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MARCH, 1919

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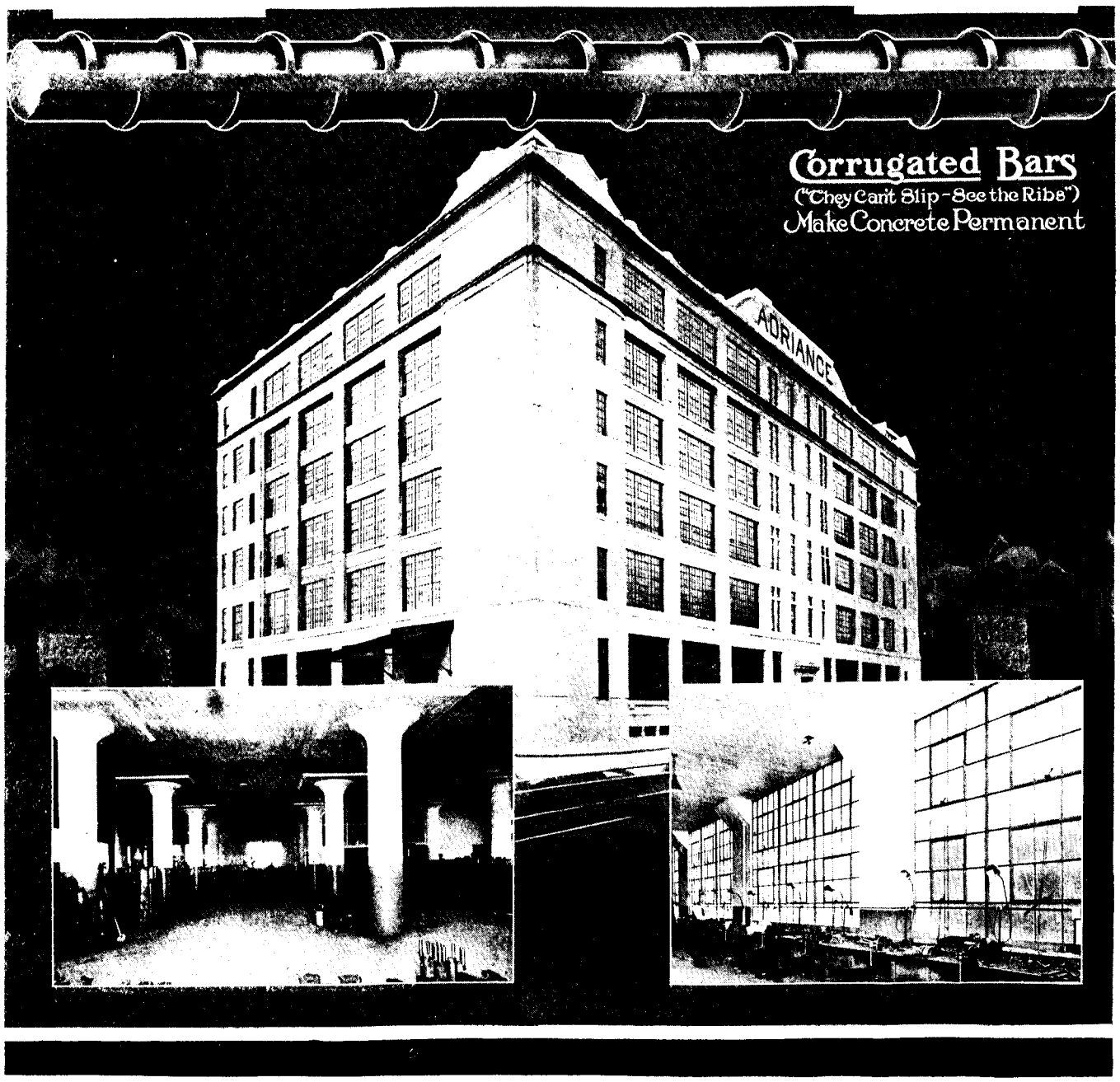

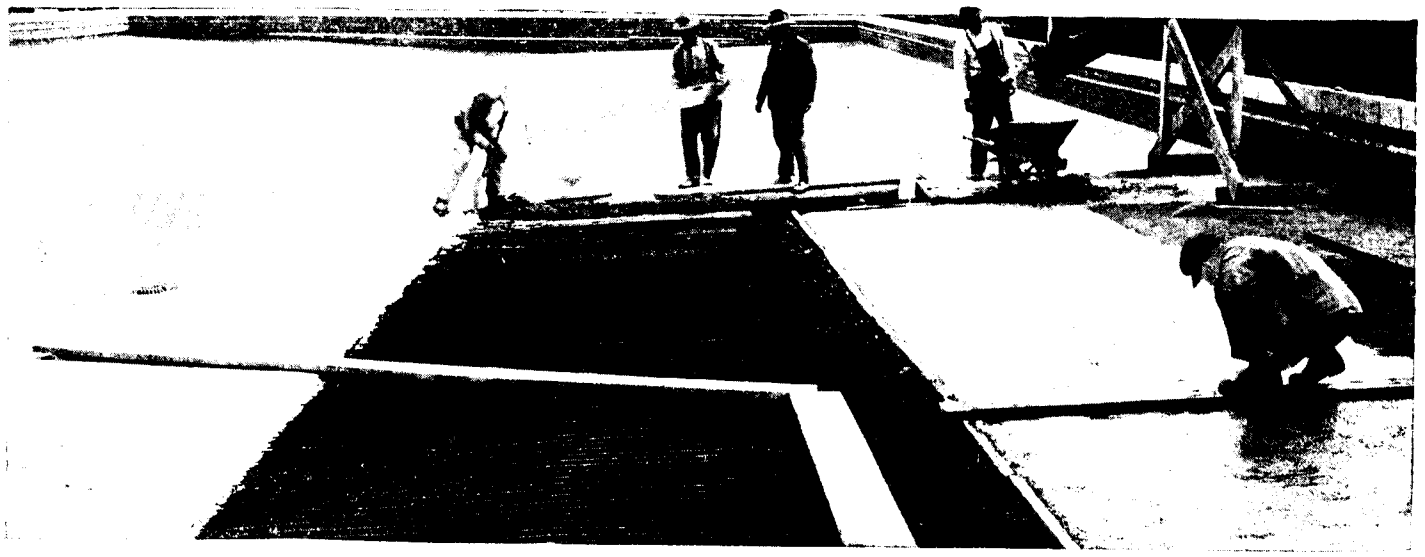

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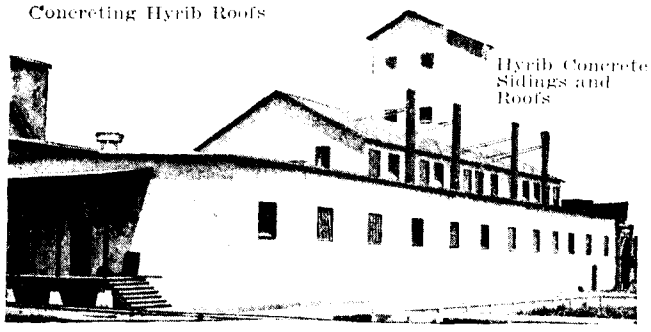

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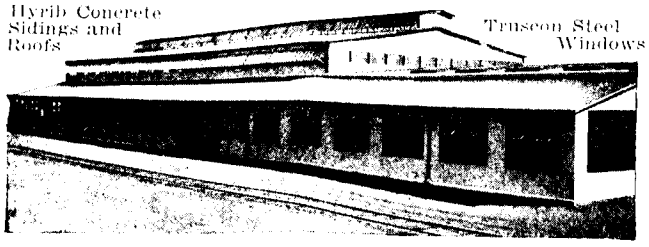

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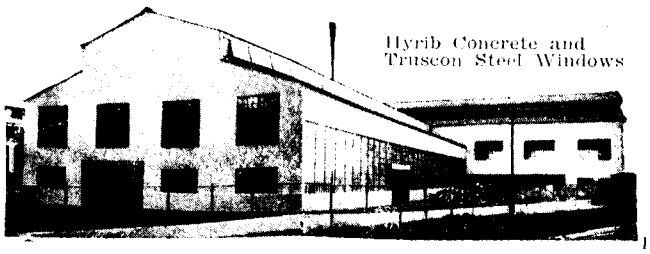

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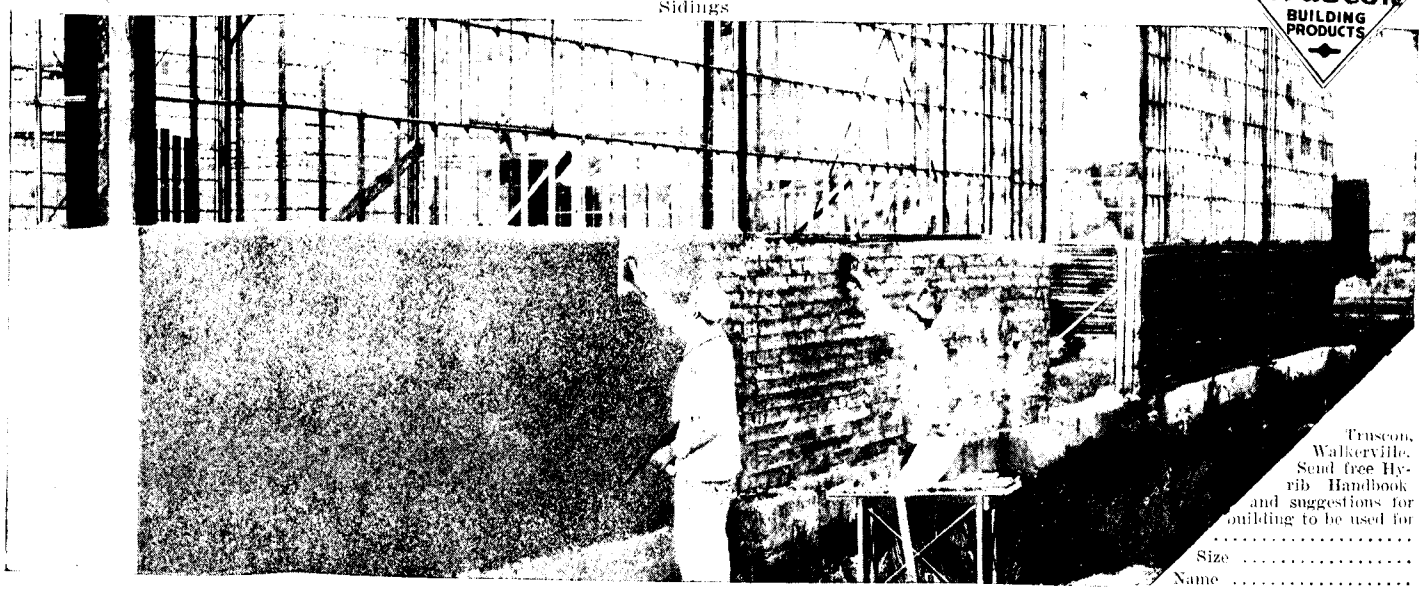

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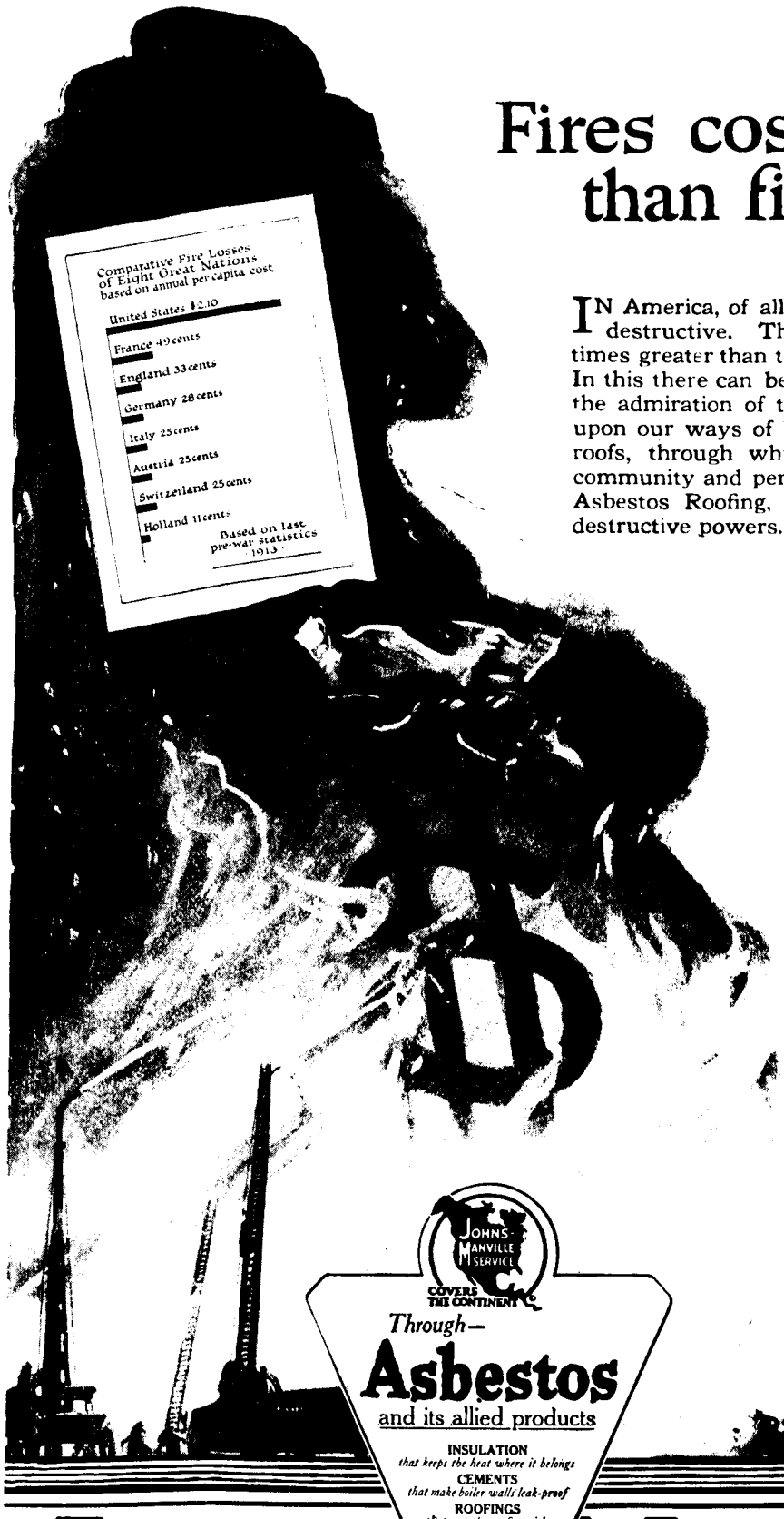

Fires cost more than fire prevention

IN America, of all the countries, fire's course is the most destructive. The tax it lays upon each one of us is four times greater than that in European lands (see chart at left). In this there can be no indictment of our own fire-fighters, the admiration of the world. The indictment lies rather upon our ways of building. It lies upon our inflammable roofs, through which fires spread — just as the way to community and personal fire-safety lies unquestionably in Asbestos Roofing, that repels fire, limits it, confines its destructive powers.

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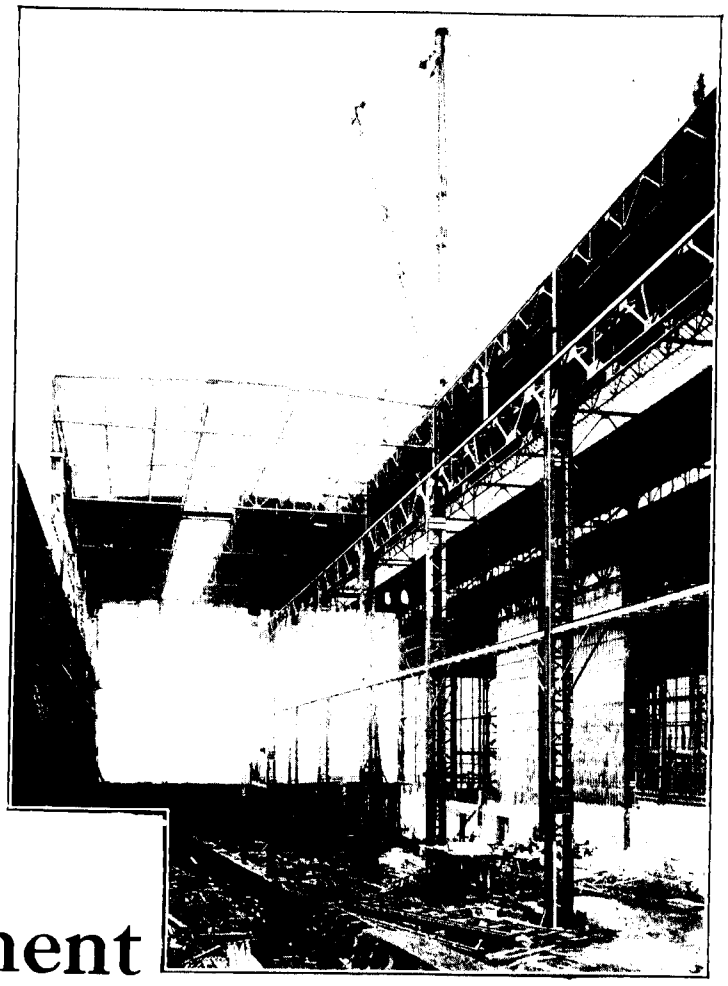

Re-opening Announcement

MARCH 1, 1919

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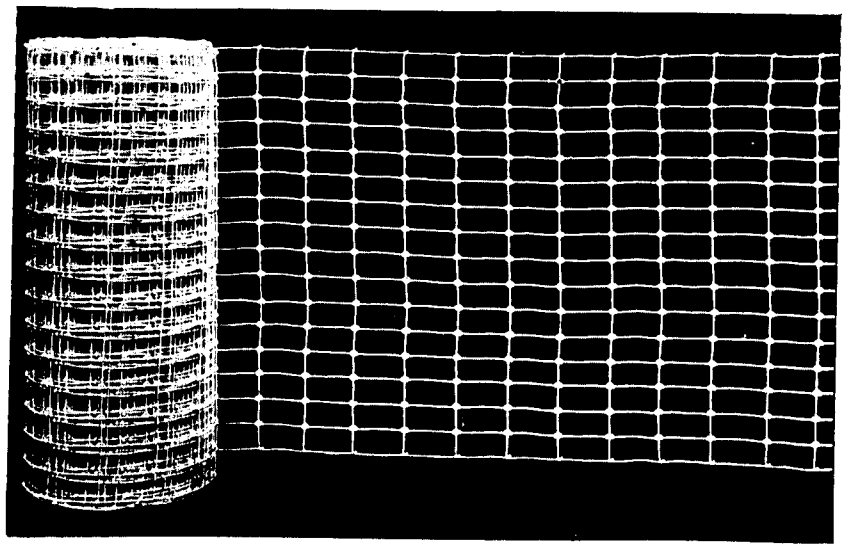

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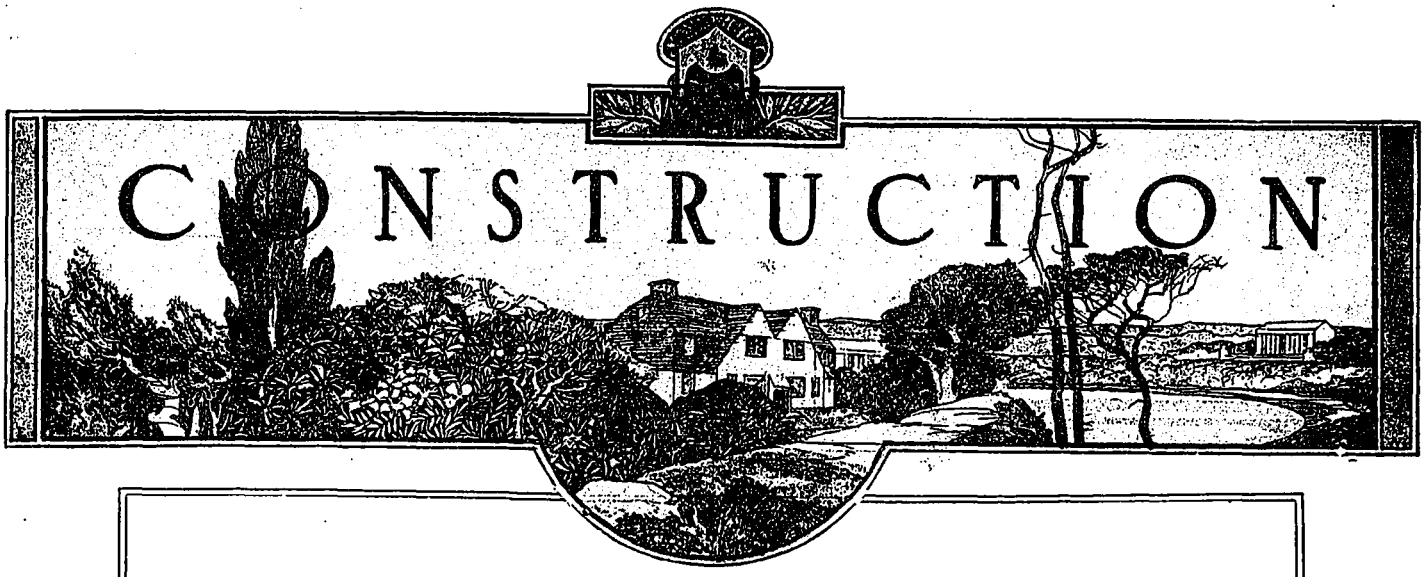

