

## V

### PLANNING OF CITIES

**C**ITY PLANNING is the art and science of planning in a comprehensive way for the desirable future physical development of a city. Its object is to provide a basis for continued expansion of the city so that convenience, comfort, health, and beauty are not lost if the city becomes large.

A city plan if worthy of its name "plan" is, more or less, a blue print of what the city will be like in the future if built according to plan. Physically a city consists in homes, office buildings, stores, factories, public buildings, water works, parks, streets, railroad terminals, and many other man-made adjuncts to the living of its citizenry. Cities developed as a result of the natural desire of mankind to band together for mutual protection against enemies. They grew in size as opportunity for earning a living or enjoyment of life increased, and some grew into large cities if they presented opportunity for success in greater measure than was offered by other cities. A city plan is similar to but much larger than the plans for a house. In the house plan we have definite locations where the residents live, or the living rooms; where they rest, or the bedrooms; where their meals are prepared, or the kitchens, etc. What should we think of a house in which the meals were prepared in the bedrooms, or reading and study were performed where the automobile is supposed to be stored? Further, would a house satisfactory to the owner result, do you think, if the living room were built according

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to the ideas and to meet the needs of John Doe, a stranger to the owner, the bedrooms according to the whims of Richard Roe, another stranger, and each other individual part of the house according to the ideas of still other strangers? It would be singular indeed if a very convenient house, to meet the needs of the owner, resulted. Similarly, lack of the building of a city to accord with a definitely preconceived plan cannot result in a city that will give the maximum comfort, convenience, economy, opportunity, and health to its citizenry. Lack of a plan is evidenced in practically all cities. Business and industry abound in residence sections. Residence sections have been placed where parks and parkways should be. Streets are narrow, discontinuous, full of jogs. Apartments, hotels, office buildings jut out to street lines and cut off front yards of residences. Residential sections decay due to age and expiration of restrictions and rooming houses and boarding houses replace them, gradually to be replaced, in turn, by slums. The first owners in the residential sections move into new residential developments that have the latest in comforts and conveniences and are restricted against encroachment of laundries, garages, filling stations, stores, etc., for a period of fifteen to fifty years. As time goes on and the new sections grow old and newer ones are developed, the cycle of bloom and decay is repeated. So cities expand their outer margins and leave many parts near their centers to decay. Travels over many portions of the United States and adjoining countries show this state of affairs to be widespread. They show also that intelligent planning has stopped the decay of land values in many cities, and can in many more.

Suppose an already existing city decides to have a plan made which is to be the guide for its future development and at the same time is a plan for the correction of errors in its

physical layout. The city planner collects all of the information obtainable concerning streets, public transportation, areas served by water, sewers and other utilities, territories from which pupils are drawn to each public school, on the distribution and density of population, how the city has grown in the past, what areas are growing most rapidly now, areas available for future growth. He represents these data collected on maps that show the facts as vividly as he can. He studies the street system and makes other maps showing the width, traffic capacity and locations of railroad grade crossings, dead ends and offsets in streets. He studies the trends of population growth and prepares maps to show these growths. He spends a great amount of time in the field studying the flow of vehicular traffic in the city, makes traffic counts of private and public conveyances as well as pedestrians. He prepares maps to show public conveyance routes and distances from these routes that residents are required to travel and the time they must spend on the public transportation vehicles in going to and from their work and homes. He collects information as to the use of railroad facilities of the city, the industries located along main line and spur trackage, the properties with rail frontage that are available for industrial use. He studies delay to traffic at grade crossings, possible separations of grade between street and railroad. He collects information concerning through freight handled daily on the freight lines of the railroads, the amount of freight hauled over the streets by motor trucks particularly where the routes leave the city. He collects information concerning the daily passenger train movement over the railroad lines and how many use each railroad station of the city. All of these data are represented graphically on charts and maps.

Much of this information is available in offices of Cham-

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bers of Commerce, utility companies, street transportation and trucking companies, railroads, building permit offices, county clerk offices, but it remains for the city planner to assemble the information in one office, to represent the statistical data on graphs, charts, and maps, and to interpret the data as regards the trends of growth of the city and street needs to connect industries and shipping facilities. In many instances the information has not been collected previously, hence it must be obtained by traffic counts, field surveys, personal visits to the sources of information. In addition the type of building on every developed piece of property in the city and a certain zone beyond the existing city lines is ascertained by survey and use of records of the fire insurance companies, and then represented on maps. The race of occupants is observed where possible.

