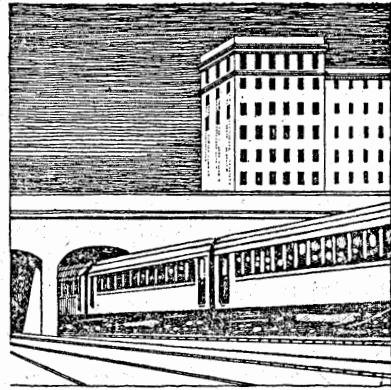
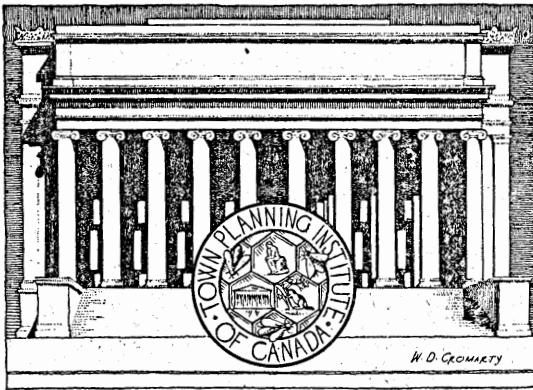


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Town planning may be defined as the scientific and orderly disposition of land and buildings in use and development with a view to obviating congestion and securing economic and social efficiency, health and well-being in urban and rural communities

A Demonstration Town for Ohio

A Demonstration Town

Through the beneficence of a wealthy lady, Mrs. Mary M. Emery, of Cincinnati, the energy and good judgment of the manager of her estates, Mr. Charles J. Livingwood, and the town planning skill of Mr. John Nolen, a new demonstration town is taking shape in the rural environs of Cincinnati which will bear the name of Mariemont in honour of the founder. Plans of the town and of some of the buildings that are to be are here reproduced by courtesy of Mr. John Nolen.

The project, as with Letchworth and Welwyn, the garden cities of England, is intended to be economically sound, that is, it is intended to yield a reasonable but limited return on the capital expended, but it is not a real estate or profiteering project and it is not to be vitiated by financial greed. No man is to be allowed to rub his hands as he looks upon the fortune accumulated by trafficking in the necessities of home-making people. The promoters repudiate the word philanthropy because, perhaps, the word, though at one time fragrant with the ethic of Greek as well as of Christian philosophy has fallen upon evil times and become too unconvincing a word for a sausage-maker's world. Perhaps also because they wish to prove that capital invested in a wiser, more

scientific and beautiful kind of town building than is customary in the jumble town will take care of itself—since order and beauty are themselves assets—and will yield not only a reasonable return upon expenditure but will yield also a rich return in national well-being, social contentment and happiness. They believe that if this is demonstrated on this continent the example will be followed in other places and thus a new era in town building will be inaugurated which will not forget the home needs of the vast masses of people who are living on the line, or below the line of subsistence, with practically no contact with natural beauty and the amenities that contribute to the enjoyment of life. They would, therefore, prefer that Mariemont should be called a demonstration town rather than a model town or garden city and behind this desire is obviously a social philosophy that has warmer elements than the mere incentive of gain. If philanthropy be inadmissible then perhaps the motive may be called the higher patriotism which cannot be content with "Main Street" and "Zenith" as the final expressions of American civilization.

Social Discontent

In speaking of the project Mr. Nolen has called attention to the fact that three widely separated and

independent authorities have stated that out of 100 Americans 60 are discontented. One investigation was made by an eminent statistician, another by the military forces and the third by the church and all agreed on the relation of the lack of homes to the present widespread discontent.

Mr. Nolen has had the courage to deal faithfully with the popular tradition that home owning is a sustained characteristic of this continent in contradistinction to European practice.

No longer are we a nation of home owners. We are mere renters, and therefore drifters and floaters—at least 60 per cent of us. Though it wears many garbs, human nature is a good deal the same. There are certain things that appeal to us all. One of the things which has so appealed ever since people lived in caves has been the desire on the part of every normal man and woman, and certainly every child, for something which they could call home; something which one owned, and which was sacred and precious because it was the abode and visible symbol of the family, which is the best and most fundamental human institution we know anything about.

The fact is notorious that since the normal costs of building homes for working people were disturbed by war conditions the inflation has been so serious that the wholesome habit of home owning for working-class families has become almost impossible and that congested living conditions have created a mass of social discontent which is seriously threatening the stability of nations. Investigations into building conditions have shown the most vicious corruption among interlocked combines in restraint of wholesome competition and for the maintenance of artificially high prices for building materials and in some notorious cases labour leaders themselves have been involved in this conspiracy. Two years ago the Philadelphia Chapter of the American Institute of Architects, a body to which no taint of radicalism has ever attached, declared that houses for those who earn low wages can no longer be built anywhere in the world at a cost that will permit them to be either sold or rented without loss to the builder and that it is unquestionably true that an industrial system, or even any particular industry which fails to make possible adequate shelter, food, clothing and recreation for all its operatives, is unworthy to exist. The Chapter went the length of proposing that housing for those earning low wages be legalized as a public utility, that the manufacture of this class of homes as a profitable issue for builders cease in theory as it has already ceased in fact and that the government, national and local, should at once adopt measures making possible the supply of this prime necessity

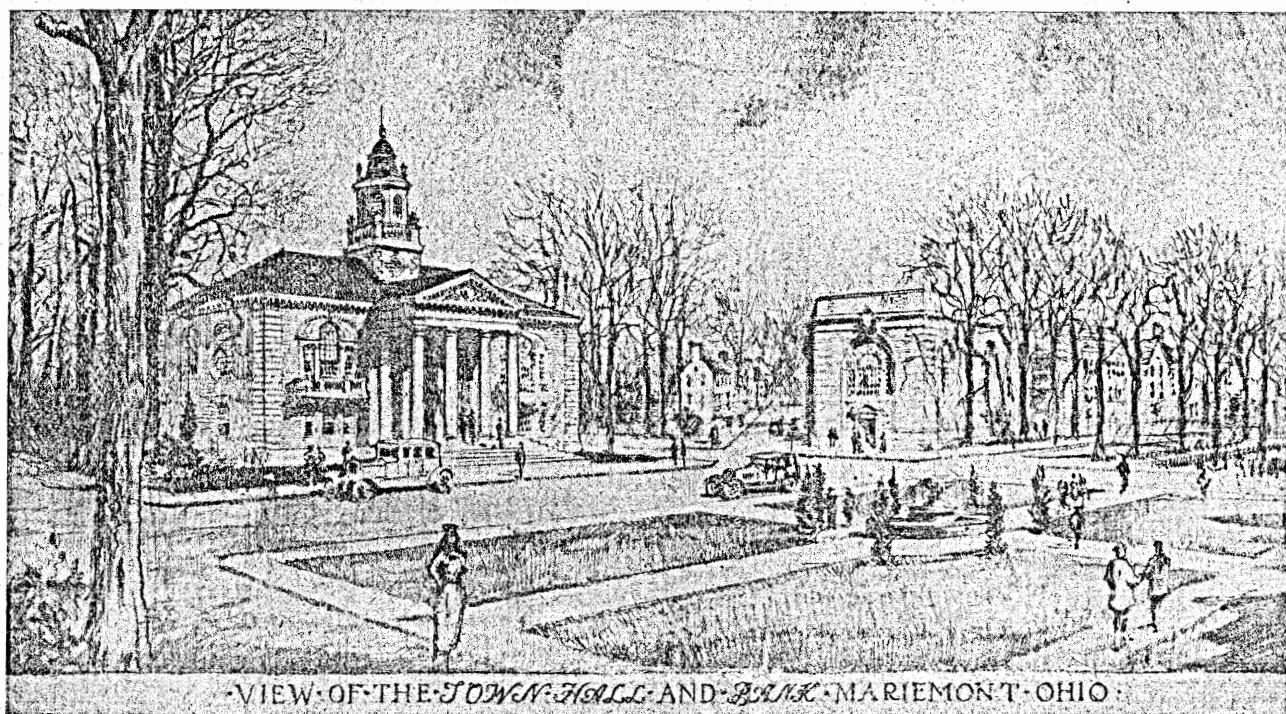
of life. In the housing distress in Germany the government has brushed aside the land speculator as a social nuisance and is now seizing land wherever it requires it for the building of working-class houses. In England the national housing project has been wrecked by profiteering. In attempting a new housing policy in Manchester the Lord Mayor has to announce that if the supply agencies attempt "hold-ups" the project will be abandoned—which will mean, of course, that working people will have to huddle up still closer to get a place where they can eat and sleep.

"Reform delayed," said Edmund Burke, "is revolution begun".

Where working people have comfortable homes, gardens and recreation space for out-door life there is no social discontent, no labour turnover, no revolutionary societies and no "Main Street" or "Zenith." A foreign visitor at Bournville, the garden village of the Cadbury Cocoa Company, declared that he had never anywhere seen such manifest social contentment and well-being. Whatever may be said of philanthropy as a motive it is becoming increasingly manifest that the incentive of gain cannot be trusted to build up a civilization based on stable foundations. "Main Street" and "Zenith" are the fruit of economic anarchy and it is more than doubtful if such "civilization" is in any way worth saving. "The lesson of the past," says a writer in *The Times Literary Supplement*, comparing the present civilization to a megatherium, (mega-therion) a great beast, "is that survival depends, among other things, on the maintenance of the proportion between the bulk of a creature and its brains. The world was at one time overrun with gigantic animals, all of which gradually disappeared, exposed to attack and decay by their own unwieldiness. Great strength, feebly directed, turns sooner or later upon itself and is its own undoing."

