts and opposition will be aroused in the minds of the head of the sewer department, the head of the street paving department, and many others.

Such a change in basic methods necessarily involves changes in the legal questions ordinarily presented to the city administration. New means and methods of enforcement must be found, which will require legal contentions for which there is little precedent, and which will make necessary increases in the city's authority, especially the police power, not previously established in the courts.

In some way it will be necessary to overcome the inherent conservatism of the courts and of the legal advisers of the city, upon whom the city heads must depend to present their case and carry through their policy to a successful issue.

In many instances there may actually be gaps between the jurisdictions of the different authorities which it will be found difficult to bridge. A prominent gap of this kind, which appears to be making itself felt in many places, is the entire lack of cohesion between the zoning commission and the tax assessor's office. Two adjacent properties differently zoned being taxed on the same basis of assessment necessarily involves an injustice to one of the owners. One of the first needs, therefore, seems to be to require that assessments shall be made and modified with special regard to how the property is zoned and the character of the improvements that are legally possible.

Zoning boards of appeal in many cities are permitting exceptions to zoning regulations inconsistent with their basic purpose and intent, with the result that certain individuals who are successful in presenting their appeals are securing unfair advantages. I believe the two practical questions in most urgent need of the united attention of the city planning profession so far as zoning is concerned, are these—the establishment of obligatory consideration of zoning in laying assessments on real estate, and the limitation of the authority of boards of appeal so as to restrict them to decisions in accordance with the spirit and the intent of the existing zoning regulations. This latter appears to present much the more difficult practical problem, and seems to include in many cases the education of the board of appeals in the principles of sound zoning.

So far I think we may agree that the city official at best only half-heartedly convinced of the value of city planning, finds his subordinates strongly arrayed in opposition, and able to raise a multitude of practical objections. Under this handicap, the planning suggestions will often be disregarded.

Bond issues and popular approval of specific projects may insure their execution substantially as planned; but true city planning, which carries along continuously a modification of the physical

conditions in accordance with a sound plan and the correction of the latter to meet changing local demands and conditions, requires a close and sustained connection between the planning commission and the city officials. Popular education in city planning will, of course, be essential in establishing this relationship, but however good the agreement secured by this method as to general principles, there will still be the disagreement as to specific cases that comes from different reactions and different lines of approach. Nor does it appear to be practicable to make execution of the planning commissioner's recommendations obligatory upon the executive authorities.

The most promising solution seems to be the adoption of a procedure analogous to that common in zoning: (1) The planning commission to reduce its policy and plans with regard to certain elements of urban and regional development, such as street layout and improvements, park acquisitions, etc., to regulations and maps, and any executive or private action not consistent with such regulations and maps to be illegal, unless especially approved by the commission after such investigation and public hearing as may be necessary. (2) Funds not to be available for municipal public works and for the acquisition of land for public use of any kind unless put in the budget at the request or with the approval of the planning commission. (3) Zoning, building and traffic regulations, and modifications thereof, to be valid only when approved by the planning commission. (4) City ordinances affecting these activities or any other proper element of city planning to be subject to the commission's approval.

The foregoing does not, however, provide ways and means for the planning commission to initiate needed work except by placing it in the budget—and even there its authority would be negative rather than actively positive. The best form for such initiative authority would probably be a law providing about as follows: Each year at the time of preparing the city's budget, the planning commission should submit its recommendations for the public works it considers most urgent. If not accepted and included in the budget by the particular local authority having power to pass on such recommendations, the planning commission would then be permitted to put it up for popular decision by voting the funds subject to a referendum at the next popular election.

Some care on the part of the commission will be necessary, if endowed with such powers, to keep from interfering in the details of administrative work—but it will usually be too busy to permit

such interference except on rare occasions. This will be helped if the commission's membership includes at least two members not resident in the city it is planning. Such "out-of-town" members are extremely helpful and necessary in their contribution of the experience of other cities and in their freedom from local prejudices so that they have a better general perspective view of each situation.

The whole situation, including the relations of the planning commission with the city authorities, will be materially helped by the development of *a doctrine of city planning*—a collection of certain basic principles understandable to the layman and enabling him to recognize the sound proposal and distinguish it from the fallacious ones. Manifestly local conditions and individual requirements make of every instance a special case, and rigid or invariable rules are no more possible in city planning than in architecture, engineering, or the art of war; and yet in each of these there is a doctrine of correct practice pretty generally recognized and there are established principles for signing up and classifying most of the apparent special cases. Although each writer on city planning usually indicates his views as to such a doctrine, the profession is too young to have developed as a whole any distinct trend of opinion. To the City Planning Institute I submit the suggestion of formulating a doctrine of city planning and preparing a handbook for city planners, as an enterprise much needed and worthy of the high professional qualifications of its members. Such a statement from the heads of the profession would not only help the beginning city planners themselves, but also the administrative officers and the public having to deal with planning problems.

Cooperation and collaboration will be aided and guided by laws and regulations, but friction can only be avoided or reduced by improved mutual understanding. City planning should be put on such a firm professional basis that the layman will have no sincere illusions as to his opinion being as good as anybody's, and he should have readily at hand the means of learning easily the true objects of city planning, the technique of attaining them, and their economic and town building values. But much can be done by a statutory recognition of the predominance of the city plan over the "penny wise and pound foolish" requirements of the moment, and by greater unity of doctrine among city planners. In the latter I am not advocating standardization of city plans, nor the reduction of planning methods to rules of thumb, but rather an analysis of past experience and the development therefrom of the basis for a sound doctrine.

THE PLANNING OF UNDEVELOPED AREAS

GEORGE H. HERROLD, City Planning Engineer, St. Paul, Minn.

Prior to 1920 St. Paul was a natural city of 300,000; that is, it had grown any old way and was expanding its residential area at the rate of two thousand six hundred homes a year, just a normal growth. In 1922 the Ford Motor Company secured the power rights at the U. S. Dam in the Mississippi River at St. Paul and purchased 167 acres of land immediately adjoining the power house. Here the Mississippi flows southward over the dam and makes a great bend to the East and Northeast through the gorge. Within this bend lies the city's highest plateau of rolling land, some 1,800 acres in extent. This land was originally a part of the Fort Snelling Military Reservation, and although it was taken into the city in 1887, it was an unspoiled country because of lack of approach and because of lack of demand for more residence property. When St. Paul passed its comprehensive zoning ordinance the whole area was zoned as "A" residence in anticipation of the natural extension of St. Paul's best residential district. Suddenly the city was called upon to develop this large area for human use, a development not anticipated for ten or fifteen years to come.

A thousand speculators dropped down upon the city and many options were taken on various properties included in this area. Every speculator was convinced that the piece of land on which he had an option should be zoned for industrial purposes, but a sane attitude prevailed among city officials, and all requests to change the zoning were refused until the City Planning Board could study the district and report their findings.

Here was an encroachment of industry in a district of great potential value for residences. Its frontage would be upon a beautiful river drive through park lands along the wooded river bluff. It was a $16,000,000 plant too large and of too great value to combat. It presented a problem almost unknown in city plan-

ning experience. Reduced to its simplest terms it meant the acceptance of the encroachment and still attempt to preserve these lands for their most worthy use.

The first step was the rezoning of the Motor Company's land for heavy industry, but this was done with the understanding that the Company would do everything possible in architecture and in landscaping to preserve the River Boulevard. The building was set back 100 ft. from the River Drive and 400 ft. south of the north line in order to preserve a natural woods existing on the land. It may be said here that the Company has carried out its part of the agreement in the very finest way. The grounds are landscaped; the building finished in Indiana limestone; there is no advertising in the whole tract.

In addition to rezoning this area, about 50 acres to the north and 37 acres to the east were rezoned for heavy and light industry for accessory plants, hotels and commercial uses made necessary by this new industry.

Further schemes for rezoning were held in abeyance until the Board could adjust itself to the new situation.

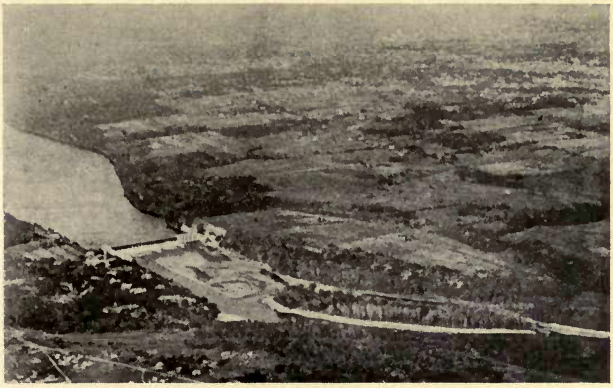
Coincident with the coming of this industry a realtor of vision induced a number of St. Paul financiers to purchase or obtain control of some 650 acres of land in this plateau district to hold and pay assessments on until the actual demand came for building sites. This influence, together with the zoning, has been the means of maintaining the economic stability and the permanence of this residence district. We set out to convince Mr. Den E. Lane and his backers that city planning was the production end of the real estate business and succeeded far beyond our expectations. Here was a $10,000,000 development unit, which would produce $400,000 in taxes. It was an opportunity for the Planning Board to do constructive work and show that they were more than a village policeman telling citizens what they cannot do. It was an opportunity for cooperation between planners and developers in planning new country and preparing it for human use. The work through the last five years is a refutation of the idea sometimes promulgated

before this body that development companies should be given the right of eminent domain for widening streets, acquiring parks and parkways because of the difficulties in getting this done by City Councils. It is also a convincing argument that it is thoroughly practical to carry out large programs under the city's right of eminent domain to condemn land required for thoroughfare plans, street widenings, extensions, recreational areas and all local improvement work and assess the cost back on the land benefited.

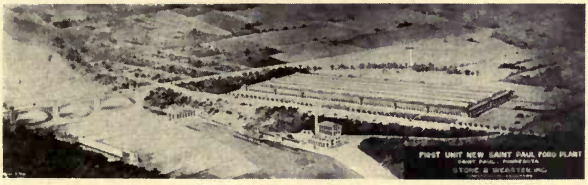
The second step was the preparation of a master plan adjusted to the surrounding environment and designed to serve both an industrial and residential building development. It included: 1. A recreational area of some 300 acres for an 18-hole golf course, an athletic field, a timber canyoned picnic ground, and a mile of hillside park. 2. A thoroughfare plan utilizing the existing county roads widened and correlated with the parkway 120 ft. in width which skirts the edge of the plateau. A new highway was also located along the foot of the plateau and designed to keep heavy vehicles travelling between this industrial district and the downtown district of St. Paul from the residential area. A rezoning of the area established a district for commercial usages and for "C" residence; that is, hotels, restaurants, boarding houses, and apartment houses in the immediate vicinity of the industrial center.

These rezonings were very liberal as compared to any actual demands, but the main thing had been accomplished—preservation of great tracts of beautifully lying land wholly for residential purposes. The entire program with only slight variations was carried out by the City Council.

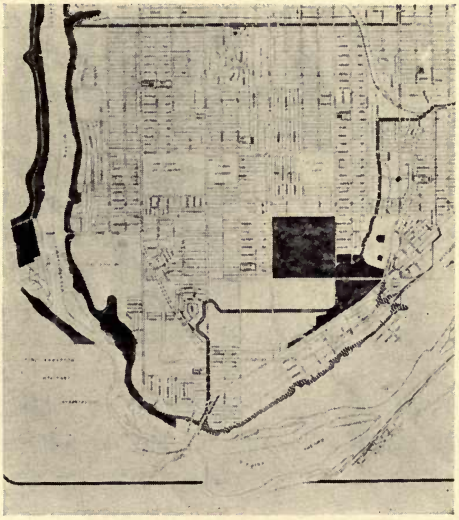
The cost of the park reservation, 204.5 acres, was assessed over a benefited district of 4,314 acres, of which 497 acres are institutional grounds. The assessment rates were $1.26 per frontage foot for property abutting on the park, and $.21 per frontage foot on the outer limits of the district. The park area is 5.6% of the entire area assessed, and the cost of the park is ⅔ of 1% of the value of the area assessed—$67,000,000. The potential population is 100,000 and 51,000 people are now in the district. In general,



Airplane View of St. Paul's Undeveloped Areas, 1922



The Industrial Encroachment



The Park Assessment Area and Lands Platted to Date

where land was taken only for streets, the award of damages and the award of benefits were made equal—the city simply anticipating the platting of the lands and taking by the right of eminent domain land which in the nature of things would eventually be dedicated.

The Lane development of the first 200 acres is now upon the market under the name of Lane's Highland Park. St. Paul has just reached a point where there is an actual demand for building sites of this character. During this period of 5 years some thirty-six additions, large and small, have been put on record and some development work carried out, as is evidenced by the fact that 488 permits for homes, 9 permits for apartment houses, 13 permits for stores, 3 for churches and 3 for schools have been issued. This was prior to January 1, 1928, when Mr. Lane announced that his property was on the market. Owing to the boundary lines of these lands being county roads laid out on section and quarter section lines, the interior development has had to follow the rectangular plan. Using 160 acres as a basis in order to make it comparable with other studies, the North 80 acres has 26.4 acres in streets, walks and alleys and 53.4 acres in lots. The South 80 acres has 24.1 acres in streets, walks and alleys and 55.4 acres in lots. In the North tract the East and West streets are respectively 80 ft., 60 ft., 86 ft., 60 ft., 80 ft., in width. In the South tract the East and West streets are respectively 80 ft., 56 ft., 60 ft., 56 ft. and 86 ft. The percentage of streets, alleys and walks in the North 80 acres is 33% and in the South 80 acres 30.26%.

In the North 80 acres there are 5.68 lots per gross acre. In the South 80, 5.93 lots per gross acre. Long blocks have been used, 900 ft. to 1300 ft., with pedestrian walks intermediate. This reduces the number of cross streets and cuts out the traffic hazard of additional intersections.

The maximum density of population is determined by the zoning ordinance, and the size of all utilities required is definitely known so that the cost of each—sewers, water-mains, etc.—has been held down to a minimum.

Speaking generally, the limiting cost of the workman's home is from $4500 to $6000 in St. Paul. These lands have a building limit of $7500. This takes them out of the workingman's class and puts them in the businessman's class. The actual development, however, runs to the $15,000 home. The customers sought are those with a salary of $400 or more per month. They can, it is estimated, spend 25% of income towards a home which in ten years, with its accumulations, will pay for it. On June 1, 1928, two weeks hence, eight months after the beginning of building construction in this district, there will be completed the first $1,000,000 worth of homes.

The approach streets to the district are 80 ft., 86 ft., 100 ft. and 120 ft. There are two 20 ft. roadways on Edgcumbe Road and two 27 ft. roadways or one 56 ft. roadway on other approach streets, with 27 to 36 ft. roadways on the interior development.

The area required for a house in an "A" Residence District is 5,000 sq. ft., the minimum frontage required is 40 ft.—the standard frontage in older parts of the city. In the tract under consideration lots are 44 to 46 ft. frontage and work out 5.7 lots per gross acre, but this land is being sold on a lot and a half basis. This enables the developer to discuss lot prices and compare them in other parts of the city, but he says to his buyer, "You take 50% more land and the increase in value in this land will, in a measure, cover your home depreciation, thus maintaining a value for the district." Also a 66 ft. holding cannot be manipulated so easily as to produce another lot, as may be done, for instance, with 50 ft. lots which are sold in parcels of a lot and a half and later the adjoining purchasers get together and sandwich in another house.

Lots are selling at $30.00 per front foot. There are no speculative purchasers. Each purchaser must agree to build within so many months, and must submit the plans of his building. Only every other site is being sold. The ultimate price of lots will be $60.00 per front foot. The man who buys now is given a 50% reduction in order to induce building and because he does not know what

his neighbor's house will be like. The developer expects to make his money from the sale of the odd lots at a later time when the character of the neighborhood is fully established. This price includes all installments on assessments up to the date of the sale; after that the purchaser assumes the installments and pays them with his taxes. An arrangement has been made whereby the developer assumes the cost of local improvements on the cross streets so that the corner lot does not have to pay excessive assessments. This induces the development of the corner lots and improves the appearance of the district. This corner lot assessment is absorbed by all the lots in the block in the price established.

Since the Lane development of 200 acres adjoins Highland Park, there is practically a square foot of recreational area for each square foot of improved residence property. No allotments have been made for playgrounds within the district, but two school sites have been allotted and the developers have just announced that they will, upon application and with the submission of building plans, make an allotment to any religious denomination at cost or less.

The assessor's true value of the land in this 200 acre holding in 1922 was $1,000 an acre. In 1928 the assessor's true value is $400 per lot, or $2,280 per acre. The annual tax per lot is $12.50.

LOCAL IMPROVEMENTS IN THE HIGHLAND PARK DISTRICT
1923–1927 INCLUSIVE

	Cost
24.6 miles of streets graded	$260,237
13.3 miles of streets paved*	1,199,628
35.4 miles of sewers—including outfall	1,170,191
42 miles of water-mains	840,000
5.3 miles of tree planting	7,483
1.6 miles of curbing on streets graded only	7,935
Lighting fixtures	27,000
Reservoir: Groined arch roof covered with earth and planting	350,000
Ornamental Water Tower	75,000
Highland Park	452,762
	$4,390,236
Paid from Bond issues $1,562,276	
Assessed to benefited property 2,827,960	$4,390,236

*Paving—asphalt on concrete with brick on grades over 4%.