The time consumed on collection of these facts is great but well spent. As a rule there is the heartiest co-operation by those approached for data. A staff to do the work of collection can be trained more readily than experienced workers found available. The more care and time spent in collecting the data the better able the planner is to envision his problem and the better prepared to attempt a satisfactory solution of the many problems presented. Problems are varied and complex for they affect the life and work of every individual, group, business and industry of the community.

After the data have been collected probably it is obvious to the planner that the most pressing problem is that of communication within the city, that is, the study of major thoroughfares and the formulation of a major street plan. The industrial, business, and social life of the community in our modernized civilization depends to a large extent on free and convenient circulation of the various kinds of traffic on streets, thoroughfares, boulevards, and parkways as well as

on the proper provision for transit lines, railroad facilities, utilities, and waterways.

The street system of the city probably ranks first in importance in the problem of circulation since it is the skeleton of which most of the movement of men and goods of the city travels. All travel of the citizenry to places of work or recreation, whether in private or public vehicles or on foot takes place on the streets, boulevards, or parkways, and all truck haulage of goods to industrial establishments or railroad freight stations or the yards and docks at the waterways takes place on industrial streets. All travel to and from airports of the city occurs over the street system. The streets must provide direct and convenient routes over which people and goods may move quickly and easily from origin to destination.

An ideal street system would have radial thoroughfares, fanning out from the central business and industrial districts much like the way spokes radiate from the hub of a wheel. Short, straight routes from the center, where most people have been at their work, to the residential sections will permit these people to reach their homes more quickly and economically than any circuitous route. From an economic point of view the saving to the city in pavement costs and costs of curb and gutter, water and sewer line, telephone cables and gas mains is substantial. Saving in time and wear on the nervous system results and is worth a great deal. Short routes, with a minimum of delay, lower haulage costs for truck companies, result in greater haulage with a given amount of equipment and personnel.

Traffic not destined for the central business and industrial sections should be routed around them to avoid the delay at traffic lights in the business district and to keep from adding their volume to that of necessity in the business section. The

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routes should be cross-town and around the business districts much like a series of rims on a wheel. It is the ideal of the city planner to provide these routes.

Major traffic streets should be of generous width, a minimum of one hundred feet. Many cities have impressive main thoroughfares which are able to carry with ease the large volumes of pedestrian and vehicular traffic which they inevitably draw if the city becomes a metropolis of its section. Some widths as great as two hundred feet have served nobly as main traffic arteries and speak well of the vision of the early builders of those cities.

About one-third of the area of the average city is given over to streets. However, it is not so much large area of streets but large area of the necessary major streets together with their correct spacing that determines whether the system will function well and permit of expansion. The major crosstown and circumferential routes should be at intervals approximating one mile and the radial streets may branch out at suitable intervals like the roots of a tree so that all sections of the city are within one half of a mile of a major radial, cross-town, or circumferential boulevard.

Between these major thoroughfares there will be minor streets of a width of some sixty feet which are designed for local access to property of the area between the thoroughfares. These local access streets may well be designed to discourage their use by through traffic and may be discontinuous, have jogs, and small capacity. Quiet and freedom from traffic danger will enhance the desirability of such areas for residential purposes, and their convenience for industrial uses.

Carrying capacity of streets is usually measured by the number of lanes of traffic that move on the paved portion of the street between its curbs. These lanes should be even in

number to discourage the cutting out and around other moving vehicles which results when an odd number of lanes are provided. Four, six, and eight lanes of traffic are provided on major thoroughfares of our more progressive cities. If there are more than six lanes the pavement should be divided so that the oppositely moving traffic may be definitely separated. Tests show that for these multi-lane arteries the capacity and safety is increased by a central dividing strip. The dividing strip may be narrow. If wider in the residential sections, it may be planted with trees and adds greatly to the attractiveness of the appearance of the city, as well as providing a medium for extracting carbon dioxide from the air and replacing it with oxygen. The dividing strip may well form a safety zone for pedestrians when crossing wide boulevards and caught by light changes.