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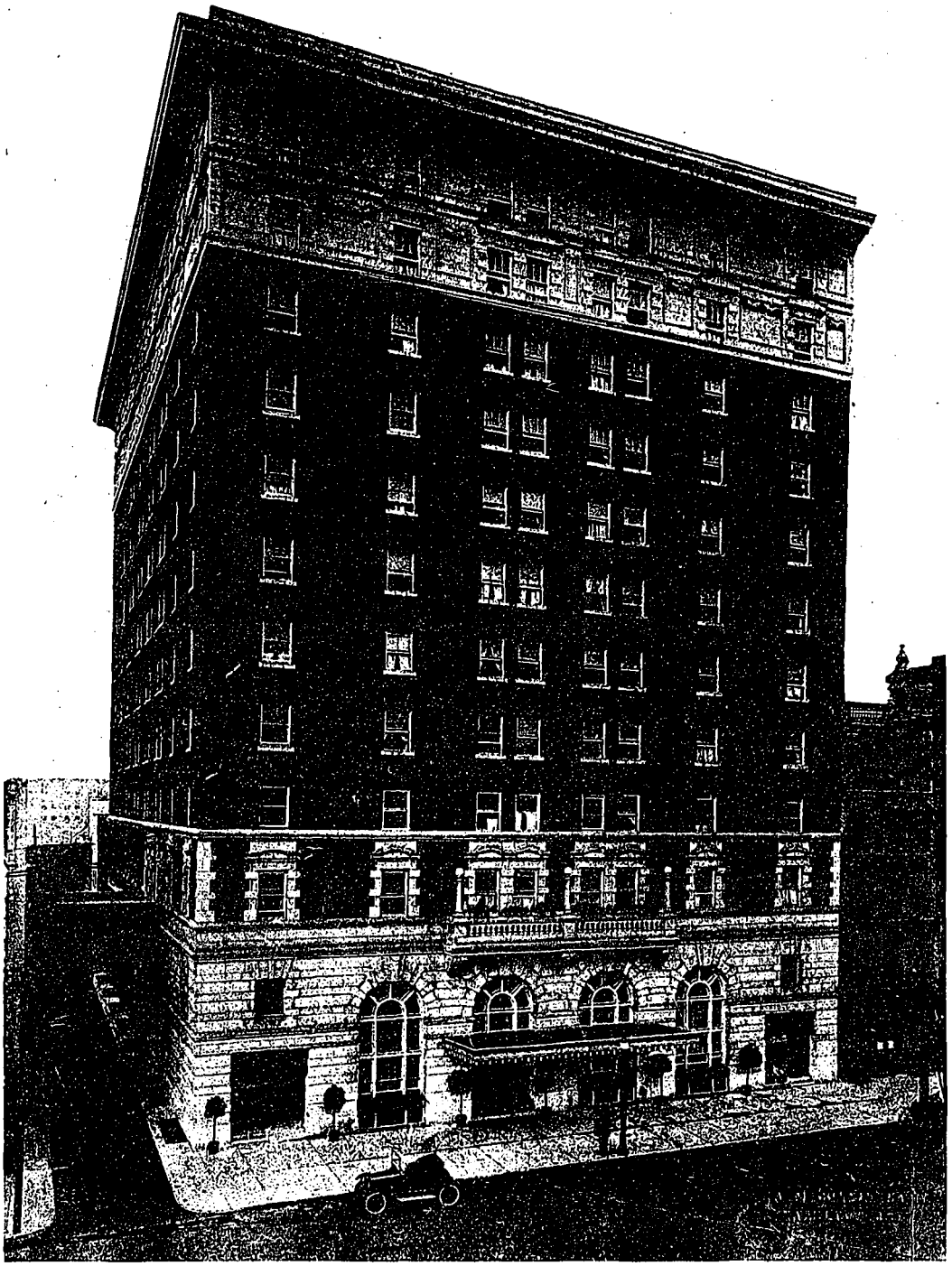


Royal Connaught Hotel, Hamilton, Ont.

Escuwein & Johnson, Architects.

A. W. Peene, Associated.

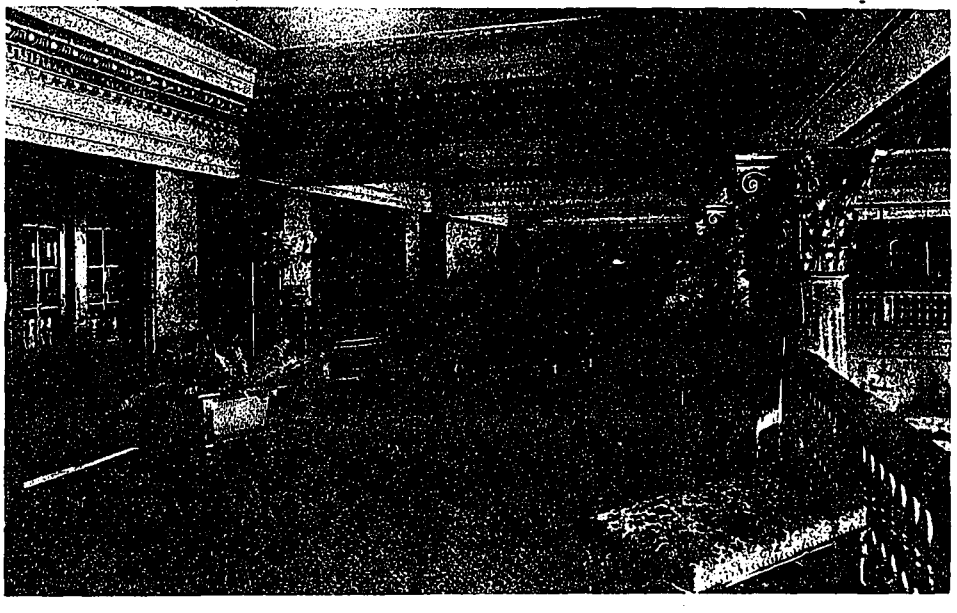
Royal Connaught Hotel, Hamilton, Ont.

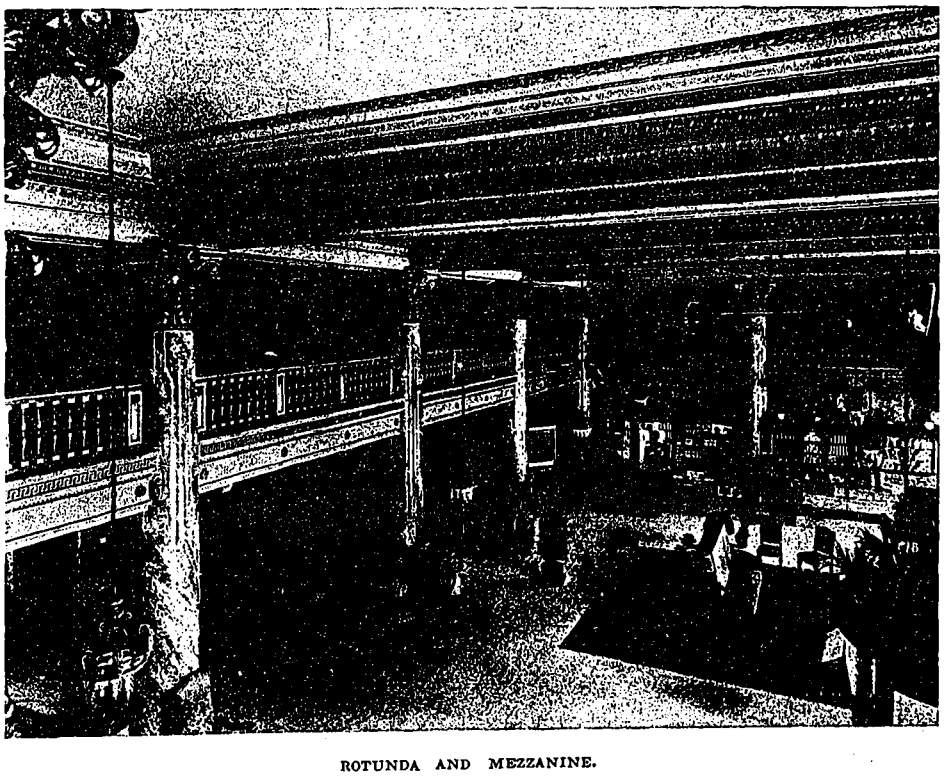
THE Royal Connaught Hotel, Hamilton, Ont., was completed in 1916, and represents the most important hotel project carried out in Canada during the war. It is therefore singularly noteworthy as indicating the trend of hotel developments in Canadian cities up to that time, and has more than justified the optimism of its promoters in proceeding with the building during the period mentioned. Located in the centre of the business section, it not only provides a long-felt civic need in the way of modern accommodations for the travelling public, but it expresses a spirit of progress which does credit to the growth and commercial prestige of the city itself.

The general scheme divides itself into two parts, consisting of a main structure of twelve stories, 102 x 136 feet, and a two-storey annex, 130 x 63 feet. This annex contains a ballroom and convention hall with stores facing Main street on the floor below. The two units are separated by an alley or lane extending through the property, and are connected by a corridor over the alley and by the basement, which extends through from street to street.

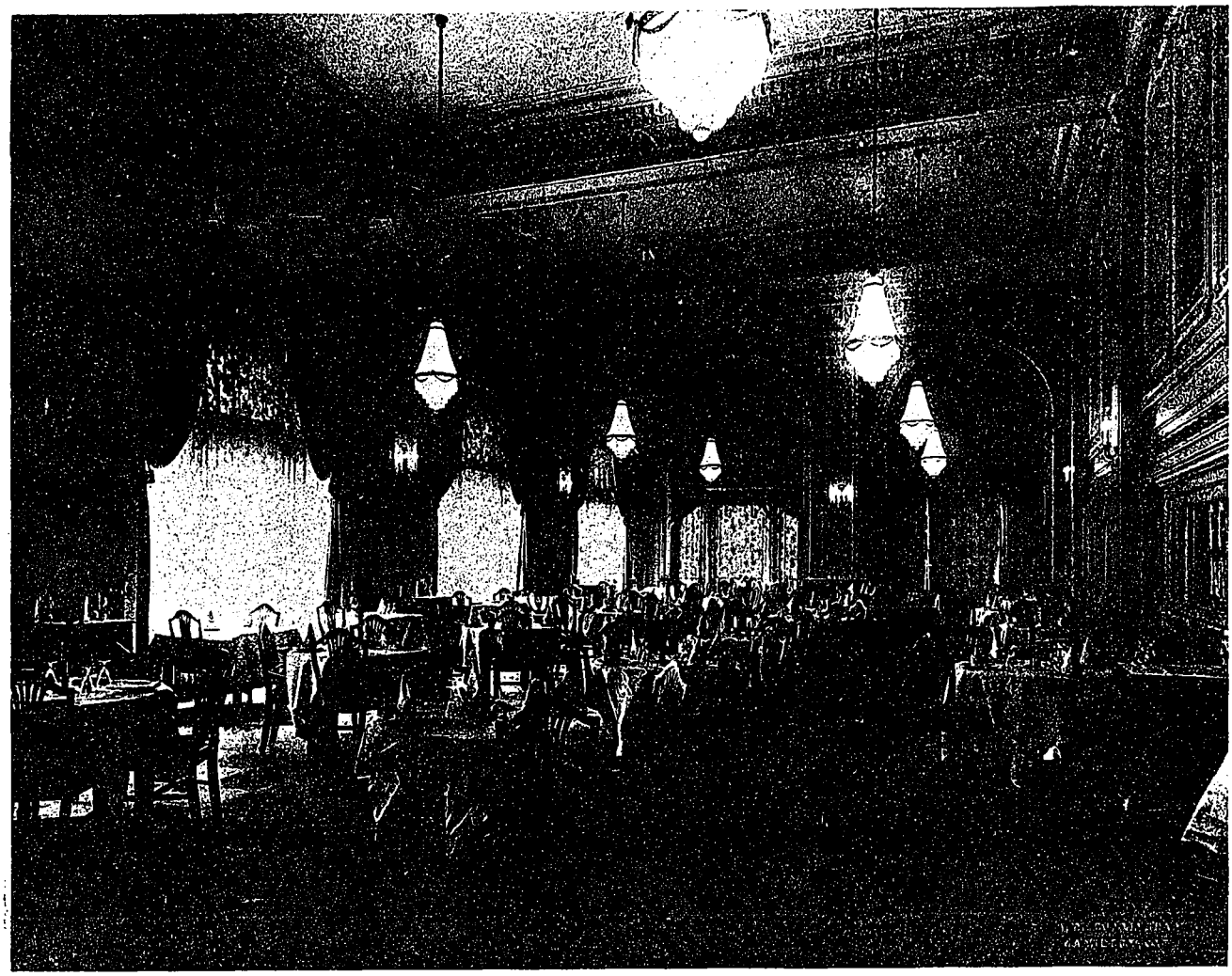
Entrance to the hotel proper is from King street through a vestibule leading into a spacious rotunda finished with marble wainscotting and mahogany trim, and extending to a height of two stories. Heavy columns support a mezzanine gallery which overlooks the public space on all four sides. The ceiling has ornamental plaster beams, and the lighting fixtures and furnishings, consisting of heavily upholstered settees and chairs, together with plants and potted ferns and rich toned rugs, serve to produce a dignified and inviting general effect. On either side at the main floor level are small stores with frontages on the street and connecting directly to the hotel lobby, while at the rear of the rotunda is a large dining room, together with a modern grill and billiard room, which practically completes the accommodation on this floor.

As in all modern buildings of this type, the Royal Connaught is of fireproof character, all parts of the steel skeleton being embedded in





ROTUNDA AND MEZZANINE.



MAIN DINING ROOM, ROYAL CONNAUGHT HOTEL, HAMILTON, ONT.

concrete. The exterior walls are of interlocking tile, faced with Bedford stone up to the second floor, with a rough texture brick above, the two upper stories being finished in architectural terra cotta. The floors are of four-inch concrete reinforced with triangular mesh wire, and designed to carry 150 lbs. per square foot for the main floor and 75 lbs. for all other floors. The partitions throughout are of gypsum blocks, the windows have metal sash, and fire doors open on all floors into an enclosed stairway leading to the lower vestibule.

In addition to the large dining room and the grill on the main floor, private dining rooms are provided on the mezzanine, on which also is located a ladies' retiring room and the manager's office. From this level the connecting corridor leads across the alley to the ballroom, which occupies the second floor of the rear building.

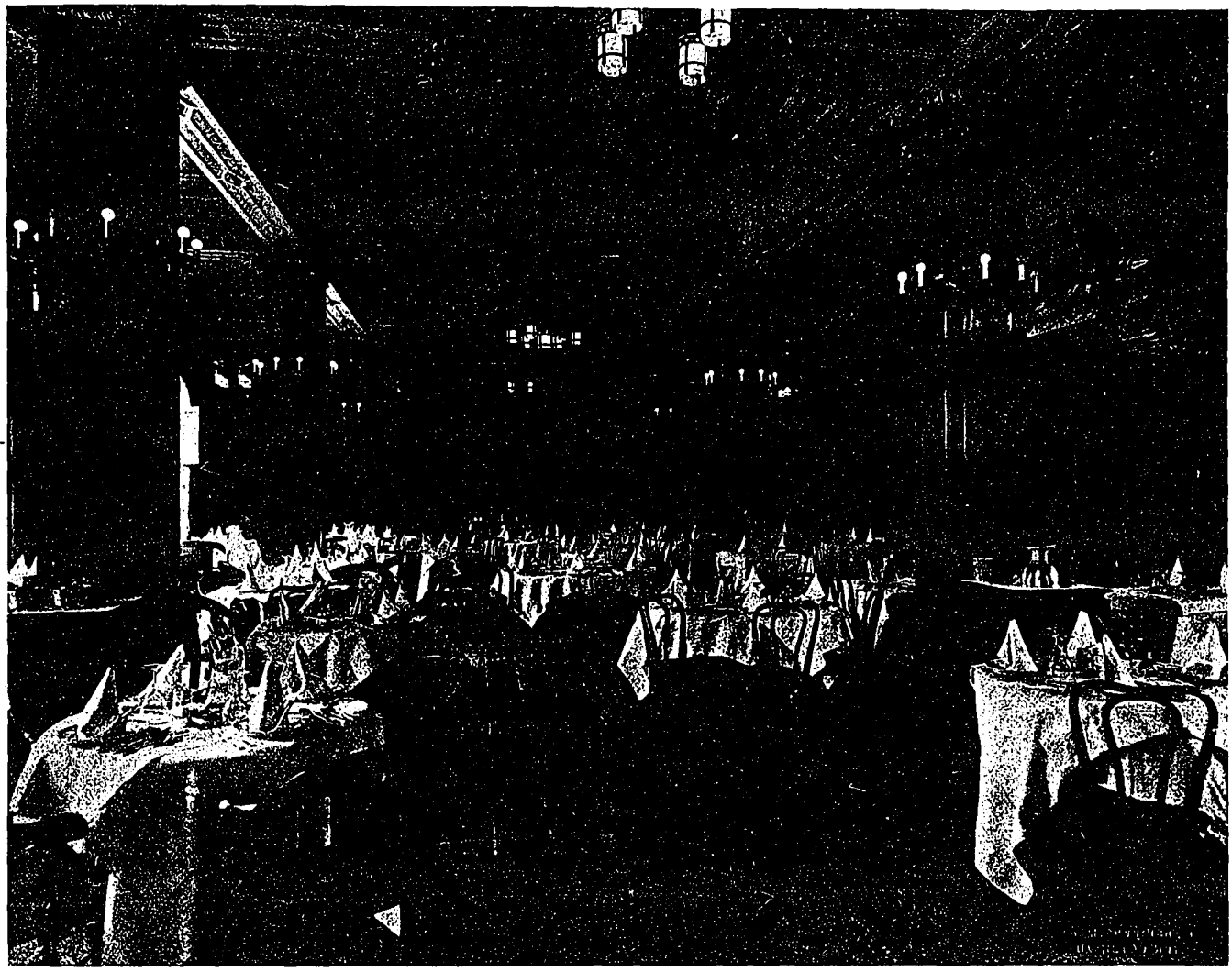
Above the mezzanine level all floors are taken up by bedrooms of which there are over two hundred, averaging twenty-six to each floor. These rooms are equipped with hot and cold running water and individual baths, and are pleasingly decorated with delicate wall patterns, chintz or rep hangings and tapestry upholstered chairs.

Besides the main entrance under the wrought iron marquise on King street, a 25 foot private street leads to a port cochere and the ladies' entrance at the side of the hotel.

The service features of the building are very complete. The main dining room is in Italian Renaissance style, with crystal pendant lights, soft grey and white tile floor, harmonizing decorations, and large circular head windows which accentuate the height of the room and give a feeling of stateliness to the scheme. In the grill room the walls are panelled in quartered oak with a decorated frieze above, the floor being in red quarry tile.

In the basement are located the kitchen and steward's store room, men's toilet, barber shop, help's dining room and lockers; the boilers and engines, fans, refrigerating plant, water heaters, vacuum cleaning machinery, etc., being situated underneath the annex.