ASSESSMENTS FOR LOCAL IMPROVEMENTS, 1923–1927 (incl.)
(6% interest on deferred payments)

Street	Assessment Period	Cost per front ft.	Average Cost	Front foot 1st 5 yrs.	Cost per yr. 2d 5 yrs.
Street Grading.....	5 yrs.	$0.66 to $1.17	$0.91	$0.182	..
Paving, 12".....	10 yrs.	4.60	4.60	.46	$0.46
Sewers.....	10 yrs.	2.45 to 3.96	3.21	.321	.321
Water-mains.....	10 yrs.	1.00	1.00	.10	.10
Curbing.....	5 yrs.	.43 to .47	.45	.09	..
Tree Planting	5 yrs.	.30	.30	.06	..
Park Assessment...	10 yrs.	.21 to 1.26	.74	.074	.074
6′ Sidewalks.....	5 yrs.	1.00	1.00	.20	..
			$12.21	$1.487	$0.955

A WESTERN VIEW OF THE PLANNING OF UNDEVELOPED AREAS

S. R. DeBoer, City Planner, Denver, Colo.

The area of the United States between the Missouri River and the mountain ranges of the Pacific, covering hundreds of thousands of square miles with only a few million inhabitants, has its own peculiar problems in developing land. In many cases, as in the mountainous sections, the topography of the land is such that only the most scrupulous accuracy will make road lines and lot lines fit the ground, and yet, often the value of the property is so low that it cannot bear the burden of expensive and complicated surveys. The planning of undeveloped areas must naturally take on a different character from what it is in those areas that are more thickly populated, and where ground values are higher. The subject of planning undeveloped areas is here reviewed in the light of the Westerner.

Areas of land can be set aside for the following purposes: (a) Business Areas; (b) Apartment House Areas; (c) Open Residential Areas; (d) Industrial Areas; (e) Agricultural Areas.

(a) *Business Areas.*—Usually the main business areas of a city are already in existence, but often suburban business centers will be needed near a city or will be included in residential or industrial developments. Such a business development must, perforce, be on one of the direct arteries of the city. The stream of traffic that flows by the area to and from the city has a great influence on an undertaking of this kind. This influence is both good and bad. In the first place, it creates the advertising value that is necessary for the success of the business section. In the second place, it may create a traffic problem that will be serious both to the traffic itself as well as to the development. These two requirements call for the same type of design. The moving traffic must be led through

the district without interfering with it. This is best done by leading the traffic line through the area as an uninterrupted line and having all stopping and parking cars on a parallel secondary road. In other words, through the business development the triple road design must be used. The center road is for moving traffic only; the side streets for parked traffic. Triple-road arteries will be used a great deal in the future, but they have special value for a local business area. The secondary roads must be of sufficient width to accommodate the parked automobiles.

All owners in a business block, however, have a certain community of interests even if they are competitors otherwise. This joint interest must lead them to arrange the whole business block in such a way that it stands out as a unity, and an attractive unity. The setback from the main traffic artery will aid that materially. The motorist driving by will get a far better perspective of the business group from the added distance.

Taking the two requirements for a business section together—namely, non-interference with through traffic, and beauty of grouping to create advertising—leads us to the fact that a small plaza arrangement is the best design for a business development; a plaza that is entered by traffic on one side and left on the other side, and is sufficiently large to provide parking space for automobiles as well as space for small areas for grass and trees and flowers. For a large business section, a combination of this type of squares will be needed. In this case, the squares should not be strung along the traffic artery, but should be perpendicular to it, opening on the main traffic line.

The business district becomes the heart of the area it serves, and traffic streets must be made to radiate from it to connect it with the surrounding district. Regardless of whether the main traffic artery continues beyond the new center, the business district should be planned with as many radial outlets as possible. The time may come, however, when too much traffic is thus accumulated in the business center both for the sake of the business values and from the standpoint of traffic movements. To prevent this,

the original plan must provide circumferential streets that encircle the inner core of the business district and discharge through traffic in the main artery without crowding the business plaza itself.

There is a very serious lack of beauty in the business areas of our country, and especially in the West. On account of cheapness of ground, in many cases, streets have been laid out with great width, and city officials now congratulate their city on its foresight of a half century ago; but, even if the wide streets have become useful from a traffic standpoint, the buildings facing on them look like they might slide off the earth and into oblivion most any minute. It takes a ten-story building to dominate architecturally a hundred-foot street. To be sure, we have been so extremely grateful for the extra width of roadways that we have not dared to complain, and the cities with narrow streets stand aghast over the cost of widening.

The question arises immediately—shall we, for the sake of architectural beauty, reduce the width of streets in local business centers. The answer naturally must be no; and emphatically no. Traffic of all types is like the life blood of a city and the streets through which it flows may well be called the arteries of the city organism. In spite of the fact that some of the world's most attractive shopping streets are very narrow—narrow to the extent that they can be nothing but pedestrian streets, in spite of the fact that a business street might possibly be far better off if it were only a pedestrian street; the idea of narrow shopping streets is so un-American and conflicts so seriously with our requirements of light and air, that they must be left out of the consideration here.

It is possible, however, to regain the lost architectural proportion of a wide street through a business section by still greater width; in other words, by making a plaza. This plaza, by the proper placing of a few trees, a fountain or a statue, may restore the æsthetic balance and, at the same time, give still more space for traffic.

Western cities are prone to let their business districts grow up uncontrolled. A one-story shoeshop alongside a classical bank

building; a high blank wall with advertisements for cigarettes next to a high-priced tile roof of a well-designed drug-store. These business blocks are a motley array, not of mediocrity, but of plain ugliness. In the long row of buildings one finds everywhere individual stores that, in window display, try to attract patronage by the use of beauty. It is an individual effort, but often a determined effort, made at considerable expense. All owners of stores and builders, however, have a joint interest in extending this effort beyond mere window display, to the design of whole blocks of buildings. There are great possibilities in store for the city that will grasp this now nearly unused opportunity.

Broadly speaking, a business section design must take on the character of an open square through which the major traffic line runs, or in the proximity of which this traffic line runs. The square must be designed not only with definite horizontal proportions, but also with definite vertical proportions, and the character of the buildings—be it Gothic, or Spanish, Indian or Modern—must be definitely indicated in the original plan.

(b) *Apartment House Areas.*—The apartment house section usually forms the first residential ring around the business area.

It has many unique problems. In the first place, density of population is highest in these areas.

The need for traffic lines, for parks and playgrounds, for schools, is far greater than in the other sections. These needs run parallel to what the promoter finds is "good business." Many apartment house builders have found that they must face their buildings on large parks or on open land of any character. The builder of the apartment house is not through with his work when the building is completed. He must rent his rooms. People have long preferred to have their windows face on parks, and the park frontage, therefore, becomes valuable for this type of building; and, turning the matter around, the park will give service to more people by being surrounded by apartment houses. Many builders of apartment houses may not be able to furnish this type of frontage, and if they are planning an undeveloped area, may be able to furnish a

park atmosphere on the development itself. This can be done by increasing the depth of the lots to 150 or 175 feet. A block based on these lot depths would be 300 to 350 feet in width, and could easily furnish 100 to 150 feet of park or garden area in the interior of the block.

Wide parkways are extremely valuable for this purpose. Thus far, parkways have been set aside for one-family residences, mainly, and many beautiful streets have been created that way. For greater service, however, apartments should be allowed on these streets, or at least be allowed on part of them.

The planning of apartment house areas is due for a great change. Zoning laws are already providing a measure of light and air for these areas, but the time is here when changes in the city plan will give us apartment house subdivisions that have room for individual gardens where any one of the residents can have a small area to have at least a "feel" of soil and a smell of flowers. There is no difference fundamentally in the way people live in apartment houses, tenement houses or cliff-dwellings, except that the cliff-dwellers had the advantage of an easy access to nature. There is probably no more urgent problem before city planners of today than the problem of giving air and sunlight, playgrounds and parks, to our modern cliff-dwellers.

(c) *The Open Residential Areas.*—No other country has seen the open type of building that has been developed in the western cities. Miles upon miles of straight residential streets have been created by this treatment to accommodate the desire for individual homes. The monotony of design and the lack of transportation facilities that have thus been created are well enough known in every city. There are many other ways in which streets can be laid out, and many beautiful residential additions with graceful curves have been built.

Our cities are fortunate in having these large areas of independent homes, for no type of development adds as much to the health and happiness of the citizens as do these areas, and nowhere in a city exists civic responsibility as it exists in the one-family owned

home. To encourage this type of building must be the aim of the city plan, and the planning of undeveloped areas for this purpose must be based on making these residential blocks even more attractive and more accessible. To do this, the first step must be to assure the connection with the main business district. This connection must be direct and wide. Large developments may need more than one of these arteries of traffic. With the traffic lines duly provided, the planner must next proceed to make the residential streets impractical for through traffic. He can do that by making the streets indirect, and by breaking their alignment. Attractive curves can be laid out for these streets, and their frontage beautified. The proper planting of trees along streets of this character will lead us away from uniform planting.

In all this planning, however, the type of property must be duly taken into consideration. The West has a great deal of property that cannot carry the burden of complicated surveys, and many cities are extremely conservative in their attitude toward landscape subdivisions. Often this difficulty can be overcome by using broken lines rather than curving lines, and by using many small parks. Park frontage is highly desired in the West, and small park areas can be used to great advantage. Original land values are low and the main difficulty of these residential developments, commercially speaking, is the burden of improvement taxation. The theory to be followed in their plotting can, therefore, be briefly outlined as a need for low frontage length, no unnecessary street width, but small parks where possible.

Design principles for areas along streams have been definitely outlined in many plans. Creek bottoms can be beautified and turned into parks, at little expense. There is a practical, a utility side to this question that our cities must learn soon and sudden. The rectangular blocks will also provide for the filling in of streets over these creek bottoms, and thus, eventually, block the flow of water running from the drainage area above. With the short heavy rains with which the West is at times confronted, this treatment provides a flood danger that can only be relieved by large

sewers laid at great expense. Many a city could have had a beautiful parkway and open creek for half the money spent on filling the creek and laying big sewers to take care of its drainage.

(d) *Industrial Areas.*—The planning of industrial areas is based on a very different principle. Traffic arteries are of a different nature. In the first place, a main line railroad is essential, or the possibility of a connection with one; in the second place, a main highway to the city is also of great importance.

Most industrial areas are planned in such a way that they have their rear ends turned to the railroad and the fronts on a city street. This creates a narrow block between railroad and street—a block, as a rule, only the depth of one lot. It would be better definitely to recognize the street parallel to the railroad as an industrial artery, and place it along the railroad. A switch line would then have to be placed through it at certain intervals. If traffic on such an industrial artery becomes too heavy, the switch line would have to go under the street and serve the basements of the industries.

For large industrial areas, it is preferable to plat the individual sites at right angles to the railroad, more or less like the piers of a harbor. Street lines are at right angles to the railroad and switch lines run in this same way. At the head of the whole grouping the industrial boulevard is placed. It collects all the travel originated in the industrial blocks, and brings it into the city.

The problem of railroad entrances to a city is one that concerns the city plan as a whole, but it has a direct bearing on the industrial areas. The railroad approaches to our Western cities are often worse than ugly—they are often filthy. There is no other lesson that we must learn more than the lesson to make our railroad approaches attractive. Turning the industrial frontage around will be one way of accomplishing that.

(e) *Agricultural Areas.*—These areas, today, are not recognized by our zoning laws, and inside of the incorporate limits of cities they are hardly ever necessary. In studying the possibilities of certain types of cities, however, one finds that a large area developed for agriculture or, rather, for horticulture, must be of

tremendous value to the city. Often a few thousand acres laid out in five or ten acre tracts become the very backbone of an agricultural city, and they are as valuable to it as are the commercial zones. The planning of these areas near cities must be based on the plan of the city. In independent developments it must be made according to the plan of having business centers in advantageous places, with road lines leading in all directions. In arid regions the location of irrigation lines will define some of the property lines, and through these, some of the road lines.

The City Plan.—The combination of a business, residential and industrial area makes up a city plan.

One must think of a city as a living organism—an organism that can be encouraged or be hurt, that can even be killed. Every home and every office is a cell in this organism, and each of them can no more form the whole organism than one cell can make a plant or an animal.

The growth of the city organism is of two kinds: In the interior of the city a continuous rebuilding process of cells goes on, with an ever more crowding of them, and on the outer edge of the city new blocks are being added continuously.

The growth is controlled by two influences: On one side the adding of new blocks to a city area is a commercial undertaking that is concerned mainly with the making of a financial gain; on the other side, the city as a whole is trying to make this growth fit the existing organism and trying to knit the new units to the old part. To do this, the city must naturally have a key plan according to which it is being built. Most cities have had such a plan in the past, but until recently it has been a plan of straight street lines placed at right angles to each other. This plan was carried out more or less rigidly, more or less successfully, according to the strength of the men administering the city's affairs.

Two great awakenings have come over our cities in regard to their physical appearance. The first one, as zoning, has to do with the building of more attractive cities, more orderly cities; the second one has to do with the building of more convenient cities

to take care of the tremendous amount of traffic that is now crowding the city's circulation system.

These two new thoughts are now being tied together with many other phases of work of a city into one general study known as the City Plan. For the proper planning of an undeveloped area of a city, or an area near the city, this key plan of the city must be known. It will show the major traffic line on which the development can be based; it will show the zoning of areas in or near the development; it will also show the recreational facilities of the section.

The city plan developments in the inner districts call for great expenditures of money. The city plan developments on the outer districts may call for careful studies, but with them, they will prevent the great expenditure now necessary to correct past mistakes in the inner sections. In the outer districts of a city, great bond issues can today be prevented by making the plans of undeveloped areas fit the key plan of the city.

There are two factors to be considered in developing areas near cities: First, the city must be built to a well-knitted plan, and the development must fit that; second, the undertaking, as a commercial proposition, must pay. The two interests run parallel, for both call for

(a) Direct traffic arteries to the business section of the city;
(b) Attractive treatment of business, apartment and residential areas.

DISCUSSION

Jay Downer, Bronxville, N. Y.: The corner drug-store man in a backward village in Westchester County was the last merchant to give up the old idea that he wanted traffic in front of his store. He gave the idea up two years ago. I want then to differ with Mr. DeBoer's recommendation for a three-way street or boulevard through the business center of an undeveloped area. It may often be necessary in a city to cut through a wide concourse or boulevard, but I think it is seldom advisable to lay out a three-way artery in an undeveloped area. In our experience in Westchester County we have actually made plans and gotten estimates in fifteen or twenty

cases for the widening of streets to take care of the very heavy traffic which comes to our post roads, but after careful investigation we have always abandoned the widening for a new route. You have no idea of the joy of people getting away from old routes littered with business signs. They will travel, I suppose, twenty-five per cent farther to get where they can't see them, and business is not hurt by that.

I agree that during the first few years after an artery is built in a comparatively undeveloped neighborhood, it may be an advantage to the retail merchant, but as the section grows you will find that there is no advantage from through traffic. In our situation through traffic is a detriment. Our traffic lines are so crowded that people are afraid to get out of them because they cannot get back in. For shopping they prefer to turn off to a relatively quiet business street where they can make their purchases in some peace and a great deal more safety.

The elimination of grade-crossings is a most important matter. It is not only a safety measure, but a great convenience and economy. It costs a great deal of money; in some places an unconscionable amount. I know from experience that you can build railroad crossings for forty to sixty thousand dollars and do it artistically. Supposing you route your parkway so that you have important crossings only about every mile, you can double the peak-load carrying capacity of your road by eliminating these crossings, and that certainly will cost less than building another road. People enjoy going through without stopping. The thing we are proudest of in Westchester in our parkways is that we are giving them fifteen to twenty miles without a red light. How they do move! We must plan for the fact that these roads are like railroads, and must provide access, not too often, but at necessary points.

F. P. Best, Pittsburgh, Pa.: Possibly an illustration or two may helpfully supplement what Mr. Herrold has said. The Planning Commission of the City of Troy in New York anticipated the expansion of development by having prepared complete lot and street layouts, including the setting aside of reservations for schools, parks, playgrounds and similar purposes, for a number of separate areas of from three to five hundred acres each, in different parts of the city. These were not done all at once but progressively, as it was proposed to place some of the property in any one area

on the market for subdivision and sale of lots. The streets were laid out and the lots planned irrespective of the boundary lines of the many small parcels under separate ownership. In many instances, for example, a single lot would be found to lie partly on one property and partly on another. As soon as the layout was completed, a meeting was called of all the property owners for review of the plan and discussion. Such changes as then seemed advisable were made and an agreement reached, so that all were satisfied with the arrangements which included adjustments where lots had been laid out common to two properties.

This is an example of accomplishing the desired results through cooperation; backed, of course, by the authority of the Commission in regard to approval of proposed allotment plans. Needless to say, these tracts as they are developed will be worth more, property values will be conserved and the expenditure for improvements will be a minimum.

Another example is that of the City of Monessen, Pennsylvania, which recently extended its corporate limits to include an area which was somewhat in excess of that which already existed, so that the city was enlarged to more than twice its size. Practically none of this new territory was improved and the first step of the Planning Commission was to have prepared a complete layout which included the necessary topographical map, the street and lot plan, the design of sewerage and storm drainage systems; and the new territory was then included with that of the existing city in the development of comprehensive school districting, park and playground systems.

The Department of City Planning at Pittsburgh has under way at the present time a triangulation and topographical survey of the city and its environs which is being carried out with much accuracy. In addition to other uses, it is intended with this map to plat and file, as a basis for individual development, suitable block and lot arrangements. Thus the owners of property will have available information as to what is considered a rational subdivision of the property, with proper consideration of the surrounding territory. This promises to be a valuable contribution to the ultimate betterment of Pittsburgh, and likewise would be valuable to any city.

E. N. Noyes, Dallas, Texas: The reclamation of a broad area of absolutely waste land between two large built-up sections of Dallas is one of the most important and pressing of our planning

problems. There are only two places where this area can be crossed, and one of them is under water at frequent intervals. In 1925 earlier plans which had been abandoned because of great expense were revived, and finally, as adopted, the general plan of development is to abandon the old channel and create a new channel or floodway over against the hills to the west and between the hills and the levee. The reclaimed area will contain 10,000 acres, and the levee district 14,500 acres.

The organization of the district required the signature of the majority of acreage owners. Then a board of appraisers, consisting of three citizens not interested in the land within the district, was appointed to determine the benefits to be assessed against each tract. They had 4,300 pieces of property on which to levy assessments varying from a fifty-foot lot to an area of 360 acres, with values running from a speculative price of $2,000 per acre to a present value of $75.00 per acre. They graded the assessments in accordance with distance from the present center of high values, that is, from a maximum of $7,500 per acre near the Union Station to $100 per acre in outlying areas.