Lanes for rapidly moving or truck traffic should be ten feet wide, for more moderately moving vehicles nine feet, and for vehicles parked parallel to the curb about seven feet. In very many American cities curb parking has become a habit, and where it is ingrained must be reckoned with. To park a line of cars on each side of the street at the curb and parallel to the curb requires fourteen feet. To provide one fast and one moderate line of moving traffic in each direction requires an additional thirty-eight feet. So a curb width of pavement equal to fifty-two feet is required for the four moving and two parked lane type street. Sidewalks fourteen feet wide on each side (and these are inadequate in width on business streets) take eighty feet of right of way, or street width, with no allowance for increasing the traffic capacity of the paved portion as the city grows and its traffic demands greater carrying capacity. Seventy-two feet between curbs is about the desirable maximum for one line of parked vehicles and three lines of moving vehicles on each side of the street, unless the

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dividing strip mentioned previously is used. A seventy-two foot paved portion requires a one hundred foot street width if there is to be a fourteen foot sidewalk on each side.

Progressive city planners consider provision for parking of vehicles on major streets very poor practice, and only design street pavement widths to accommodate the parking because it is an established custom. In a number of American cities studies have been made of the cost of on-street and off-street parking. The studies have shown conclusively that it is cheaper for the municipality to purchase vacant blocks on property with deteriorated improvements than to furnish an equal storage space paved to street pavement standards for the parking. Longer time and more economical parking can thus be provided on off-street blocks, with greater business resulting for stores and more convenience to the public using the parking lots. It is to be understood that such parking is free to the users and includes parking attendants. For those interested, details may be found in a recent pamphlet entitled "The Parking Problem," a publication of the Eno Foundation for Highway Traffic Control under date of September 1942. The conclusions of the Foundation are based on studies made in a number of cities of quite varying size and well distributed over the country. The primary function of streets is to carry traffic and not to serve as storage garages. Many cities have recognized this fact and prohibit parking on the major traffic arteries.

In an existing city with already established street boundaries we ask what may be done to relieve the congestion on the major thoroughfares. There are several possibilities: (1) restrict or remove parking (which is only a temporary expedient), (2) provide alternate routes, (3) widen the existing routes. The first is easiest to accomplish, and is a police measure, but accomplishes results quickly. The second and



third take more time. To provide alternate routes often means cutting through improved property to connect two or more existing streets which have been practically dormant as thoroughfares because they were not connected, and the procedure of connection may be expensive. The third or street widening is complicated by the fact that private buildings usually abut the streets, or tree plantings have been made on the sidewalk parking between the walk way and the curb, and residents are loathe to have these trees removed.

Where the object is to widen the street, that is, to set the buildings back, there are complicated problems due to moving structures built up to the property line back a sufficient distance, or to removing a definite portion of the front of the buildings and constructing new fronts. Both moving the entire building and removing and rebuilding portions are costly. In addition, the governing body of the city has the power to establish building lines, in front of which no new construction on vacant property may be built and no re-construction may be done on existing buildings. It is understood that the municipality compensates the owners for any lands so taken for public use. The procedure of establishing set-back lines and thus accomplishing street widening over a period of years is quite generally followed. It has the disadvantage of requiring time and the further disadvantage that the improvement, being in the future, may not be started, or, if started, may be lost sight of as time passes and other pressing problems arise. As a general thing the improvements in the central business district consist in large and expensive buildings. They are built over all or nearly all of the land of a given block. It is impossible to move them. It would be very expensive to cut the front from them and build a new front one panel or from fifteen to twenty-five feet back. Such a procedure would bankrupt the average city. Too, the large and high office

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buildings, hotels, etc., of the progressive city are relatively new and have lived only a small portion of their normal useful life so it will be a long time before the buildings will be replaced and set-back building lines become effective for any street widenings. Hence, planners usually cannot attempt drastic widenings or cutting of new routes in highly built up sections either business or industrial, nor in residential sections that have valuable improved properties. Rather, they must relieve congestion by using the existing traffic ways more efficiently and by re-routing of traffic around the districts mentioned. The ideal often cannot be accomplished, but the prudent man strikes a balance between the ideal and what would be too costly or impossible.