Thorough ventilation is assured throughout the building in the installation of a complete system of fans, ducts and registers. The equipment also includes two passenger elevators and two combined freight and service elevators, as



GRILL ROOM, ROYAL CONNAUGHT HOTEL, HAMILTON, ONT.

well as a modern system of house telephones and similar service features.

Special attention has been given to the arrangement of the annex so that the ballroom can be used either from Main street independent of the hotel, or from the hotel by the corridor leading from the mezzanine floor. The scheme of the ballroom is carried out in the Italian Renaissance style, a feature being a large stage at one end. Wardrobe and toilet facilities are also provided, making the ballroom and convention hall a completely integral part in themselves. A servery overlooking the alley, and a modern hotel laundry, are also located in rear building.

Architectural Refinements

Few of us fail to feel real, if unexpressed, satisfaction when we think that we can understand intellectual points better than our fellows, and frequently such a feeling will lead us to accept the more complicated of two explanations as being the correct one. Were it not for this, authorities we might name would be blamed for being unintelligible, rather than admired for their learning. We have often wondered whether considerations of this nature do not apply to many of the conclusions drawn by the scholars and writers who have dealt with the refinements of Greek architecture. We do not question that such refinements exist, but have frequently doubted whether they are the result of elaborate geometric calculation, or whether it is not more reasonable to assume that they arise from aesthetic instinct of a very high order. If we have to build a semi-circular, segmental, or pointed arch, or to draw a circular moulding, it is natural to use compasses, as it is the simplest and readiest way of obtaining what we require. But most of the Greek mouldings are described as being hyperbolic, parabolic, or elliptical in section, and there are no easy means of producing them. In the case of the echinus of a Greek Doric capital, is it not reasonable to suppose that an artist drew the curve out by hand, and that it might, when checked by careful measurement, be found to approximate almost exactly to a definite conic outline? And again, the curvature of the steps and entablatures of a temple are so exceedingly slight that they are likely to appear, on meas-

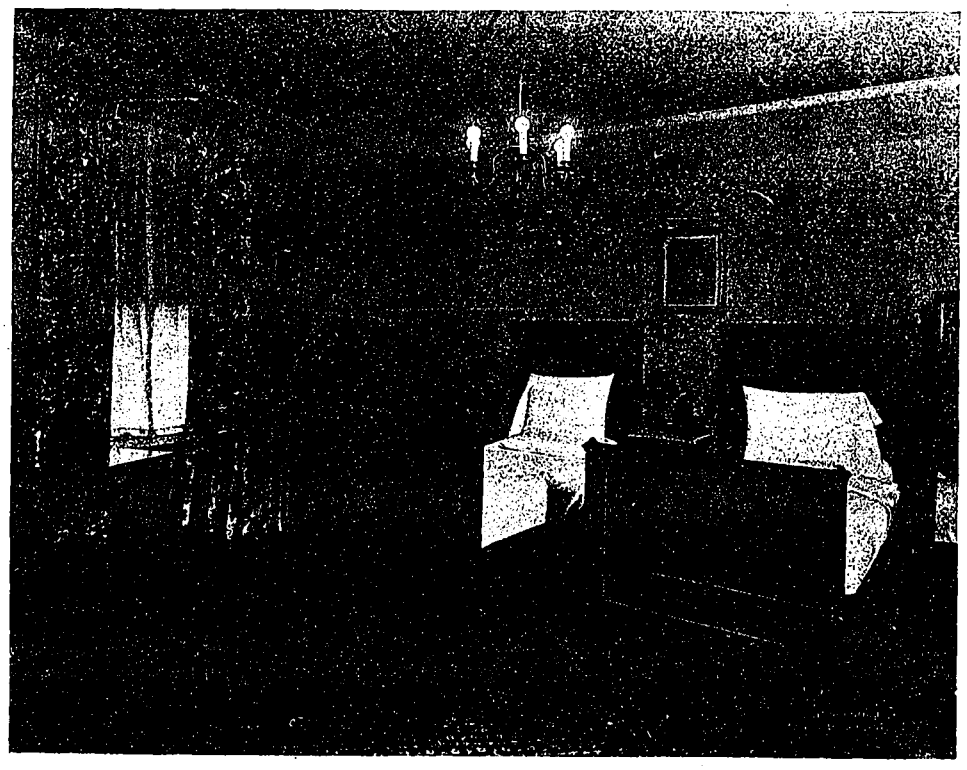
urement, to be reducible to some subtle geometric curve, when in reality they may have been arrived at by far simpler means. Does it seem quite probable that men who possessed the æsthetic insight of the Greeks would have felt it necessary to adopt the elaborate geometrical setting out which we attribute to them? The alternative theory is that the Greeks may have arrived at the results we have discovered without employing the means we attribute to them, but that it is natural that careful measurement should fail to discover deviations sufficient to upset the solution, adopted as being the result of discovery. If we were setting up an ellipse many feet long it would be natural to employ mechanical means of ensuring absolute accuracy. When drawing a small one, it would be equally natural to rely on our eye alone, nor is it likely that close measurement would be sufficient to show that we had been inaccurate in our setting out.

BALL ROOM, ROYAL CONNAUGHT HOTEL, HAMILTON, ONT.

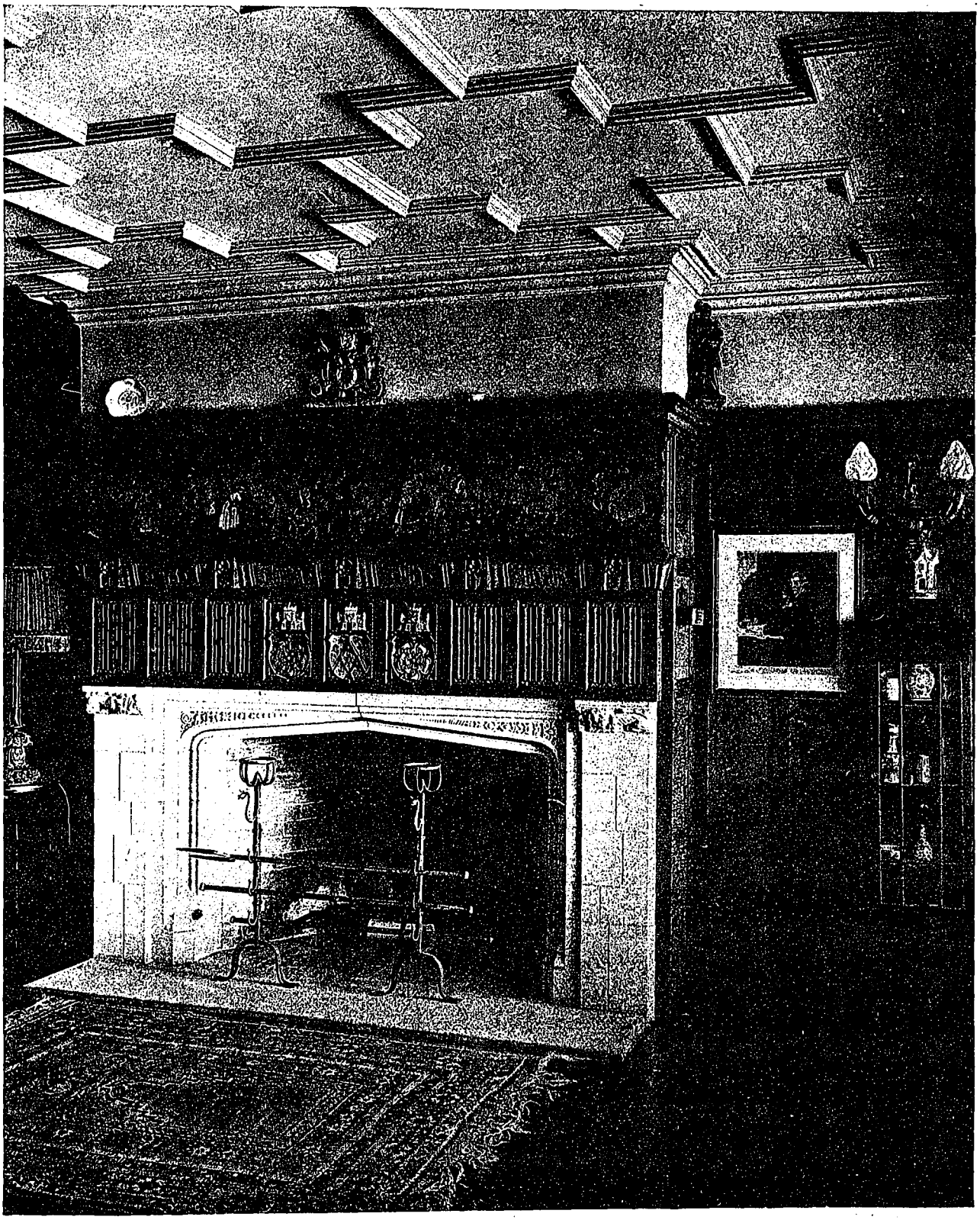
As it is, the accepted theories seem to imply an amalgamation of the methods of a scientist tracing the path of a comet through space with the most profound æsthetic sense ever possessed by man—a combination which seems *prima facie* an unnatural one. We should much like to know what the mathematical laws of chances are for or against such coincidences, and the conclusions arrived would probably prove or disprove the theories which we are possibly too inclined to accept because they are ingenious and, at first sight, improbable.

The evidences of mediæval refinements and irregularities rest on a basis of slighter investigation at present, but at the same time they seem to be more intrinsically probable, since it is only necessary to assume that they are efforts to convert impressions found by experience, and do not involve the employment of delicate geometric means. Whether they will finally be accepted by all, as they are by some, as proved facts, does not alter the possibility that they may be the means of giving additional beauty, or interest, to some of our modern buildings. It will probably be easier to prove whether this is so by actual experiment than it would be to establish their employment in the buildings of

(*Concluded on page* 94.)



TYPICAL BED ROOM, ROYAL CONNAUGHT HOTEL, HAMILTON, ONT.



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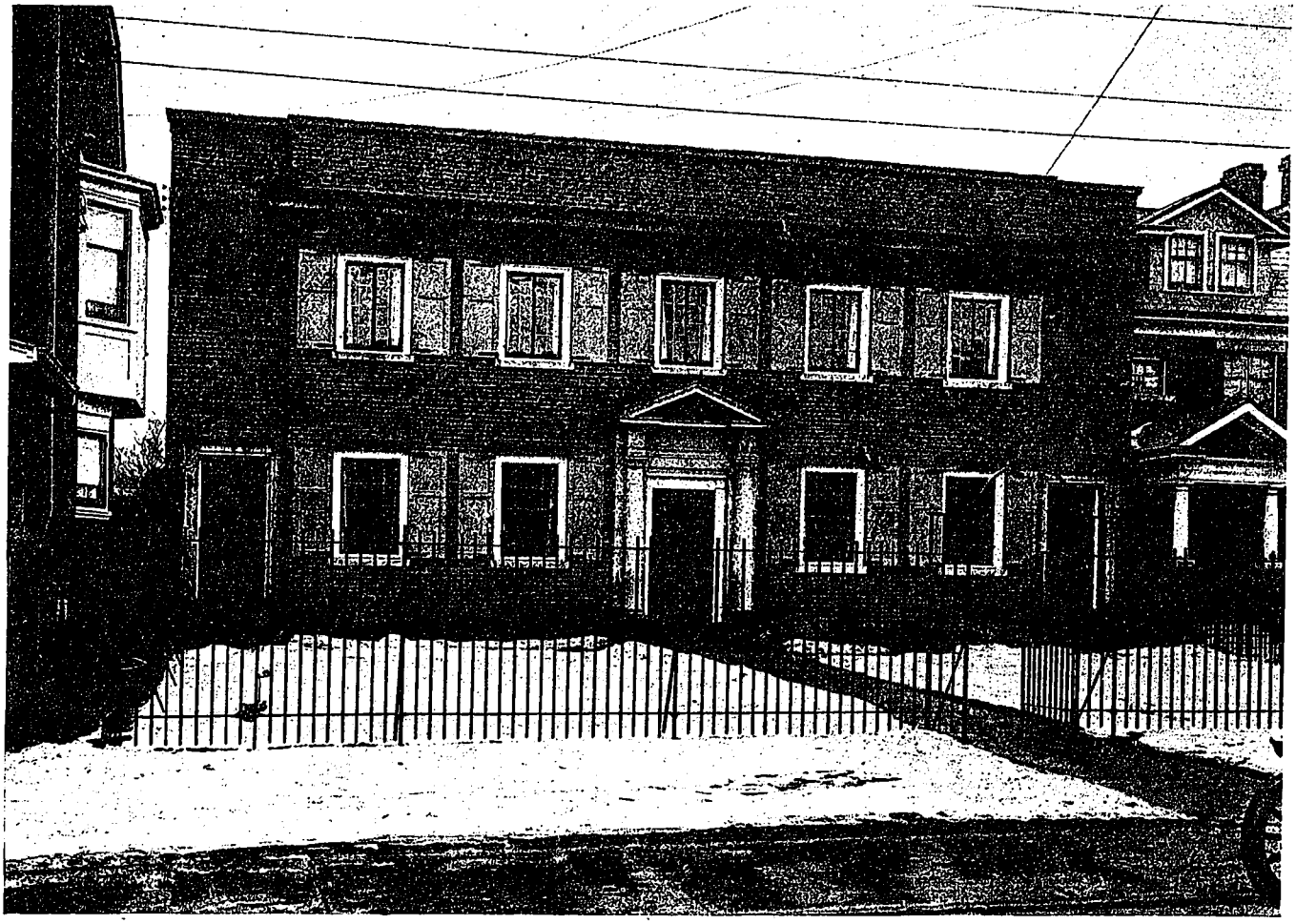


OFFICES OF MESSRS. SPROATT & ROLPH, ARCHITECTS, TORONTO.

Offices of Messrs. Sproatt & Rolph, Architects, Toronto

There are two ways in which a building may be rendered conspicuous. It may be made so by blatant vulgarity or on the other hand it may catch the eyes of the passer by on account of its restraint and modesty.

The first method is alas, only too common, and the latter unfortunately rare, but the building illustrated herewith, No. 36 North Street, the offices of Messrs. Sproatt & Rolph, Architects, is an excellent example of it. The fact that the building is set back from the ground line and that its forecourt is enclosed by a high iron railing emphasizes the charming simplicity and restraint of the design in which all the qualities which go to make architecture, to wit, colour, texture, and form, have all been considered.

The building is designed in the Georgian style and shows traces both of the old country origin of that style and of that phase of it generally called Colonial. The arrangement of the interior may be seen from the plan, and it is in keeping with the exterior, with one exception, and that a notable one. The library has been designed in the Tudor style, and with its oak panelled walls and bookcases, molded plaster ceiling, and cut stone fireplace, and mullioned window with lead lights, forms a very interesting example of that style adapted to modern needs.

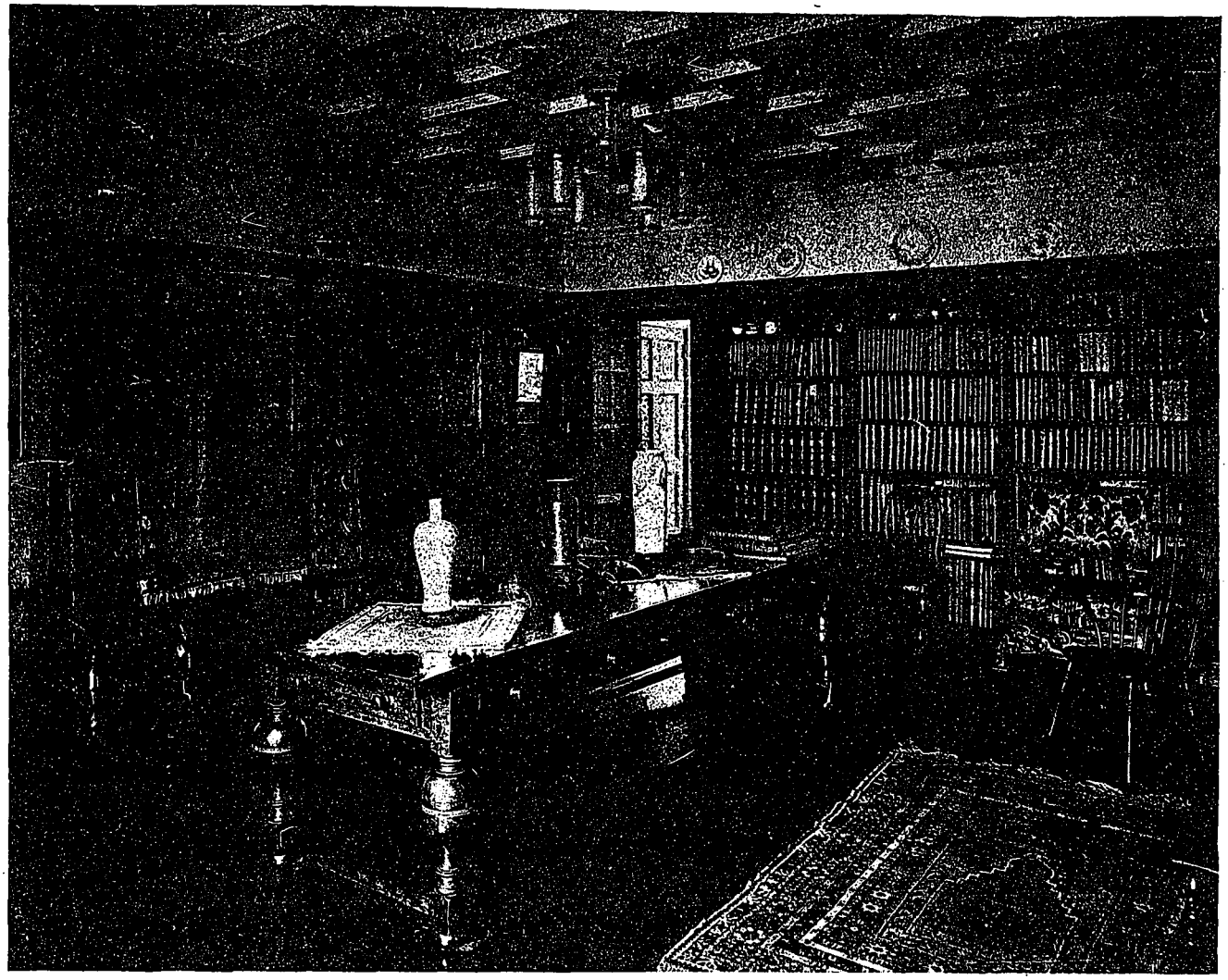
Another feature of the building which might be noted is the size and ample lighting of the large draughting room, which is duplicated to a similar extent on the floor above.