It was necessary, in order to carry out the project as a comprehensive unit, to get as much land as possible into friendly hands. This was done successfully with 75 to 80 per cent of the area, so that now the entire 10,000 acres to be reclaimed can be laid out and developed absolutely in accordance with our plan, and we are in the remarkable position of having real control of virgin territory of about sixteen square miles lying within the heart of the city.

The city of Dallas by the recent bond issue has provided as approaches to the district five subways under the railroad tracks. It has also provided certain corrective measures in the matter of storm and sanitary sewers to carry the discharge of these waters into the district back of the levees. The county of Dallas in its bond issue, which carried a few weeks ago, made provision for a highway which will give direct connection from the district into the business section of Dallas within 200 feet of the courthouse. The county also provides for seven bridges crossing the floodway and a certain amount of paving in connection with these bridges and highways. The project is now ready and I expect construction to start within ninety or one hundred days.

MAJOR CAREY H. BROWN, Washington, D. C.: The Planning Commission conceives as one of its functions the proper location for

various private and semi-public institutional buildings to house national organizations, which are locating, and will continue to locate, in the nation's capitol. We are attempting to determine the proper locations for buildings of this nature, and tie them into the plan in such a way that the city as a whole will get the maximum benefit from the attractiveness which these buildings will possess.

L. SEGOE, Cincinnati, Ohio: The question which I should like to see answered is whether the structure of development in undeveloped city regions, or metropolitan regions, should be like the planetary system, that is, sub-centers or satellites, planned and guided in their growth in an attractive way, or whether these undeveloped areas should be just continuations of the central city? I believe that the taking care of strictly through traffic by by-passes is a special problem, and that it would be partly solved if we could determine first what should be the basic structural development.

MR. DEBOER: I think I am really not at variance with what Mr. Downer has said, if you have in mind that I am describing to you not an undeveloped area far removed in the country, but one at the edge of an existing city. Nor would I differ with the idea that the major or through street should be brought through the edge of the business district, rather than through the center of it. You will remember that I suggested the logical way to lay out a business center is to have a major street run through the business plaza, and to have an additional circumferential street so that eventually, when traffic becomes heavy, the circumferential street may be used as a detour street. I am also for satellite cities, and it is difficult to say what should be the population of the mother city, but beyond 100,000 people I should like to see satellite or suburban center developments rather than have a continuous development of the mother city.

HOW WESTCHESTER COUNTY, NEW YORK, MADE ITS PARK SYSTEM

JAY DOWNER, Chief Engineer, Westchester County Park Commission

I feel that in a very learned group of splendid planners who have so mastered the science of planning I am a good deal like the student in physics who was asked by his professor to define density. He had been half asleep in the back row, but came to and said, "Well, professor, I don't know as I can exactly define it, but I can give you an illustration."

The professor said, "You have. Sit down."

I was delighted to come again to Texas to show you how we have treated our swamps and rivers and creek bottoms in Westchester County, which is adjacent to New York City. You have swamps—at least, creek bottoms, down here. Mr. Surratt said it would be helpful to Dallas to give you the benefit of some of our experience by conveying it to you in pictures. I thought I was going to be able to come down here and put on a few airs and tell you how to do it, but after an interval of twenty-four years since my last visit, I find that you have accomplished so much in a great big way, that I feel a great sense of humility here in Dallas in seeing the things which you are doing and the splendid way in which they are being done. You need have no fear for the future of Dallas, when your seventh grade pupils can discuss their civic problems as we heard them do today.

Up in Westchester County, which some one has said is the bedroom of New York City, we tackled our first river valley in 1907. I am giving dates because they are rather encouraging to those of us who may feel that it takes a long while to get started. Earlier than that, in 1895, an unsuccessful effort was made to secure legislative authority for establishing the Bronx River Parkway Reservation, but it was not until 1907 that this enactment was passed.

Under its terms the project was made a joint undertaking between the City of New York and the County of Westchester, but Tammany Hall didn't think the way we were going to do it was the best way for the boys, and so we had to fight that out through another seven years and we finally got started in 1913 with little money.

In those early days we were a good deal like the Scotchman who wanted to get married in his own backyard so the chickens could get the rice. We were hard up. We didn't have any money to spend but our own money, and some of us didn't have much of that. But finally we did get started in a small way and during the next twelve years, interrupted by the war, we were able to build the Bronx River Parkway, paid for jointly by New York City and Westchester County. Fortunately the necessary authority was vested in a state commission, and efforts which were made both in the City and the County to put us out of business were unsuccessful. Complaints were made to the legislature every year because we weren't spending the money quite broadly enough. We finally got through and then we came to this point of the story about Westchester County which, by the valuable precedent it has established, affords encouragement to all who are interested in city planning or rather in making their planning effective.

During the building of this Bronx River Parkway, which was along the line of one of our commuting railways into New York City, the Westchester County people saw the work in progress. They didn't know how it was going to come out, but when it was finished they liked it. We spent considerably more than we thought we were going to, or rather than we had the courage to think we were going to in the beginning, but we did a good job and that is one of the most important points I want to bring out.

We built a sample, as it were, and we spent the money necessary to make it a good sample. The result was that the people of Westchester County became interested in protecting and reclaiming other stream valleys. They had contented themselves by saying, "All our sewage goes down to New York City, so why should we worry? They smell it down there." But after a while the aroma

permeated Westchester's own atmosphere; tin cans and dumps crept closer to our own back doors and our people became more interested in fixing up the small river valleys. You have an illustration, of course, in Turtle Creek and you have other illustrations in the making.

We in Westchester said, when this sample was finished, "Let's have some more of these things and we are willing to pay for them," and so we secured from the state legislature a county park law. This law vested the commission with all the powers that the Constitution would allow. The County Board of Supervisors appointed the members of the Commission and they in turn appointed me and we set to work. We approached our county plan, and that is about the only time tonight I am going to say plan, with a great deal of timidity. We didn't dare stop to figure the thing out, but we said, "Here is a valley, the Saw Mill River Valley, which is bound to be an important element in any plan." I have to use that word. We hadn't yet made a plan but thought this was bound to fit in any plan, so we said, "Let's go ahead and do it," and the Park Commission recommended the appropriation of two and one-quarter million dollars.

We had spent about $16,000,000 on the Bronx River Parkway, but Westchester County had paid only a quarter of that and New York City the remainder. We wondered how the people would react to this new program. The County Supervisors unanimously voted the appropriation and the people said, "It is all right as far as you have gone, but why don't you go farther?" And because they had seen a sample and it was a good job, they said, "Why don't you lay out more parkways?" So we were encouraged and the next program we brought in was four or five millions and they said, "Well, that is all right. What are you going to do with the other valley over in our part of the county?"

We gradually woke up to the fact that people don't like, as Burnham said, small plans and they don't like a poor job. They want a good job; they want it done honestly and they are willing to pay for it if the money isn't wasted, and if it brings a first class

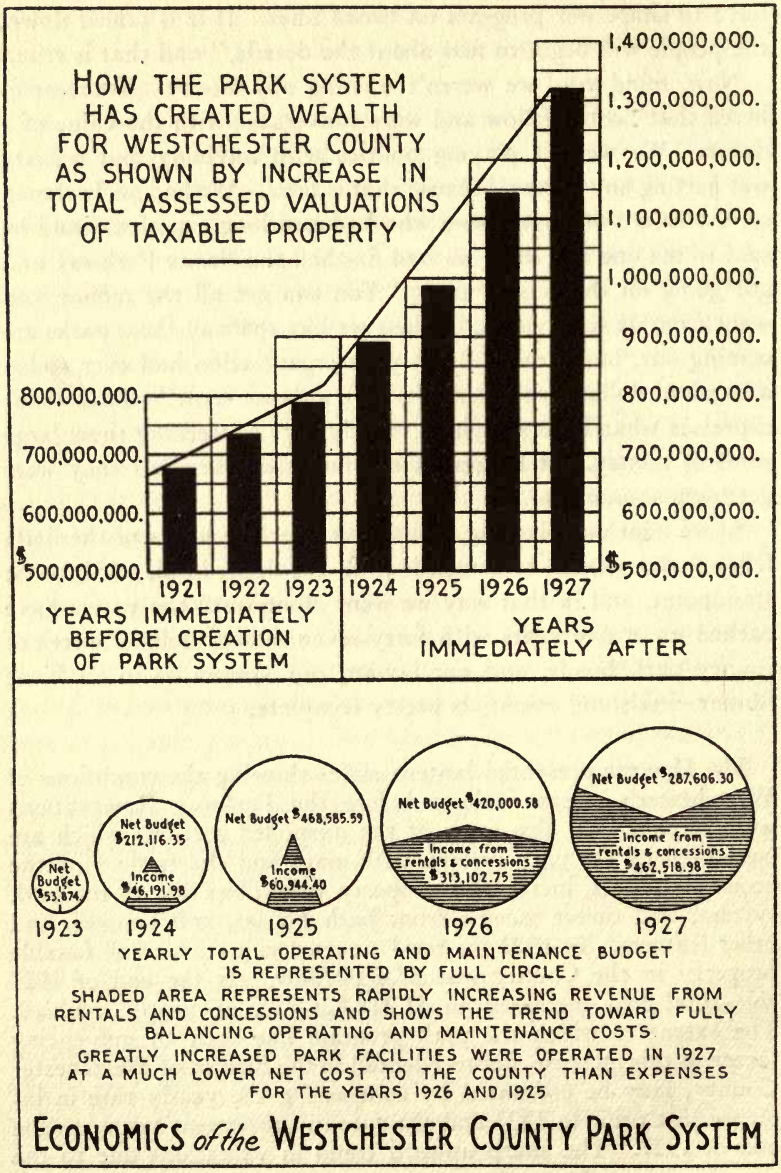
result. So the next recommendation carried appropriations totaling more than ten millions. One of our commissioners said, "We have to shape our program on broad lines. If it is scaled down, the people will begin to fuss about the details," and that is true.

Now, mind you, we weren't wasting any money. We remembered that Scotch fellow and were conversant with the value of a dollar. We weren't playing politics with anybody and nobody was getting any favors, because that is fatal. We had an Irishman on the Board of Supervisors who had had long experience and he said to me one day after we had finished the Bronx Parkway and got going on the county plan, "You can get all the money you want from us supervisors, because we like the way these parks are coming out, but if anybody in your organization had ever stolen a hundred dollars, you couldn't have a damn cent." That about expresses what I am sketching rapidly here concerning these large sums of money. It hinges on the fact that they felt they were getting a square deal.

So we kept our plan big, a little bit over the heads of the little fellows who wanted to attack it from the little, local, self-interest standpoint, and in that way we went along until the voters have backed us in five years with forty-seven million dollars' worth of county park bonds, and our layout, our system, is in its basic fundamentals and essentials pretty complete.

Mr. Downer presented lantern slides showing the conditions of Westchester's stream valleys before the Parkway Reservations were established; also some of the unspoiled sections which are conserved by the park system, with maps and charts showing the economic status, increase in property valuations due to the park system, and direct income from bath houses, golf courses, and other features. In 1922 the total assessed valuation of all taxable property in the County was $733,007,069. At the end of 1927 this total had increased to $1,318,826,453, or nearly doubled. The extent to which the park program has been an influencing factor in this increase, unprecedented in the history of Westchester County, may be estimated by contrasting the yearly rate in increase just prior to 1923 and the rate in subsequent years, to the end of 1927. The sharp upward trend in valuations due to the

influence of the park program is clearly shown by the accompanying economic chart.



AIRPORTS AND AIRWAYS AND THEIR RELATION TO CITY AND REGIONAL PLANNING

JOHN NOLEN, City Planner, Cambridge, Mass.

Do You Know—

What city planning has to contribute to the success of the airplane?

Why airways are more nearly related to water transportation than to land?

That the success of airports depends upon a close correlation with other forms of transportation?

That geography, climatology, topography, size, area, layout, boundaries and accessibility are only some of the factors to be considered in planning an airport?

Whether you want public or private ownership of airports?

What a national system of airways would really mean?

That the future of the airplane may be linked either with an increase of public nuisances or an extension of public service?

Whether airways should determine the location of airports, or vice versa?

That Will Rogers says: "Nobody is walking but us. Everybody else is flying"?

In the provision for air service throughout the United States the time is ripe for deliberate action, for a frank stock-taking of existing conditions, a clearer and more definite statement of the present and future requirements of aviation, and the adoption of better and better methods of meeting those requirements. After all, the problems of aviation are much like other broad city and regional planning problems, requiring study and mastery not only of the physical conditions, but also a firm grasp of their financial and economic relations under appropriate statutes, laws and regulations. Early study from this standpoint will improve results and secure economy in planning, construction and maintenance.

What should determine the location of airports, and also airways, from the point of view of city and regional planning? Before attempting to answer this question even tentatively (and this is a subject in which we must all, at present certainly, be very modest and open-minded), a few general considerations should be presented. While aviation constitutes a new and distinctive method of travel, with many conditions peculiarly its own, nevertheless much can be learned from the history and evolution and the practical application to the requirements of every-day life of other means of travel—the railroads, trolleys and motor vehicles on land, and ships at sea. The story of other means of transportation cannot be discussed here in any detail, nor does this paper call for such discussion, but a few points can be given as illustrations of the right approach.

The first, which is particularly important in the location of airports, is that of their location in a city—whether they should be as central as possible, or in the outskirts. In earlier days, when the railroad was in its pioneer stages, the aim was to get a central situation in a city for its station or terminal. In more recent times it has often been found, for various reasons which need not here be reviewed, that it would be better on the whole to be farther from the center of the city. As examples of this point of view on the part of the railroads, the new stations in Kansas City and Detroit may be named, and also the action taken by the Pennsylvania Railroad with regard to its new terminal in Philadelphia, removing from the heart of the city to West Philadelphia. What is true of the railroad stations is true of other semi-public buildings and municipal buildings. All have a tendency to move out. The principle of decentralization is being more and more widely applied. The reasons are: First, the increasing congestion of the built-up sections of cities; second, the desire to get rid of noise and other nuisances; and, finally, the new means now available in the motor vehicle for convenient supplementary, closely related transportation service.

Another railroad policy which could be considered with profit

is that of the union depot idea, a single station for a number of railroads, or for all of the railroads entering a city. The advantages need to be considered, pro and con, of a single station as compared with a number of well-distributed stations. Applied to air travel, the question might be raised of the advantages of one or more landing fields in a large city or metropolitan region at which aircraft would be served, as against separate ports or landing fields for airplanes, for airships, for balloons and for seaplanes.

Another point for profitable reflection is that of the correlation of different forms of transportation—rail, road and water. Heretofore, before the days of navigation in the air, this has not been well done, and the disadvantages of the existing unrelated, poorly coordinated road, rail and water transportation have been very great. Consideration should be given early in the location of airports to this correlation by the linking up of the air service with other forms of transportation. The main point is that planning for aircraft should be related, coordinated planning. Air navigation will not stand by itself, but will necessarily be used in conjunction with travel service on land and on water.

A further comparison with established means of transportation that can be made with profit is the effect of the mere increase of the number of aircraft in the future. This is best illustrated by the automobile. The problem of the motor vehicle, on the country highway or in city streets, either moving or parked, twenty years ago, when there were considerably less than 100,000 such vehicles, was simple enough. The automobile today in size and speed is much the same vehicle that it was two decades ago. The change in the problem has come mainly from the mere increase in numbers from the relatively small beginning to a registration today in this country of more than 20,000,000 vehicles. With this great increase, the problems of regulation and control, of safety and of adequate facilities of the motor vehicle for business or pleasure, are entirely different. For various reasons the number of airplanes may not be expected to increase with the rapidity of the automobile, and yet it is fair to assume that with the perfection and ad-

vance of the airplane and its natural and steady increase in numbers, the problems of both airports and airways will be radically changed, especially the location, number and layout of airports, and their safe and convenient relation to city and regional plans. No one knows how many airplanes there are in the United States today, but the number must be relatively small. But eighty firms are now engaged in their manufacture, and I understand that the output in 1927 was 1,500 planes or more. How many will there probably be five or ten years from now? The answer to this question has a direct relation to the selection, size and character of airports and their relation to city and regional planning. No error is more likely, none is graver in consequences, than an inadequate estimate of the future.

Another item that a review of city planning may suggest is that of nuisances and amenities. The history of the railroad and the highway has much to teach. Noise and outdoor advertising may be mentioned as illustrations. Aviation offers new and sensational means of publicity and potential pleasure. A leading statistical organization recently stated in one of its bulletins that some day every roof available for advertising that is located on an established air route will be valuable; that such space can be obtained at low prices now, and that clients who are advertising should sign up the best of these locations for as long a period as possible; that as the airplane industry develops, it will bring as many new opportunities as the automobile has brought; and that eventually it will affect real estate values, develop new lines of business, and change the travel habits of a large number of people. One can readily see from this statement that unless regulated, this sort of publicity may be a new form of nuisance, like the billboards on our highways.

In contrast to all this is the action of some continental European architects, proposing attractive airports as resorts and centers of interest, some of which have already been established, and that artistic views from airplanes be demanded. Trips for architects over the larger European cities have been arranged with a view to

recommendations for improving the aspect of city and region from the air. Air touring will become more and more popular. The air sight-seer obtains quickly and agreeably information on topography, architecture, industry and customs of an entire region. The airplane will bring new convenience to resort sections of the country, and widen the whole field of recreation.

Finally, every new form of transportation has some distinctive virtue. To provide for its full utilization is the part of wisdom and common sense. At the present moment it appears to be the peculiar virtue of the airplane to provide travel with *new standards of speed* for mail, express, news and passenger service—for all of which the world is very eager—and to permit transportation over courses and to places heretofore inaccessible or extremely difficult for mankind to reach. An example may be cited in the airplane landing field to be constructed at an elevation of 4,000 ft. on the east slope of Mt. Hood, Oregon's great ice-capped mountain. We realize more and more that the automobile has by no means come into its own yet, largely because of the "horse and buggy" type of cities remaining as the heritage of the "horse and buggy" type of mind. Have we the initiative, enterprise, skill and business sense to replan our cities to provide properly for aviation? If so, we must begin promptly the planning necessary for a first-class system of airports and airways and convert the public mind, the public treasury, and the private investor to the supreme importance of aviation in modern life.