It is the feature of our age to have involved us in a vast apparatus which multiplies a hundred and a thousand fold our capacity to express ourselves in our surroundings but leaves us, for the time at least, with nothing more rational to express than we had before. In the meanwhile, the forces we have called forth work; the machinery is moving; and if life does not come out of it, there must come death. For order is not produced automatically; it is a progressive creation implying sustained energy of control.

In the efforts to provide homes for the people the real enemy is the higher Bolshevism, "Big Business", and not the lower. "Bolshevism", said the late Governor General of Canada, "hides in the slums of our towns and cities." The higher Bolshevism does not hide. It flaunts itself before the world



VIEW OF THE TOWN HALL AND BANK, MARIEMONT, OHIO.

as a new religion. It was the brilliant inspiration of a Christian "Father" that the bliss of the saved would be enhanced by the consciousness of the misery of the damned and it was left to a man whom many would consider a social crank to say: "When I realized the squalid misery of a great city it appalled and tormented me and would not let me rest for thinking what caused it and how it could be remedied." It is about time to say what caused it was commercial greed and administrative stupidity and whatever word we use for the new spirit that is working and thinking for the better building of towns and cities it is certainly something more civilized than commercial greed. Wherever a successful demonstration town, model town or garden city has been built the first consensus has been the limitation of profiteering to a reasonable figure as a *sine qua non* of success. In all cases professional and commercial services have had their rewards but the profiteering swine has been kept outside perhaps because it has been realized that the most expensive citizen in any community is the profiteer. In the trail of his triumphal car are always found poverty, disease, vice, crime and death.

Mr. Nolen is right. We are no longer a nation of home owners on either side of the North American line. We are mere renters and, therefore, drifters and floaters—at least 60 per cent of us. The comic journals have caught the fact:

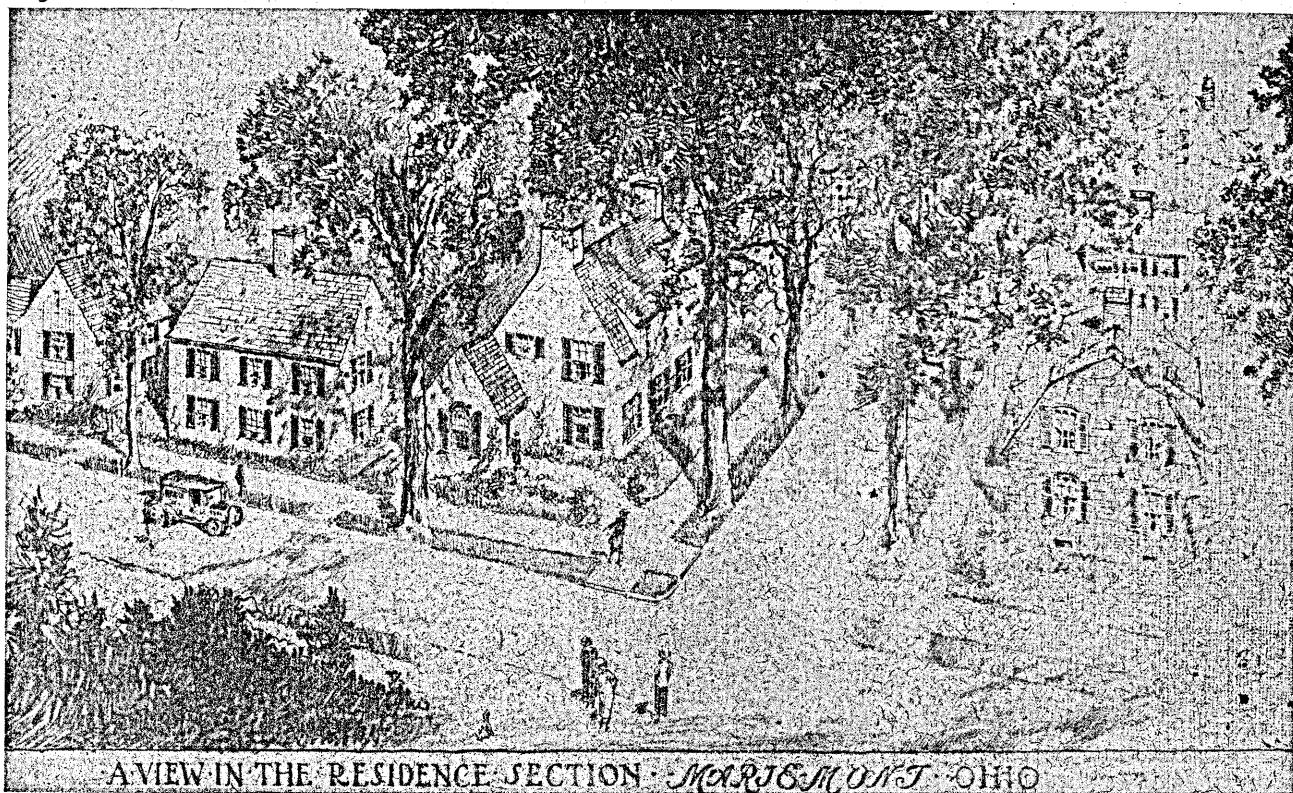
"They live in an apartment house
Of which they have one room."

They do not know who passes down the hall.
They cook their eggs and toast right where
They curl their hair and shave.
Their marriage license hangs upon the wall.
He makes a hundred every month
And she makes sixty-five,
And so, of course, they have to look quite smart.

And they all know about birth control. There is no room for children.

This is from the American Journal "Life", whose title is ironical enough in this connection, while the English "Punch" devotes its chief cartoon to a picture of a profiteer striding an ass (the British public) with the legend: "The slave of the Ring." The existence of "rings" among purveyors of building materials by which prices are maintained at artificial levels is said to make it impossible for builders even after a considerable reduction in rate of wages, to supply the public demand for houses at reasonable rates."

Town planning is not a decorative luxury; it is an attempt to bring order out of social and economic anarchy and to restore home owning to the common people. Nearly all the residential building that is producing the optimistic figures of real estate records is taking the shape of mansions or apartment houses. The building of cottages does not "pay" anywhere except in town planned garden cities where it pays enough to satisfy a civilization that is not obsessed by greed and knows something of the values of the riches of the spirit, beauty, order, justice, content-



A VIEW IN THE RESIDENCE SECTION

MARIEMONT, OHIO

ment, education and friendly service and co-operation for the common good. The natural history of the "reds" may be found in Markham's poem, "The Man with the Hoe." It is the result of "the immemorial infamies" of the greed of commercial gain which is the monster vice of the present civilization and which depresses national life more than all the other vices put together. It capitalizes every reform and every invention for human good and drains it of its life and blood. Until it too is beaten by control there is very little hope indeed for improvement in the social structure.

Mariemont

"Mariemont", says Mr. Nolen, "is an attempt not only to help the local situation in Cincinnati, but to do it on terms and conditions that can be duplicated wherever initiative, capital and sound planning can be combined to support an enterprise of great public importance, namely, the building of new towns or suburbs, virtually complete communities, providing not only suitable homes, but also schools, recreation, amusements, shops, etc., for people of small means.

"It is an attempt to solve the ever-pressing housing problem by the building of a community in which working men and men with small incomes will be provided with homes, either by rental or purchase, at a cost that will be properly proportion-