Jogs and dead ends on major routes may be eliminated gradually as the finances of the city permit. Grades with railroads may be separated gradually, but it would be unreasonable to expect the citizenry and railroad managements to build costly under- or over-passes where any but the major thoroughfares cross the railroad rights-of-way. So the major street plans include a schedule of grade separations and a schedule for bridge construction where major streets cross any streams of the city. In addition especial effort should be expended in providing easy and uncongested access to the railroad freight and passenger terminals and to public buildings and airports. Enough has been said probably to justify the statement that the major street plan is the most important part of a city plan, and should command the greatest amount of study prior to its formulation. It requires unceasing effort to see that it is not lost in time, once it has been adopted.

If a city has an officially adopted major street plan, the platting of streets in new subdivisions can be brought into conformity with the plan with mutual benefit to the sub-

divider and the community. In Texas, city plan commissions of incorporated cities of a stipulated size by law have the right to require conformity of all new subdivisions within the city and in a zone five miles beyond the city limits existing at the time of filing of the plat. It is unlawful for the county clerk to record a plat of a subdivision unless it bears the seal of approval of the plan commission of the city. Plan commissions have rules governing the subdivision of land which are available for the use of subdividers. Such subdivision provisions are common in other states and work no hardship on any person or persons except the shortsighted and greedy. Practically all faulty streets result from lack of approval of subdivision plats and are the result of lack of foresight of the needs of a rapidly growing community. Where approval is not required the desire for maximum amounts of saleable land or subdivision in a given general area by more than one owner may result in lack of matching of streets in one portion with those of another, or a projection of a future major thoroughfare may be blocked by improvements thrown in its path unwittingly by the divider. Many chances for removal of jogs are lost. The result is devious routes and often dangerous jogs and joinings of traffic and accidents when the municipality expands beyond the subdivision and the traffic becomes heavy. These unwholesome ends may be obviated by control of subdivision platting and patient adherence to the street plan over a considerable period of years. As new additions are made to the platted portions a fine opportunity is afforded for projection of needed main thoroughfares. Subdividers usually are civic-minded and cooperate readily in providing such extensions.

Boulevards and parkways and parks are essential parts of the city plan and tie into the major street plan. If the municipality is fortunate enough to have wooded streams

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through its residential sections it may develop the areas on each side of these streams by landscaping them as park land and constructing parkways on either side of the streams. Many cities have been indifferent to their good fortune or unaware of their good fortune, and have allowed the wooded streams to become garbage dumps and sections of squalor. They may be made into areas of extreme beauty and great value to the community. No traffic except light vehicles should be permitted on the parkways. Further, private development of property should not be permitted between the parkways nor directly along the streams, whether it is residential or commercial development. Cities usually and rightly exclude truck traffic from its parks and parkways.

Many cities fail to realize the value of large and well distributed parks until the cities have grown to such an extent that available and suitable tracts of sufficient size have become unavailable or too expensive to purchase. Fortunately, civic-minded citizens often come to the fore and donate tracts as park lands. No more beneficial gift could be made a city and no more enduring monument erected to perpetuate the memory of a loved one than the gift to a city of parkland needed by it. The amount of area required as parkland is not well defined, but it should be a generous amount. Distribution is more important than mere size. Neighborhood parks of small size should dot the city and are useful in commercial and industrial as well as residential sections. Squares or plazas in the central business districts are a welcome spot for rest and a brief moment of relaxation in the built-up centers in many of our large cities. They are usually well filled when weather conditions permit. The major parks should have connections from the major street plan, but the local neighborhood parks should be somewhat removed to promote safety of the children on their playgrounds.

In recent years airports have become increasingly important. It is a small city indeed that does not have an airport. They are usually just beyond the city limits. That is not far out in a small village or city and presents little difficulty to the air traveller to transfer from airport to destination. In the large cities airport location is not so simple. Suitable sites are often far from the business centers. They must be very large, as flat and yet as well-drained as possible, and conveniently located to major traffic arteries to the center of the city. In addition to location and adequate size, the surroundings must be such as to permit take-off and landing from various directions without an excessive angle of take-off. Cities in hilly or mountainous country are faced by a serious problem and topography often plays a vital rôle. Expanding airways have already led to the construction of not only one but several airports in the largest cities. The city planner must be alert to the future airport needs, and allow for their provision in the plan.