A. Colpoys Wood.

Placing Responsibility for Safe Building Construction

At the fifth annual meeting of the Building Officials' Conference, just held at Pittsburgh, the chief topic of discussion was the placing of responsibility for safe building construction and a proper compliance with laws and ordinances. Agreement that effort should be made to place that responsibility took the form of a resolution, which follows:

"'That it is the sense of the Building Officials' Conference that for the better protection of the public against unsafe and illegal building construction suitable legislation should be



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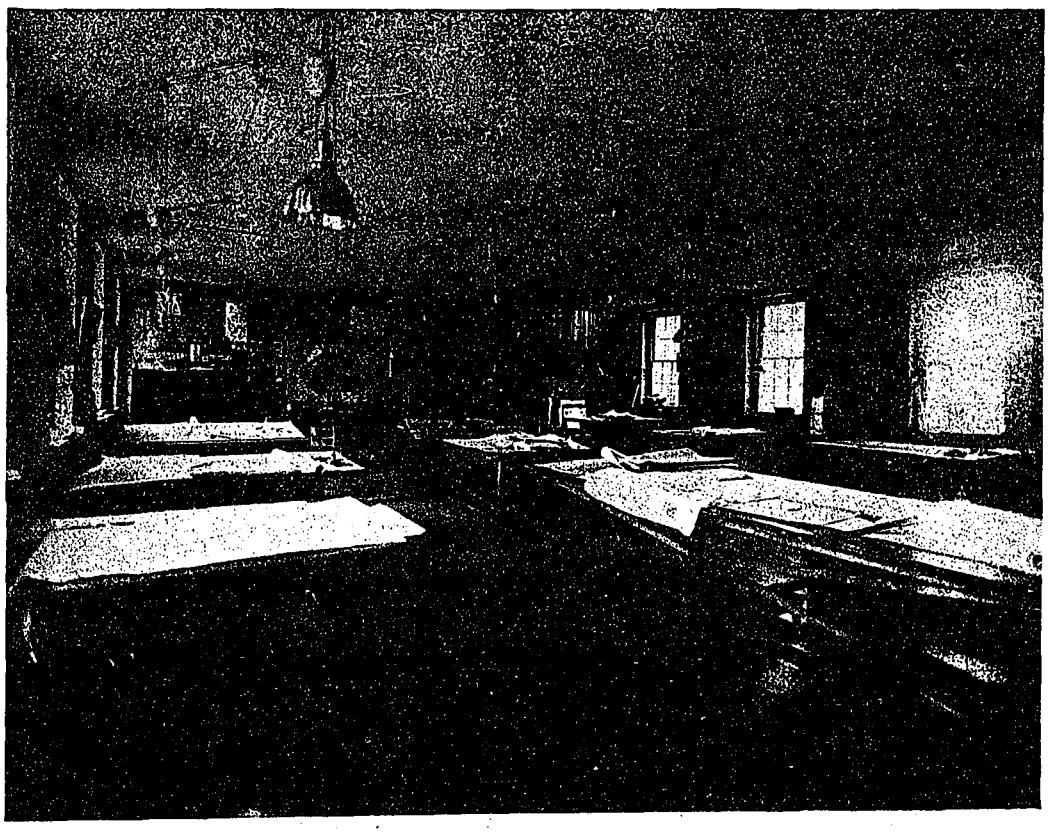
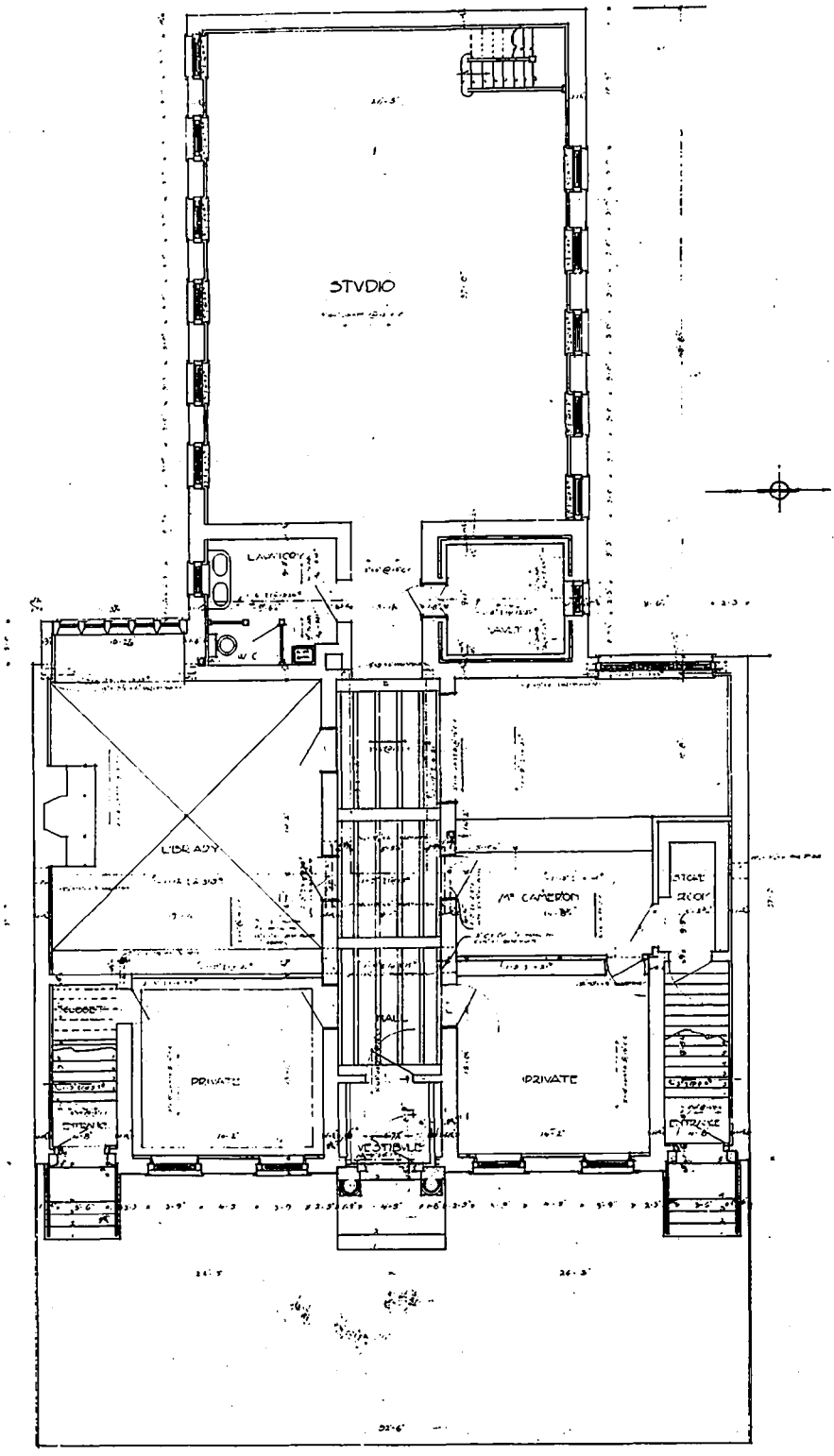


DRAFTING ROOM.

enacted by which building operations shall be restricted to architects, engineers, builders, superintendents of construction or others who have by proper evidence shown their ability or capacity for undertaking such building operations, and on whom individual responsibility for compliance with the laws relating to buildings can be placed.

A joint session of the Conference and the National Brick Manufacturers' Association met in Pittsburgh at the same time. The topic of discussion was brick work, and centred principally around a paper presented by City Architect W. W. Pearse, of Toronto, Canada, on certain tests of bricks and brick piers. Other interesting features of the meeting were a fire test on a concrete column made at the Bureau of Standards.

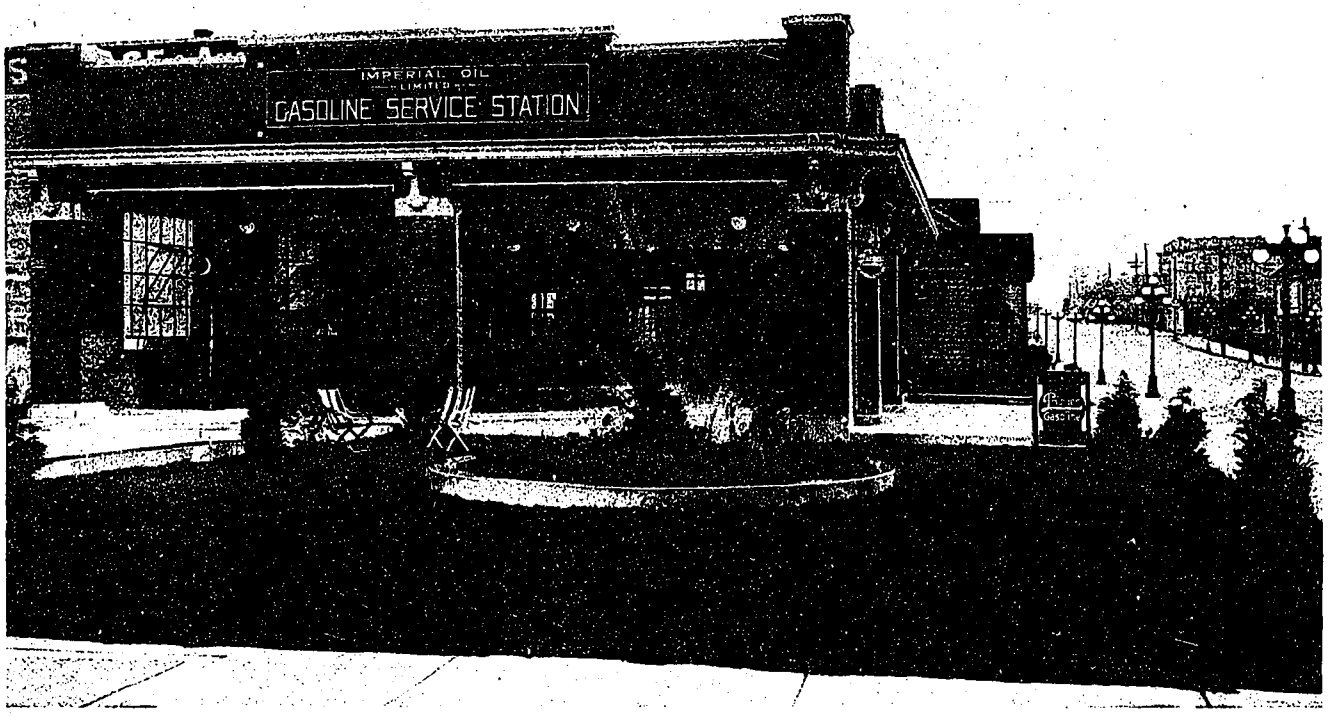


OFFICES OF MESSRS. SPROATT AND ROLPH, ARCHITECTS

NORTH STREET, TORONTO

presentation to legislative bodies in support of such legislation."

"It was further resolved, that the secretary of this organization be directed to furnish, at any member, copies of this resolution for the safe prosecution of the work and a com-



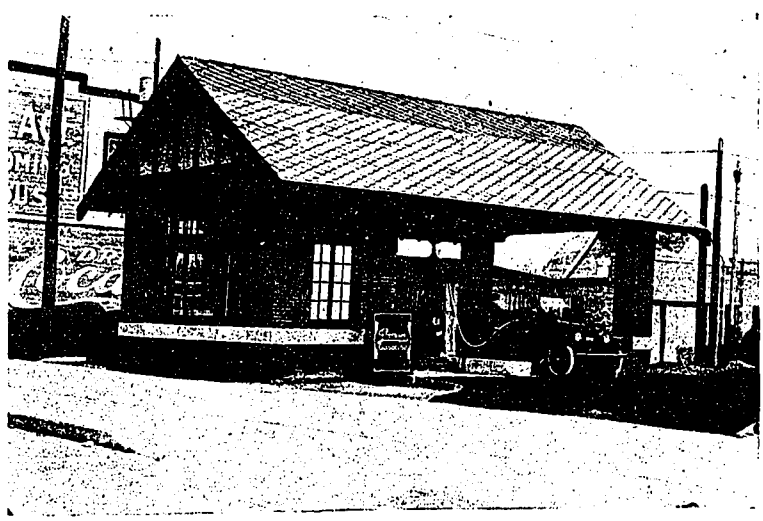
SERVICE STATION, IMPERIAL OIL COMPANY, VICTORIA, B.C., J. L. HAVILL, ARCHITECT.

Gasoline Service Stations

The gasoline service station as an architectural entity, considered apart from the public garage and supply and accessory house, is something comparatively recent. Yet in the short time since it has put in its appearance it has multiplied rapidly in number, marking cardinal points on the routes of travel in the principal towns and cities where motorists can replenish their supply of gasoline and lubricating oils and refill deflated tires.

Serving a special purpose it is likewise becoming a special subject for architectural consideration, and in many of the service stations now being erected there are unmistakable indications which show the development of a unique and desirable type of building. This is seen mainly in the exterior treatment rather than in the plan which in many cases is dictated by an "in" and "out" concrete drive forming a passageway for motor cars on either side of the service pumps and protected by a roof above. In some instances the driveway extends through from street to street, and in other cases follows a curvilinear plan whereby the cars enter and leave the building by the same thoroughfare. Lamp standards, as a rule, are placed at intervals along the approach, and grass plots and flower beds are developed whenever the conditions of the site permit, to give the building an attractive setting.

In addition to the covered passageway and the pumps, the accommodation provides an office for the attendants, and windows for display purposes, and separate lavatories for both sexes. The gasoline storage tanks are installed beneath the floor area where provision is also made for a steam plant for heating and service purposes.



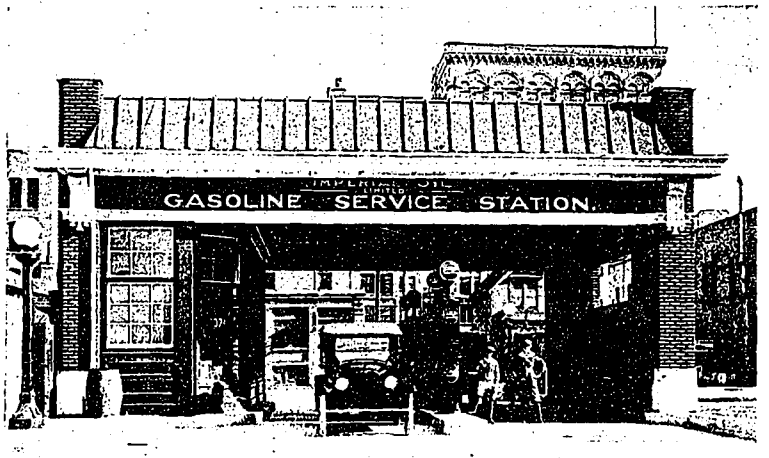
SERVICE STATION, LETHBRIDGE, ALTA. J. L. HAVILL, ARCHITECT.

The several subjects illustrated, relating to structures erected by the Imperial Oil Company, are quite typical of the character of service stations being established in Canada, and show the adaptation of similarly designed

SERVICE STATION, IMPERIAL OIL COMPANY, VANCOUVER, B.C. J. L. HAVILL, ARCHITECT.

buildings to meet the physical differences of various sites.

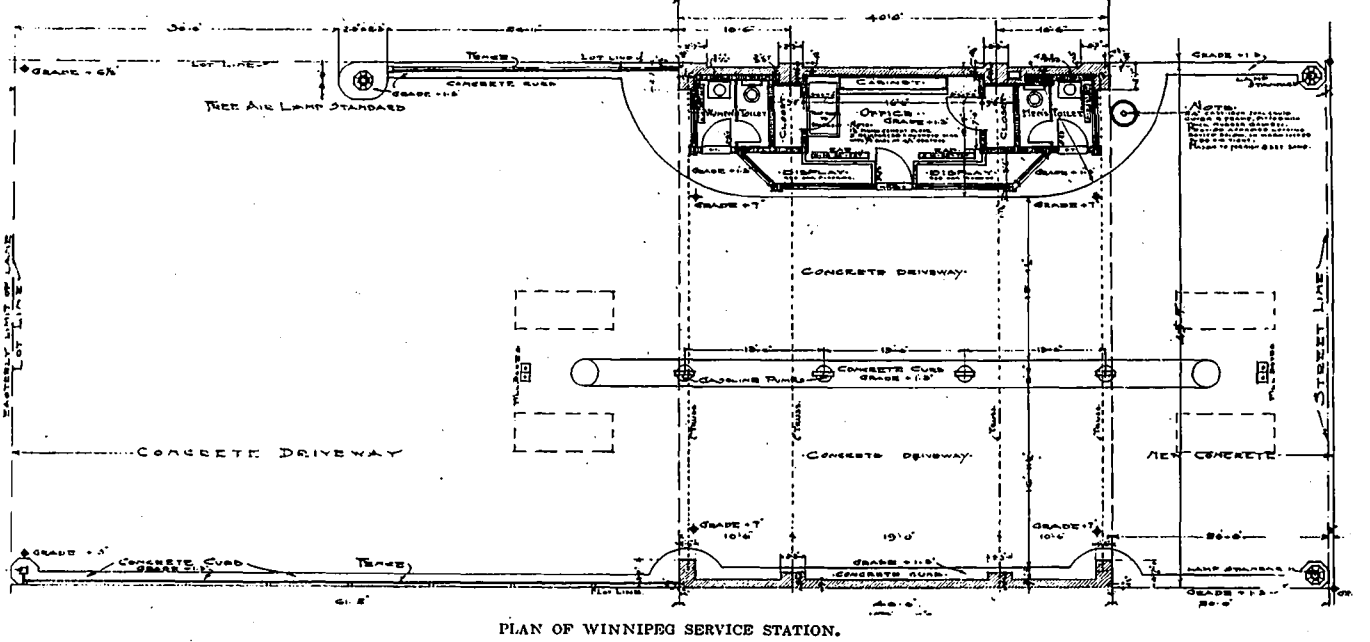
The service station at East Liberty, Pittsburg, constitutes an attractive example of a building forming the central feature of a large square. The design is executed in architectural terra cotta, which is also used for enclosing the various pumps and the low walls and lamp standards surrounding the property, thus making the scheme one of civic importance and suggesting ultimate possibilities in that direction.



SERVICE STATION, WINNIPEG, MAN. J. L. HAVILL, ARCHITECT.

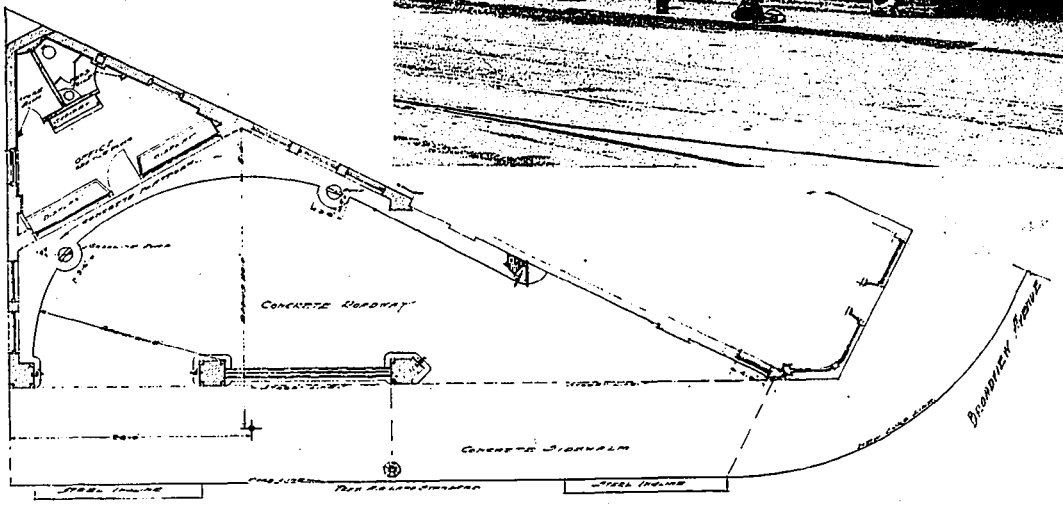
Elimination of Waste Due to Building Codes

Probably the most tremendous waste in building construction, says the "American Architect," is involuntary and due to laws regulating building construction, existing in the form of state and municipal codes, regulations of factory and labor commissions and in some cases fire prevention bureaus. All persons who are interested in building construction, must ex-



PLAN OF WINNIPEG SERVICE STATION.

GASOLINE SERVICE STATION IMPERIAL OIL COMPANY, BROADVIEW AND DANFORTH AVE., TORONTO, ONT.



J. L. HAVILL, ARCHITECT.

ert their utmost efforts to correct, at this present time, these involuntary wastes.

The preparation and enactment of building codes is generally a slow process, being usually in the hands of commissons or committees appointed for that purpose. The personnel of these committees is often unfortunate, being dictated by political or private interests or composed of too many honest and well intentioned persons whose competency, based on broad experience and real practical knowledge, is questionable. Observation shows that the enacting bodies are always ready to adopt the conclusions of such committees promptly and expeditiously and without question. It then follows that such committees should be composed of a limited number of active and successful men who are compelled, by the demands of their other activities, to work quickly and reduce the code to a minimum in scope and size. With the experience in these matters which has been had, there is no reason why such a committee should not

SERVICE STATION, IMPERIAL OIL COMPANY, SUNNYSIDE, TORONTO. J. L. HAVILL, ARCHITECT.

SERVICE STATION, IMPERIAL OIL COMPANY, YONGE & ROXBOROUGH STREETS, TORONTO. J. L. HAVILL, ARCHITECT.

formulate a code in three months if the work was handled with the same expedition that obtains in any successful private enterprise. These things can be done if the desire so to do is present.