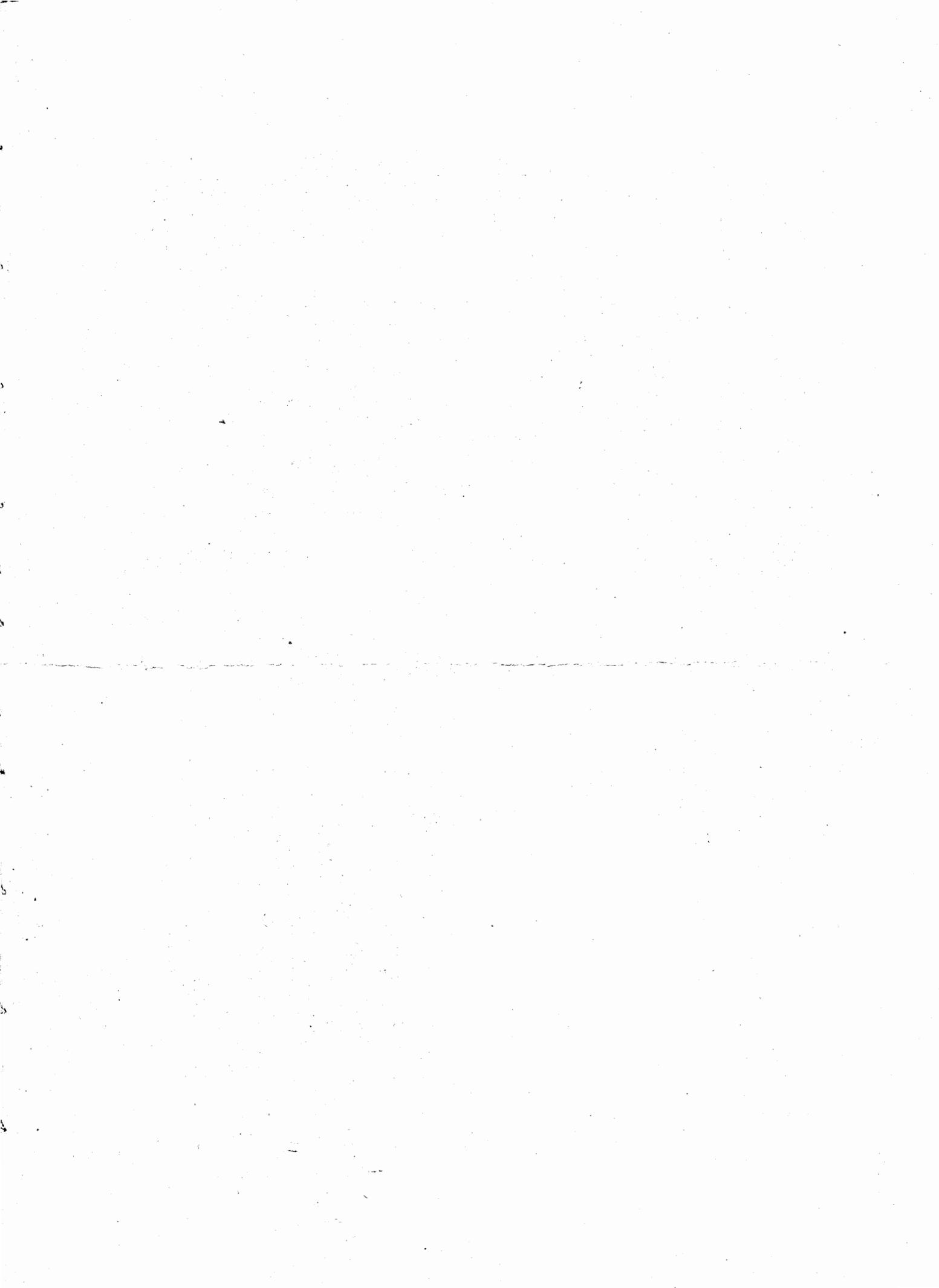
ate to their wages or salaries. It will supply its citizens with the public services at a nominal cost. In it will be found all the conveniences and necessities which the American standard of living of to-day demands. It will create a neighbourhood spirit. It will be a real city of homes, not of tenements, lodgings and boarding houses.

"But it is not a philanthropy; it is not a charity; it is a business proposition. The builders of Mariemont intend that it shall pay an adequate return on their investment. The enterprise will be conducted on a sound basis, economically.

"Their idea is that the whole town shall be regarded in the light of a public service. But instead of being confined exclusively to light, water and sewerage, the community will provide dwellings and all that goes into the making of a convenient, hygienic and attractive home at little more than actual cost, leaving a reasonable but not excessive margin as reimbursement for those who have invested their capital in the undertaking.

"Once carried out as it is to be, once demonstrated as an object lesson, this sound plan on this vital and heretofore baffling subject of workmen's homes will not rest with one example. It will not remain alone in Cincinnati, but will spread through the country, bringing relief and blessings in its wake.

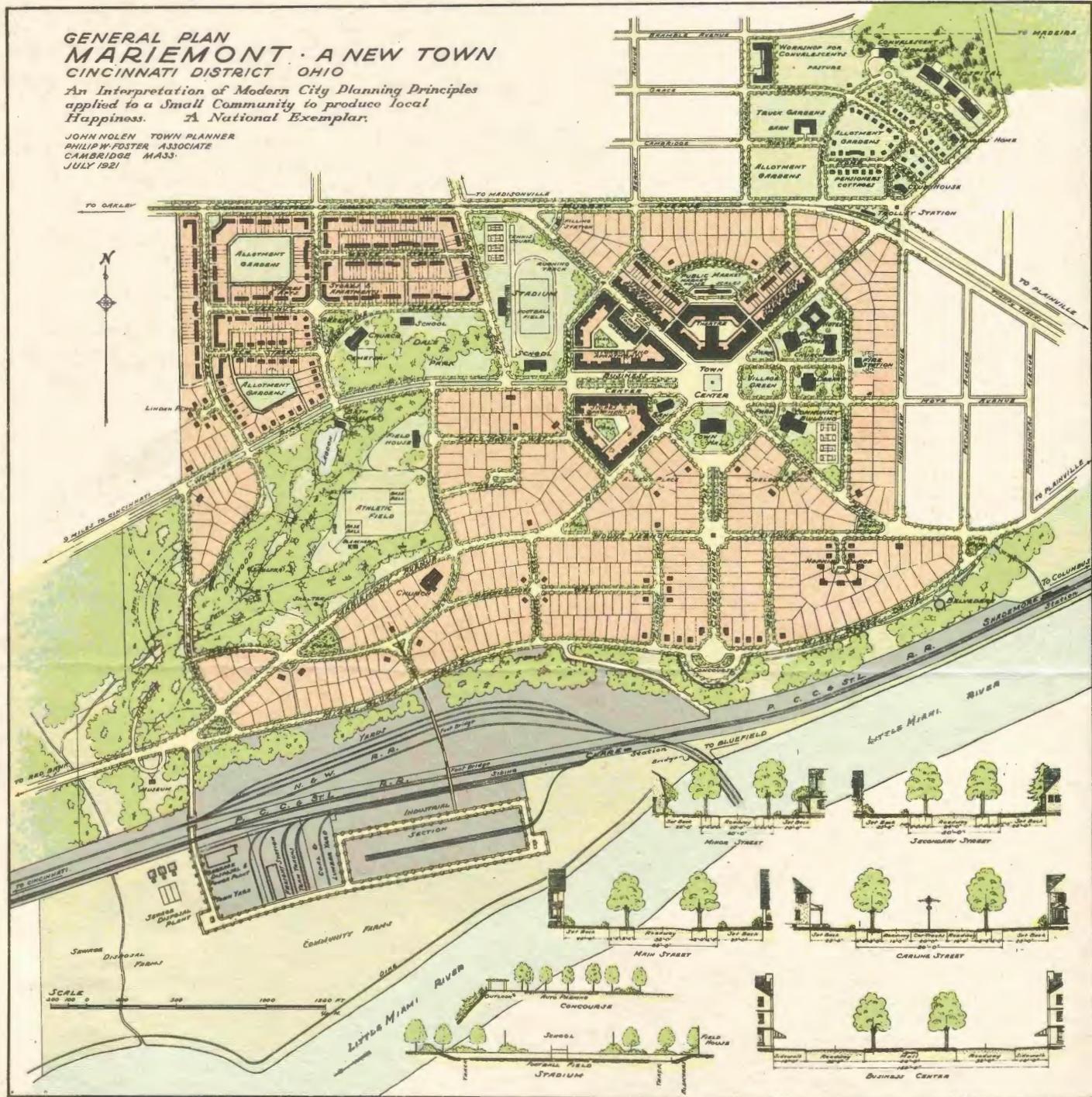
"The Mariemont general plan provides for a

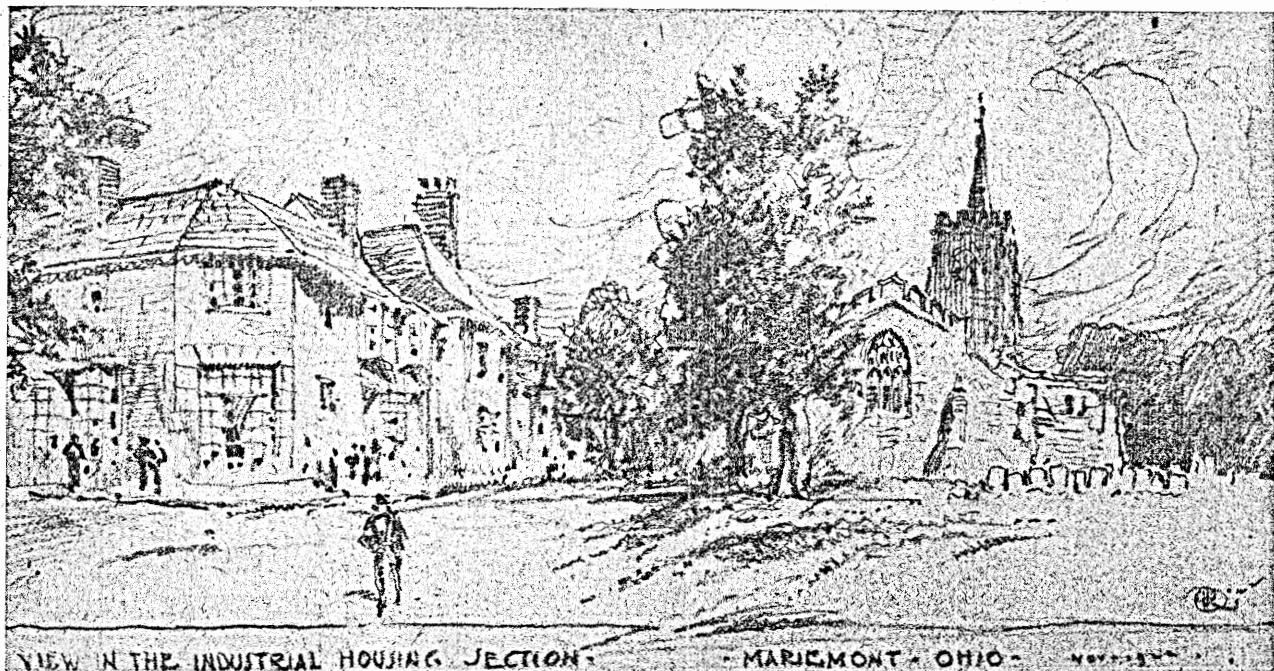


**GENERAL PLAN
MARIEMONT · A NEW TOWN
CINCINNATI DISTRICT OHIO**

*An Interpretation of Modern City Planning Principles
applied to a Small Community to produce local
Happiness. A National Exemplar.*