All of the topics mentioned and briefly discussed so far have been problems of circulation or closely related thereto. A further closely related problem, on account of the need for ready access, is the location of a Civic Center. Public buildings of the city should be grouped together for greatest convenience and economy and as so grouped they are known as a Civic Center. In the center are included: the city hall, municipal auditorium, central post office, court house, central public library and other public buildings, including, quite often, museums. The civic center should be near the central business district but not necessarily in it. If so located it will be conveniently situated for all residents of the city. It must be located on major traffic thoroughfares, and may well be adjacent to a downtown neighborhood park, or such a park may be included in the center. By grouping of

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the public buildings more emphasis may be given to their architectural beauty. Since public buildings usually have more emphasis given to their attractive appearance than some other kinds of construction, the opportunity is afforded for harmonious architecture. Builders of other improvements, by example, may be induced to pay more attention to the appearance of adjacent structures and improve the tone of the neighborhood around the center.

The control of private property for the protection of the citizenry is known as zoning. After the major street plan, zoning is probably the next most important factor in city planning. Zoning in a word divides the city into three major types of districts, residential, business, industrial. If the city planner were planning for a new city which was to be built he could say, "Here we will locate the business district, beyond the business district and along any navigable water and along railroad rights-of-way we will locate our industrial sections, here we will locate our apartment and family residence districts, and there we will have our single family residence districts. These areas we will devote to parks, fire and police stations"—and so on for all of the various appurtenances that go to make a modern urban community, and plan so that the whole could be expanded to make a great city. Few planners have such an opportunity, one exception being Major L'Enfant who was retained by George Washington when the infant United States decided to build our nation's capitol. Those who have marvelled at its magnificent system of streets, boulevards, parks, and general layout can realize what may be accomplished if the planner has vision and the opportunity to begin before a city is actually built.

In most instances cities have grown to a considerable size before they have thought of planning as such. Certainly many have been in existence a long time before zoning was

heard of, for it began in New York City as lately as 1916. Zoning is an attempt to remold a city into an ideal pattern such as would be obtained if it were remade and to avoid the mistakes of the first making. Its basis is the welfare of the majority of the people of the city and accords with our democratic form of government, the well-being and will of the majority of the people of the United States.

The "predominating uses of property" map, previously mentioned, shows the predominant uses to which the people of a given section of the city devote their land. If the land is used mostly for business, that land should be zoned for business. If it is used predominantly for residences, it should be zoned for residences. Similarly for all of the use classifications. For each section of the city the predominant uses map shows what the land is mostly used for, in many instances 90 or 95 per cent of it being devoted to a specific use. A tentative zone map may readily be prepared setting aside each part of the city for the specific purpose it is being mainly used for at the time of the survey. Zoning then attempts by law to continue those uses, to safeguard the homes and investments of the great majority of the people in their use of their land.

It has been found by experience that people prize their homes above other interests. They want them protected as homes. That this is so is proven by the widespread use of contract restrictions of residence property for residence uses for a definite period of years. When the contract restrictions expire and various businesses and light industries begin to creep in, the land begins to decrease in value for residence purposes as described earlier. Zoning replaces the expired contract restrictions with new restrictions if the residents of the area want them, and the zoning restrictions do not expire at the end of a given period of years. They remain in effect

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until changed, after due process of law, by the expressed will of a majority of owners of property in the affected area. When carefully drawn zone ordinances have been put in effect citizens do not want them voided.

The procedure to establish zoning is simple. The tentative use zones prepared by the city planner are taken to the people of the city and explained and discussed in detail. This taking to the people is accomplished by dividing the city into small, convenient sections, establishing a central meeting place, and inviting the people of a given section to meet at a certain, convenient time in the stipulated meeting place. At the meeting the proposed "zone uses" for the area are gone over in detail and all residents present are invited to offer criticisms and suggestions for changes. Such suggestions are studied, and if there are revisions another meeting is held. This procedure is continued until a substantial majority of the property owners and residents of each area are satisfied with the zone uses proposed.

A zone ordinance is then drawn and the ordinance and maps presented to the city council or other governing body of the municipality. It is the duty of the governing body to hold final public hearings on the proposed ordinance before finally enacting it.