Location of Airports

Should airways determine the location of airports, or vice versa? Each, of course, in a careful planning program, will influence the other. But mainly, it seems, airports will determine the location of airways, especially as the development of the airplane comes at a time when the principal cities are well established. While many new towns and cities will undoubtedly be laid out in the future, some of them more or less directly the result of air navigation, the general form of the network of cities may be considered as estab-

lished. The main reason, however, is that airways and air routes of travel are not much influenced by the kind of considerations that affect the location of railroad rights-of-way or highways. The location of railroads and highways, especially railroads, is directly determined by controlling considerations of grade, alignment, character of soil, general topography, and many other such considerations. Therefore the location and development of a railroad terminal and its importance in a system is dependent to a great degree upon its strategic location as a part of the railroad system. It would seem that air navigation has a much closer analogy to water navigation. The airways system is determined very largely by the selection of airports, just as water navigation is determined by the location of harbors. As with water travel, so with the air, however: the connections and water channels have an important bearing on the port terminals and harbors, and therefore the location, the construction, lighting and maintenance of the airways will have a direct influence upon the location and character of airports.

The location of airports is the most important and urgent part of the subject of this paper. There are, I understand, already more than 4,000 airports and landing fields of some sort in the United States, owned by states, cities, corporations, clubs, commissions and individuals, and the interest in establishing new airports and landing fields is intense and wide-spread. They are a prime necessity, and as essential as railroad stations, harbors or bus terminals—more so, in fact. Colonel Lindbergh in his book "We" says: "Large and well-equipped airports situated close to cities will go far towards developing commercial airlines and keeping the United States at the top in aeronautical activity . . . . The cities which foresee the future of air transportation and provide suitable airports will find themselves the center of airlines radiating in every direction." The "Airway Bulletin," published in the Information Division, Aeronautics Branch, Department of Commerce, Washington, D. C., gives over two hundred and fifty examples of municipal airports, with full data as to their location, character and layout. A great and rapid increase in landing facili-

ties is both inevitable and desirable, and it is this fact that gives timeliness to the present discussion. Will Rogers, in "There's Not a Bathing Suit in Russia," says: "So if either party wants an issue that you won't have to be ashamed of, or stand astraddle of, why shout Airships—commercial, private, Government, Army, Navy. . . . We went into Moscow right on the dot—not a minute late. That field was full of airplanes; there must have been eight or ten single-seaters up doing their stuff. Now just the last few days you have read about the advance in aviation and the amount of planes that Russia has. Now that is what I am trying to get you to understand. These guys over here in Europe, no matter how little or how big the country, they have left the ground and are in the air. Nobody is walking but us; everybody else is flying." Air-passenger service depends upon a rapid increase of Class A airports.

An airport has been defined as any locality, either of water or land, which is adapted for the landing and taking-off of aircraft, and which provides facilities for shelter, supply and repair of aircraft, or a place used regularly for receiving or discharging passengers or cargo by air.

There are two major points in the location of airports or landing fields to consider. The first is the selection of the cities, towns, or places in the open country that will be directly on the air routes and form an integral part of the airport and airways systems. Ultimately, it may be assumed, every place of importance will be included, even though not all may be a part of the general airways service. As with other forms of transportation, there will be not only main lines, but also local branch lines, "feeders," junctions and transfer points. But in these early days, cities and towns that have strategic situations on main routes of air travel, coastal or transcontinental, should be given early consideration as being of first importance.

The second and more important point is the selection of the actual site or sites in a given city or town to be acquired for development as airports or landing fields. The requirements of all aircraft—airplanes, airships, balloons and seaplanes—should be

included. The choice of the site would, of course, be dependent upon the technical aircraft specifications for airports, which need not here be recited, but also the requirements from a city planning and regional point of view, which may be set down roughly in the following fashion. Local conditions would always influence and modify these general recommendations.

(a) Geographical location. It will usually be found necessary, and perhaps on the whole better, for a full-sized airport to be placed on the outskirts of a city. At any rate, except where land can be made by filling, usually near water frontages, it will seldom be practicable on account of cost to secure an area of a hundred acres or more in a central situation in an existing municipality or metropolitan district. The selection of a site from a geographical point of view will also be influenced by a consideration of whether the city or metropolitan district is to have more than one landing field. If a number of sites are to be selected, the question arises, should the differentiation of the fields be made for different classes of aircraft or different fields in various locations be used in common for all aircraft? If by a reasonable forecast of the future it is expected that there will be two, three or more ports or fields, then the location and also size may be different from what they would be for a single port.

One of the most important questions is what sort of a use zone should an airport be placed in—industrial, business or residential, and with what class of property or land uses can it best be harmonized? Local conditions will vary, but it would seem that usually an airport can best be classed with industrial property, unless it is possible to place it in conjunction with large public parks, reservations or other open spaces, or semi-public areas like golf and country clubs. Airports are so distinctive in character that it may be desirable to provide for the approval of their location by the Board of Appeals of local Zoning Commissions. In this way they could often be properly placed in residential neighborhoods. The zoning of adjacent property, particularly the height of buildings, must also have effective consideration and control.

The approved safe gliding angle is seven to one, therefore a building 50 ft. high renders 350 ft. of the field unavailable.

(b) Climatology. One of the greatest hazards in flying is fog. Even expert pilots find great difficulty in flying and operating under such conditions. Therefore a field which lies in a section affected by fog should not be chosen unless no other is available. The presence of marshes, etc., along the boundaries of otherwise desirable fields must be carefully considered. The advantages of using a stream or water area for seaplanes' entry will sometimes outweigh the disadvantage of taking-off land planes over the water. Airports located at higher altitudes must be larger than those at sea level, as the rare air does not permit operation at the same speed. The direction of the prevailing winds is a factor of major importance in the selection and layout of airports.

(c) Topography, soil and drainage. A level plot with an unobstructed approach in all directions and with a natural turf of such firm texture in all seasons as would eliminate the necessity for prepared runways is the preferred type of airport. However, such a plot is not always available. The type of soil that is chosen for the landing field should be given careful attention. The ground should be firm under all weather conditions. A light, coarse soil with natural drainage is recommended as the most suitable. A field with clay soil demands special drainage and is unsatisfactory, as a rule, during wet weather. As flying fields should, if possible, be level within two degrees, adequate and quick drainage is often more of a problem than anticipated. In many cases, of course, it may be more economical to construct runways than to provide an elaborate system for draining the entire area of a large airport without runways.

(d) Size, area, layout and boundaries. The airport receiving an "A" rating on its *size* must have 2,500 ft. of landing area in all directions with clear approaches, and be in good condition for landing at all times; or it must have approved-type landing strips, permitting landing in at least eight directions. A square field will be the most natural way by which these conditions will be met.

The field receiving a "B" rating on its size must have 2,000 ft. of landing area in all directions with clear approaches and good conditions for landing at all times; or a square landing area 2,500 ft. on a side, laid out in landing strips permitting at least four-way landing and having clear approaches. The field receiving a "C" rating on size must have 1,500 feet of landing area in all directions with clear approaches and in good condition for landing at all times, or a square landing area of 2,000 ft. on a side, laid out in landing strips permitting at least four-way landing and clear approaches. There are also less stringent "D," "E," "F," and "X" ratings on size. Whatever the size of the original field and its rating, and this recommendation needs emphasis, it is desirable that the location should be of such a character as to permit of easy expansion with increasing need. Changes in the airplane may make a reduction in the size of landing fields possible. Should the size of airport space be reduced accordingly? Probably not, because the additional space will be required for the increase in the number of planes and in the use of the landing field.

The size of the field is affected by the shape. Satisfactory landing fields, however, may have various shapes. They may be square, circular, rectangular, L shape, triangular, T shape or irregular. Many skilful and suggestive diagrams have already been prepared, showing the way in which ground of different areas and different shapes may be utilized best to fulfill the technical requirements of the landing field. This phase of the subject, however, needs more study and observation.

The airport should be bounded on one side, at least, by a public highway of importance, or a good road making quick connection to such a public highway. Preferably, the field should be surrounded by public streets or highways or by other public property. Indeed, ownership might include the other side of the street. By this means there can be established better control of the field itself and of its surroundings. All wires should be placed underground.

(e) Connections. It is essential that a site be selected that has good main highway connections to the center of the city, and if

possible, direct steam railroad, electric and motor services. The latter are of greatest importance; in fact, indispensable. In order to be really effective in large cities the airplane calls for improved motor ways of the superhighway type established by Detroit. One result of aviation should be better facilities for the automobile and motor bus, for only in this way can the airplane reach its highest efficiency. Speed from the point of departure to the point of final destination is the test of service. The standard of speed and coordination of traffic facilities cannot be too high. It should be added that other public utilities, such as electric light, power and water supply, are, of course, essential.

(f) Cost and ownership. It will be good policy, both for public and for private business, to establish early a high standard for airports and a willingness to raise and expend the sum necessary for first-class service. The cost analysis of airports is at present only a general estimate, because of the small amount of data available and the natural diverging early standards of construction and equipment. Land values vary greatly in different parts of the country and according to the proximity of the airport to the city. The records show a cost for airports of $10,000 and even less up to a million dollars and more. Data secured on sixty-eight landing fields of various sizes located along contract air mail routes indicate an aggregate investment by the cities of over $17,000,000, an average cost of $210,415 per field, and $46,912 for improvements. How should airports be financed, and by whom owned? This is a searching question, and involves in some measure the extent, character and rapidity of the future growth of aviation. American public opinion appears to favor the private promotion of aeronautics, but combined with the public ownership, maintenance and regulation of both airports and airways. Cities should have adequate power to acquire and condemn land for airports without as well as within their boundaries, and to raise funds for airports. The public should be generous in its support of aviation, for it has much to gain from its advance. Municipal airports would not preclude additional privately owned landing fields.

(g) Accessory features. A landing field must have not only the essential requirements, such as hangars, shops, field stations, customs and storage, rest rooms, restaurants, sleeping quarters, etc., all well planned and suitably constructed, but also many accessory features in the form of incidental buildings and adjacent open space for parking of automobiles. Here again a liberal margin of land should be obtained for future expansion. There are many examples already of selecting airports of inadequate size. Croydon Field in London may be cited.

(h) Seaplane Port. In many places it will be practicable and advantageous to have the airport located where service can be rendered both to land planes and seaplanes, combining in the port both land and water areas. At any rate, in making comprehensive plans for cities or towns with important water frontages, it will be necessary to consider the anchorage or seaplane port. It should be situated on or directly connected with a body of water calm enough for operations in ordinary weather and sufficiently large and deep to permit landing and taking-off of seaplanes and flying boats without hazard. By direct connection is meant a canal or other stream of water wide enough to allow taxiing of planes without difficulty and not over one-eighth of a mile from the actual port and the open water. The seaplane port or anchorage must be situated on or very near a good highway leading to the nearest city or town. In addition to the basic requirements which are in general similar to land airports, seaplane ports receive an "A" rating on size when they have clear approaches and are large enough to permit a 3,000 ft. run in all directions. There are also "B," "C," and "D" ratings for seaplane ports as to size, the latter, the "D" rating, requiring clear approaches and an area large enough to permit a 1,700 ft. run in all directions.

Each of the requirements mentioned above must be considered in connection with the others, as with similar features of municipal equipment. In the selection of airports only special training and familiarity with aviation and with city and regional planning and administration and related subjects can be expected to give the

best results. The selection and layout of airports are always individual problems. There are general principles, but it requires technical knowledge and special experience to apply them. Many cities are now actively engaged in the selection of sites for airports and landing fields. The decision is a matter of importance, and the relative merit of different sites should be considered and the service secured early of a qualified engineer, landscape architect or city planner. In order to facilitate the comparison of merits of different sites, a form has been drawn up which is attached to this paper.

A System of Airways

After all, airports and landing fields are merely terminals or stations or transfer points in a system. Therefore in any discussion of airports and their relation to city and regional planning, consideration must be given to airways and the convenient relation of a series of airports and landing fields to each other, and the services essential for aircraft along the line of airways. Naturally this approach to the subject requires broad regional planning, really national planning, as the airplane makes the nation a unit, and calls for a consideration of the same principles as applied to the regional planning of railroads, highways and waterways.

The term civil airway is considered to mean a route in the navigable air space designated by the Secretary of Commerce as a route suitable for interstate or foreign air commerce. In the location of airways the existing network of cities and towns must be considered, which means, usually, following in general the existing railroads and main highways. The airways system, however, permits of much greater freedom and differentiation because of its character. Again it may be pointed out that air navigation has the elastic element and the simplicity that characterize water travel, as compared with land travel. Without prohibitive cost or difficulty, direct routes between large and important places may easily be established for rapid air service following different routes from the service with local stops. It is of the utmost importance, however, to draw attention to the fact that, as in the case of water travel,

there are many limitations, such, for example, as the depth of channel, and many requirements, such as lighthouses, lightships, buoys, etc., so with air travel the airways have obstructions to avoid, and for safety and convenience call for an elaborate system of ground construction in the way of frequent intermediate landing fields, lighting, radio beacons and radio telephone service, dissemination of weather information and forecast, etc. The economical use of the airplane and the insistent requirements of speed demand flying by night as well as by day, and in all vicissitudes of weather and season. The present program of the Department of Commerce calls for the lighting of over 6,000 miles. The Post Office now lights more than 2,000 miles. The cost of lighting an airway is so great that the permanency of any proposed route must be carefully considered. A system of intermediate landing fields* for airways is imperative. These should provide adequate facilities 30 miles apart or less for forced landings due to mechanical troubles or unfavorable weather. As mentioned above, the existing network of cities and towns must be considered as a primary factor in the location of airways. But the opposite is also true. Many cities and towns will be considered for related air service that cannot be reached easily from each other by railroads, highways or waterways. Indeed, for that very reason. Examples could be cited of air connections over mountain ridges or marshes where neither rail nor road can go, or along water courses not navigable, or between places with mixed transportation of land and water. It is certain that one of the most important services that the navigation of the air can render will be in this direction.

Airways Systems in Relation to Land and Water Systems

So far consideration has been given primarily to features of air navigation only; that is, to airports, landing fields and airways, but not to airways related to other systems of communication by land or water. It is true that air systems need not follow very closely other systems of communication, but unquestionably they

* See special bulletin of Department of Commerce on "Intermediate" fields.

must be coordinated, for many obvious reasons, with other city and regional circulating systems, for there should be unity in transportation and travel systems. This is especially true of aviation. How can this be done? We know too well that one of the chief errors of the past has been the failure to link up conveniently and economically land and water transportation and their terminals with each other; also the lack of coordination of various forms of land transportation—steam, electric or motor. By what method of control or planning can steps be taken early to coordinate the air service, now in its infancy, with these other systems of transportation already mentioned? The failure of planning for rail, road and water has been due, in part at least, to the fact that the early plans were not comprehensive enough in giving weight to related matters. Too often each method of transportation has been studied and planned alone. A second reason is that the planning has not been farsighted enough in anticipating the reasonable changes and expansion. To plan successfully, some prediction of the future is necessary. And yet prediction in engineering matters, as Professor Klemin has recently pointed out, is always dangerous, because at any moment the course of normal progress may be revolutionized by some outstanding discovery or invention. This is particularly true of airplane construction. Whether we look upon aircraft as still in a pioneer stage or in the stage of perfecting instruments and methods, we know that there will be great progress as a result of present study, efforts and experimentation. Many of these changes will affect radically the requirements and technique of flying and landing, and therefore the selection of sites for landing fields, and the specifications for airports and the various factors involved in an orderly and economic system of airways. There must be skillful, liberal and far-sighted designing and planning *for* aircraft, as well as the designing and construction *of* aircraft, and such planning must be coordinated.

A large part of all city and regional planning, and it is especially true as applied to the airplane, is an attempt to forecast the future. In a discourse delivered some time ago by H. G. Wells at the Royal

Institution, London, under the title, "The Discovery of the Future," he discussed the general subject in an able and helpful way. He says: "Our conveniences, like our thoughts, are all retrospective; we travel on roads so narrow that they suffocate our traffic; we live in uncomfortable, inconvenient, life-wasting houses out of a love of familiar customs and a dread of strangeness; all our public affairs are cramped by local boundaries impossibly restricted and small."

Why, he then asks, by seeking for operating causes, may it not be possible to throw a searchlight of inference forward as well as backward, and so, by the same process of induction, discover the future and its needs? Such an attempt, in the opinion of Mr. Wells, would show what the future would bring about—for example a higher standard of education and personal efficiency; possibly, in time, the establishment of a world state, and—this interests us especially—the diffusion and aeration of our present dense population in cities. He finishes his brilliant essay by dwelling on the change that the present period stands for, and the promise of the future based on the fact that humanity everywhere is getting into marching order. Now, is there not room for a discovery of the future and more definite planning for it in connection with aviation, the subject that now engages our attention?

It may be asked in conclusion, what service can city and regional planning and zoning render to air navigation, and how? In answer it may be suggested:

(a) That it should be assumed that every city or town of any importance should have an airport and supplementary landing fields as service stations, and that they should generally be publicly owned. The standard as to size, convenience and safety should be the highest possible in each instance. Facilities must often precede the demand, and services of greatest value must often be conducted at first at a loss. This is especially true of passenger service. Such losses should be borne by the public, because the advantages are to the public.

(b) That steps should be taken to assemble constantly and

make public the experience of various authorities in selecting, planning, developing and maintaining airports and airways. The Aeronautics Branch, Department of Commerce, issues printed, illustrated air bulletins describing airports and improved intermediate fields, and there are other sources, both public and private, of reliable information.

(c) That the site for an airport should be chosen early with the highest possible standard from an aircraft standpoint, and also with due regard to the requirements of city planning and zoning. Permanent airports should be selected with great care, and with the best technical advice.