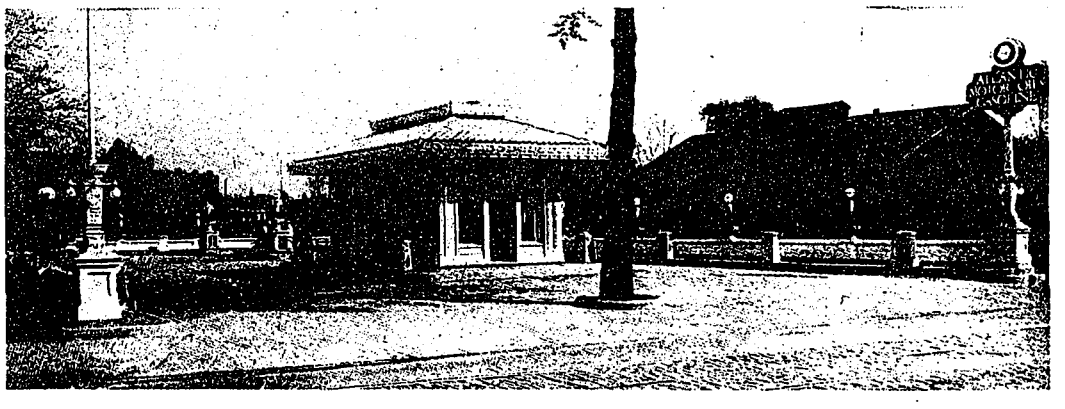
The code should contain only the minimum requirements that are necessary to insure that a building is structurally safe and sanitary, with adequate provision for five-prevention and safety to life. Following antiquated precedents, most codes are specifications in effect, long winded and often contradictory in their provisions. It seems ridiculous that a law should describe, in minute and verbose detail, how mortar should be mixed or shingles laid. These things are within the province of the architect's activities and belong in his plans and specifications which are always subject to the approval of the building departments.

A doctor studies medicine, serves as an interne and is finally licensed to practice in a legal manner—but the law does not state in detail just how he shall perform an operation or write a prescription. Note the rapid advances in the practice of medicine and surgery. On the other hand, building codes apparently are made on the hypothesis that architects and engineers are absolutely incompetent to direct their work without minute legal restrictions covering every detail of a structure. And this in the face of the inspection of plans and specification by building departments and inspection of the work as it is constructed.

A code should be so made that it can be revised as fast as progress in building construction takes place. This is best accomplished by a body authorized to perform this function, similar to the Board of Standards and Appeals in New York City or the Commissions that govern many American cities.

When the art of constructing with reinforced concrete was in its infancy in this country, there were no codes regulating such undertakings. Under these conditions many buildings were erected two and three stories high and were later increased to five and six stories in height. The initial designs were made in the light of the then available knowledge and the buildings were well built. The cities in which these buildings stand

(*Concluded on page 92.*)



SERVICE STATION AT EAST LIBERTY, PITTSBURG, PA.

Post-War Housing

Address delivered by Mr. Thomas Adams, Town Planning Adviser to the Commission of Conservation, Ottawa, before the Royal Architectural Institute of Canada.

IT is unfortunate that Mr. Whittaker, who is a very close friend of mine, and an able speaker on the subject, and who could inform you so well as to what is being done in the United States, has found it impossible to be present. I am sure we have missed a treat, but I hope that on some future occasion he will be able to fulfil his offer to come to speak to you, because you will find he has something very important to say which will interest you as Canadians and as architects.

The question of post-war housing, on which we were expected to jointly address you, is one which has an entirely different character in the United States from what it has in Canada, and as Mr. Whittaker is not here, I may just allude to that difference.

When the United States entered the war they found it would be necessary to build a large number of houses in order to accommodate the men who were engaged in shipbuilding plants and munition plants at Bethlehem and other places where it was desirable to increase the output of munitions, and last year they passed an appropriation of $190,000,000 for the purpose of providing housing accommodation in those various places where ships were being built and munitions were being manufactured.

I was in Washington for a week, at the request of the Secretary of Labor, conferring with Mr. Olmstead, the Town Planning Advisor of that Department, and numerous architects, including Mr. Russell and other men whose names would be familiar to you, on the question of their policy, and I know some of the programme which they endeavored to carry out.

So far as the housing part of that programme was concerned, it was, unfortunately, brought to a premature conclusion before they were able to carry it to success. The war being concluded, and most of the houses being uncompleted, they were unable to give that finishing touch to their schemes which would have shown the extent to which the organization and architectural control and Government assistance would have helped to provide object lessons in the way of model housing schemes throughout the United States. However, they carried out several schemes very successfully, including Yorkshire, and Portsmouth, near Boston, and other communities which have been created directly for the purposes of war.

The stimulus which was given to the United States Government in connection with that policy came from Great Britain. Mr. Ackerman accompanied me in point of time, although on a different boat, from this side to Great Britain, in October, 1917, in order to investigate what was being done there; and we came back within two days of each other, and arrived on this side, having covered the same itinerary and having seen the same work in which the British architects were engaged in the way of war housing. Since then Mr. Ackerman has been an apostle in the United States of better housing conditions, and greater architectural control over housing developments, and they are following the lead of Great Britain in the matter of improving housing conditions.

Going back to the origin of the whole movement in the United States and Great Britain, we have to remember that Great Britain itself, for the first year or two of the war, did not realize the importance of providing proper housing accommodation as a means of winning the war. You remember that for the first year and a half Great Britain was not sufficiently equipped with munitions and guns, and when Mr. Lloyd George was made Minister of Munitions he at once appointed a committee of eminent scientists to investigate the problem of output and to find what was the best means of increasing the output of the munitions industry. He brought Mr. Raymond Unwin, whose name is well known in connection with housing, from the local Government Board (where he had gone to succeed me when I came to Canada), put him under the Minister of Munitions, and placed him in charge of the housing operations for war purposes; and Mr. Unwin developed several model towns during the war for the purpose of helping to increase the output of munitions.

They were not building those model communities, or building chuches, or building community settlements, or building institutes, or laying out model villages, because they wished during the war to carry out experiments in better housing, but they did it for the sole purpose of increasing the output of munitions: and it was a remarkable fact that shortly after the disaster last April they were able within a few weeks to equip the British armies in France with the full amount of munitions they required, notwithstanding the tremendous losses during the set-back we had.

I cannot take up your time in describing what was done, because I want to get back to our own conditions here, and to deal with the circumstances we have to meet in this time of reconstruction.

Mr. Ackerman and I visited Well Hall village with Mr. Baynes, now Sir Frank Baynes—for you see they confer the honor of knighthood upon architects in the old country, because they recognize that art, as well as commercial instinct and commercial ability, deserves recognition. We also visited other villages, including Gretna Green in Scotland, where there were 15,000 people living on land that had been farm land two years before. This is a town occupied by 15,000 people, which was entirely built during the war. What sort of a town was it? Shacks? Were the people living in the open fields? Were there no gardens, or no churches? Nothing of the kind. We found that the roads were completed. There were sewers and water mains, and brick churches, all designed and completed by the best architects. We found permanent houses, and everything constructed in the most permanent manner by Mr. Unwin with the assistance of Mr. Krickmer as resident architect.

There you see the proof, that Great Britain had discovered, after careful investigation into the question and careful calculation, the necessity of providing, not housing conditions, but of giving the persons who live in the houses a sense that they had a comfortable roof over their heads, and also some opportunity of cultivating refinement in the dwelling, and entering into the spirit of enjoyment—and discovered how absolutely essential it was to build a properly proportioned house which even the ignorant working man (if you may call him ignorant in the sense of art) comes to enjoy, however unconsciously, when he lives in such surroundings.

Those things were brought home not as an attempt to administer to the enjoyment those people might have in art, but because it was realized that the contentment of the workingman, his efficiency as a worker, his capacity to produce shells and explosives during the war were to a very large extent dependent upon the comfort of his surroundings, the standard of his housing accommodation, and the opportunities that were given for him and his family to secure satisfactory means of social intercourse.

We found there a picture palace erected in a few weeks, and the proceeds of the entertainments were used for the purpose of providing other means of recreation. There was a large dance hall, which could be used for gymnasium exercises during the day, and which had been built in six weeks. This was a brick building, roofed with slate. We went through all the buildings in course of erection, and saw that there was no attempt made to deal

with the problem in a temporary way—and this was what inspired Mr. Ackerman.

I have been tempted to say a little more about this than I intended, because Mr. Ackerman went back to the United States full of enthusiasm in regard to what he had seen of what was being done in Great Britain.

I feel as one who is a British citizen—because in Canada we are proud to be British citizens. We ought to recognize the merit which comes from taking the initiative in a matter of this kind, and from actually giving the leadership to a great, proud, independent people like those who live to the south of us.

Coming now to ourselves and the comparison between our own conditions and the conditions in the United States, I think my friends from the south who have studied this question will realize that we are, perhaps, proceeding on rather better lines than they have done. Congress was practically forced into giving this money for the purpose of helping to win the war. There was no illusion about their attitude. They did not want particularly to help improve housing conditions by means of Federal aid—that was a matter of private enterprise, and was not a matter for Congress, but if for the purpose of winning the war Congress should provide the money, why, it would provide it.

They set up an expensive organization, and proceeded to build a large number of houses. That of course was during the war. Since then the men who have been associated with this work have had a rather sad disappointment in that Congress has decided to stop all housing, and has actually insisted that many of the houses which are more than half finished shall not be completed because it is against their policy to build for purposes of peace.

Observe that as a policy the housing schemes in the United States up to date are purely war housing, not post-war housing at all, and men like Mr. Whittaker and Mr. Ackerman are striving to influence their fellow citizens to bring in a reconstruction policy that will deal with housing after the war.

GREAT BRITAIN'S PROGRAMME.

Now, what is our own mother country doing in the matter at the present time? They have built those war villages, but they do not intend to stop there. They have come to the not very remarkable conclusion that what is good for winning the war is also good for peace—that what is good for making munitions, is also good for making blankets, and woolens, or operating mines. In other words, what is good policy for winning the war, is also good policy to carry on in times of peace.

If it happens to be that during the time of war the making of munitions can be increased, the efficiency of the worker can be increased, his contentment improved, and better results obtained, why is it not logical that it should not be the same in time of peace? If a slum does not help you to make shells, will it help you to make steel, or build ships, or do anything else worth doing? What is sound for the time of war in a matter of this kind is surely sound for the time of peace.

If you agree with that conclusion, inevitably you reach the other one, that the slum and all it contains and all it produces is bad business. It is not a question of sentiment. The slum is not good business from an economical point of view, and it is improper from the point of view of a Christian civilization. It is the antithesis of those principles for which we have been standing during the past four years.

That is the question which is put up to Britain to-day, and that is the reason why they say, "We are going to invest up to one thousand million dollars to solve this problem, and we will face the possibility of losing one-third of it. We will not spend the money on housing schemes designed by contractors or by small men in their own localities, but we will employ the best architects in the country." And the Housing Committee says that every housing scheme should be designed under the best architectural advice as a preliminary condition to investing money in such schemes.

The architect in Great Britain has come forward, and has proved his capacity to deal with this problem. He has shown that it is not merely a question of business, but that it is to him a matter of social interest. He has shown that he knows and appreciates the psychological question of providing houses for the poor people.

He cannot build a $2,500 house and make a profit out of it, but he can provide a design for a series or group of houses in which variation is secured by some slight change in the doors, or the windows, and in which he attempts to secure, by grouping, by proper elevation in relation to the site itself, by the grouping in mass in a number of commonplace buildings, where he gets a good effect merely by the application of a little bit of personality.

In a case of that kind you get the interest of architects and the necessity of architects so proved to the public mind and to the politician that they have come to recognize the fact that the question cannot be solved without the architect.

I come now to our own conditions, and here I feel there is a lack of appreciation of the architect on the part of the public, and a lack of appreciation of what is necessary to satisfy the public on the part of the architect. I am perfectly frank with you about this question, and I would not say what I have to say unless I was speaking to architects. In connection with this matter we want to have the architect not only dealing with those housing propositions, but we want him to show his appreciation of the social aspects of that proposition. We want him to look at it not only as a business matter, but as a matter in which he is to make the contribution of the citizen and the contribution which is the best that is in him, subject, of course, to him getting a reasonable compensation for the services he gives.

STANDARDIZATION.

It is obviously impossible to design small houses for the working classes, and make it a business success. There must be some organization, some attempt at securing a reasonable degree of standardization.

There are objections on the part of many architects to standardization, if it means building all the houses alike. If it were reduced to that, for my part, I would rather have one standard pattern of a house designed by a good architect repeated over and over again, than have the abortions we have at the present time produced in the name of change all over the cities for workmen's houses. Better that you should have a good standardized pattern than a series of a thousand different patterns created without any sense of proportion or any proper sense of design.

There is surely some middle course, and we can surely get some improvement in the matter of design of our houses. If we go into the question, I think we will come to the conclusion that it needs some Government assistance in order to secure the necessary help for the architect and for the other craftsmen in producing what is needed.

The Dominion of Canada had no war housing programme like the United States; it had no war housing programme like Great Britain. As things developed, there really was not very much necessity for such a programme. Our housing conditions during the war were, comparatively speaking, not much worse than before the war. The overcrowding was not substantially increased, except due to the fact that building was decreased and that there was a drift of population from one centre to another. On the whole, however, we might probably have diverted labor from absolute production without effecting a very great deal of improvement in the conditions.

Although we had no war housing programme, we have this advantage in comparison with the United States, that

we have a post-war programme. We recognize that although it was not absolutely necessary to build houses during the war, we are going to take part in reconstruction, not only from the point of view of improving our industries, but from the point of view of improving the conditions of the home people.

The reconstruction programme of the Dominion Government, and of the Provincial Governments, appears to be directed towards improving social conditions, as well as to improving the front trenches of the industrial organization on which our civic stability is built up. And, this is a very sound thing. When Hindenburg had his front line trenches firmly manned, and his guns properly placed, he suddenly broke down last autumn, not because he could not, for a time at any rate, have maintained the fight, but because of the social organization behind his front line trenches going to pieces.

In our industrial organization we have been too prone to imagine that the front line trenches of capital and of organization of our industries are sufficient, but we have to build up our successful industrial organization on the basis of a sound social condition among the people who are working in those industries. We have to get contentment among the people behind the trenches; they have to be satisfied that they are getting a fair deal. We have to make them partners in the whole business, if we are going to have stability and permanence in this new country.

We are prone to blame many of those who live under those bad housing conditions. Here again initiative and organization and an object lesson are needed from some body that can deal with the matter, like a Government.

The national Government has offered twenty-five million dollars at five per cent. to initiate this movement. It is setting up a small organization to assist with the preparation of some model designs, and to make investigations into a few of the problems that need to be investigated—for instance, how can we reduce the amount of fuel necessary to heat the small workingman's home? At present, because of bad construction, bad design and bad planning, we waste one hundred and five thousand tons of fuel a year in this country. We want to discover the extent to which we can reduce our enormous fire loss by proper construction. In this country we pay about $3 a head more than they do in Sweden, where, throughout the country, wooden homes are quite common.

WIDE STREETS AS A DETERRENT TO HOUSING.

We want to reduce the expense which we are incurring now on wasted mileage of roads of unnecessary width. It is a fact (although it is very hard for Canadians to believe it) that wide roads produce overcrowding and congestion, instead of relieving it. If you spend too much money on your roads, you have not enough to spend on your houses. You have not enough to build a sanitary home for a workingman if first you must spend $1,500 for the site on which to build it.

Mr. Dalzell, the assistant engineer of the city of Vancouver, showed that in a workingmen's ward it cost the city of Vancouver, plus the owner of the land, plus the person who was building the house, $3,000 a lot of 50 feet frontage for the land, the pavement, the sidewalk, the sewer, the water main and the school before a brick was actually put down to build a home on that land.

How can it be done, and how can the architect build a home for a workingman if the workingman has first of all to pay interest on $3,000 before he can start to build? There is absolute waste going on in the development of the land, as well as in speculation in the land.

We have speculation in land all round Montreal—the island is covered with undeveloped vacant lots, and large expenses are being incurred in putting down streets, pavements and sidewalks to develop that land. Investigation would probably reveal that on this island there are local improvements carried out so much in excess of what is actually needed for immediate requirements, that if they were all consolidated, everybody would have a pavement to walk upon, there would be no muddy streets, there would be a sufficiency of sewers to provide for future development, and you could have avoided spending perhaps tens of thousands of dollars on unnecessary water mains. But, owing to the fact that we congest our cities, and owing to the fact that we spread them out in scattered lots in the outside country, we have to provide many miles of pavement, many miles of sidewalk, many miles of sewer and many miles of water mains more than necessary, and that is one of the principal reasons for the almost unbearable taxation in our cities.

The extent to which that burden is creating present financial difficulties in our civic administrations is not realized, but it is at the root of much of the trouble.

The city treasurer of the city of Toronto says that about one-half of their taxes are due to the system of carrying on local improvements.

Every citizen in the city of Edmonton has to pay $60 tax this year for municipal purposes, as against an average of $9.15 for the whole of England with all its slums and all its difficulties and with all its bad conditions to be removed and paid for. Now, Edmonton is only an extreme case of the conditions you have on Montreal Island.

No Government housing policy can ever be successful which begins and ends with the architectural aspect of the question. You must deal with the land question, and until you deal effectively with the land question, the architect will always have to take a back seat, and it will always be said: "We cannot afford to pay an architect to help us design a house, because we have spent all our money on unnecessary and badly placed roads, sewers, water mains and so on—in order to have a beautiful vestibule to get to a house which we cannot afford to build—a beautiful avenue which will lead us to a vacant lot on which we hope to see a house." We should town plan our cities as a preliminary to making proper housing schemes.

TOWN PLANNING AS A NECESSARY PRELIMINARY.

The housing question is a question of providing a place of shelter for the man who is engaged in the industries of the city. There are three things required: the home, the means of getting from the home to the place the man works, and the place where he works—housing, transit, and industry.

In dealing with the housing problem, you must deal with the question of transit, and in dealing with the question of transit, you must deal with the street planning system. You have to plan your residential areas, and your factory areas, and your business sections with proper regard to each other, and with a view to securing proper efficiency in your general civic administration, and we are going to face a serious difficulty in the future in connection with the cost of civic administration, unless we apply our minds to this question.

THE NECESSITY OF PROPER SURVEYS.

But, even the planning must be preceded by something. You do not know the city of Montreal; nobody does. You have not a proper map of the city of Montreal. There is no proper regional survey of this city and its surroundings. I do not want to be always taking England as an example, but, as you know, you can go into an English city and buy a piece of land from the Ordnance Survey Map. You can go to the Board of Agriculture, and for three shillings buy a sheet of paper on which there will be delineated the actual physical topographical conditions of the territory which is included in that map, and looking at that map you can determine the acreage of each field, the position of each hedge and each ditch. You can see the land that is marshy; you can see the railways, and count the number of feet in the embankments, or in the

cuttings. The accuracy of that map is almost beyond belief.

I had occasion to go to ninety different places in England to hold enquiries into town planning schemes, and I never really needed to visit one of them in order to know the character of the country. I could tell in my office exactly the number of houses along a particular road, as well as the grade of the road. There were spot levels every ten or fifteen yards, and bench marks all over from which they were taken. I could see from the map the exact conditions with which I was to deal.

The first thing we want here in order to get down to this land question is to have our survey made, and have proper town planning schemes dealing with the whole of this island, for instance, and then the solution of the housing problem may be met in a really satisfactory way. But, of course, we cannot wait for that, and we are trying to get the Quebec Government to take action now. I believe it is suggested that a Town Planning Act is likely to be discussed at the coming session of the Quebec Legislature.

Now, what is the house itself? The house does not consist of a building; it is a piece of land, plus certain local improvements, plus the structure which is erected on the land. There are three elements to it. We are often unable to provide a healthy dwelling because we waste too much on the means of getting to it, building unnecessary roads, and developing the land in the wrong way. Therefore, I maintain we should consider these three elements together.

If a working man can afford to pay $20 a month, he should only pay a certain proportion, say one-eighth, for the bare land; another proportion, not more than one-eighth, for the local improvements; and the remainder should go for the house.

The house should be sanitary, healthy, light and airy. There should be proper provision not only for shelter, but for bringing up a family under healthy conditions. In these days we cannot be like Robinson Crusoe, content with a simple cover for our heads. We have to provide the means of getting the necessities for efficiency, as well as the necessities for existence. We must provide the means for happiness and contentment, as well as the necessities for a bare living. We must also regulate the cost to correspond with the amount the man can afford to pay.

The question of house planning, the cost of the land, and the cost of the local improvements are all inseparably bound together. A great deal of investigation and careful study into the house itself are required, and a great deal of investigation into where the house should be erected is also required. There should be a committee of this institute helping and assisting the Government, without remuneration.