It might be well to describe zones in greater detail. As previously stated there are three use classifications: residential, business, industrial. Residence uses are subdivided into single family and multi-family use districts. Multi-family districts may be either duplex or apartment districts. Single family districts primarily are home owner districts. Property in multi-family districts is primarily rent property. Single family residences are permitted in multi-family or rent property districts but multi-family residences are not permitted in single family sections. It is not to be inferred that owners of



property in single family districts may not rent their houses if they so choose. New stores or industries may not be established in any kind of residence district. Local business centers are convenient and desirable and are provided, but industries are not placed in residence sections. Property in business zones may be used for residences or business, but industries are excluded. There are two types of industrial sections, light and heavy, the distinction being based on size of machinery, or use, or size of plant. Property in industrial zones may be used for residences, business, or industries. Thus one may build a house in a residential, commercial, or industrial section if he chooses, but he will not have stores and factories in the neighborhood if he builds in a zoned residence district.

Zoning is not retroactive. Uses and structures existing lawfully in a zone at the time of passage of the zone ordinance may remain in that zone even though they do not conform to the use zone provisions. An industry in a business section or residence section or any established business in a residence section is not required to move. It simply remains as a non-conforming use. It may not expand. It may not be rebuilt if destroyed by fire or damaged severely. No person is prevented by zoning from a reasonable use of his property. Any person who feels himself aggrieved has the right to seek redress in the courts. Courts have upheld the provisions of zone ordinances in a great number of test cases.

When the term "zoning" is used most people think of "use zoning." In addition there is height and area zoning, which stipulates the areas required in front, side, and back yards, and permitted heights of buildings. By requiring side and back yards in residence districts each structure is assured its fair share of the light and air of the neighborhood. The requirement of front yards is similar to building lines in residence districts having private deed restrictions. Use, height

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and area zoning gives the owner of land in unrestricted residential sections what deed restrictions give the owner of property in newer subdivisions. Few people in unzoned cities would spend their money for property in unrestricted subdivisions. Zoning protects the property of the unrestricted district. Many cities have experienced new construction and re-construction in older unrestricted districts after the adoption of zone ordinances. Confident new construction results. Owners of older properties feel warranted in maintaining them and the process of decay is halted.

It is well to add that much property is held for sale as business property in growing cities after deed restrictions have expired. Since only about 1.5 per cent of the street frontage of property in the entire city can be supported by business of the city, it is manifestly impossible for all areas of cities to become business or potential business property merely because the deed restrictions on the residence property have expired. The land is not needed for business, few residents will venture to construct new residences on the land, so there is nothing for the property to do but age and thus decay, unless zoning is resorted to when restrictions expire.

If cities, and utility companies serving the people of the cities, know rather definitely what the land in the urban territory will be used for, and the probable density of population in the residence sections, and know the extent of the business and industrial sections, then both city and utility companies know what facilities to provide and a marked economy in utility costs results in the city. The required size of water and sewer mains, of telephone and light cables and of gas mains, may be anticipated. The probable numbers of lanes of traffic to be provided on the major streets all may be anticipated much more accurately.

So zoning ties into city planning very definitely and plays

a stellar rôle. It is no wonder that some fifteen thousand cities in this country have zoning, and that there are only three cities in the United States having a population over two hundred thousand that do not have zoning. No major city, once zoned, has invalidated its zoning ordinance. It is inevitable that mistakes are made in zoning cities, but these mistakes are correctible and the ordinances prescribe the orderly fashion to be followed in correction of these errors.

Finally it may be said that city planning attempts no miracles, but is an effort intelligently to preserve the good points of the community and to improve the weaknesses, that it is a continuing process requiring constant vigilance and much hard and painstaking care, unselfish work, vision, and constant effort to build a more useful, convenient, and pleasant city in which to dwell so that posterity may approve the thought expressed in the words of John Ruskin:

“When we build, let us think that we build forever. Let it not be for the present delight or for the present use alone. Let it be such work that our descendants will thank us for, and let us think, as we lay stone on stone, that a time is to come when these stones will be held sacred because our hands have touched them and that men will say, as they look upon the labor and the wrought substance of them, *See!* This our fathers did for *us.*”

L. B. RYON.