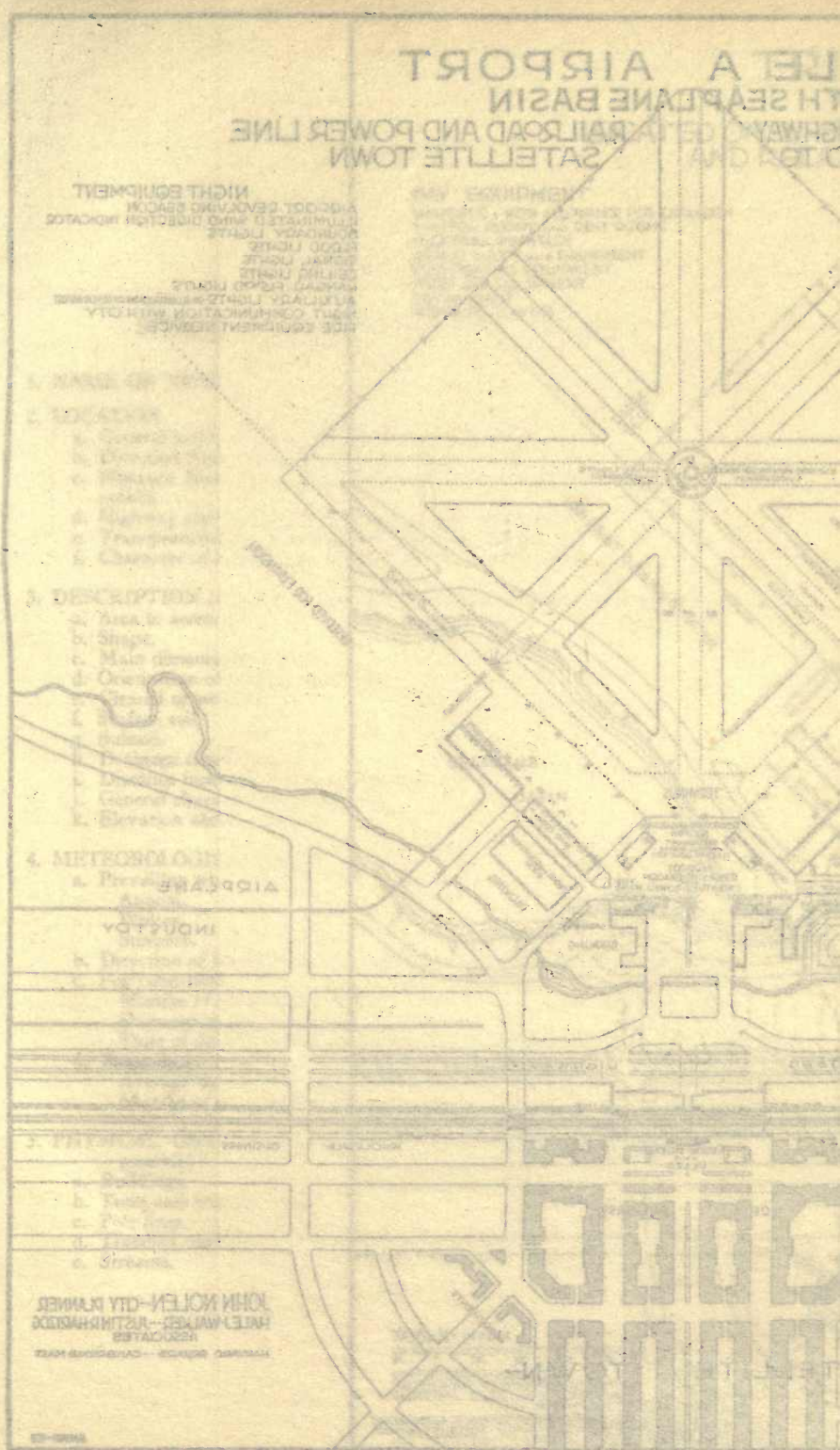
(d) That one of the chief merits of any airport proposal should be the facility with which it could be changed and expanded to meet the new and larger requirements of the future.

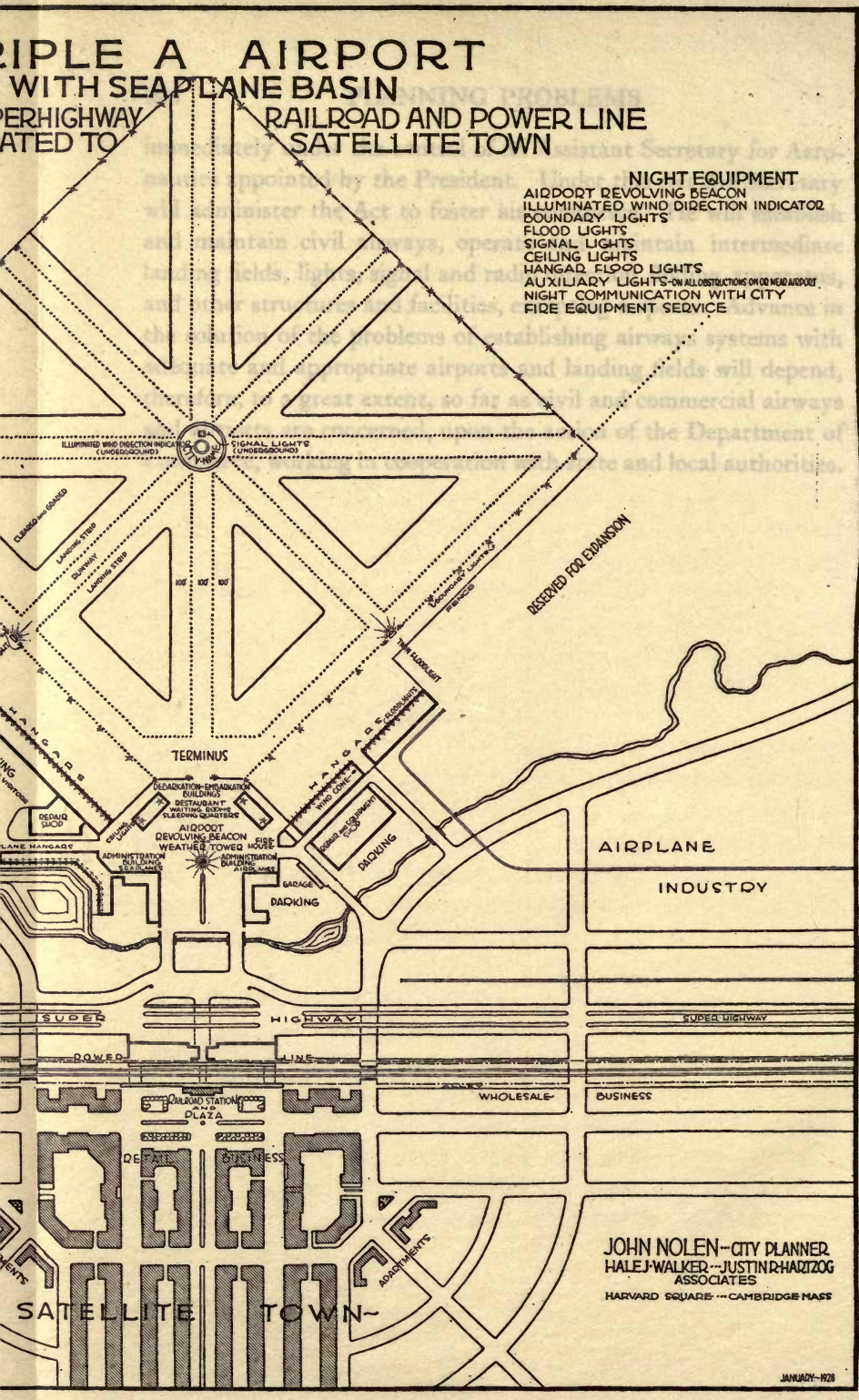
(e) That the principles determining the right location of railroads, highways and waterways, and their stations, terminals and harbors, and the experience of comprehensive city and regional planning and zoning, should be placed at the service of those who have authority over the planning for aircraft service.

(f) That the airplane authorities should have the cooperation of local and regional planning boards, and of the National Conference on City Planning and the American City Planning Institute. These national organizations, so far as their resources permit, could aid in various ways in the research and discussion necessary for a wise solution of all those broad planning and zoning problems related to aviation. In return, aviation is making a singularly valuable contribution to city and regional planning by airplane surveys and in the new and unique facilities which aviation affords for the study and observation of cities and regions from the air.

Finally, tribute should be paid to all of those agencies, both public and private, that are working so effectively and wholeheartedly to advance aviation. Mention should be made especially of the Aeronautics Branch of the Department of Commerce, which under the Air Commerce Act of 1926 is charged generally with the encouragement and regulation of the use of aircraft in commerce

immediately under the control of an Assistant Secretary for Aeronautics appointed by the President. Under this Act the Secretary will administer the Act to foster air commerce. He will establish and maintain civil airways, operate and maintain intermediate landing fields, lights, signal and radio direction finding apparatus, and other structures and facilities, excepting airports. Advance in the solution of the problems of establishing airways systems with adequate and appropriate airports and landing fields will depend, therefore, to a great extent, so far as civil and commercial airways and airports are concerned, upon the action of the Department of Commerce, working in cooperation with state and local authorities.




RIPLE A AIRPORT
WITH SEAPLANE BASIN
PERHIGHWAY
ATED TO
RAILROAD AND POWER LINE
SATELLITE TOWN
NIGHT EQUIPMENT
AIRPORT REVOLVING BEACON
ILLUMINATED WIND DIRECTION INDICATOR
BOUNDARY LIGHTS
FLOOD LIGHTS
SIGNAL LIGHTS
CEILING LIGHTS
HANGAR FLOOD LIGHTS
AUXILIARY LIGHTS-ON ALL OBSTRUCTIONS ON OR NEAR AIRPORT
NIGHT COMMUNICATION WITH CITY
FIRE EQUIPMENT SERVICE
ILLUMINATED WIND DIRECTION INDICATOR (UNDERGROUND)
SIGNAL LIGHTS (UNDERGROUND)
CLEARED AND GRADED
LANDING STRIP
RUNWAY
LANDING STRIP
100'
100'
100'
RESERVED FOR EXPANSION
TERMINUS
HANGARS
REPAIR SHOP
DEPARTURE-ARRIVAL BUILDING
RESTAURANT WAITING ROOMS SLEEPING QUARTERS
AIRPORT REVOLVING BEACON WEATHER TOWER
FIRE HOUSE
ADMINISTRATION BUILDING HANGARS
ADMINISTRATION BUILDING AIRPLANES
GARAGE
PARKING
HANGARS
REPAIR AND EQUIPMENT SHOP
PARKING
AIRPLANE
INDUSTRY
SUPER HIGHWAY
POWER LINE
RAILROAD STATION AND PLAZA
WHOLESALE
BUSINESS
RETAIL BUSINESS
APARTMENTS
SATELLITE TOWN
JOHN NOLEN--CITY PLANNER
HALE J. WALKER--JUSTIN R. HARTZOG
ASSOCIATES
HARVARD SQUARE--CAMBRIDGE MASS
JANUARY--1928

APPENDIX

SITE QUALIFICATIONS FOR AIRPORT

1. NAME OF TRACT

2. LOCATION
   a. General location (if possible show by a Key Map).
   b. Direction from center of city (City Hall).
   c. Distance from Post Office, in miles....., in minutes by automobile .....
   d. Highway connections, type of paving and condition.
   e. Transportation facilities, electric line, bus, railroad.
   f. Character of neighborhood, present and probable future use.

3. DESCRIPTION (to be accompanied by a survey—topographical preferred)
   a. Area in acres.
   b. Shape.
   c. Main dimensions in feet.
   d. Orientation of longest dimension.
   e. Cleared or wooded.
   f. Surface soil.
   g. Subsoil.
   h. Drainage conditions.
   i. Distance from nearest water supply.
   j. General character of topography.
   k. Elevation above sea level.

4. METEOROLOGICAL DATA
   a. Prevailing winds.
      Annual.
      Winter.
      Summer.
   b. Direction of heaviest winds, months and highest recorded velocity.
   c. Fog conditions.
      Months of greatest frequency.
      Days per month.
      Time of daily occurrence and hours of duration.
   d. Precipitation.
      Average annual amount.
      Months of greatest fall.

5. PHYSICAL OBSTRUCTIONS ON THE TRACT (shown on survey, if possible)
   a. Buildings.
   b. Trees and undergrowth.
   c. Pole lines.
   d. Traveled roads.
   e. Streams.

6. PHYSICAL OBSTRUCTIONS ON ADJACENT PROPERTY AFFECTING FLYING EFFICIENCY
   a. Hills and mountains, distance from tract.
   b. Forests or woods.
   c. Buildings.
   d. Pole lines.
   e. Railroads or electric lines.
   f. Traveled roads.
   g. Streams.

7. OWNERS OF TRACT

8. COST PRICE

9. EXPANSION: DIRECTIONS, ACREAGE GENERALLY AVAILABLE AND APPROXIMATE COST PER ACRE OF ADJACENT LAND

DISCUSSION

General John F. O'Ryan, New York City: There are three main factors which require consideration in the location of an airport, viz accessibility, size and flying conditions. The principal contribution which air travel makes to communication is speed, and it is futile to attempt to maintain rapid airplane service from one city to another unless the airports of those cities are so located as to permit the pick-up and delivery of passengers and cargo with convenience and despatch.

Proximity to congested centers at the same time however raises this disturbing question—is the location and development of an airport as such really an asset to the immediately surrounding country? Certain citizens of Westchester County, New York, are now prosecuting legal action against the owners of a nearby airport on the ground that it constitutes a nuisance from the standpoint of hazards, noise, and crowds. In other communities, however, there is great competition between different sections for the purpose of securing the location of the airport on the ground that such location will enhance the value of their property and put them on the map. Real estate values have in many instances rapidly appreciated in the neighborhood of an airport site following the announcement of a projected development.

Commercial aeronautics has not progressed far enough to give a final answer to this question, beyond indicating that it involves numerous conflicting features. The airport is not alone a phenomenon of transportation, but also of urban organization. To be well situated it must be closely situated to traffic centers.

As to size, the final answer is likewise not yet agreed upon. This

is clear, however, that a given plane with a given load requires the same space for landing and taking off in a small town as in a large town, assuming identical elevation and weather conditions. On the other hand the requirements of a large city for hangar space, passenger and cargo accommodations, industrial operations and parking areas are greater, and the airport is more likely to be visited by larger and more heavily loaded ships. Improvements are of course being made in airplane design with a view to decreasing the "stick" and "unstick" periods, but at the same time ways and means are being devised for the carrying of heavier loads which of course add to the required runway space. The expert pilot in the stunt ship can take off from a city street, but the airport must accommodate a loaded commercial plane in the hands of the average pilot. Assuming that further progress will be made in the designing of planes in the direction of lessening the ground area required, or even admitting the general use of the helicopter, it is not likely that the total acreage of our airports will correspondingly decrease, as these factors will only increase the usefulness of the airplane and consequently multiply its numbers.

The main factors regarding flying conditions in relation to civic planning for airports are the prevalence of smoke from industrial operations and the existence of dangerous air currents arising from the proximity to tall buildings. These difficulties can be overcome by choosing the windward side of cities for airport location and zoning the surrounding districts against undesirable building construction.

Airports and airways are going through a rapid stage of development at the present time, each affecting the character and progress of the other. The airport which is designed particularly as an adjunct to regular commercial air traffic, that is the carrying of mail, passengers and cargo, must, of course, bow to the requirements of such traffic, as regards size, location and other conditions. Few airports, however, are limited to such use, and few indeed could survive economically if they were dependent solely upon this. Eventually there must be specialization in airports as there doubtless will be in air traffic. Certain airports will be reserved for regular daily service; others will be used as full flight laboratories by aircraft manufacturers; some will be developed for other experimental work and for aviation instruction. But at the present time, although the laying out of new airways is providing the stimulus for the development of many airports, the precise location

of those airports is being governed by numerous other factors which the promoters must take into account in providing for sources of return. Most airports today are a good deal more than merely terminals or stations or transfer points in a system. They are the center for all aeronautical activities of the community—mail, passenger and traffic service, schools, hopping, emergency trips, air circuses and what not. Those airports which cannot boast of all of these activities are ambitious to do so.

Regarding the specific requirements of an airport, this question can be accurately answered only in relation to the conditions prevailing at a particular site. In general, however, every site should be laid out to accommodate maximum traffic with maximum safety. Commercial air transportation must be safe transportation and to be successful it must attain a considerable bulk. The location and design of the airport is a problem for experts, not alone persons with experience in aeronautics, nor those with outstanding records in our military establishment, for vast differences exist between the requirements of military and commercial aeronautics. Laying out the modern airport is not only a technical problem but a business problem, and the prospects for the expansion of commercial aeronautics to great proportions warrants the utilization of the best technical talent available for this purpose.

Morris Knowles, Pittsburgh, Pa.: While the subject of suitable location and proper development is still debatable and much will be learned in the next few years with the expansion of the industry, a few general observations may be made even now. With present development of aircraft a minimum area for a landing field is from 100 to 200 acres, but larger fields, even to 1000 acres, are coming under common consideration. Change in airplane design and construction may permit a reduction in size of landing fields and length of runways, but the increase to be expected in the business probably means that no field of ample dimensions at the present time will be found too large in the future. The lengths of runways and takeoffs is more important than area alone. Unless the field be irregular in shape, ample runways call for a large area. These runways, at least until helicopters or their equivalent are developed in general use, should be at least 2500 feet and preferably 3000 feet long, in any prevailing wind direction. If surfaces are to be different from the uniform covering of the field (and this may be desirable in northern climates with action of frost on the ground

in the spring) these runways should be at least 100 feet wide and preferably 250 feet or more and covered with close-texture, uniform, compact and well drained material. Such a landing field, used for an airport, should be free from high obstructions on the sides and should be elevated above rather than depressed below the surrounding land. The latter feature promotes freedom from smoke and fog compared to a valley location. As to distance from the business center of the city, eight miles or 20 to 25 minutes time from the business section seems to be a desirable maximum.