JOHN NOLEN TOWN PLANNER
PHILIP W. FOSTER, ASSOCIATE
CAMBRIDGE MASS.
JULY 1921





town centre with its village green and public buildings, including town hall, library, club house, churches, hotel, community building, theatre, post-office, bank, stores and public market. Ample provision is also made for schools and playgrounds, athletic field, stadium, gymnasium, tennis courts, varied types of parks, bathhouse, lagoon, field house, park shelter and interesting reservations for the public on the bluffs above the river.

"More important than all are the complete and attractive housing accommodations for wage earners. Even the lots of the smallest group houses are to meet the standards of such English garden cities as Letchworth, Hampstead and Port Sunlight, the density of all the houses of Mariemont being between six and seven families to the acre. Group houses, apartments, semi-detached and detached houses are all provided.

"All the houses will be carefully designed and be mostly of brick or other permanent building material. They will be provided with all modern conveniences, including electricity and steam heat from a central plant. The initial cost of transportation development, recreation centres, sewage disposal, steam heat and electric light for dwellings and public places will be borne by the Mariemont Company. Adequate provision will be made for the proper maintenance of the property as a complete town or suburb."

To Cost \$2,000,000.

The town will cost \$2,000,000, approximately,

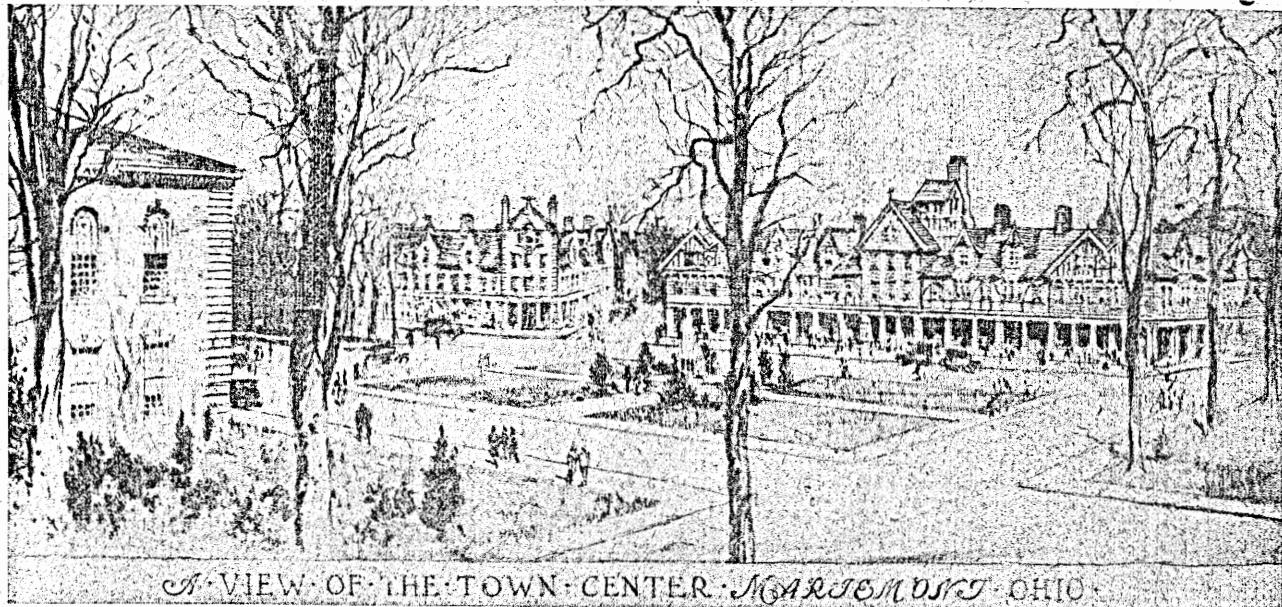
and will comprise 365 acres. The general street plan, as described by Mr. Nolen, is attractive and economical, providing easy access to the main points of interest and convenient circulation through the property.

The total area planned includes the main portion of the property, approximately 250 acres, the river bottom land, 70 acres, and the hospital group, 25 acres. There are over 750 house lots, in addition to the pensioners' cottages, with an average of less than seven houses to the acre. The normal lot sizes for the group houses are 20 feet by 100 feet, and for the semi-detached houses 30 feet by 100 feet. The frontage of the detached houses range from 50 to 80 feet, and the depth is approximately 120 feet.

About one-half of the property is in lots, one-quarter in public property and one-quarter in streets. The streets vary in width from 40 to 80 feet. There are over 50 acres in parks alone and more than 70 acres in parks and other public uses.

Mariemont provides for a population of about 5,000 with an immediately surrounding population using the main centre reaching ultimately probably to nearly 10,000 people.

Mariemont will sell lots and also erect homes for rental. It is anticipated that the price of lots will range from \$500 up, and that rentals, with all facilities and improvements, will be as low as \$15 a month, larger and more elaborate houses, of course, being paid for at a higher rate. The rental will be, in general, on a much lower scale than is now prevailing.



A VIEW OF THE TOWN CENTER: MARIEMONT, OHIO.

To Pay Own Way

Lots will be sold subject to restrictions as to location, character, style and use of structure, and to obligations to build within a specified period. It is especially desired to illustrate the possibility of economical, durable, comfortable and attractive design and construction.

"As a city commonly grows," says Mr. Nolen, "there is no orderly plan of development. It grows by accretion, simply adding to the existing problems. Every individual on the edge of such an expanding community has his own problems to deal with, schools, churches, recreation, supplies, transportation and other public utilities.

"Mariemont does away with all these troubles. The longest walking distance any resident will have to make to get to the centre will be 10 minutes. Here he will be in touch with everything necessary. The only two exceptions are the special stores in the great city and special cultural attractions, drama, music and art.

"He will get food, clothing, medicines, schools, moving pictures, everything else just as good as the metropolis can supply. In addition he will get a sense of neighbourhood. A real community spirit will be engendered. Family life, church life will have an opportunity for their fullest development. The leading idea is to provide a town of homes where people can settle down in real contentment. You are not going to have people in their right minds, women satisfied, unless they are satisfied with their home conditions. This undertaking will remove bad conditions. There will be no place for the tenement, the slum and the ghetto."

Land Tenure

The British method of land tenure in garden cities—the perpetual lease, has not been adopted and lots are to be sold outright, with certain restrictions as to uses. In reading the literature of the movement one meets the familiar statement that British and American conditions are different and that American conditions inhibit the adoption of this plan. Looking at this point sympathetically it seems doubtful whether there is much more in such a claim than the psychology of national consciousness. Restrictions as to uses of land may be effectively applied in the first sale but when the property changes hands it is quite a common experience that such restrictions are forgotten. This was the experience of Mr. Cadbury, at Bournville, and he was obliged to return to the leasehold system in order to perpetuate the right use of the land. To have a few men later on in the middle of Mariemont who are determined to build what they jolly well please might spell disaster to the whole scheme and to the wishes of the founders. There is really only a sentimental difference between the perpetual lease and freehold and the lots can be much more easily acquired on this system by poor people whose savings can then go straight away into a better kind of house.

"A new town," says Mr. Nolen "can be built for \$1,000,000. We are waking up to this fact. We are coming to see that if a battleship costs \$42,000,000 and we have been able to build a fleet of them, the actual building of an entire city is a mere incident in terms of dollars but of the most momentous importance to the present and future welfare of every citizen."

Curved Streets in Property Developments

W. L. CASSELS, B.Sc.*

Curved Streets

In discussing the use of curved street lines in property developments there are two viewpoints to be considered, that of the designer or planner of the development and that of the surveyor who has to lay out the development upon the ground. The designer need not necessarily concern himself with the method by which his curves are to be dimensioned and staked but it is the surveyor's duty to see that the property is staked and monumented in such a way as to permit of the re-location of any individual lot with the greatest ease possible.

Cost

This, if the question of the cost of the survey is not considered, is a simple matter. However, as with every other phase of town planning so in this, one of the least of them, the question of cost comes up. The people for whom the average development is laid out usually want the property staked in the cheapest way conformable with the law. As a result the surveyor is forced to lay out the development in the shortest possible time. This will affect his choice of curves and he will also find himself restricted in the number of permanent or semi-permanent monuments to be used.