There is no intention to take the brains of any body of men and misuse them in any way. In England they have found it to the advantage of the profession to hold a competition all through the country, for the best house, and the man who was associated with me in Letchworth Garden, Mr. Krickmer (who started his profession in the way of designing small houses for men who could not afford to pay more than $8 or $10 a month), succeeded in getting the first prize against all England for the designing of the best cottage for the workingman.

There is not an architect who will not admit that in Canada we have not had sufficient inducement in this direction for an architect to give his brains to this particular branch of the profession. There must be something to induce them to put forward their best efforts and skill in designing the most suitable houses for workingmen.

DETACHED HOUSE MOST DESIRABLE AND ECONOMICAL TYPE.

One thing which was brought out in connection with the investigations made on the other side, and which will be interesting to you, I think, is this. In a report which has been produced by the Government, signed by some eminent architects, such as Unwin, and Webb, it is stated that on the whole it does not pay to build a tenement, or even a two-flat cottage—that the house which is most economical in the long run is the dwelling built on its own separate piece of land, with a separate door, with two stories, three bedrooms above and the two living rooms below. It may be semi-detached, or in a group of four, or six.

"But," somebody says, "what about our expensive land in the centres of the cities?" If you study that question you will see how far the tenement produces land values as well as the land values produce the tenement.

TENEMEMENT HOUSES AND LAND VALUES.

Berlin is a city of tenements. Five hundred and ninety-four out of every thousand people live in buildings of five stories and over. Sixty-five per cent. of the people in Berlin live in houses of two rooms and less. Contrary to the imagination of some as to German efficiency, Berlin is one of the worst housed cities in Europe; and there is some connection, I think, between that and what Macaulay said, that the people who would destroy European civilization were not the wild savages, but the Huns and vandals of the slums of the big cities.

In Berlin, in 1910, you could go into blocks of six tiers of tenements, five of which were facing on the courts behind the streets, only one facing the main street, and that was the only one the tourist saw when he was taken around to see the beautiful facades and the beautiful efficiency of the German Government.

When the time came for the real test to be made, only nineteen per cent. of the boys of Berlin-born parents were fit for military service.

There is practically no city where land is dearer than the tenement city. Go to Edinburgh and you will pay twice or three times as much for land as in Birmingham, or London—Birmingham with 850,000 inhabitants, and London with 7,000,000 inhabitants.

Not only do high land values produce the tenement, but if you build tenements you will go on producing the complement of high land values. We must try to break this evil complement between the two things, and the only way is to encourage the building of the cottage rather than of the tenement, and only fly to those high tenements when we are forced to do it; recognizing all the time that in cities like Stockholm, and Berlin and Budapest and other cities in Austria and Germany, we find that corresponding to the high tenement there is the dear land and the deterioration among the people.

Now, how does this interest the architect? I want to try to show the architect the importance of devoting his attention to the small house, rather than to the planning of a small flat in the tenement building.

The question of Government housing has some bearing on this question of the kind of house that should be encouraged. What should we encourage? If the Dominion Government offers money for the purpose of building houses, should we say it is for detached, or semi-detached dwellings? Should we encourage the one against the other? I think you will find the tendency will be to encourage the development of the single home, whether it be the detached dwelling or the semi-detached dwelling, or the row of four or six; and I feel that discretion should be allowed the architect in suggesting what is best for a given place under a given set of circumstances. At the same time the home which a man can enter from his own front door, where he can have a little piece of a garden to himself will be the thing which the Government will endeavor to encourage in all our cities; and if land is too dear, it must come down. The question of high land values

must not stand in the way of the proper housing of the people.

TRANSPORTATION.

There is, of course, the recognition of the fact that there are certain cities which are unsuitable for that class of house. Where the land is too valuable for that class of house, it must be used for the purpose for which it is more valuable. Town planning helps to solve the difficulty, because if you divide the town into residential areas, and manufacturing areas, and business areas, and if you have the means, are you not going to solve the problem by transportation?

New York has spent millions of dollars in improving its system of transportation, and the president of the underground system informs us that in 1925 it will be unable to cope with the increased population which will be occupying the downtown district of New York.

Boston has increased its fares to eight cents. Montreal, and other cities, are facing the same problem—not because the trams are not full, but because they are all congested at the wrong time, because the efficiency of the system has not been properly considered, for the reason, for one thing, that our street railway system has grown up by accretion, and the compelling power of the real estate owner drawing it out to the suburbs, instead of according to any sound system or plan in the interests of the community as a whole.

We have no system to work to, although, to a certain extent the interests behind the street railways have done their best in the way of providing a system to the satisfaction of the people. At the same time, in the absence of a proper scheme of development and proper consideration to the laying out of the surrounding districts, there can be no efficiency of street railway systems, and there must be a time when you will have congestion, plus increased cost of transportation.

I used to be told "If you spread the people out over the surrounding territory—if you do not build tenements—you will ruin our street railways. We must have congestion to make them pay." As a matter of fact, to-day congestion is absolutely the worst enemy of the street railway, which cannot carry the passengers when a certain stage of congestion is reached, and the result is they are blocked, and held up, and the street railway cannot be made to pay at five cents to-day as well as when there was less congestion. In other words, extreme congestion is worse than scattering the population too widely. Neither extreme crowding nor undercrowding is sound. It should be a regular, even development, so that you will have Montreal, for instance, not jumping out in spots, but, as the Montreal "Star" so well put it, rolling out evenly to the suburbs, where your whole system of transportation, and sewer, and water mains, and roads will follow gradually, instead of jumping out and wasting miles and miles of all those facilities.

Here is where the question becomes of interest to architects. If you have to build Westmounts for workingmen, here is an opportunity of showing your genius, not to build a single workingman's house, but to build a whole community. Why should not the workingman have the advantage of proper houses as well as the people who are rich enough to restrict themselves all around and to restrict the land on which they build? Why should the workingman have to live in the shadow of the chimney, and of the railway station, and not get the advantage of proper planning just as well as his richer neighbor? Why should we not have our districts around Montreal where proper housing accommodations could be provided for a comparatively small sum? I am sure the result would be satisfactory from every point of view, and that our artistic sense would not at all suffer, for I have seen worse abortions erected at a cost of $50,000 than at a cost of $1,000.

If you restrict a residential district by saying, for instance, that no house in it shall cost less than $10,000, and if at the same time architects are not employed for the construction of buildings in that district, you will get a far less satisfacory result than you would get if you had small cottages with gables and plain windows according to the old fashion, designed by competent architects, and costing $2,000 or $3,000 each.

The question of price does not enter into it. It is a matter of architectural control, interest and development, and of helping people to realize that simplicity is beauty, and that some of the things looked upon as beauty are really monstrosities.

By helping to produce simplicity in the home, to give improved home conditions, and to reduce the cost of development, we have wed town planning and housing, and the architect is interested in both.

Now, I have taken up enough of your time. I have developed to some extent the question of the important relation between town planning, and housing. I have indicated the policy of the Dominion Government. Before I close I wish to refer to the connection between the Dominion Government and the other forms of Government in this country.

In the United States the Federal Government did all their war housing. They ignored the States and the municipalities, and the States and the municipalities did not feel any responsibiity in the matter. I very humbly suggested to them that they should have brought the States and the municipalities in from the beginning, but they did not do it.

POLICY OF DOMINION GOVERNMENT.

The Federal Government here provides $25,000,000, which will be given to the different provinces in equal proportions. Quebec will obtain something over $6,000,000. If Quebec were to follow the lead of Ontario, it would provide another one and a half million dollars or more, and would lend the money at 5 per cent. to the municipalities, or the housing associations, or even to private individuals who are willing to build their own houses.

In Ontario I think the amount is $8,750,000 and the Government intends to lend $2,000,000. In Quebec, although $6,000,000 may be available, it would not solve the housing problem, but consider the splendid beginning you could make—consider the opportunities you would have of showing how the problem could be solved.

In solving a question of this kind, two things are necessary, first, that we should humbly acknowledge having made an awful mess of it in the past; and, secondly, start to provide an object lesson as to how it should be done in the future. Then we could undertake it on a much grander scale, and get plenty of money if we wish it. We could do it right, and the advantage that could be produced is incalculable.

I lived through a very important period of the Housing Reform Movement in England. I remember a time when you could hardly get any one to talk of a detached cottage—it was all the high tenement, because people must live near their work. It took Lever's scheme at Port Sunlight, and Cadbury's Garden City at Bournville, and the Garden City at Letchworth, and the Garden City at Hampstead to demonstrate the contrary. Those four schemes did more by a practical demonstration than twenty years of talking could do, because people are not convinced by what you say to them, but are convinced by what they see.

I feel that by the introduction of Government control, and by the application of proper talent in the proper direction and under proper supervision, we will be in a position to show by practical demonstration how these housing schemes should be carried out, and if we do this we may leave the rest to private enterprise without fearing very much for the result. I feel that we have not yet given the whole question sufficient consideration, and have not yet organized sufficiently, and I also feel that the time has

come when it should be taken up. I hope the architects will co-operate in the fullest way to help the Municipal, the Provincial and the Federal Governments to make a success of their housing schemes.

In a democratic country, the Federal Government supplies the provinces with expert advice, makes investigation into the question of standardization, costs, accountancy, how a certain proportion of income will pay a proper return on a certain amount of expenditure, and so on. The other day I advised that it would be better to build a four thousand dollar brick house with hollow walls and some form of fireproof roof, rather than a frame house at $3,000, provided that on the $4,000 house the money is lent for thirty years, as against twenty years on the cheaper construction. In other words, $20 a month provides for five per cent. interest and the return of the principal on $4,000 in thirty years, as against $3,000 for twenty years, and it is better to encourage people to have the permanent structure, even if you extend the payments.

Then, you have your Provincial Government dealing with the problem locally, and assisting the municipalities with expert advice, and you will have the municipalities themselves co-operating to the fullest extent, with the assistance and advice of the architect.

Good government might be better by having a bureaucratic organization, but good government is no substitute for self-government, and in our democratic country we are not going to abandon the principles upon which we have been growing up, but we will continue to have self-government, and so we must have a little overlapping. But in the end we will produce more satisfactory and permanent results if we have the federal, the provincial and the municipal authorities all co-operating together in inviting panels of professional men from the outside to assist them in solving this problem.

I would just say in conclusion what I ventured to suggest to a similar meeting of the American Architects last February, that we have an opportunity for the architect to show not only his skill and his interest, but to prove that he has executive ability as well as imagination. A great many people have gone about this country and the United States and actually proved that the only thing that matters is executive ability—that it does not matter if they have no University training, or that they are not architects or engineers, if they have executive ability everything else can go to the winds, because executive ability is the only thing that counts. Every one knows executive ability is an excellent thing, but it needs science behind it. As architects you know executive ability alone (and common sense is another way in which it is expressed) is not sufficient to deal with those technical problems. Proper training is also necessary. You must have a combination of the two, and one is not a substitute for the other.

The architect must bring to bear upon the solution of these problems not only his interest, but he must prove to the public that he is required and that he can help to solve them. He must also show that the solution of this question is to be obtained by the man who has ideals and imagination, that cultivation of these qualities among the general body of the people is essential, and that the men who are giving their lives and are engaged in the work of putting their souls into their business can help the people who put their souls into the work of improving the public welfare by producing better conditions in our country for the future of its civilization and its people.

Discussion

Mr. Wickson: I do not think there is the slightest doubt that we have all enjoyed Mr. Adams' address, which has given us something to think about, and I feel it would be a great pity that the matter should be dropped now that we have so much material before us. I will, therefore, call upon Mr. F. W. Stewart, of the City Improvement League (Montreal), to say a few words to us.

Mr. Stewart: I did not expect to be called upon to say anything to-night, but I can assure you that every word Mr. Adams uttered has been of very great interest to me. As the newly-elected President of the City Improvement League, I may tell you that the first work we intend to take part in is the housing question, and I may add that we would have shown more activity in this direction since our Annual Meeting two or three weeks ago had it not been for unforeseen circumstances over which we had no control.

I believe there is no subject which can occupy the minds of the citizens of this country at the present time to better advantage than the housing problem. I have not as yet been able to give the matter thorough study, but with regard to what the Government is doing in connection with the lending of money to the different provinces, I understand that one of the regulations under which this money will be lent is that the civic administrations will have to lend a similar amount to the people who wish to build their own homes. If that is correct, it occurs to me that if the problem is to be taken in hand in the proper way and if results are to be obtained, it will be necessary for the Government to widen its scope in connection with the lending of this money. If one of the conditions under which the money will be lent is that municipal administrations must lend a similar amount, you can realize how far the people of this city, for instance, will get in regard to the building of their own homes.

Mr. Adams: Your understanding of the matter is not quite correct, Mr. Stewart. The Federal loan is given to the provinces with the right to re-lend it, without any condition that they have to put up any money at all. Nor is the city expected to put up any money. The only point is that the city may have to suffer a loss if it erects houses at too high a cost. It is not required to put up any money.

Mr. Stewart: I am glad to learn that my information was not correct. When I was informed that such was the case, it appeared to me that it would make it practically impossible for the wage-earner of this city to undertake to build a home for himself.

May I take a moment or two, as President of the City Improvement League, to explain what our plans are, not only in the direction of housing, but with a view to widening the scope of the League in other activities. It is our intention, within the next few days if possible, to ask the representatives of other organizations in this city to attend a meeting which will be called by our executive for the purpose of laying plans by which every organization in the city will be represented on the council of the City Improvement League. In that way, we feel we will have the people represented in our organization, and matters of this nature can be discussed, not only by groups from any one organization, but by representative groups from all the organizations and all classes of people in the city. We hope to be able to discuss those matters around one common table, and if this can be done special committees will be appointed embracing representation from those different organizations, and we feel that the housing problem will be carried out in such a way that we will be able to show some very desirable and direct results.

When this meeting is called, your association is invited, and I hope you will send a representative or representatives. The object of the League will be to try to make it a clearing house for the organizations of the city, and I hope when the work is carried forward that the City Improvement League, with the assistance of the other organizations in the city, will be able to co-operate on the plans that Mr. Adams has outlined to us to-night.

I thank you, Mr. Chairman, for allowing me to say a word or two, and I am sorry I am not more conversant with the housing problem, so that I might be able to say more about it. My good friend, Mr. Dandurand, who has spent so many years with the City Improvement League, and who has given so much of his time and attention to the improvement of buildings in the city, can tell you more about the subject than I can.

The Chairman: Unquestionably, you will become more conversant with it before long, and you will find in it a large field for your labors. I have much pleasure in extending to Mr. Dandurand an invitation to say a few words to us.

Mr. Dandurand: Surely you do not expect me to speak on housing when Mr. Adams is here. As chairman of the City Improvement League, I have for years been collecting data, and it has been very captivating work. Mr. Adams has sent me literature on the subject which I have found most interesting. I am here to-night to learn, and not to give advice. I have been honored with an invitation to attend a luncheon on Tuesday next and meet Mr. Adams in conference as to our future work. My contention is that it is a little late even now. We should have been at work long ago. This problem is not one to be solved in years to come. It should be studied right now. Our men are coming home, and I know for a fact that there is a scarcity of houses which is becoming more and more acute every day.

I am glad to see that this question has been taken up seriously by the Federal Government, and I am sure that the Provincial Government should follow up the good work with vigor and enthusiasm. I was pleased to hear Mr. Adams say that there is absolutely no string attached to the loans in the sense of the cities having to contribute, because we are even now in doubt as to the ability of our city to co-operate in such a large work. Our past experience has been very disheartening, but we hope for the future. My feeling is that the best way to look to the future is to put our own shoulders to the wheel, and not depend upon others, and I am willing to lend my humble efforts to the work because I like it, and because it is a labor of love. I know it is a good work, and very interesting, indeed, and I assure you you can count on me to co-operate in any way I possibly can.

I was first chairman of the Real Estate Exchange. At that time we did not expect any Federal help or any outside help, but we thought that one of the lines on which we should proceed towards providing cheap, attractive and hygienic homes for the working classes was to invite the architects to co-operate with us in the way of submitting plans which would be exhibited in the exchange, where the people could come to consult them, and employ the men whose plans appealed to them.

While Mr. Adams was speaking the idea occurred to me that we might be able to co-operate on that plan again.

As Mr. Adams says, the preparation of proper housing plans requires not only executive ability, but, in addition, requires science and technical training, and with this in view we most certainly must have the assistance of the architect in the prosecution of the work.

The Chairman: At a discussion of this question the other day, one of the speakers had been enumerating the several things which ought to be done, and when he got through somebody else

got up and said that if we wished to get everything done that was suggested, and in the way it was suggested, a lot of those soldiers and their brides coming home would be tired of each other before they got a home to live in.

Dr. Atherton, will you give us the benefit of your wisdom, and say a few words.

Dr. Atherton: I have not much wisdom, Mr. Chairman, but I have some experience.

As secretary of the League, there are a great many gentlemen in this room to-night whom I know, and I think they will realize that in the past when we were very nearly getting something done we might have succeeded better had we carried out the suggestion of Mr. Adams of combining science with what executive ability we had. The Architects' Association was at one time very close to us. We tried to get a city planning rule, and have a City planning Commission established, but we could not induce the aldermen to grant the means necessary, and so we could not get ahead.

Then we were very nearly getting housing experiments some three years before the war, and the architects were interested again, and we were serious. Again, we were not as successful as we should have been.

Now, in Mr. Stewart we have the executive ability to do something right. We are tired of thinking about what we should do. We are tired of the Commission on Education, because we are perfectly educated on the point. The only thing we want is the money, and at the present time it looks as if the money was coming. The real reason we could not get the money some years ago was people were so selfish that they would not lend money which would bring back only 6 per cent. Our late Governor-General, the Earl of Minto, came before the League and almost cried in his anxiety to get the League and others in this city to take up something on the lines of the Hampstead Garden City applicable to Montreal. He told us it was a gilt-edge proposition and that he was sure it would bring back full returns in civilization and patriotism to those who lent the money. A company was actually formed, and the thing was going ahead, but they fell down because the real estate people got wind of what was going on, and there was no use trying to get any land at all suitable.

I believe if we act quickly now there is a lot of land that we can get away from the owners at a very reasonable price.

The most hopeful thing, to my mind, is that the monied men of the Dominion have opened their hearts. They are content to lend their money to the Government at 5½ per cent., and a feeling of local patriotism, and true patriotism, and of the worthiness of spending money in the country for the good of the people has been engendered. The result is that I do not see now why the difficulty (which is mainly one of money) cannot be overcome by taking the bull by the horns and getting to work at once to organize some kind of a housing association, get the architects busy, get the newspapers full of it, and get the people interested in it. If we do this, I think the money will be forthcoming.

The Chairman: We have with us this evening Dr. Hodgetts, who has been Red Cross Commissioner overseas. I am sure he can say something that will help the movement along.

Dr. Hodgetts: It is, indeed, a pleasure to me to be back again in Canada, and to know that the work which was started some years ago is bearing fruit.

I was scoffed at some years ago when I introduced the subject in Quebec, and stated that there were worse slums in Canada than were to be found in many cities in the Old Country, and that the time had arrived when Canada wished to be a nation, and we should take advantage of it. Things have changed somewhat, however, and although I have only been in the country since Christmas I find matters moving along on lines that will place Canada on a par with any other city.

I was particularly impressed by Mr. Adams' reference to human efficiency. Human efficiency means national efficiency. Canada has proved to the world that she is efficient. Sixty thousand of our men have "gone west," and have established forever on the roll of history that Canada is efficient as a nation. Now, if we are to maintain that reputation, we must secure good, healthy homes for the people who are here now and for the millions who in future years are to inhabit this great Dominion, and I feel that the architects, the engineers, the surveyors, the humanitarians, and the public generally, must work together to bring about a result of which we may be proud.

In May, 1914, the Prussian Government passed a bill which would prevent the construction of any more tenement houses in Prussia. When that bill was introduced into the House the Minister stated that they had found that the inefficiency of the people of Prussia was due to those tenements, and that their idea was to establish homes along the English lines. Of course, this bill is still on the statute books, and I hope the democratic Government will carry it out.

England was spoken of this evening. I remember that Lloyd George made the statement that he was appalled when he found that there were more inefficients for the British Army than there were either in Germany or in France, and he claimed it was due to bad housing conditions.

We want good, efficient men and women in this country, and we can only get them if we give them the proper environment in which to live, and by this I mean not only a home, but everything that surrounds it, in our towns and cities, and the Dominion in general.