As a help in the selection of the most suitable area, the following suggestion has been used with considerable success and is offered for discussion.

WEIGHTS OF VARIOUS FACTORS

1.	Size, physical features and freedom from obstructions	20
2.	Distance from business district and city post office	15
3.	Accessibility by various transportation methods	14
4.	Possible emergency fields existing nearby	12
5.	Railroad connections with sites for shops	10
6.	Freedom from wind, fog, and smoke	9
7.	Property and cost of converting (quite approx.)	8
8.	Seaplane facilities in proximity	5
9.	Distinguishing land marks for visiting pilots	4
10.	Water supply and fire fighting facilities	3
	Total	100

The weights adopted for each factor in the schedule appear in the right hand column. While such ratings form an important basis for selection, many general factors remain to be evaluated. These will depend upon the experience and judgment of those who are attempting to make a selection. It is desirable to have several competent persons make the rating and take an average of their judgment. Aeronautics presents unusual and new features to be reckoned with and here the advice of competent and experienced flyers will be most valuable.

In addition to the factors to be determined relative to proper location, the questions of the costs of acquirement, construction, and equipment are also subject to great variety of experience and opinion. These costs, however, are apparently mounting upward rather than decreasing and, as the importance of the industry grows and its hold upon the American public becomes more fixed, it is not likely that these will reduce, at least in the near future.

The initial cost of acquiring real estate is probably the item of

greatest variation and is usually a paramount item. Many cities have made the mistake of locating an airport at a considerable distance from the central district in an attempt to overcome excessive expense. As a result, after spending a considerable amount of money, it has been discovered that an hour or more lost in reaching the central city at the end of the air journey greatly depreciates the time value in this form of transportation. To overcome this, some have abandoned an original project altogether, and chosen another and nearer port at greatly increased cost.

Sometimes, under favorable conditions, where no area for an airport exists within a reasonable distance, recourse may be had, in exceptional cases, to a central landing field for mail and passengers.

It may be stated, however, on good authority that a properly designed, constructed, equipped and managed air terminal will not only become self-supporting in a short time, but will produce a profit. The possibilities of the rapidly growing industry in the manufacture and assembly of parts and collateral activities in factories adjacent to the port should not be overlooked. Revenue from rentals of quarters and commissions and the sale of parts and fuels will add to such revenue.

The acquisition and equipment of a public airport will be unavailing unless careful attention be given to the operation thereof. They are similar to terminals of every other kind, calling for technical skill and management. The city that desires to promote aviation, if it would become a permanent port upon a transcontinental airway, cannot overlook any of the features mentioned.

In addition to all of the above and in demonstration of the necessity of regional conception which city planners always try to stress, it becomes important to think in terms of the relationship, not only to the other subjects of regional planning, but also to the development of other places in the airport field. This points to the encouragement and promotion of companion airports in all directions and particularly to the establishment of emergency, intermediate or auxiliary landing fields within suitable distance of the main airport. In other words, the airport needs not only its own thorough development, but to see that there be satellites within sufficient aviating distance. Thus, the planes and passengers attracted to these airports may have safe landing in case of emergency.

GEORGE W. MELVILLE, Cincinnati, Ohio: I believe it is a mistake for a municipality to concentrate on one airport. The city should have its own municipal airport, but the city plan should suggest other airports so that private aeroplane manufacturing companies can be provided for. As you know, Dayton, Ohio, is the air city. The Government Research Laboratories are there. There is a great opportunity for aviation development. Consequently as an element of the city plan of Dayton there is an airport and airways' map upon which five airports including emergency landing fields are shown. Already one of these has been bought by a private aeroplane manufacturing company and another is under option.

The plan shows the thoroughfare communications from the city to the airport. Every time a plat or a subdivision which is traversed by one of these proposed thoroughfares comes in for approval, we insist on the dedication of land for the thoroughfare.

GORDON WHITNALL, Los Angeles, Calif.: There is a very direct relation between the airport situation in Los Angeles and the subject just recently discussed of budgeting improvements. The day before I left Los Angeles the citizens voted on a bond issue of six million dollars for the acquisition of three new airports in addition to one now existing, and although the bond issue received a substantial majority, it lacked the required two-thirds vote for passage. The failure of the bond issue may be entirely attributed to the lack of a budgeted program of capital expenditures. The public expressed itself in the press, on the platform, and in the street, as opposed to any more bonds until the city got down to a real program in respect to capital expenditures.

CAN A CITY PLAN SERVE TO REDUCE TAXES OR DEBT?

GEORGE B. FORD, City Planning Consultant, New York City

Can a city plan with a long plan term budgeted program of execution serve to reduce the municipal debt or taxes? Experience shows that it can and sometimes to a surprising extent.

It is generally agreed nowadays that the annual budget for current non-capital municipal expenses is good business. If it is reasonable to prepare a program and budget for current operative and maintenance expenses, is it not just as reasonable to plan and budget capital expenditures? In fact, is not there much more possibility of waste, or unwitting mistakes, in making public improvements? The telephone companies, many public service corporations and most of the successful private corporations plan their capital expenditures well into the future. They make out a budgeted program of execution. This procedure is considered absolutely essential to successful development. The lack of it is considered unwarranted waste.

It is in realization of these principles that various cities have recently undertaken comprehensive plans and budgeted programs for municipal development. It is stated by Mr. C. E. Rightor, of the Detroit Bureau of Governmental Research, in his most interesting pamphlet entitled, "The Preparation of a Long Term Finance Program," * that probably the first long term plan for any governmental unit was that of the Minneapolis Board of Education, which was announced in 1916. In 1919, a five-year civic program was outlined for Newark, N. J., as a result of their comprehensive city plan.

The first comprehensive city plan and budgeted program for a long period of years was that for East Orange, N. J., which was

* Published by the Municipal Administration Service, 261 Broadway, New York City, 1927. Price, 25 cents.

prepared by the City Planning Commission in 1921. A program of public improvements with their estimated cost was worked out for each five-year period from 1922 to 1972. Then the city's financial condition at each of these five-year periods was estimated and the program adjusted so that the city might always pay for the proposed improvements within each of the given periods. While this program has served as a guide and object lesson, it has never been officially adopted.

The first general program for public improvements to be adopted at the polls was that of St. Louis, where, on February 9, 1923, a total ten-year bond issue program covering 21 separate projects and totaling $87,372,500 was adopted by a two-thirds vote. The ability of the city to finance the undertaking without an increase in the tax rate for 30 years was first determined. In addition to the items contained in the ten-year bond program, the city is now financing the cost of a big transportation program largely by local benefit assessments.

In 1925 a bond program for public improvements was prepared for both Kansas City and Toledo. Out of a total of $26,610,000 only $2,400,000 was approved by the voters of Kansas City, and only $3,000,000 out of a total bond program of $32,500,000 was approved by the voters of Toledo. Both cities have revised their programs, and will submit them again after a more thorough campaign of education. Buffalo has a capital Budget Committee under the new City Charter and it is expected that it will present its program this year.

In Los Angeles a five- to ten-year program of capital improvements is being prepared. The extremely rapid growth of the city, however, makes the problem most difficult. They are preparing their program on the principle that limiting the amount of street improvements to the capacity to pay of the property owners affected merits just as much consideration as the plan for distributing the cost of such improvements over a period of years.

Dayton, Ohio, has recently passed several large bond issues based directly on the findings of the city plan.

In Cincinnati, in 1927, a committee was appointed representing the various bond-issuing authorities (that is, the city, the county, the schools and other boards) to present a plan of procedure for coordinating the bond proposals of these various authorities and developing a common program. At their request the City Planning Commission and the Bureau of Municipal Research presented a plan of procedure for the preparation of an improvement program and a plan of financing.* This program is particularly interesting because it is the first that is thoroughly comprehensive, including schools, county and special boards, assigning priorities to each and determining the full financial effect. A complete program, based on the city plan, was made out for five years and a specific detailed program for 1928 was published in October, 1927. Despite the fact that it called for a total expenditure of $10,553,000, it only raised the total tax rate 1½ per cent.

Detroit, thanks to the work of Detroit Bureau of Governmental Research, published its ten-year public program for Detroit in June, 1925. The program, which was quite comprehensive, called for a total expenditure of $779,991,477. It was estimated that about $63,528,000 could be financed by special assessments. It was also found that the whole program could be carried out with only a small increase in the tax rate and within the New York 7 per cent savings bank law, which at that time made illegal any investing in municipal bonds where the bonded indebtedness of the municipality exceeded 7 per cent of its assessed valuation.

In April, 1927, the program was revised as an eight-year program. The ten-year program was reduced by about $89,000,000. On the basis of these findings bond issues were voted for the most desirable public improvements, although under the New York 7 per cent banking law the margin for legal investments in the New York market was only $19,000,000, while the borrowing margin under the Michigan State Laws was $233,795,867. Most fortunately the recent change in the New York banking law gives Detroit all of the latitude that it needs.

* The general principles of procedure in Cincinnati are described on page 16 of Mr. Rightor's pamphlet, to which reference has been made.

In December, 1927, the city of Trenton, N. J., completed its comprehensive city and regional plan and long term budgeted program of execution. The program is arranged by five-year periods from the present until 1950. It includes all the capital expenditures that are proved to be necessary or at all desirable. The cost of executing the total program would amount to about $26,000,000, including about $9,000,000 for paving and repaving. The latter must be all paid out of general taxation instead of by local benefit assessments, which is the usual custom elsewhere. Even so it was found that the whole program can be financed without increasing the tax rate and with an almost complete liquidation of existing and new bond issues by 1950. In other words, without increasing the tax rate and with no increase in the per capita assessed valuations, it is possible to carry out a complete public improvement program on a most comprehensive scale and at the end of the period find the city almost entirely out of debt.

In February, 1928, the city of White Plains, N. Y., published its comprehensive city plan and budgeted program. The total cost of carrying out the plan over a period of 50 years was estimated at $45,596,970. Of this amount, $12,944,087 will be assessed against properties directly benefited. The present population is 29,000. The funded debt on the completion of the program will be about the same as it is today, while the borrowing margin would have increased from the present $5,000,000 to $28,000,000. Meanwhile the tax rate, which was 25.027 in 1927, would increase gradually to nearly 31 and then decrease gradually to about 23. The assessed valuations, at present $106,000,000, would probably increase during the 50 years up to $343,000,000, and the population would probably increase to about 73,000.

The report for the village of Bronxville, N. Y., was also published in February, 1928. It was found there that on account of the specialized character of the problem it would be necessary to increase the per capita assessed valuations about 25 per cent, and the tax rate from 2.445 to 2.772 in 1929 with a reduction to 2.453 or less from 1934 on. Meanwhile the total bonded indebtedness

for carrying out the whole program would come well within the legal 10 per cent limit.

Dallas, at the end of 1927, through its Citizens' Advisory Committee, prepared an amended Kessler Plan and a comprehensive budgeted program of public improvements to be consummated in nine years or less. The total bond program for $23,925,000 was adopted by the voters, but at present it is tied up in an injunction suit. It is interesting to note that the amount of bonds recommended in the program does not much exceed the amount actually issued during the last nine years without any plan. While the tax rate stays at 2.47, the ratio of assessed valuation to real valuation is to be increased from 50 per cent to 58½ per cent.

Rye, N. Y., has recently published its comprehensive plan and budgeted program from 1929 to 1950. The total expenditure for public improvements throughout the period would amount to a little over $3,000,000, including full allowance for sewers, paving, schools and even such things as garbage incinerators and fire apparatus. Only $700,000 of new bonds would be needed, the balance being paid entirely on the pay-as-you-go principle. Meanwhile at the end of the period the total net balance out of current revenues, after deducting all old and new debt service, as well as current operating and maintenance expenses, would amount to $1,246,900. The assessed valuations would probably double during the 22-year period, and the population would nearly double. Meanwhile the village tax rate of 11.26, exclusive of schools, could remain unchanged and the net borrowing margin would increase from $1,379,000 to $5,270,000. In other words, a complete program for capital expenditures of all sorts can be carried out without increasing the tax rate and without any undue increase on the per capita assessed valuations, and at the same time nearly wipe out the municipal debt.

Mount Kisco, N. Y., is just publishing its comprehensive plan and budgeted program for 1929 to 1950. The total expenditure for public improvements is $2,432,250. This again includes all desirable capital expenditures. Only $300,000 of new bonds

would be necessary, the balance being paid on the pay-as-you-go principle, leaving a total net balance from current revenue at the end of the period of $589,250 after all debt service charges are paid. Meanwhile both the new and the existing bonds will be almost entirely liquidated by 1950, and the net borrowing margin, at present only $55,000, would increase to almost the full borrowing capacity in 1950, which would be $1,567,800. The tax rate for both the village and school would remain at the present combined rate of $25.70. Population should increase meanwhile a little over 50 per cent. Again, the comprehensive plan and budgeted program could be completely executed without any increase in the tax rate or the assessed valuations per capita and with an almost complete liquidation of existing debt by the end of the period.

Taking the Trenton Budgeted City Plan as an example, all proposed public improvements and other capital expenditures were first determined scientifically by means of mathematical studies, and then the order of relative urgency was similarly calculated. The items were arranged in three classes: first, those that were vitally necessary; second, those that were also desirable, and third, those that were interesting but not essential.

Then, the cost of each item was calculated and checked from various sources, so that a definite budget could be determined for each year and for each five-year period. Five-year periods were used so as to allow for an adjustment of the items at the beginning of each period.

As might be expected, the borrowing capacity of the city and the net margin between current revenue and current expenses rarely permits the immediate financing of all desirable public improvements and capital expenditures. Even if the borrowing margin is ample, debt service charges absorb so much of the current revenue that either administration costs would have to be unwarrantedly reduced or taxes unduly raised. Public improvements and other capital expeditures can and should be postponed until actually needed. It is wasteful to undertake them sooner, except where land is about to be improved with costly structures. Recent

experience has certainly proved that a budgeted plan and program can determine scientifically just when each capital expenditure should be undertaken as well as its amount. Guesswork, the bane of all municipal financing, can be largely eliminated. A workmanlike program can be substituted.

In making a program and computation of the necessary and desirable capital expenditures, their dates of undertaking and their costs are not sufficient. It is necessary also to determine how much the city can afford to spend in addition to current administration and maintenance costs plus debt service charges. Debt service charges on existing debts can readily be determined for each year in the future. Municipal operating and maintenance costs tend to increase with population, except in the case of the very largest cities. Therefore, a projection of population growth can be used as a factor in determining operating and maintenance costs at any given date in the future. Sewer, paving and repaving costs can be determined in a similar manner, as, other things being equal, they tend to increase with the population.

The total revenue of a municipality also tends to increase at least as rapidly as population. In other words, the assessed valuations per capita, on which the revenue is largely based, gradually increase as population increases. Tax rates also tend to increase gradually with the increase of population, with the result that the total revenue should increase at least as rapidly as the population. This relationship is shown graphically by the accompanying table:

	Group I Over 500,000 Population	Group II 300,000–500,000	Group III 100,000–300,000	Group IV 50,000–100,000	Group V 30,000–50,000
Per capita cost, operating and maintenance, not Public Service..	$47.40	$41.03	$31.09	$30.29	$29.03
Assessed valuation per capita.....	1,925.27	1,489.21	1,397.86	1,347.86	1,206.77
Per capita tax levy....	56.81	51.44	44.02	43.84	40.79
Per capita net debt....	154.20	138.29	96.46	81.01	70.13

The Statistical Abstract of the United States for 1926 also shows

that in 250 typical cities nearly 54 per cent of the total expenses of the city were for current operation and maintenance, 5 per cent for the operation of public services, 31½ per cent for permanent improvements and 9½ per cent for debt service.

Now if the operation and maintenance costs are subtracted from current revenue, the balance, if any, is available for the financing of public improvements. If the latter can be financed directly on the pay-as-you-go principle out of current revenue, the municipality is on a very conservative and strong financial footing. However, this can rarely be done, so that financing by bond issues, whether serial or term, becomes imperative. The interest and amortization charges must be calculated on each proposed bond issue to see that the carrying charges can be taken care of out of the current revenue balance. Otherwise the bond issues must be reduced to a point where they can be taken care of, or the revenue from taxation increased correspondingly. The interesting part is that in Trenton, and several of the other municipalities above referred to, it was found that small bond issues in the immediate future would suffice and that all the rest of the improvements could be taken care of as needed on the pay-as-you-go principle. This naturally tends to improve the credit of the municipality, giving it a lower net interest rate on its bond issues.

The politician may well ask what good is such a long term budgeted program of capital expenditure? He observes that we cannot make it binding on future City Councils, and besides, if we are tied down to a cut and dried program, how could we take care of the demands of constituents as they arise? His observations are practical and they have a certain amount of truth in them. However, the long term budgeted program does give something definite to go on. It gives the taxpayer something tangible. This implies, of course, that the budgeted program is given full publicity and that public opinion is given every opportunity to express itself. In that case it affords the taxpayer an opportunity of seeing whether he is getting full value for his taxes and assessments.

If the plan and program is prepared in a thorough, businesslike

way, it will include virtually all of the reasonable demands that citizens are likely to present. If it does not, then the plan and program can often be adjusted to include these propositions in a consistent manner. If the demands are not reasonable, the plan and program will show why and how the plan takes better care of the citizens' problem, and often more cheaply, than the citizens' own plan.

Then, too, the details of the program should be adjusted each year in view of possible changing conditions, but at the same time so as to preserve the continuity of the general underlying policy. Thus, the general principle and the plan can be kept intact, despite the obvious adjustment of details that should take place from time to time.

Such a long term budgeted plan and program should give the politicians many talking points for satisfying constituents, and at the same time it should give him logical reasons for refusing unwarranted demands. The interesting part of it is that in various municipalities, where the long term budgeted program of capital expenditures is being tried out, the politicians are realizing that it is decidedly to their advantage to foster it. In other words, budgeting capital expenditures has now come to stay, and within a relatively few years it is bound to be the general practice all over the country. It is logical, reasonable and good business. It makes for better value for money expended and for better communities.