Best Use of the Ground

In planning a property development curves should be used with restraint. They should not be used to make the plan of a development appear more attractive than it otherwise would although they often are so used. A geometrically curved layout is an easy thing to draw and a plan with a lot of fancy curved streets on it may help the salesman to dispose of the lots, but such a plan will not be of benefit either to the purchaser or to the development as a whole. The use of a curve without a definite object in view should be deprecated. The appearance of the plan is of secondary importance. It is the proper utilization of ground that matters.

When Curves Should be Used

Curves should be used when the topography of the site renders such use advantageous, when their use will improve an existing vista, or when a satisfactory closed or semi-closed vista can be obtained by their utilization. Before a curved layout for a street is chosen an effort should be made to obtain

some idea of the perspective the street will present when it is built up. The effect of such a curve on the size and shape of the lots fronting thereon should also be considered. If nothing is to be gained by putting in a curved street a straight one should be used. A moderate use of curves in conjunction with reserves for parks, playgrounds and public spaces will often do much to relieve the rectangular block subdivision from the monotony which is one of its chief drawbacks.

Staking

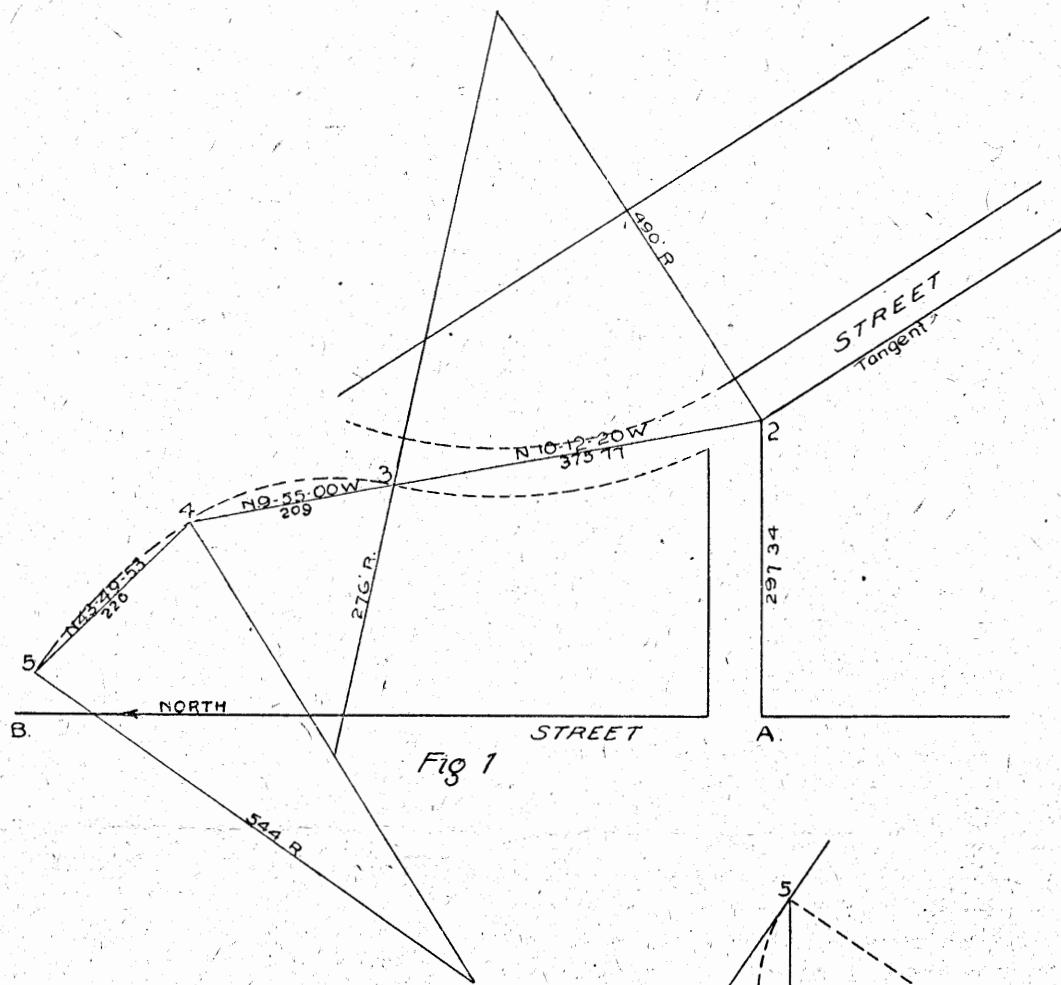
Reference has been made earlier in this article to the relocating and restaking of properties. In most of the provinces the law requires that an iron, stone or concrete monument should be planted at one of the four corners of every street intersection in a new subdivision. Usually the balance of the property is staked with wooden pickets, which are extremely perishable. In a rectangular block subdivision, after it has been built upon, the disappearance of pickets does not cause nearly as much difficulty with regard to relocation as in the case of a subdivision with curved streets. In the latter case relocation may prove extremely difficult. It is therefore essential that a curved layout should be better staked than a straight one and it is also desirable that the matter of relocation should be kept in mind when a development is being planned. On a straight street line even if eight out of ten pickets or monuments disappear, the relocation of one or all of them may still be an easy matter. If such a disappearance took place on a curved street the relocation would be much more difficult. It is obvious that the relocation of boundaries on curves will be easier if the curved streets are related to adjoining straight streets.

Methods

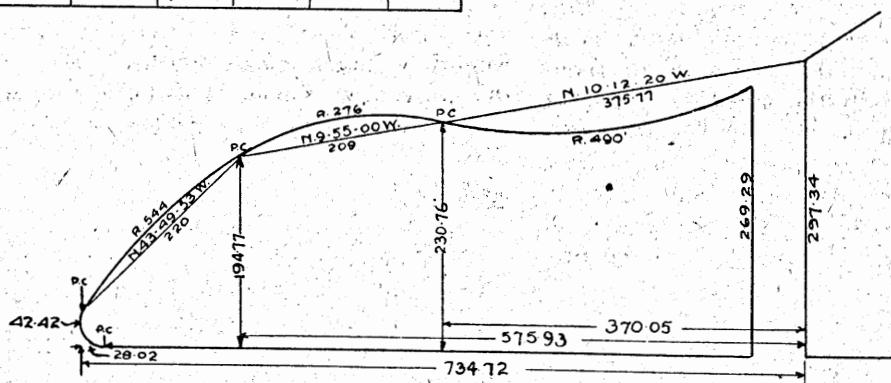
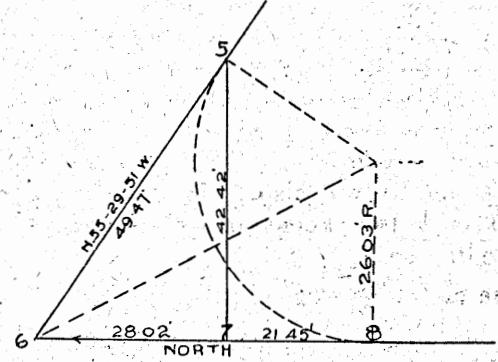
There are many methods by which a development containing curved streets can be planned and surveyed. The following method is simple and satisfactory. The first essential is a topographical plan showing contours or control lines and the physical features of the property. In addition to contours the tops and bottoms of slopes should be located by lines as contours are not exact enough to be satisfactory; the line where a slope begins may be crossed by many contours without being closely defined by them.

Given the plan a tentative layout can be prepared. This should be outlined on the ground and adjusted

*Hon. Secretary-Treasurer of the Town Planning Institute of Canada.



Stn	Bearing	Dist.	Latitude		Departure	
			N	S	E.	W
A-2	East	297.34			297.34	
2-3	N 10° 12' 20 W	375.77	370.05			66.58
3-4	N 9° 55' 00 W	209.00	205.88			35.99
4-5	N 43° 49' 53 W	220.00	158.79		152.35	
			734.72		254.92	
					42.42	



Illustrating Mr. Cassels' article on "Curved Streets,"

thereto. From the ground this should again be transferred to paper. If a satisfactory division of the lots can then be obtained the next step is to prepare the plan in such a way that the outline of the blocks and subsequently the complete subdivision can be staked as quickly and as easily as possible and so that relocation may be a simple matter.

This can be done by the use of rectangular co-ordinates as follows: Take any particular block on the plan as in Fig. 1. Adjust the curves thereon so that simple compound curves may be used throughout. Find the radii thereof with a compass, scale off the chord length of the radii for each arc excluding therefrom the small closing arc. By scale obtain the bearing of any long chord, such as the one from 2 to 3 with reference to the line A.B. which is assumed as running N. and S. By simple calculations the bearings of all the other chords with reference to A.B. and the tangents to the arcs subtending those chords can now be obtained.

Calculate the bearings of the chords with reference to the assumed meridian A.B. Calculate the latitudes and departures of each point of curvature shown at 3, 4, and 5 Fig. 1 with reference to the point A. and the line A.B. and tabulate the result. The position of the point 5 with reference to the point

A. and the line A.B. can be at once ascertained and the closing arc can be calculated as follows:

Obtain the bearing of the tangent at 5, Fig. 1 and 2. This gives the angle at 6, as $55^{\circ} 29' 54''$ the distance 5.7 is known and by solving a right angled triangle the distance from 5 to 6 and 6 to 7 can be found.