I thank you for the privilege you have accorded me of saying a few words, and I hope that the good work Mr. Adams has done during the last four years will be carried out to a successful and glorious conclusion.

Mr. Hynes: I would like to ask Mr. Adams what machinery the Dominion Government has established to work out the requirements, and how it expects to co-operate with the Provincial Governments in having them carried into effect through the municipalities.

Mr. Adams: The matter is, of course, in a very early stage. The Order in Council was only issued on December 3rd last, and since then the Cabinet Committee which has been considering the subject has been in consultation with others working out a scheme. So far, as far as it is arranged, I can give you an indication of what has been done and what is immediately contemplated.

There is a Cabinet Committee, of which Mr. Rowell is chairman, consisting of Hon. Mr. Crerar, Minister of Agriculture; Hon. Mr. Robertson, Minister of Labor, and Hon. Mr. McLean, Minister of Reconstruction. This Cabinet Committee will be the supreme authority in the administration of the bill. At present it is suggested that they should ask the Commissioner of Conservation that I should co-operate with them, and I have been in consultation with them. We have arranged, as a preliminary step, that I should direct the work under that committee for the time being, but that I should continue to act as town planning adviser to the Commissioner of Conservation.

I have taken offices for that work, and have arranged to employ a staff, one of whom will be an architect and another an assistant engineer. The first work that will be done will be to consider what advice can be given to the provinces without letting them feel that we are giving them advice. We do not want the provinces to resent the suggestions we may make to them. The provinces are a little touchy on that point, and they do not want to be told anything they do not ask for. On the other hand, we do not want to make suggestions without invitation.

There will be complete co-operation, and one of the things we desire to do is to assist the provinces so far as they will permit us. In this matter, the Federal Government is somewhat in the position of having to wait upon the good will of the provinces. They give the money, and say: "We are prepared to advise you, and to assist you with expert advice, but we must leave you to suggest to us in what way we can assist you and in what way our expert advice may be useful." We cannot very well jump over the provinces to the municipalities, for instance, because that might create friction. Therefore, what we may do will depend largely on how the provinces will co-operate.

As far as the Federal Government is concerned, I am perfectly satisfied there will be no lack of desire to co-operate, and no unwillingness to give the utmost of advice and help that the provinces will accept.

I may also add that certain suggestions have already been sent out to the different provinces with regard to standards of price. Those are merely put forward for their consideration, and we are waiting to receive their replies before advising what further steps will be taken.

I left my office this morning, and I shall go into a new office and take up this new work when I return on Monday morning.

Dr. Hodgetts: Can you give us any information in regard to what Mr. Ellis is to do in the Province of Ontario?

Mr. Adams: The Premier of the Province of New Brunswick has appointed a barrister to co-operate with the Federal Government in preparing the necessary legislation. He will meet me on Friday next to discuss the question, and I hope to be able to get some definite steps taken in the Maritime Provinces to appoint a thoroughly qualified man to assist in the technical work.

Nothing has been done so far in Quebec.

In Ontario the Government has voted $2,000,000, and has appointed Mr. F. A. Ellis as Housing Director or Housing Commissioner for the province. I believe the idea is to employ experts to assist him.

The Manitoba Government has not made any appointment, but has held a meeting of the municipalities, and has asked the members to come together, make a survey of their conditions, and come back to a further conference, to be held next month, I understand.

In Saskatchewan they have a first official, who is director of town planning and housing for the whole province. Under the Act they have a director of town planning.

Further west there is no actual movement, but we hope to have a town planning director in Alberta and in British Columbia, and I trust we will get architects associated with the organization in each province.

One of the first things I would like to see done would be to have each province with a proper official in control. Personally, I would prefer to see a man who has the professional experience necessary to make him a town planner, rather than one who, however high his legal qualifications, may not be quite fitted for taking charge of that kind of work. Of course, I only speak as an individual, and so long as I have anything to do with it I shall endeavor to co-operate fully with whoever may be appointed by the Government.

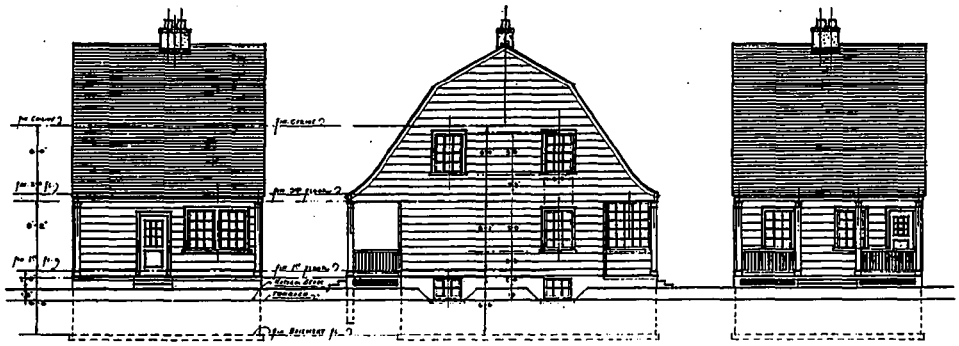
There is another movement on foot which has something in connection with this. Not long ago there was a meeting held at Ottawa, under the suggestion of the Dominion Surveyors' Society, for the purpose of stimulating education in town planning in Canada. It was a meeting of the members of the Ottawa Chapter of the Architects, representatives of the Engineering Institute and representatives of the Land Surveyors' Association. Mr. Milson, the president of the Ottawa Chapter, and Mr. Cromarty were present, and we decided to form a town planning institute, in which the first qualification for membership would be that the person should be either a member of your Institute or of the Engineers' Institute, or of the Surveyors' Institute, and, in addition to that, should qualify within a year in some form, either by preparing a plan and writing a thesis, or passing an examination in some way connected with town planning. If this is carried through we shall develop an institute in which there will be the town planning architect, the town planning engineer and the town planning surveyor. No one shall be eligible for permanent membership until he has qualified himself, and if he does not qualify within a year or two by his own direct efforts, he will not be a member of the institution.

The idea is to try to train some of our architects, engineers and surveyors who are inclined to take up town planning as a special branch and become specialists in that particular sphere. I am sure this will meet with your approval, and I hope you will endeavor to encourage it, because one of the main objects of it is to encourage university courses and the giving of diplomas in town planning.

The question does not arise that the engineer and the architect will conflict at all. I was associated with a town planning institute in Great Britain, and there the engineer and the architect and the surveyor were working together, and when a city wants a town planning architect it does not send for an engineer; if it wants a man to design a group of buildings or to consider a street in relation to the lay-out of a group of buildings, it does not send for an engineer. On the other hand, if it wants to develop a system of transportation, it will send for the engineer, not for the architect.

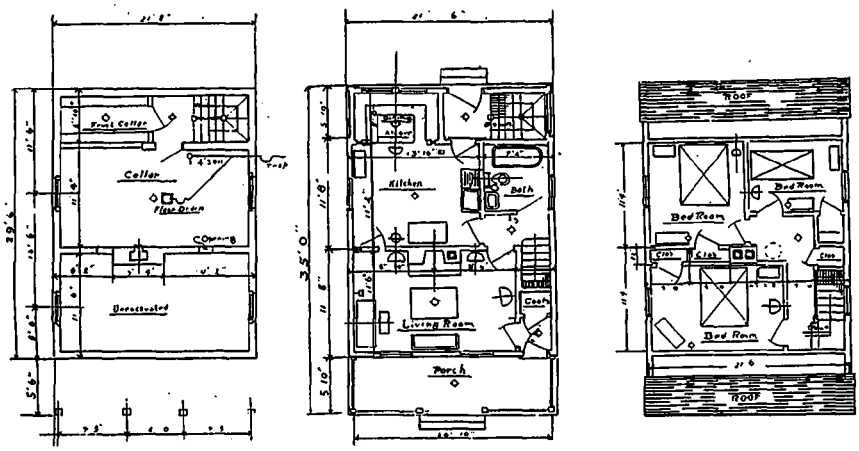
Mr. Stewart: I have before me a memorandum which I think applies to the subject under discussion. It is in connection with the money which is to be loaned by the Government, and I think it might be interesting to have Mr. Adams comment on it. It is to the effect that in regard to the loan all applications shall be approved by a local committee of responsible citizens, who shall give their services gratuitously. The applicant shall be recommended to the committee by his employer. Loans shall be made through a properly qualified trust company, on the recommendation of the commitee, who shall approve of the value of the land, the class and value of the buildings, and the responsibility of the contractors. Where the applicant desires to build his own home, or become his own contractor, the committee shall lend

(Concluded on Page 93.)



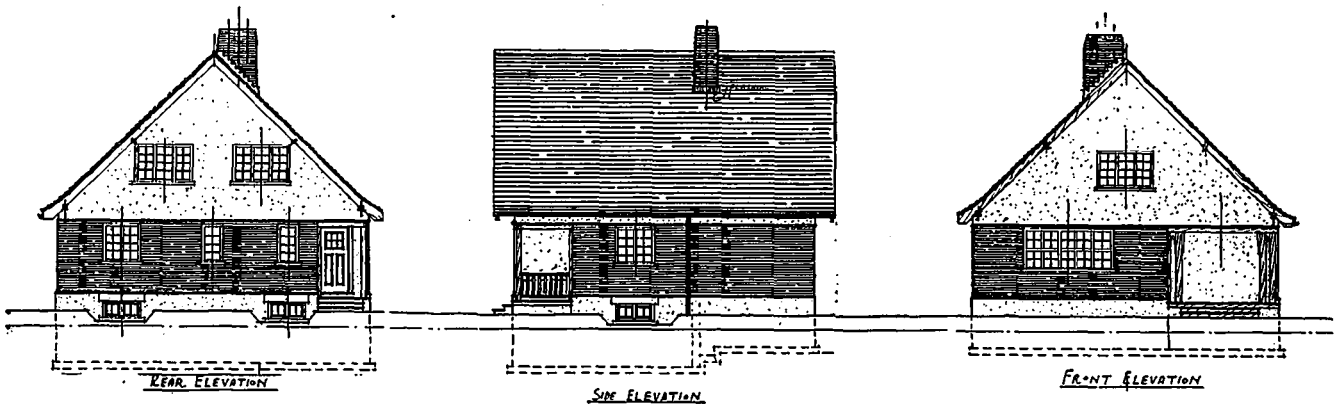
REAR ELEVATION SIDE ELEVATION FRONT ELEVATION.

INEXPENSIVE TYPES OF HOUSES RECOMMENDED BY THE ONTARIO HOUSING COMMITTEE.

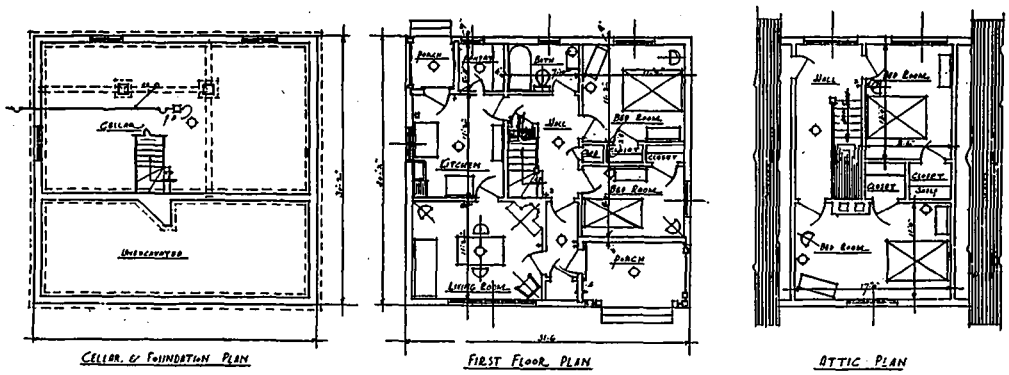


Basement Plan First Fl. Plan Second Fl Plan

FIVE ROOM DETACHED HOUSE.



REAR ELEVATION SIDE ELEVATION FRONT ELEVATION



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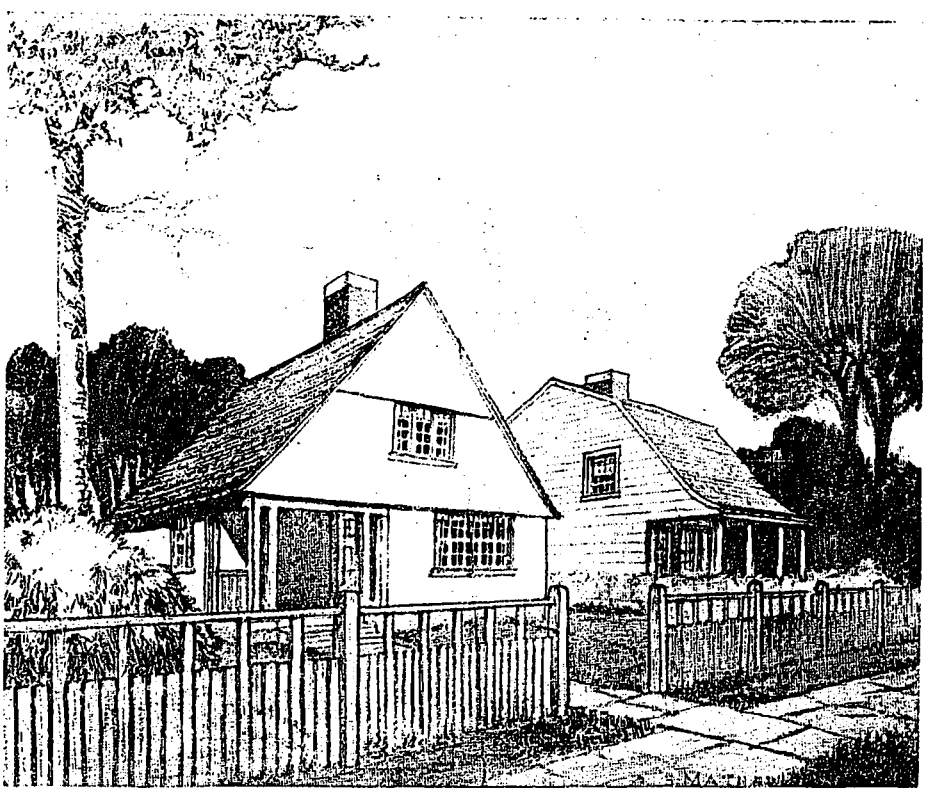
Types of Inexpensive Houses

Recommended by the Ontario Housing Committee

THE preliminary report recently issued by the Ontario Housing Committee incorporating proposals as to acceptable standards of inexpensive houses, is particularly timely in view of the likelihood of the Housing Act now up for discussion being passed at the present session of the Legislature. It is likewise opportune in that it gives the first tangible evidence of how the Government proposes to deal with the housing problem other than to render financial aid to those who desire to build. The committee make a number of important recommendations based on a careful investigation of living conditions with a view to establishing certain governing conditions necessary to obtain a desirable state of home life and healthful and attractive surroundings. These take into consideration the question of plan, household arrangement and economy, materials and sanitary equipment, direct outside lighting of rooms, open spaces, and the grouping of house in relation to all new developments.



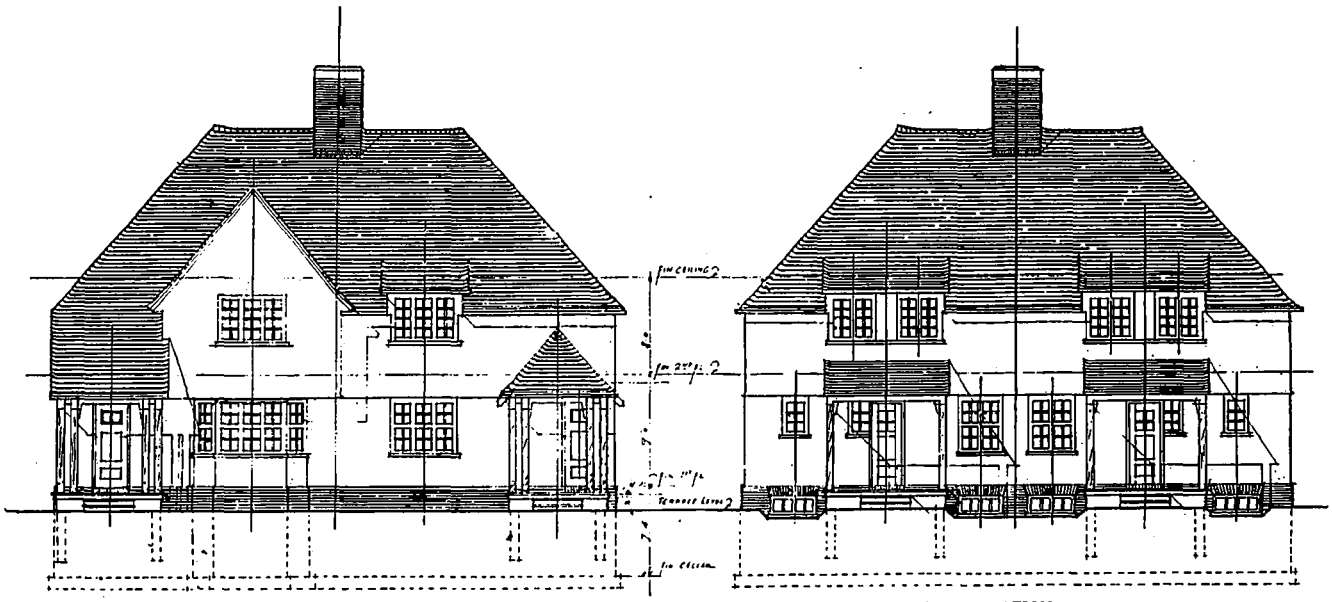
PERSPECTIVE DRAWING OF DETACHED HOUSES (see opposite page).

Essential features are summarized as follows:

1. Sufficient land to give each family privacy and plenty of air.
2. Water tight floors, walls and roof.
3. One, or more, rooms for cooking, eating and general day use.
4. Bedroom for parent's use.
5. Bedroom for male children.
6. Bedroom for female children.
7. Provision for toilet with sanitary water closet and sewer connection.
8. Running water supply fit for drinking.
9. Kitchen sink with waste connection to sewer.
10. Uninterrupted daylight and ventilation through windows in every room.

Additional features which are so desirable as to be almost essential are:

1. Bathtub and lavatory, with hot and cold water supply.
2. Laundry tub with hot and cold water supply.
3. Direct sunlight in all principal rooms.
4. A second room, in addition to that used for cooking.
5. Clothes closets.
6. Porch verandahs.



FRONT ELEVATION. REAR ELEVATION.

Further additions of desirable features include:

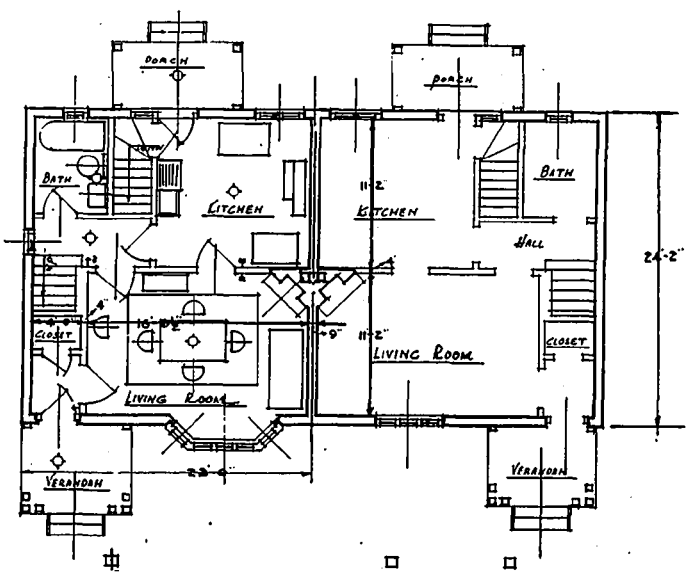
1. Electric light.
2. A separate dining room.
3. A cellar.
4. Furnace for heating.

TYPE OF HOUSES.