DISCUSSION

ROBERT WHITTEN, New York City: Mr. Ford has described the long term financial program for White Plains prepared by Ernest P. Goodrich and myself to supplement the comprehensive city plan. At the public meeting at which the Plan was presented to the people Mayor McLaughlin stressed the importance of the long term budgeted program as a measure of municipal economy. He pointed to the fact that the city council considered with meticulous care each item in the annual budget, but with all its care it could hardly affect more than three to five per cent of the total of that budget because the major portion of the expenditures

were practically fixed and predetermined. About twenty-five per cent of this total was required for debt service, (interest and sinking fund). This debt had been incurred from time to time without much thought of its relation to a balanced budget.

If we expect to secure the carrying out of city plans, we must have a balance between all the needs of the city. The city plan is a long term project and should be budgeted and its requirements coordinated with all the other requirements, for current operating expenses and for capital expenditures for purposes other than the city plan, and they must all be a part of a complete whole.

The movement for a long term budget is spreading rapidly throughout the country. It is being promoted both by those interested in putting city plans into effect and by those interested in sound municipal finance. In New York City a special committee has recommended the preparation and annual revision of a capital outlay program. This committee found that in just considering a five-year period there were projects that would probably be presented for action within the next five years that totalled over one billion dollars, or two hundred million dollars a year. Of this total five hundred million dollars was for rapid transit, over a hundred million dollars for an extension of the water supply system, one hundred fifty or more million dollars for tunnels and bridges, and many more millions for schools, incinerators and sewage disposal.

It is evident to any one considering this subject, either from the planning side or from the financial side, that a long term physical plan and a long term financial plan must go hand in hand if we are to get results in either.

On the strictly financial side, in order to prepare a long term financial program, we must be able to estimate accurately for a period of ten or more years: 1. The annual increase in the assessed value of real property; 2. The annual increase in cost for current operation and maintenance; 3. The annual debt service charge; 4. The annual revenue from all sources, assuming only slight variations in the tax rate.

The assessed value of real property is the base for the application of the tax rate and normally is the source from which 70 to 80 per cent of the municipal revenues are derived. The assessed values also determine the limit on the bonding power of the city. Most cities cannot incur debt in excess of 7 to 10 per cent of the assessed value of real property.

Real estate values are a function of population. The larger the

city, the larger the aggregate values and in general the higher the per capita values. In other words, assessed values increase somewhat faster than population. A plot of aggregate real estate values and population for all cities of over 30,000 in the United States shows that in general aggregate real estate values increase as the 1.12 power of the population. Further research should be carried on to determine for particular cities the past increase in property values in relation to population. More research can profitably be devoted also to the relation of population increase to cost for operation and maintenance, to aggregate municipal revenues and to municipal debt.

C. E. Ulrickson, Dallas, Texas: If it is true, as is now generally conceded, that budgeting the operating and maintenance expenditures of a municipality or a city has a tendency to make for economy, then it must be conceded also that the proper budgeting of capital expenditures will bring about the same much to be desired result. The reasons for this are many and must be obvious not only to the trained business executive but to city officials and tax-payers generally.

Possibly we should not refer to the economic saving effected by proper planning and a sound budget system as automatically reducing year to year taxation—or indebtedness—because the saving might not be applied in either of those directions. It could be applied to the making of additional capital improvements—as against a reduction in either taxes or debt, but this in effect reduces both debt and taxes.

One of the principal items of cost in conducting any enterprise, or in doing any specific construction work, is what is commonly referred to as overhead. Overhead can be best kept at a minimum by proper advanced planning of work proposed to be done, and by the providing of a continuity of operation. No progressive city can stand still. If we are going forward it is obviously preferable to move along on a fairly even keel, expending a more or less definitely specified amount each year for capital improvements, the amount depending somewhat upon the average normal growth of the city, the average increase in its taxable values—which in turn not only produces the annual tax return from which it should always be hoped that a certain amount of capital investments could be made—in addition to producing the operating and maintenance revenue required—but it also determines the amount of additional

bonds which can with safety be authorized and issued and from which funds the major portion of capital expenditures are usually made. With the fairly accurate knowledge of the financial structure thus provided, it becomes the duty of the executives to determine upon those things which the city needs and the sequence in which they should be provided. These being determined it becomes comparatively easy to develop the proper organization for the doing of the actual work.

The speaker has recently served as a member of a committee whose duty it was to determine, so far as was humanly possible, what Dallas mostly needed in the way of permanent capital improvements and how to provide the money with which to procure them. After nearly two years of deliberation and study the committee made a report which was submitted to and approved by the people in its entirety. As a result Dallas will have available over a nine-year period $23,900,000 for paying its (the city's) share of numerous major improvements specifically enumerated, and which —under one condition of the report—might conceivably be reduced to six years, provided it is physically possible to do all the work specified within that time.

The report, however, goes further than just to specify what should be done and planning how the money should be raised. The report specifically states that the committee did not take the position that it was providing for all the things that Dallas would conceivably need within the time contemplated, nor possibly even some of the things which Dallas might actually need now, and as we did not by any means exhaust the possible revenues of the city the impression could well be left that additional improvements could later be determined upon and provided for even within the period. The report further stressed the point as emphatically as language at our command could emphasize it that the program as a whole, or any part of it, should not be begun or undertaken until after first thoroughly engineering and planning the work—not only that no mistakes might be made as to policy, but that the work itself be economically carried on.

Were I to take a more definite or specific stand on the question I would suggest that a Bureau of Municipal Research be organized, to be composed of a limited number of public spirited citizens, together with representatives of the city administration or commission, with possibly one paid employee, who should preferably be attached to or be a part of the engineering organization, and who

would, therefore, have access to all available engineering data. Such a Bureau could then readily make plans for, we will say, five-year periods, taking all factors of income and outgo into consideration, and then—as soon as program was provided—the administration officials could plan and proceed intelligently, having in mind continuity of working organization with obviously resultant economy, and thereby reducing ultimate debt and taxation.

M. W. McKenzie, Oklahoma City, Okla.: The experience in Oklahoma City illustrates the truth of some of Mr. Ford's conclusions. Oklahoma City in April, 1899, was a prairie. Today it has about 150,000 people. Its chief development problem is incident to its rapid growth and to the locations of its railroads. For many years we have struggled for an agreement between the carriers and representatives of the city with regard to the separation of grades, the location of a new Union Station, and the removal of the Rock Island tracks from the heart of the downtown business section. There have been many hearings, there have been court orders, and there have been findings by the Interstate Commerce Commission. Finally a resolution was passed by the City Council appointing a Committee of six citizens with authority to select the seventh member, and with full power to carry on negotiations with the carriers. This resolution was submitted to every civic body in Oklahoma City and to every trade assembly, and each endorsed it and passed the additional provision that however the problem was solved by this Committee they agreed to abide by it, and in the event that the Committee was unable to agree with the carriers, they agreed to stand by the findings of the Committee.

Still the carriers were the stumbling block and the Committee was obliged, without any agreement on the part of the railroads, to ask for a court order locating the Union Station. Not until then did the railroads hold up the white flag. A contract was entered into under which the city agreed to buy from the railroads certain property at the cost of four million dollars. The conditions of the contract were that the people of Oklahoma City must approve the acquisition of this land for public purposes (and by the way we acquired it for park purposes) and authorize a bond issue therefore, the bonds to be sold and converted into cash.

This contract was entered into on the 7th day of November and we had to submit the bond issue to the people on the 29th day. We turned the whole matter over to the Chamber of Commerce and

asked them to analyze the contract and submit it to the people for their recommendations. There were several other items to be included in the bond issues—notably one for storm sewers—also an incident of our rapid growth. In a ten-day campaign the Chamber of Commerce put every one of the bond issues over with majorities of from three-to-one to seven and a half-to-one.

We are going to spend in excess of ten million dollars on our building program, every item of which has been endorsed by the people.

L. Segoe, Cincinnati, Ohio: There are disadvantages in the method of great bond authorizations such as that passed by the citizens of St. Louis. Instead I would like to recommend a method of procedure for budgeting capital expenditures that was worked out in Cincinnati. That procedure, while providing a comprehensive bonding program, only asks authorization in any one year for that part of the program immediately ahead. In other words, there is no attempt to bind subsequent city governments.

The bond issue for each year is submitted to the Council then in power, and that particular Council is passing upon a specified part of the entire program. This procedure has the advantage of taking care of needs that may arise in the future which are not foreseen when the bond program is worked out. For instance, in the eighty-seven million program of St. Louis, I understand that there was no provision made for a municipal airport in the city. In Cincinnati a permanent committee consisting of the chairman of the finance committee of the city council, a member of the planning commission, the city manager, and a representative of the school board, recommends each year the bond issue for the next financial year, first securing the approval of each of the constituent boards.

Gordon Whitnall, Los Angeles, Calif.: All of the public financing in Los Angeles is divided into, first—general tax moneys which are devoted to the items of our annual budgets or to general expenditures; second—long term bond moneys; and third—revenue from assessments for special benefits. We can never levy more than $1.25 on each $100 of assessed valuation. We can never increase our bonded debt beyond fifteen per cent of our assessed valuation, and of this fifteen per cent, twelve per cent must be for what we term, "revenue producing expenditures." There is no limitation with regard to special assessments.

Up to three years ago the importance of budgeting either the public expenditures paid for out of bond issues, or the public expenditures paid for by special assessments, was absolutely ignored. Now, due to the efforts of the City Planning Department, we have reasonable hope that Los Angeles will budget all its public expenditures.

REMARKS AT THE CIVIC LUNCHEON

HON. R. E. BURT, Mayor of Dallas, presided and introduced the speakers: This is the most worthwhile gathering that Dallas could have, for there is nothing more needed in our city and in all the cities of the southwest than to take a long look ahead, and do some real planning. Dallas has been doing this for some time but not in that thorough scientific way that we hope for in the future, and it is for that reason that we are specially pleased to have you people, who have spent long years in city planning and given much study to it, give us the benefit of your experience. And we modestly hope that you will too take home something from your visit among us.

GEORGE B. DEALEY, President of the Dallas News: I have little to say to these distinguished city planners who have come from all over the country to tell us the things they know, but I would like to talk rather to the people of Texas and particularly to the younger men and women who are here because they are the people who will be running our towns in a few years. City planning is nothing but an exemplification of pure common sense. You can talk all day about it but you cannot get anything else out of it. Since we are all supposed to have so much common sense, I wonder why it is so hard to get the planning idea. If you live in a town and want to spread city planning knowledge, all you have to do is to, in some way, get the editor and publisher of your newspaper to read, really read, a planning bulletin. Just let it germinate and after that the editor will do the rest.

Everybody is won by attractive things. Now the most attractive things I know anything about are the women. And the next most attractive things are our fine homes in our suburban additions. But when we get downtown into our offices, our factories, and onto our streets where we spend nine-tenths of our lives, we find the utmost tawdriness, meanness and drabness with apparently

no thought of making these surroundings more attractive. Yet the mean spots of our town through which we go every day and in which we spend much of our time are bound to have an effect on our minds and our efficiency.

Have you ever noticed that the ugliest parts of cities, big and little, all over the country, are the surroundings of the railroad station, the gateway to the city? Much could be done by cleaning up and painting up a little bit. Dirt and filth are the most expensive things on earth to any city or town.

We can never expect in Texas to have a great city such as New York and I am glad of it, but we can have Dallas, Houston, Fort Worth, and all the towns of Texas the most attractive, most wholesome and the happiest towns to live in. And if, for example, Dallas is made so very attractive that it is unique among the cities of the country, you will find magazine writers, newspaper men, and everybody else coming to your city to write it up. And that will give the greatest and most effective publicity to our planning message.

Dr. E. H. Cary, President, Kessler Plan Association, Dallas, Texas: Just as in human beings there is a soul which determines the action of the intellect and involves the emotions and the will, so there is the spirit of the city which may control its destinies for good or ill. Some cities have been fortunate in intelligent control of their growth. An effort has been made to develop traditions, to cultivate the intellect, emotions and will of those who make up the citizenship. It takes more than unit values, however widespread these values may be expressed, to mould the development of the whole. It is a correlation of these forces intelligently marshalled and directed which creates the city's spirit or soul.

Environment is another phenomenon which affects the quality of citizenship. I have read that seventy-five years ago Paris set out deliberately to be the handsomest city in the world, and last year $250,000,000 were taken in by the Parisians from visitors

who came to enjoy the beauty of their city. With 90% Paris ranks at the head of all cities classified on the basis of good architecture and good environment. Many of our cities have low ratings, but on the other hand, there are suburban communities which rank up to 95%. The extreme importance of this factor in moulding the lives, thoughts and actions, is worthy of analysis. If 90% of the architecture and environment is needlessly ugly and depressing, every one in such a community is affected by it. The spiritual values of life are submerged. We know that the man of wealth seeks restricted areas, and secures for himself a home where the environment is satisfactory. The thought is now developing that cities through zoning, through parks, through reconstruction of depressed areas, can be made to serve the people as a whole by executing plans for the common good. It is only seventy-five years ago that we had legal contests over acquiring parks with public funds. Then, in a famous Connecticut case the Court said, "They (Parks) are expected to minister not only to grosser senses, but to the love of the beautiful in nature in the various forms which the changing seasons bring. Their influence should be uplifting and in the highest sense educational. If wisely planned and properly cared for, they promote the mental, as well as the physical health of the people." When one thinks that the activity of city planners in this country is only a matter of twenty years, we cannot fail to recognize their great contributions to community well-being.

In the concentration of public business and the assembling of public buildings in a civic center, there is not only utilitarian gain in the saving of time, but an increase in dignity and the consequent development of civic pride. Isolated buildings of whatever individual merit are not to be compared with a harmonious massing of buildings, even though they be individually mediocre in quality. Where could a Mark Anthony gain inspiration in Dallas to send an oration thrilling down the ages? A Cicero could hardly enunciate his thoughts from the street corner or a raw pine grandstand covered here and there by gaudy bunting. Charles M. Robinson says, "Civic art is a public art. It may be likened to

'a fire built upon the market place, where every one may light his torch; while private art is a fire built upon a hearthstone, which will blaze and die out with the rise and fall of fortune.'"

Man has decreed a day divided into three parts. We have seen him at labor and have tried to give him the proper environment. We must now see him at play. Every individual spends an average of five hours of the twenty-four in recreation, independent of Sundays and holidays. It is not hard to understand why vast enterprises are carried on to claim as much of this leisure time as possible. Every means should be thoughtfully considered to divert the individual into places where there is beauty and opportunity for physical, mental and spiritual development. Parks and other open spaces are not primarily to beautify, but to make possible the essential recreation for a city's population. If intelligence is an ability to profit by past experience, our activity in acquiring boulevards and parks in what seem now to be outlying districts, will presently be greatly appreciated, and will tend to keep the average of acres gained per 1,000 population at a high level. "We do not love our city because we were born in it, but because our city is made lovable."

The human mind must be interested and captivated. Let us lend ourselves and our energies to stimulate a great citizenship to greater deeds. Let quality and not quantity become the prevailing shibboleth. In a word—to quicken the soul of our city, let us psychologize the people with the worthiest suggestions.

Gutzon Borglum: As an artist and sculptor I find myself in utmost sympathy with the tone of the remarks of both Dr. Cary and Mr. Dealey. I feel that the problem of city planning is one rather of happiness and beauty, of living and working together in the pleasantest surroundings, and that we have been dealing at this Conference with it too much as a theoretical problem—one of efficiency, figures, measurements, and so forth. I realize that we are living in cities that were conceived by our grandfathers who drove ox carts, and that our carrying on the seas was by

barge or sailing vessel. We have increased our demands for floor space by six, seven, even eight hundred per cent, and we have not increased our floor space four per cent. New York City is a remarkable example. Manhattan is growing into a cul-de-sac out of which it will cost her billions to release herself. I am very much opposed to the checkerboard city. It was invented for slaves many hundred years ago and we adopted it blindly, stupidly. It is the best way to build a city for slaves, for military purposes, and for commerce. It is the most economical way to use every foot of land you have, but it is almost impossible to beautify it.

You city planners must drop your theories, your statistics that you can work out any time in your library, and find the soul of the city. You will find it in two or three people. Get them and their ideas—then build your city. You will create something human and beautiful. The citizens will turn their pockets inside out to help you. The question of handling traffic is secondary. It merely involves getting more floor space.

About six months ago I was asked to go down to Corpus Christi to spend a week-end. It is about half way between Houston and the Rio Grande on one of the most beautiful, one of the most pacific bays in the world. The bay has an average depth of twenty feet and an average diameter of twenty miles, and the town lies back of a great sand bar on a highland about forty feet above the sea. The crescent of its shores gives a fine bathing beach, and portions of its bay have been dredged out by the Federal Government to afford an excellent port. But its shores are dirty, covered with driftwood and filth. The sand is backing in. Although a breakwater has been thrown out to keep out the ocean, every other opportunity for improvement seems to have been neglected.

Now they have a remarkable Mayor in Corpus Christi, remarkable associates in the City Council, and several other fine citizens. They could stand straight talk and were keen to do something for their city. I told them they could make a veritable Naples out of Corpus Christi, a gateway to the great South 200 miles away that already rivals California and Florida. Within

forty days a model of the proposed development of the entire shore front and a preliminary report were presented to the Planning Commission. That plan was adopted without amendment and referred to the Committee on Ways and Means. Just a week ago the city was called upon to vote for a bond issue to pay for the preliminary work, and they voted it through, twenty to one. Little Corpus Christi is going to build on her bay front covering the entire length of her city a sea wall and a water-front development that will be unsurpassed for beauty, taste and dignity, and so arranged that the people can come down to the front any time or anywhere without any interference from traffic.