Since the line A.B. will be tangent to the closing arc, the line 6.8 = the line 5.6 and the position of the point 8 can be determined therefrom. The radius of curvature of the final arc 5.8 can also be found from a right angle triangle and the bearing and length of the chord 5.8 can be easily obtained.

A glance at figure 3 will make it evident that all the points of curvature can now be located at once both by a traverse and by rectangular co-ordinates. After the points of curvature are established in this manner and properly monumented the further subdivision of the blocks becomes a simple matter and the relocation of the curves can be readily carried out at any time.

So long as simple and compound curves are used no matter what the shape of the block may be a straight base or bases can be readily assured and the method outlined above can then be used.

The Primary Survey: Its Effect on Town Planning

By HORACE L. SEYMOUR, B. Sc.
Town Planning Engineer

In a recent series of lectures on "Civics and Town Planning" delivered at the University of Toronto, Mr. Seymour pointed out the relation existing between early civilization and surveys and as applied to a new country like Canada, the relationship between settlement and surveys. Frequently settlement preceded surveys while now surveys, with few exceptions, precede settlement. Both the methods and the inaccuracy of early surveys were shown to have an effect on the present problems of town planning. Some of these effects are jogged and irregular streets; difficulties of opening up new streets through badly surveyed areas and difficulties in planning due to the fact that original surveys were generally made without regard to topography. It was shown that in some early surveys the areas were laid out by settlers themselves. In New Brunswick and Nova Scotia it was difficult and often impossible to find original survey monuments. The original surveys of Prince Edward Island, although magnetic, were well executed.

An interesting example of early radial planning in the Province of Quebec was illustrated at Charlesbourg and vicinity, near the city of Quebec. While

under French domination, there was an endeavour to provide, what has been so often mentioned as very desirable, a village or centre with farms radiating therefrom. As a rule, however, we find the early farms of great length have been divided into narrow frontages, especially those on the St. Lawrence River. Townships now surveyed in that province are ten miles square with boundaries, north, south, east and west. The principle of long, narrow farms is still continued as having the advantage of close settlement. The result claimed is, that in Quebec, people do not leave the farms as in some provinces where the method of survey has separated the settlers to a greater extent.

In Ontario, Mr. Seymour pointed out, there have been various systems and also a lack of system in township surveys. In the early days farms were granted or conceded along rivers or lakes. As settlement was forced further back from such main topographical features, the best means of transport in those days, further ranges of "Concessions" were surveyed. The more recent systems of surveys in Ontario have been the six mile and the nine mile townships.

The speaker paid a tribute to the township surveys now carried out by the Dominion Government in western provinces and indicated various suggestions that had been made for change in the method of survey, which would make them as desirable for settlement as they were now excellent from a geometrical standpoint. In British Columbia it was shown that in the mountainous country more lands were staked out very similar to the staking out of mineral claims.

The speaker quoted figures showing that in the prairie provinces out of over 200,000,000 acres of land surveyed, there were a few years ago but 20,000,000 acres under crop and that within twenty miles of a railway there were 15,000,000 acres of vacant land.

Planning for Sunlight

In a second lecture on "Planning for Sunlight", Mr. Seymour made a strong appeal for the provision of sunlight in our streets, factories and homes from a health standpoint. It was shown that various disease bacteria, such as typhoid, tuberculosis, etc., which could exist even for years in dark places, succumbed to direct sunlight, from within a few minutes to an hour. Other advantages of sunlight were pointed out.

The lecturer was concerned particularly with the orientation of houses, disposition of rooms and the location of windows and verandahs. For the free standing house, charts and diagrams were used to show that the orientation most desired was that when the faces of buildings were not square with the cardinal points but at an angle of 45 degrees therewith. For streets in residential areas, the desirable direction was generally that of northeast, southwest and northwest, southeast especially if blocks were square and not long and narrow. With high buildings on long, narrow blocks, the north and south street was shown to be the best street for main development. Planned for maximum sunlight, the sunlit city would have a gridiron of long narrow blocks running north and south for the business section surrounded with a checkerboard of residential streets radiating diagonally from a central development. For the provision of sunlight as well as for other important reasons the general rule was given that the height of buildings should not exceed the width of the street or the distance between buildings.

Zoning

Dealing with zoning Mr. Seymour explained that the term "zoning" was derived from the practices of the walled cities of Europe where the existence of arbitrary authority made it possible to carry out stringent regulations with respect to the character

of the various parts of the city, different areas being actually in the form of a zone.

In America, zoning might better be termed "districting or delimiting" as the areas to be regulated are not necessarily zonular in shape.

Zoning had been defined as public control of private property in the interest of the health and welfare of the people and as the determination of the character and intensity of the use of land, and more especially as the control under community power of (a) the height of buildings and (b) the percentage of area of lots that may be covered with buildings and (c) the use to which buildings may be put on private property.

The advantages that had been ascribed to zoning include the following: (1) permanent development of the area concerned; (2) provision of adequate light, air and sanitary arrangements; (3) orderly growth of the city; (4) prevention of undue congestion; (5) stability of property values; (6) saving in the cost of construction of service utilities.

Mr. Seymour showed that the term "town planning", in a restricted sense, was generally considered to mean the public control of what is or what is to become public property. As applied to cities it has been considered to include, for example: street layout, sewerage system, water supply, transit and transportation system, port and terminal facilities, park and recreational system and location of public buildings.

But public property in the average city or municipality constitutes but one-third of the area in street, parks, &c. From over one-half to two-thirds is private property. Zoning is that part of town planning which has particularly reference to the public control of private property.

The advantage of zoning was generally considered to be the protection of residential areas. It was easy to fall into the error of unduly emphasizing this phase, the protection of the home being a popular appeal. While this was undoubtedly one of the aims of the town planner, he had other important and fundamental aims such as the protection of the factory and factory sites; the protection of the business and business sites. The answer to "Why is a City?" or "Why is a Town?" must be in general a commercial or industrial one. First of all there must be considered the location of industries and the protection of industrial sites. Then the location of business and the protection of business sites and then the location of residences and the protection from the unnecessary intrusion of industries or business. Every zoning scheme must include the provision of an adequate transportation system to link these areas of various uses together. Scientific zoning meant co-ordination not segregation.

Zoning--Its Financial Value

By NOULAN CAUCHON, A.M.E.I.C.

At present in unzoned cities the use and development of rural and urban land is so largely unregulated and thereby unprotected that its equity and security in ownership and investment are perilously unstable.

Progressive development in town building largely depends upon securing the use of cheap money. Money is cheap to the measure of security. Security is determined by the degree of stability in value.

One of the chief functions of zoning in town planning is to stabilize economic values in the use and development of land, be they commercial or residential.

Zoning, by establishing fixed and protected conditions of density and purpose in residential areas maintains the negotiable values.

Zoning of commercial areas by restricting unregulated expansion to within the limits of supply and demand establishes a stabilized and assured value for business properties.

Zoning thus protects and stabilizes the value in use and development of both the business section and of the residential areas of a city to the great mutual advantage of both.

Zoned property is assured of environmental conditions that sustain its value; it is insured against depreciation from deteriorating surroundings. Zoned property affords safe investment; it secures safety to the margin of security for loans.

Zoned property, therefore, is more negotiable and commands cheaper money for its development.

At present practically all investment in city land in Canada, through lack of control, is liable to a depreciation of probably 25 per cent. particularly if built upon. As an instance, an individual establishes a home in a good but unsound locality; land and house valued say \$10,000. He borrows \$5,000 upon the 50 per cent margin of security. Following the transaction a laundry, a store, a public garage or other disquieting commercial venture invades his immediate vicinity whereupon the tranquility and amenity of his home being jeopardized or destroyed he immediately finds the negotiable value of his holding has dropped about \$2,500; so proportionately does that of all his neighbours—a very large cumu-

lative depreciative loss over the whole district.

The result to one individual is a personal loss of 50 per cent of his own savings, the \$2,500 loss comes off his own \$5,000 equity; further 50 per cent of the \$5,000 margin of security is gone; finally, the owner may rightfully obtain reduction of \$2,500 in his assessment, a loss to the city treasury.

Thus, where conditions are unstable the risk of depreciation threatens all interested parties.

Zoning would stabilize values and should be of the greatest concern to the home owner, to the business man, to the investor, to the loan agency, be it bank or trust company, as also to the municipality for maintaining its tax resources and fostering development through security and resultant cheap money. Zoning in other and far-reaching ways lessens the cost to a municipality and heightens the efficiency of its public services and administration such as sewerage, water service, fire protection, arterial highways, transportation, etc., minimizing its bonded indebtedness and its taxation, heightening its credit and enabling greater development with profitable results.

The insurance underwriters scale the use of their credit to the measure of the security from fire given by a municipality in the positive fire fighting force coupled with the negative conditions allowed to prevail. Fire insurance rates are varied to discount circumstances.

The trust companies who have such vast sums loaned upon realty are not now adequately protected against loss of equity in their margins of security; residential values may be destroyed by density or by the detrimental invasion of business; where business is allowed to wander from its sufficient limits it weakens the beneficial intensity of the business areas.

Trust companies can do much towards stabilizing values by themselves realizing and further by urging the investing public to recognize that unzoned areas being poor in security are disfavoured by lesser loans at higher interest rates.

Trust companies we believe may soon come to see that it is to their interest to endorse effectively town planning and zoning.

Municipalities desirous of progress will, we anticipate, be induced to apply the scientific principles of planning and zoning towards assuring development through ample loans at such encouraging interest rates as may be.

*Vice-President, Town Planning Institute of Canada, Past Director, American City Planning Institute, Chairman and Technical Adviser, Town Planning Commission, Ottawa.

Sky Scrapers

By F. H. MARANI, ARCHITECT, TORONTO

It is said that the Canadian National Railway Company intend to build the largest sky-scraper in the British Empire at the corner of King and Yonge streets, Toronto. Unfortunately this news will appeal strongly to a number of our citizens, who would like to see Toronto's sky-line emulate New York and Chicago, and who, therefore, see in these reports indications that the C.N.R. is really going to do something for Toronto. Apart, however, from its somewhat doubtful political value, I can see nothing to favour so tall a building and believe there are two very strong reasons against it.

(1) It is not a good financial investment for the railways.

(2) It is economically unsound from the point of view of the city.

In this argument, I cannot go into the aesthetic value of such a building to the city. That depends upon the design and whether all four sides of the building are studied, or whether it is left with two backs as with our present highest sky-scraper. Here is a matter of taste, which varies with the individual.

The statement, however, that increased height in building, beyond a certain point, does not bring in increased revenue, will come as a shock to many. The reason for this is, that the higher a building goes the more space is needed for elevators, piers, walls, stairs, etc., and therefore less area is rentable in proportion to the size of the building. Then, too, beyond a certain height, the construction costs per cubic foot begin to increase.

A very interesting article appeared in the November 1922 issue of *The Journal of the American Institute of Architects* "The Passing of the Sky Scraper", by Mr. George C. Nimmons, a distinguished Chicago architect. While serving on a committee of the Chicago Real Estate Board for the study of building heights for the new zoning law, Mr. Nimmons made a series of calculations, based on his wide experience, to establish the earning power of high buildings. He shows that on a lot 160' by 172' valued at \$1,500,000 the efficient height (that is the height at which a building will give the greatest return) is between 15 and 20 storeys, probably about 18. In an article in the same periodical, January 1923, Mr. Edwin S. Jewell contends that Mr. Nimmons has set the efficient height too high and has not considered that buildings depreciate and land values increase as time goes on. He concludes: "I am in full accord with Mr. Nimmons' contention that the sky-scraper is passing, and should pass. I have been managing office building for years and know from

experience and observation that on any lot in any American city a low building will pay larger income and greater profit on the investment in the long run than a tall building. It is not only better for the investor, but better for the city to have office space spread over more land."

In this particular case in Toronto, the value of the land is considerably greater per square foot than in Mr. Nimmons' example. The lot, however, is so small that the low percentage of rentable area would, in my opinion, affect the high value of the land as an argument for height. It must also be remembered that the land increases in value as it approaches the corner—so that if more land were added the rate per square foot would decrease as the size of the property increased.

Before it became generally suspected that buildings were going far beyond the efficient height, it was clear to many that sky-scrapers were not an asset to the community as a whole. A number of commissions have been formed in the largest cities in the States to enquire into the limiting of the heights of buildings. The most important charges proved against the sky-scraper from the stand-point of the community were:

1. Increased congestion of traffic causing expensive control and loss of time by citizens.
2. Increased danger in case of fire or panic.
3. Increased sickness such as colds, pneumonia, etc., due to lack of ventilation and sunlight.
4. Inflation of land values beyond what is stable and reasonable.

To restrict suddenly the heights of buildings where land values have conformed to a condition with the sky as the limit is obviously unsound, and would undoubtedly cause a panic, hence the now famous New York laws which require setbacks at certain heights to allow light and air.

In Toronto, fortunately, we have not yet gone so far that we cannot enforce a reasonable restriction without damaging land values. The present by-law limits the height of a fire proof building to twice the width of the street, which is none too low. Nevertheless, whenever a prospective building owner has appeared before the council and announced that he must go 20 storeys to make the building pay, and won't build unless he can, and if he doesn't so many mechanics and laborers, etc., will be out of employment, etc., the tendency of the council is to fall for his arguments, and allow the by-law to be waived.

We must bear in mind that we are not a wealthy country as yet, and cannot afford to waste money on

unprofitable (I use the word in the broadest sense) building enterprises purely to make a popular appeal. If we wish beautiful buildings, we must plan them efficiently, and rely on simplicity of line, proportion, and colour for our effects and not on tawdry adornments and a display of reckless spending.

I do not wish in any way to oppose the erection of a fine new building on this corner, but merely wish to indicate the folly of building too high in a desire that the project should be an asset to the city and the railway.

Decentralization of Industry and Metropolitan Control

By G. H. FERGUSON, B.Sc.*

Location of Industries

As a country develops industrially, and as transportation facilities become more effective and cheaper, the location of an industrial enterprise cannot be left to chance but is a matter to be carefully weighed in all its bearings. It can no longer be left to guess-work but must be governed by strict economic considerations. This is particularly true in establishing an industry in which the inertia of age has not as yet appeared, but where rigid economy must be practised to insure success. In such cases many influences must be considered, carefully weighed, and a final decision made only after all factors have been considered. Once that decision is made and the plant established, the decision is in most cases irrevocable, because of the difficulty and expense of moving.

An examination of any manufacturing country will show that industries tend to concentrate or localize, forming industrial centres which are devoted to the production of a limited line of products. The localization of industry in old manufacturing countries such as Great Britain is well known. In America, the textile centres are found in New England. Connecticut is the centre of brass working and Pennsylvania leads in carpets and steel products. An analogy to this general characteristic of industry is seen in the way the industrial activities of a city tend to group themselves. Thus the wholesale district is distinct from the retail district, and in the wholesale district itself will be found groups of industries that have similar characteristics. Thus there will be a wool district, a leather district, and on the manufacturing side work shops will form one centre, planing mills another, wood-working another, and so on according to the industries and commercial activities of the city.

Migration of Industries

Another important characteristic of industry is its tendency to migrate under certain circumstances.

The manufacturing industry naturally tends, to some extent, to follow the markets, and this explains in a measure the fact that the centre of manufactures has steadily moved westward in the United States as has the centre of population. In 1850 the centre of population was in the western part of West Virginia while the centre of manufactures was in the southern central part of Pennsylvania. In 1900 the centre of population was near Columbus, Indiana, while the centre of manufactures was near Mansfield, Ohio. The census of 1910 locates the centre of population of the United States near Bloomington, Indiana, and it is reasonable to suppose that the centre of manufactures moved west a similar distance in the preceding decade. But in addition to this general movement the major portion of entire industries may leave one locality and move to another because of the economic advantages offered by the latter. For this reason New England is no longer the predominating factor in certain lines of production that had their origin in that region; cheaper material and better market conditions have given more westerly states such an advantage as to cause in some cases an almost complete removal of some industries to western locations. On the other hand some of the older states have easily held a foremost position in the manufacture of products for which they possessed no raw material, against keen competition from newer states which possessed the advantages of raw material in abundance and equally good transportation and market facilities.

Determining Factors in Location of Industries

Seven advantages which in varying combinations, may cause a localization of industry are as follows:

- (a) Nearness to materials;
- (b) Nearness to markets;
- (c) Waterpower;
- (d) A favorable climate;
- (e) A supply of labor;
- (f) Capital available for investment;
- (g) The momentum of an early start.

Clearly the most advantageous combination of these and other factors that may affect the location of an industry is that in which the sum of the cost

*Accepted by the examiners of Town Planning Institute of Canada as qualifying thesis for membership of the Institute.

of the raw material delivered at the plant, the cost of manufacture and the cost of marketing is at a minimum.

All other things being equal, an industry naturally locates near the market it expects to serve; for commonly the founding of an industry comes because of a demand from a market or from an effort to create such a demand. But the location of the supplies of raw materials is always an important economic factor, and the location selected for the industry is in many cases a compromise largely because of questions pertaining to transportation. There is no economy in shipping bulky raw material long distances, if the major portion of it is to become waste during the processes of manufacture. Paper mills are therefore found near the forests, just as packing houses are found near to stockraising regions.

It will be clear that the influences of materials and markets grow smaller as the question of transportation becomes less economically. If the transportation charges are small then one or the other, or both of the factors, labor and power, may be the controlling influence in locating the industry, for both raw material and finished product may be economically transported long distances to utilise these factors and yet find a market.

The influence of waterpower in localizing industry was more apparent in the past than it is at present. Before the days of steampower practically all industries requiring power necessarily sought waterpower in a location. New England, no doubt, owes much of her manufacturing greatness to the abundant waterfalls of that region. The use of coal and the fact that industry has to a large measure outgrown the waterpowers of the eastern section have given other localities an equal if not greater manufacturing advantage.

In some industries the effect of climate on plant location in years gone by was greater than it is at present. Thus formerly the climate had an important influence in the textile industry, but now such factories are kept at the proper degrees of temperature and humidity by artificial processes. Of course, a healthful and invigorating climate is conducive to increased production, and for that reason in some measure, perhaps, New England has retained some of her commercial supremacy. A mild climate, on the other hand, may have peculiar advantages. Thus shipbuilders may work in the open in San Francisco in comparative comfort all the year round, while such work is conducted in New England in the winter with considerable hardship. The cost of heating a factory in a cold climate may be very considerable.