From Corpus Christi to the Rio Grande stretches a valley 200 miles long, and right through the center of it is one wide street lined for sixty per cent of the distance with railroads. Everybody in Texas wants to get down to the Rio Grande, and the people in the valley and in Brownsville, which is on the Mexican border, are eager to make this section of Texas attractive. What better plan than to treat Corpus Christi as the entrance to the valley and develop a great highway to Brownsville with appropriate planting? I would plant palms over that entire road, grouped with taste, and would put oleanders alongside the palms, 400 miles of oleanders. They grow like willow trees, without water. It is a Sahara desert plant and will grow in a pile of sand and bloom for eight months of the year. You will see it down there, 38 feet high, beautiful green trees full of color.

And now you people in Dallas who have undertaken by your great bond issue more than any other city in Texas, what a glorious opportunity is given you. Increase your floor space, increase your planting, protect all your water courses—water is worth more than oil—make Dallas the most beautiful city in the state, but remember that we will do all we can in Corpus Christi to keep that title away from you.

At the close of Mr. Borglum's remarks, on motion of John Nolen, of Cambridge, Mass., former President of the National

Conference on City Planning, a rising vote of appreciation was given to Mr. George B. Dealey, President of the Dallas News and the Dallas Journal. Mr. Nolen, in characterizing Mr. Dealey as "the father of city planning in the Southwest," said:

"In the work of city planning throughout the Nation, publicity has been the weakest link in the whole program. However, here in Dallas publicity has been the strongest factor in the promulgation of city planning. The Dallas News has given us of the conference a new high water mark.

"The city planning special edition of Tuesday was something that has never been equalled in any of the twenty convention cities visited by the conference during the last twenty years.

"The Dallas News is more than a newspaper: it is a civic institution. It represents not only Dallas, but Texas and the whole Southwest. Of course such a paper must have an explanation. It doesn't just happen. The explanation is G. B. Dealey, pioneer journalist, humanitarian, idealist and father of city planning in Texas and all the Southwest. He illustrates that one man, red-hot on a subject, can save a city.

"We shall go away from Dallas confident for the future, for we realize that while we must return to our homes, the work of the Dallas News for better and better cities will never cease."

RESOLUTIONS ADOPTED BY THE CONFERENCE

Budgeting of Capital Expenditures

Whereas, the National Conference on City Planning and its constituent city and individual members have, during the past years through consistent purpose and effort, now firmly established a foundation for the subject of planning of both a legal and popular form; and

Whereas, the ultimate effectiveness of further efforts must necessarily depend largely upon the degree to which our purposes and plans can be physically realized;

Now, Therefore, be it Resolved, that the National Conference on City Planning commend to the attention of the public and authorities in general the serious consideration of the economies and other benefits that are possible of realization through a closer and more studious attention to a thorough budgeting of capital expenditures on the basis of a progressive period of years sufficiently long to spread adequately the resources of communities so as to attain the greatest results and advantages from such necessary expenditures.

On the Death of Sir Ebenezer Howard

Resolved, That this Conference expresses its sorrow and regret at the passing of that eminent town planner and lovable man, Sir Ebenezer Howard. His death during the year past has removed from the ranks an international character whose memory will be perpetuated through the unique and extensive contributions he had made to modern civilization. He was a courageous pioneer and accomplished much in practical Town Planning.

On the Death of Charles W. Leavitt

Resolved, That this Conference expresses its regret occasioned by the death during the past year of our eminent associate and mem-

ber, Charles W. Leavitt, whose activities in the realm of City Planning have done so much towards the acceptance of the city planning idea through successful practice.

Appreciation

Resolved, That the National Conference on City Planning having now arrived at the end of its 20th session, express to our president, Edward M. Bassett, its appreciation for the kindly and effective way in which he has conducted our meetings to the pleasure and profit of all who have been so fortunate as to attend this eminently successful convention and also for the time and devotion he has given to the continuance of the unique and valuable Round Table discussions.

Appreciation

Resolved, By the National Conference on City Planning that now at the close of a most successful convention, we express to our host and those who have contributed to our pleasure and profit our most sincere appreciation for all that we have received.

Especially do we express to the City of Dallas, the County of Dallas, the Dallas Chamber of Commerce, the Dallas City Plan Commission, the Dallas Park Board and the Kessler Plan Association our gratitude for the courtesies we have been shown while in their midst; and

Also to the City of Fort Worth, the Fort Worth Association of Commerce, the Fort Worth City Planning Commission, the Fort Worth Park Commission and the Kiwanis Club of Fort Worth, for their part in affording so pleasant an introduction to this year's convention; and

Also do we express our appreciation to the public press for the assistance it has rendered and to the communities of Texas we express our congratulations on the degree and character of the work being done by the public press and the public schools; and finally

We extend our thanks to the citizens and the cities of the Great

Lone Star State of Texas, who by their attentiveness and kindliness have so impressed those of us from sister commonwealths with the vital truthfulness of the proverbial hospitality of the South.

On Future Conference Programs

Resolved, That this Conference commends to the consideration of its officers and Board of Directors the possibility and desirability of affording more ample time for discussion on our future programs by somewhat restricting the number of papers to be presented on such topics as circumstances suggest as being worthy of receiving the attention of the Conference and all to the end that attendants upon the sessions of the Conference shall be enabled to absorb and take with them the most thorough understanding of the subject matters considered.

ORGANIZATION OF THE TWENTY-FIRST CONFERENCE

Officers

President
Edward M. Bassett, New York City

Vice-President
Harland Bartholomew, St. Louis, Mo.

Secretary and Treasurer
Flavel Shurtleff, New York City

Board of Directors

Term Expires 1929

Thomas Adams, 130 East 22nd Street, New York City
Harland Bartholomew, 317 North 11th Street, St. Louis, Mo.
Harold S. Buttenheim, 443 Fourth Avenue, New York City
Colonel U. S. Grant, 3d, Director Public Buildings and Parks, Washington, D. C.
Morris Knowles, 507 Westinghouse Building, Pittsburgh, Pa.
D. Everett Waid, 1 Madison Avenue, New York City
Frank B. Williams, 55 West 44th Street, New York City

Term Expires 1930

Edward M. Bassett, 233 Broadway, New York City
John M. Glenn, 130 East 22nd Street, New York City
Herbert V. Jones, 715 Continental Building, Kansas City, Mo.
John Nolen, Harvard Square, Cambridge, Mass.
Fred E. Reed, Syndicate Building, Oakland, Calif.
Bertram H. Saunders, 384 Van Houten Street, Paterson, N. J.
Samuel P. Wetherill, Jr., 701 Morris Building, Philadelphia, Pa.

Term Expires 1931

George S. Buck, President, Buffalo City Planning Association, 110 Delaware Avenue, Buffalo, N. Y.
George B. Dealey, President, The Dallas News, Dallas, Texas
Charles H. Cheney, Palos Verdes Estates, Calif.
Jay Downer, Westchester County Park Commission, Bronxville, N. Y.
John Ihlder, 2811 P Street, N. W. Washington, D. C.
Edward A. Schilling, City Plan Commission, Detroit, Mich.
Robert Whitten, 175 Fifth Avenue, New York City

TOPICAL INDEX

A

Activities of National Conference on City Planning, 2
Adams, John H.
  In Discussion, 71
Agricultural Areas
  Planning of, 177
Airports and Airways, 189, 208, 210, 213
  Site Qualifications for, 207
Apartment Houses, 26, 174
Arterial Street System, 113
Assessments
  For Paving in Texas, 116
  For Street Lighting in Texas, 116
  For Street Widening under Texas Act of 1927, 116
Austin, Texas
  Planning Progress, 123
Automobile Registration, 10, 22

B

Bartholomew, Harland
  What is Comprehensive Zoning? 47
Bassett, Edward M.
  Address as President of Conference, 1
  In Discussion, 31, 92, 96, 99, 101
Best, F. P.
  In Discussion, 180
Bettman, Alfred
  The Relationship of the Functions and Powers of the City Planning Commission to the Legislative, Executive and Administrative Departments of City Government, 142
Birmingham's (Alabama) Zoning Ordinance, 71
Bond Programs for City Planning Improvements, 215
Borglum, Gutzon
  Remarks at the Civic Luncheon, 232
Brown, Major Carey H.
  In Discussion, 182
Budgeting the City Planning Program, 214, 223, 224, 236
Building Height, 26
Building Lines, 73, 79
  In Street Widening, 79
  In Texas, 119
  In Zoning, 74, 81

Buildings
In Mapped Streets, 155
Mass and Density of, 8
Burt, Hon. R. E.
Remarks at the Civic Luncheon, 229
Business Areas
Planning of, 171, 179
Sub-centers, 30, 31, 183

C

Campbell, A. O.
In Discussion, 97
Cary, Dr. E. H.
Remarks at the Civic Luncheon, 230
Cheney, Charles H.
Building for Permanency, 32
In Discussion, 29
Child, Stephen
In Discussion, 108
City Planning
Arousing Public Interest in, 125
Art and Beauty in, 4
Budgeting the Program of, 214
In Smaller Cities, 111
Nature of, 3, 142
Principles, 102
Procedure, 106, 109, 110, 162
Quantitative vs. Qualitative Analysis in, 19, 30
Teaching by Courses in Community Civics, 138
Under Texas Laws of 1927, 117
City Planning Commissions
Duties, 107, 108
Organization, 106
Relation to other Departments of City Government, 142, 144, 160
Crane, Jacob L., Jr.
Four Planning Principles and an Outline for Planning Procedure in Smaller Cities, 102
Culbreth, E. E.
In Discussion, 30

D

Dealey, George B.
Remarks at the Civic Luncheon, 229
DeBoer, S. R.
A Western View of the Planning of Undeveloped Areas, 171
In Discussion, 183
Diggs, Charles H.
In Discussion, 89
Distribution of Urban Population, 8
Downer, Jay
How Westchester County, New York, Made its Park System, 184
In Discussion, 179

E

El Paso, Texas
Planning Progress, 122
Esthetic Considerations in a Master Plan, 32
Economics of, 40
In Relation to the Police Power, 35, 45
Objectives of, 38
Rating of Cities, 40

F

Farming Areas in United States, 9
Fisher, Charles P.
Set-Backs or Building Lines by Zoning or Otherwise, 73
Fletcher, F. W.
In Discussion, 100
Ford, George B.
Can a City Plan Serve to Reduce Taxes or Debt? 214
Freund, Ernst
In Discussion, 101

G

Goodrich, E. P.
Mass and Density of Buildings in Relation to Open Spaces and Traffic Facilities, 8
Grade Crossings, 180
Grant, Lieut. Col. U. S., 3rd
In Discussion, 159
Grinnalds, Jefferson
In Discussion, 31

H

Hare, S. Herbert
In Discussion, 96, 118
Herrold, George H.
The Planning of Undeveloped Areas, 164
Houston, Texas
Planning Progress, 122

I

Ihlder, John
In Discussion, 18, 30
Industrial Areas
Planning of, 177

K

Kemble, George C.
Legal Phases of City Planning in Texas, 115
Kimball, Justin F.
Spreading the Gospel of City Planning, 137

Knowles, Morris
In Discussion, 28, 210
Kuehne, H. F.
Planning Progress in Austin, Texas, 123

L

Land Subdivision
Control of, 85, 98, 118, 154
Good and Bad Methods in, 88
Loading and Unloading Space, 26
Los Angeles Regional Plan Commission, 89

M

Master Plan
Legal Status of, 151
Master Planning, 85
McKenzie, M. W.
In Discussion, 226
McLean, Miss Margaret
In Discussion, 100
McNitt, Rollin L.
Building Lines or Front Yard Requirements, 79
Melville, George W.
In Discussion, 99, 213
Moot, Richmond D.
Master Planning Under Recent State Legislation, 85
In Discussion, 96

N

Nolen, John
Airports and Airways and their Relation to City and Regional Planning, 189
In Discussion, 111
Noyes, E. N.
In Discussion, 181

O

Official City Maps, 87, 89, 92, 155
Oklahoma City
Progress in Planning, 97
O'Ryan, Gen. John F.
In Discussion, 208
Overstreet, H. A.
Arousing the Public Interest in City Planning, 125

P

Parking Areas, 12, 23
Popularizing City Planning, 125, 137, 230
Potter, Mrs. W. R.
In Discussion, 123

R

Reclamation of Waste Land, 181
Recreation Areas, 9
    Home Play-yards, 27
    Large Parks, 28
    Neighborhood Parks, 27
Residence Areas
    Planning of, 175
Resolutions Adopted by the Conference, 236
Ryon, L. B., Jr.
    Planning Progress in Houston, Texas, 122

S

Seaplane Ports, 200
Segoe, L.
    In Discussion, 30, 183, 227
Sheridan, Lawrence V.
    In Discussion, 109
Stockwell, W. E.
    Planning Progress in El Paso, Texas, 121
Streets
    Required Width of, 15
Street Widening
    Under Texas Act of 1923, 115

T

Traffic
    Building Bulk and, 26
    Capacity of streets, 11, 12, 25
    In Residence, Business, and Industrial Districts, 14, 15, 28, 31
    Lanes, 16
    Length of Haul, 13, 23, 25
    Statistics, 24
Transportation
    Facilities Compared, 17

U

Ulrickson, C. E.
    In Discussion, 224
Undeveloped Areas
    Planning of, 164, 171

V

Value of County Park System, 188

W

Warburton, Clark
    In Discussion, 112
Westchester County's (N. Y.) Park System, 184

Whitnall, Gordon
In Discussion, 29, 213, 227
Building Lines or Front Yard Requirements, 79
Whitten, Robert
In Discussion, 24, 222
Williams, Frank B.
In Discussion, 44

Z

Zoning, 47, 153, 161
Apartment Area Percentage, 61
Balance in, 58
Building Height, 66
Building Lines, 74, 79
Changes in the Ordinance, 70
Commercial Area Percentage, 62
Industrial Area Percentage, 65
Open Space Area Percentage, 65
Pre-requisites of Comprehensive, 58
Quantitative Studies as Basis of, 51
Residence Area Percentage, 61
Under Texas Law of 1927, 117, 119
Yards, Side, Rear, and Front, 68

PUBLICATIONS OF THE CONFERENCE

PROCEEDINGS

(Uniformly bound in cloth)

The contents, consisting of papers and discussions, are not here given in full.

THE PROCEEDINGS OF THE CONFERENCE OF 1910, 1911, 1912, 1913, 1914, 1919, 1920, are out of print.

DETROIT CONFERENCE. 1915. 302 pages..... $2.00

Best methods of land sub-division; Constitution and powers of a city planning authority; The engineering side of city planning; The architectural side of city planning.

CLEVELAND CONFERENCE. 1916. 275 pages..... 2.00

The automobile and the city plan; The financial effect of good planning in land sub-division; State, city and town planning; Districting by municipal regulation.

KANSAS CITY CONFERENCE. 1917. 306 pages..... 2.15

Interurban passenger terminals; Street widening to meet traffic demands; Relation of traffic-ways to parks and boulevards; The treatment of water courses in the city plan; City planning in small towns; Constitutional limitations on city planning powers.

ST. LOUIS CONFERENCE. 1918. 168 pages..... 2.25

The zoning of residence sections; Industrial zoning in practice; Blighted districts in St. Louis; Industrial survey of St. Louis; City planning in allied countries during the war.

PITTSBURGH CONFERENCE. 1921. 200 pages..... 2.25

City plan and living and working conditions; How zoning affects living conditions; Enforcement of a street plan; Getting action in city planning.

SPRINGFIELD CONFERENCE. 1922. 216 pages..... 2.25

Parks and playgrounds; The school building program an important part of the city plan; The fundamentals of transit planning for cities; The place of the beautiful in the city plan, some everyday examples.

BALTIMORE CONFERENCE. 1923. 221 pages..... 2.25

Regional and metropolitan planning: principles, methods, co-operation; Inter- and intra-urban transit and traffic as a regional planning problem; Regional zoning; Day and night storage and parking of motor vehicles.

LOS ANGELES CONFERENCE. 1924. 240 pages..... 2.50

What planning has done for cities; Relation of the motor bus to other methods of transportation; Street widening methods with particular reference to distributing the cost; Use of building lines in street widening; Distribution of metropolitan parks.

NEW YORK CONFERENCE. 1925. 530 pages..... $3.00
Planning Problems of Town, City and Region. Papers and Discussions at the International City and Regional Planning Conference.

FLORIDA CONFERENCE. 1926. 218 pages..... 2.50
New communities planned to meet new conditions; Combined zoning and planning control of unsubdivided areas; The planning of pleasure resort communities; The place of the railroad in the city plan; Selling city planning.

WASHINGTON CONFERENCE. 1927. 289 pages..... 3.00
How city planning affects real estate values; Regional highways; How to acquire parks and other open spaces; Subdivision control; Economic saving in city planning; Architectural control.

GENERAL INDEX OF CONFERENCE PROCEEDINGS, 1910 to 1927 inclusive..... 2.00

BULLETINS

(Only those now in print are listed)

AIRPORTS AND AIRWAYS AS A PART OF CITY AND REGIONAL PLANNING. John Nolen. 1928..... $0.50

ARCHITECTURAL CONTROL OF PRIVATE PROPERTY. Charles H. Cheney and Elvon Musick. 1927..... .25

CLASSIFIED SELECTED LIST OF REFERENCES ON CITY PLANNING. Theodora Kimball. 1915..... .50

CONTROL OF LAND SUBDIVISION AND BUILDING DEVELOPMENT. American City Planning Institute. 1928..... .25

NEW COMMUNITIES PLANNED TO MEET NEW CONDITIONS. John Nolen. 1926..... .25

REGIONAL AND METROPOLITAN PLANNING. G. B. Ford. 1923..... .25

REGIONAL ZONING. Robert Whitten. 1923..... .25

SCHOOL BUILDING PROGRAM AN IMPORTANT PART OF THE CITY PLAN. G. D. Strayer. 1922..... .25

WHAT IS COMPREHENSIVE ZONING? Harland Bartholomew. 1928.. .50

Address all inquiries to the

NATIONAL CONFERENCE ON CITY PLANNING

130 EAST TWENTY-SECOND STREET

NEW YORK CITY