The location of certain kinds of industry does not appear to be much affected by the question of labor. Thus we have many examples of large in-

dustries, such as smelting and cement plants, having been located because of economic considerations of markets, raw materials, and transportation facilities; and the working population was moved to the plant location from elsewhere. This can be done in industries where the majority of the labor is of the semi-skilled and unskilled variety. But it is exceedingly difficult to induce skilled labor to migrate.

Special Factors

Among the many considerations that may influence the exact location of an industry are the following:

- (1) Transportation facilities;
- (2) Initial building requirements and possibility of expansion;
- (3) Local labor supply;
- (4) Dependence on other industries;
- (5) Financial considerations;
- (6) Relative values of community restrictions and community aid;
- (7) Relative value of local markets.

A clearer idea of the relative influences of these several items may be obtained by considering the relative merits of three classes of location, namely urban, suburban and rural.

City v. Country Location

Cities, being natural centres for trunk lines or water transportation, usually offer superior advantages for obtaining raw material and for shipping goods. An abundant labor supply is obtainable, as compared with smaller locations. If the plant is small and dependent on other industries the city offers superior advantages when these other articulated industries are present. It is frequently easier to finance an industry in the city; cities offer fields for obtaining subscriptions to stock or for obtaining special inducements to locate, such as exemption from taxes or large cash bonuses to start the enterprise. If the plant is small and is supplying the local market only, the city offers marked advantages that would not be important to a large plant. A plant located in a city enjoys municipal advantages such as good streets, gas, sewers, police, fire protection, etc.

However, there are disadvantages that should be considered also, such as the high price of city land, and it is often difficult for large works to secure a site within the city where buildings exactly suited to the purpose can be erected without great expense. If the city is a growing one the taxes, in time, make the location too expensive. City restrictions regarding smoke and other municipal regulations must be carefully considered. While labor may be abundant in the city, the cost of living and hence the wages paid, are in general higher than in the country.

(To be continued.)

News and Notes

Ottawa Town Planning

The civic authorities of Ottawa have appropriated \$10,000 for town planning and zoning during the present year. This sum is intended to cover the cost of rounding corners and while manifestly insufficient to accomplish much in constructive town planning the action of the council indicates a recognition of the fact that town planning must be maintained in the capital city in so far as restricted finances will permit.

At the invitation of the city council Sir Henry Thornton, President of the Canadian National Railways, met the mayor and members of the city council on April 24th and discussed with them the important question of the railway terminals in Ottawa. Sir Henry made an eloquent appeal to the civic officials to consider the town planning of Ottawa with a view to such future development as would make the city a worthy capital of a great country. He prophesied that the time would come when Canada would have a population of 50 millions and urged that the planning of the city should be done in such a manner as would make future generations say that their forefathers had planned wisely and well. He promised on behalf of the Canadian National Railways every cooperation in carrying out progressively a well considered scheme for the development of the capital and also suggested that the Canadian Pacific Railway be invited to co-operate in the work.

Sir Henry acknowledged that the cross-town tracks through the residential section of the city would have to be removed and appointed on the spot his engineers of construction, Mr. Gzowski, to confer with the engineers of the city and others concerned. The city authorities have appointed Mr. Noulan Cauchon, Chairman and Technical Adviser to the Planning Commission, and Mr. A. MacCallum, City Commissioner, to represent them in negotiations with the railways. The preliminary basis for the discussion will be Mr. Cauchon's plan for the re-organization of the terminals as developed in his plan for a Federal District, embodying the cities of Ottawa and Hull and environs. Mr. Cauchon's long experience as railway engineer and town planner and his study of the town planning needs of Ottawa during the last ten years have eminently qualified him to act as adviser in this matter.

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Amended Town Planning Act Manitoba

Certain amendments to the Town Planning Act of Manitoba, suggested by the Town Planning Branch as the result of experience in the application of the act, have been approved by the Manitoba legislature and incorporated in an amended act.

Hamilton Town Planning

Sir Henry Thornton met the civic authorities of Hamilton on May 2nd to discuss the railway accommodation of the city and particularly the question of the electrification of the National line from Niagara to Toronto and the construction of a new station. The report made in 1917 by W. F. Tye and N. Cauchon on the railway situation and its reorganization was submitted to Sir Henry and is under consideration.

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Death of Professor Adrian Berrington

We much regret to announce the death of Professor Adrian Berrington, Associate Professor of Architecture of the University of Toronto. The town planners of Canada had good reason to believe that Professor Berrington's association with the University of Toronto would do much to advance the cause of town planning in Canada and the news of his death will be received with genuine sorrow.

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Death of Charles D. Norton

The cause of town planning in the United States more particularly but everywhere where men and women are looking for better order and better ethic in town building has also suffered by the death of Chas. D. Norton who has devoted many years of fine and unselfish service to town planning advocacy in the United States.

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London, Ont., Railway Planning

Mr. Cauchon's railway plan for London, Ont., has recently been under advisement during a visit to the city of Sir Henry Thornton, president of the Canadian National Railways. The local journals have published special illustrated issues of the scheme and there seems reasonable probability that something effective will be done to tackle the railway problem of London.

THE LATE ADRIAN BERRINGTON

It must be placed to the credit of mankind that the decease of any man of marked ability and good character is heard with regret, but when it refers to one who has not yet reached the full power of his manhood, and is at the beginning of what promises to be a brilliant career, something deeper than regret must be felt. Those who had the advantage and

pleasure of knowing the late Adrian Berrington cannot fail to be moved in this way, not only on personal grounds of esteem for an unusually interesting and lovable personality but because the art which he loved and practised cannot afford to lose men of his analytical and logical turn of mind. He was educated at Birkenhead School and Liverpool University, where he made his mark as a draughtsman of distinction; but he started practice, we believe, in London, and was associated with the First Atelier of Architecture. About this time he contributed several characteristic drawings to our pages—two of which are now in the exhibition of Charing Cross drawings at Spring Gardens—as well as many suggestive articles of a marked literary style. During the war, he was attached to the Royal Engineers as Captain, and after the Armistice he practised in Paris and was associated with MM. Faure-Dujarric & Chaures in winning the fourth place in the Paris Town-Planning Competition. In 1920 he was appointed Professor of Architecture and Town-Planning at Toronto University, where he was doing excellent work. His death in London at the early age of 36 followed an illness of some eight months' duration. His death will be deplored by his many friends, who will feel sympathy with his widow and relatives in their loss.—*The Builder.*

TOWN PLAN FOR DUBLIN

In the year 1914 the Marquis of Aberdeen offered a prize of \$2,500 through the Civics Institute of Ireland for the best design and report on the future planning and development of the city of Dublin. The competition attracted wide attention and many designs and reports were received from leading experts in Ireland, Britain and America. The adjudication was entrusted to Professor Patrick Geddes, Edinburgh, Charles J. McCarthy, city architect of Dublin and John Nolen, town planner, Cambridge, Mass. The prize was awarded in 1916 to the design and report presented by Professor Patrick Abercrombie, Liverpool, England, and associates, Sydney Kelly and Arthur Kelly. The report has now been published in a handsome volume under the auspices of the Civics Institute of Ireland and by the University Press of Liverpool and Messrs. Hodder & Stoughton, London, at 21s. net.

In a foreword sponsored by the Civics Institute

it is carefully stated for the benefit of those who cannot free themselves from the idea that town planning signifies the immediate expenditure of vast sums of money, that the plan of Dublin is not a grandiose scheme for immediate and costly civic improvement. On the contrary, it is stated, as opposed to the present planless and haphazard growth of squalor and extravagance in the building of cities a city plan means a well-conceived scheme, outlining an economic system of scientific, artistic and hygienic municipal reconstruction and development, providing especially for the conservation of citizen life and natural resources and the total abolition of slum conditions, a scheme that may occupy many years in actual development but which will direct money that will be spent in any case to a scientific and comprehensive plan of development.

It is difficult for the authors of this scheme to escape from the melancholy of the fact that during the preparation of it Dublin was visited by the double tragedy of war and civil war and that while some of her citizens were planning for a better and more beautiful Dublin her warriors were engaged in destroying some of the best examples of good planning and architectural beauty.

The volume takes the form of a large quarto with abundant illustrations and maps, supplemented by a report of the adjudicators which in itself is a most instructive and interesting document. The publication of the report is to be followed by an exhibition which will disclose other competitive designs and it is possible that other plans and reports will also be published for the benefit of the citizens of Dublin.

Of the successful report the adjudicators say: "By magnitude and comprehensiveness of exhibit, evidencing corresponding thought and labour, and by skill and beauty of execution, there stand out foremost among the eight series of designs submitted to us those of the competitor marked G."

"Prolonged and repeated scrutiny, day by day, and by each of the adjudicators independently, has been given to each and every competitor's work. It is only after such due and full study, that their award is given in favour of the plans and accompanying report marked G; and they unanimously report that the merits of these, and their aggregate superiority on grounds both practical and suggestive, and as regards all three heads of the competition—Communications, Housing and Metropolitan Improvements—justify the award."