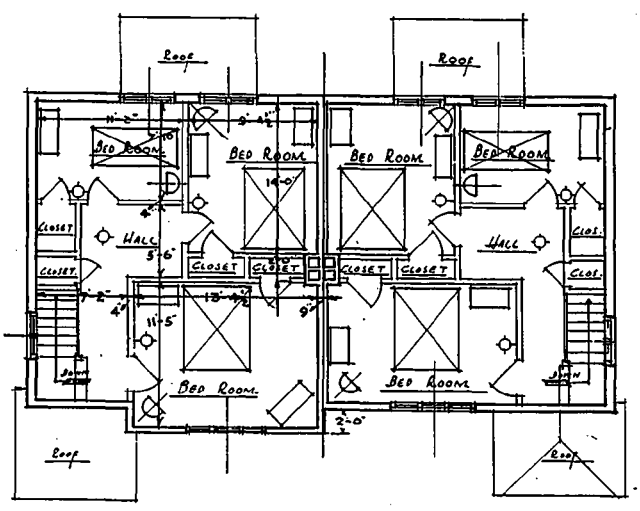
Suggested schemes have been worked out in the way of plans, elevations and prospective drawings not so much, it is pointed out, as models to be copied but as indicating the lines along which desirable, inexpensive houses may be built. These provide for houses of detached, semi-detached and four-family type with the accommodations as follows:

Four-room type: Living room, kitchen, 2 bedrooms and bathroom, or living room, dining room — kitchenette, 2 bedrooms and bathroom.

SUGGESTED SCHEME FOR FIVE ROOM SEMI-DETACHED HOUSE.



FIRST FLOOR PLAN.



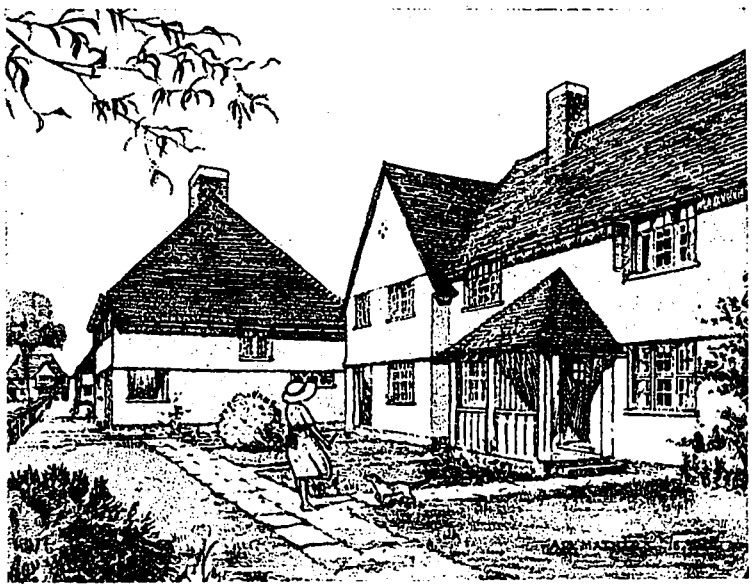
SECOND FLOOR PLAN.

FRONT ELEVATION OF SUGGESTED FOUR AND SIX ROOM GROUP HOUSES.

Five-room type: Living room, dining room — kitchenette or kitchen and 3 bedrooms and bathroom.

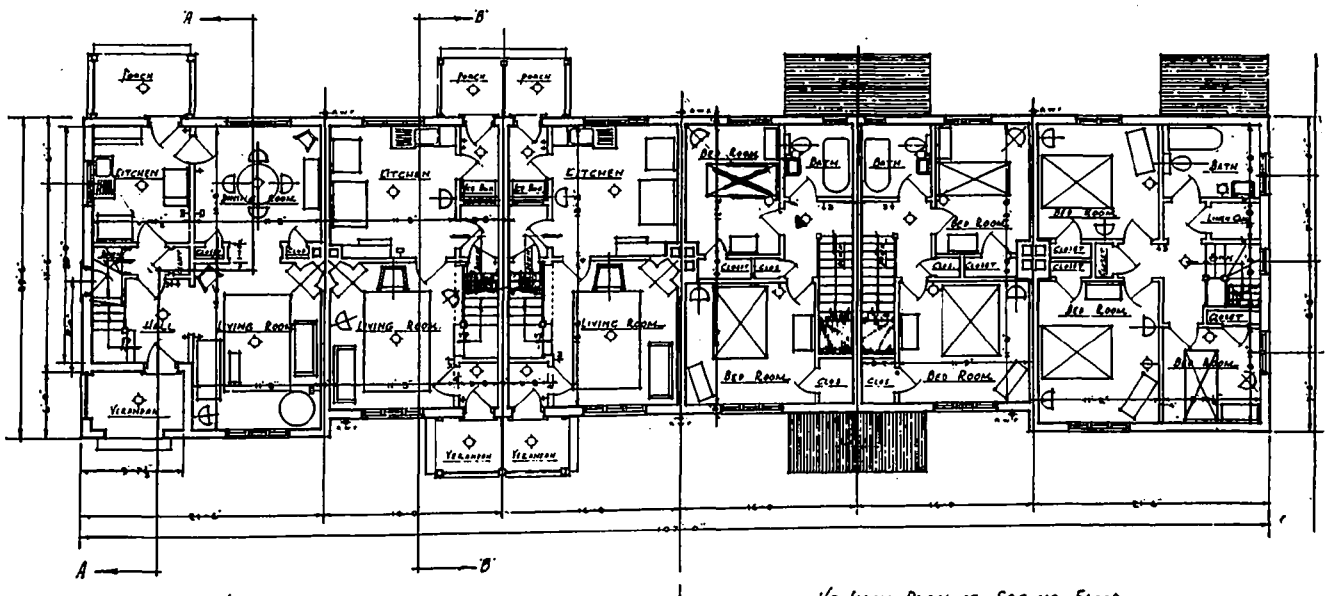
Six-room type: Living room, dining room, kitchen and 3 bedrooms and bathroom.

In the commercially built dwelling house of the past, according to the report, the mistake has been made of providing too many and frequently too small rooms, while sufficient attention has not been paid to the use of the rooms provided and their place in relation to one another.



PERSPECTIVE VIEW SHOWING ABOVE GROUP HOUSE AND DETACHED DWELLING IN RELATION TO SITE.

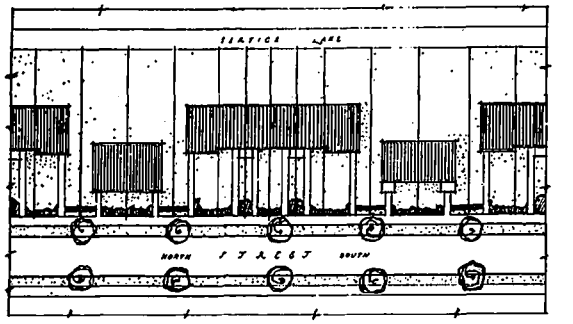
Recognition of these facts and a careful study of the actual requirements have suggested that houses ranging from four to six rooms are best suited to the



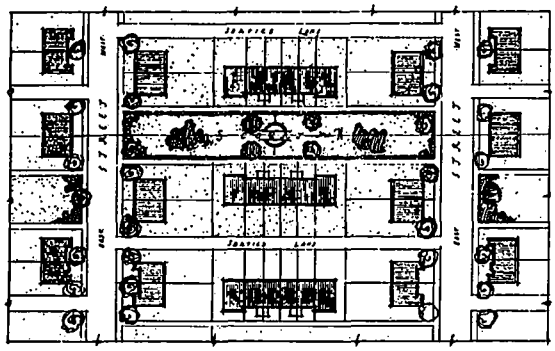
1/8 INCH PLAN OF FIRST FLOOR.

1/8 INCH PLAN OF SECOND FLOOR.

FLOOR PLAN OF SUGGESTED FOUR AND SIX ROOM GROUP HOUSE.

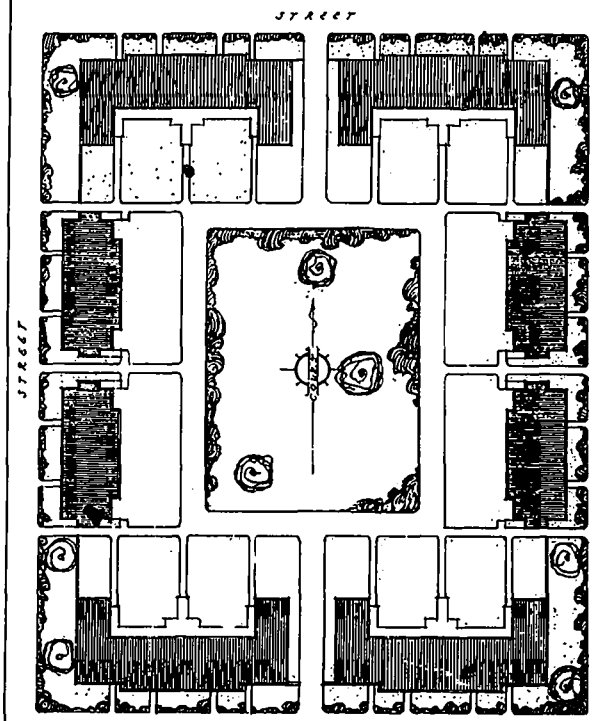


Suggestion for Grouping on North & South Streets



Suggestion for Grouping on East & West Streets

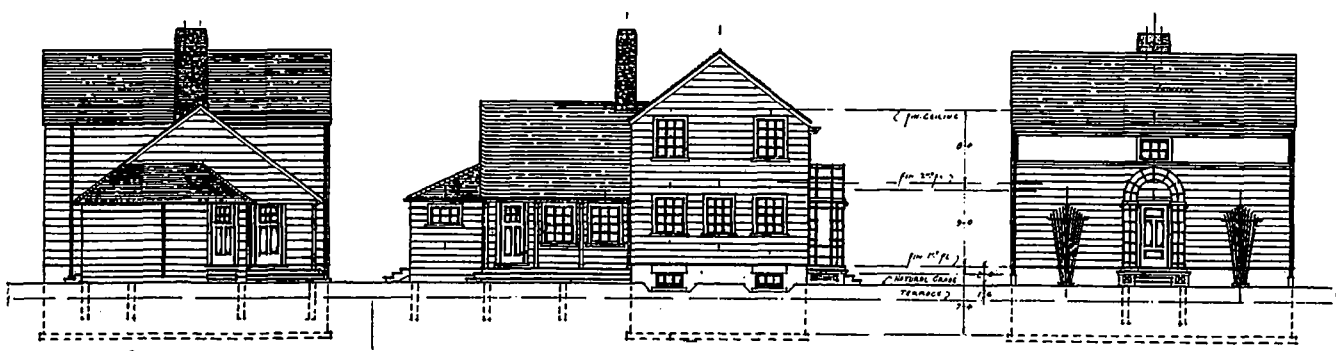
10.



Suggested Grouping for Duplex Houses

11.

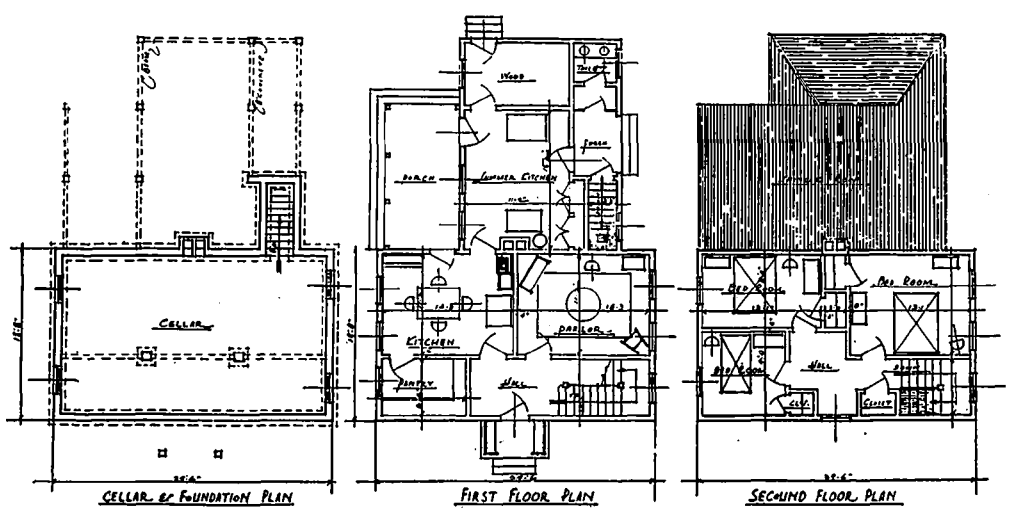
SUGGESTED SCHEMES FOR GROUPING HOUSES.



Rear Elevation

Side Elevation

Front Elevation



Cellar & Foundation Plan

First Floor Plan

Second Floor Plan

DWELLING FOR FARM HELP.

ONTARIO HOUSING COMMITTEE'S SCHEME.

needs of the average workman. Of these it is felt that the five-roomed type containing three bedrooms should predominate. The four-roomed type, providing only two bedrooms, is suited only to a workman with no family, or to a workman with a small family. One of the most important on the list of essential items is the provision of a bedroom for parents and a separate bedroom for children of each sex. This in many cases requires the minimum of three bedrooms, and is the reason for a greater need of five-roomed houses.

MEDIUM SIZES OF ROOMS.

Minimum sizes of rooms have been determined as follows, although it is felt that it will be possible to exceed the dimensions given in most cases:

Living room, ...	144 sq.ft.	narrowest	dimension	11 ft.
Dining room	120 sq.ft.	"	"	10 ft.
Kitchen	80 sq.ft.	"	"	8 ft.
Kitchenette	50 sq.ft.	"	"	6 ft.
Bedroom No. 1 ..	120 sq.ft.	"	"	9 ft.
Bedroom No. 2 ..	100 sq.ft.	"	"	8 ft.
Bedroom No. 3 ..	75 sq.ft.	"	"	7 ft.
Bathroom	35 sq.ft.	"	"	5 ft.

OPEN SPACES.

In reference to open spaces it is proposed that the rear of the house should at least be fifty feet from the rear of the lot, and that projecting steps or verandahs in all new developments should not be nearer than twenty feet to the street pavement or roadway. Space for gardens, and space for children to play in, are also recommended, with open fences, or preferably hedges, to enclose the property. Community allotments and playgrounds are deemed desirable where local conditions are favorable, or where houses are erected in groups. It is also recommended that a space of at least twelve feet should be preserved between houses or group of houses in all new developments; also in the case of houses with side windows, other than those from the stairs, hall or pantries. Where the size of the lot is fixed, or where existing buildings interfere and a narrower space is unavoidable, the passage is to be at least four feet wide, without windows other than those from stairs, hall and pantries. For houses of frame construction, either in whole or in part, an intervening space of at least fifteen feet is proposed.

Duplex houses or cottages are recommended only as a substitute for tenements, with a restricted height of two stories and a depth not to exceed three rooms, except the end house of a duplex group which may be four rooms in depth.

GROUND AREA AND POSITION OF HOUSE ON SITE.

The report further suggests that in all new developments the aim should be to at least equal the English standard of twelve houses to the gross acre in urban centres, and eight houses to the acre in less populous districts.

Consideration is also given to the desirability of placing each house on its site so that all rooms will receive direct sunlight during some portion of the day. On streets running east and west this can be accomplished by placing group houses at right angles to the street, so that rooms will have an east and west exposure, similar to the scheme suggested in Drawing 10. Variation in the exterior of the houses themselves and the frequent breaking of the building line is recommended as a means of avoiding a monotonous effect due to regularity of frontages.

In reference to the rear portion of the property the report states that "there is nothing which more thoroughly expresses the civic spirit and the community attitude towards housing and town planning more than the treatment of spaces at the back of buildings. Unfortunately, it seems to be forgotten too frequently that the outlook from many houses must be on the back of houses opposite, and since they are not seen from the street, nor by the public generally, too often no attempt is made to make the rears even presentable. By limiting the houses in groups to two rooms in depth, and detached and semi-detached to three rooms, deep court will be eliminated, and by exercising a little care in the arrangeemnt and design, the rear can be made as attractive as the front."

Other features of the report deal with materials and equipment, closet space, height of ceilings, plumbing, heating, door and window openings, etc., all of which show close investigation into a many sided problem.

Brick is deemed the standard by which other wall construction is judged, and reference is made to hollow tile as a satisfactory and economical material and to the use of precast concrete construction or hydro-stone blocks such as is being used extensively on reconstruction work at Halifax, as well as to clapboarding, patent wall board and stucco finish.

The fact that the fixed cost of a dwelling built with money loaned by the Government is not to exceed $2,500, is necessarily an important governing factor as regards the matter of accommodation. The object is therefore to provide standards for well built and well planned houses within the amount mentioned. In regards to the living rooms, it is pointed out that there is little real objection to a kitchen dining-room if a second room is provided for general use. In fact it is contended from the housewife's point of view, that the arguments are entirely in favor of such a combination, provided the room is of sufficient size. "The ideal arrangement would seem to be a combination providing

a kitchen alcove, or kitchenette, opening into the kitchen proper or dining room. The kitchenette would accommodate such apparatus as combination sink and laundry tub, stove, hot water boiler, and working cabinet, which contains space for the cooking utensils."

As the household duties of a workman's house devolve "upon the shoulders of one woman, it is important that the relation of the rooms to one another, and the conveniences within the rooms, should be planned to lighten those duties. Under such convenience the bath-room may be included. Three bedrooms have already been suggested as the minimum, except for the smallest type of house. It will be found, however, that to provide three bedrooms, bathroom, closets, and necessary hall space on an upper floor, the first floor will be unduly increased in area, and consequently will constitute an extra, unwarranted charge upon the tenant. It is suggested that in some cases the bathroom may be placed on the first floor with a saving of expense and work, and generally with advantage, providing that the arrangement of rooms and stairs is such that privacy is not sacrificed. The workman's wife with a family of small children will appreciate the saving in steps which such an arrangement will insure. In addition there is the equally important saving in cost, due to simplified plumbing and the ease with which a bathroom may be heated. This suggestion has been developed in the plans submitted."

The committee lays special stress on the need and desirability of the services of the architect in carrying out work of this character, especially where a development involving the construction of a number of dwellings is contemplated. In fact the completeness of the present recommendations which will undoubtedly lead to regulations forming the basis of a number of attractive developments, as well as the commendable types of houses suggested in the drawings, is due to the co-operation of architects and others, regarding which the committee gives acknowledgement.

The plans submitted with the report were prepared under the committee's supervision by Mr. H. R. Dowswell, A.R.I.B.A., co-operating with the firm of Messrs. Banigan, Mathers and Thompson. Valuable suggestions were also received from Messrs. Burke, Horwood and White, Messrs. Shepard and Calvin, Messrs. Eden Smith and Sons, and Mr. J. P. Hynes.

In the preparation of standards the committee also acknowledges the assistance rendered by a committee of the Ontario Association of Architects, consisting of its President, Mr. C. H. Acton Bond, Mr. J. P. Hynes, Mr. R. K. Shepard and Mr. A. F. Wickson, and the following ladies and gentlemen who were called into consultation: Mr. W. S. B. Armstrong, Mr. A. Chapman (architect), Mrs. H. B. Dunnington Grubb, Mrs. L. A. Hamilton, Mr. A. S. Mathers, Mr. P. H. Mitchell, Dr. Margaret Patterson, Miss J. M. Robson and Mrs. J. E. Wetherell. The committee also had the advantage of consultation with Mr. Thomas Adams, Town Planning Advisor to Commission of Conservation, Ottawa.

Elimination of Waste in Building Codes

(*Continued from page* 78.)

have since adopted reinforced concrete codes, the provisions of which indicate that many of these magnificent and amply safe buildings should be unsafe and should have collapsed the moment the laws became effective. Such is law. Why?

Codes are generally made for the worst conditions of incompetent architectural and engineering designing and inspection and bad construction by dishonest and incompetent contractors. This is a sad commentary on the efficiency of the administrative ability of American cities and the standing of the related professions. This theory of law-making is entirely wrong.

Laws should be made for the best conditions and *effectively administered.* It does not speak well for the architects, engineers and contractors that they have quietly labored under these false assumptions of the building codes and it is now time that they should assert their true place in the political economy of this country as competent and honest men. A building department of any city which thus admits its inability properly to enforce the law and conserve the interests of the citizens should be dismissed at once and replaced by those who can effectively administer wise and proper laws.

A city which has an improper building code is handicapped and its growth hindered by the burden of useless costs incorporated in building construction. The intelligent investor in such projects will locate in such cities that make it possible for him to secure an adequate return for his investments to which every investor is entitled. It needs no argument to substantiate the fact that the state of the building industry in any community is the index of its prosperity. It then behooves those who have the interests of the industry at heart, architects, engineers, contractors, material producers, realtors and citizens generally, to make the proper revision of building codes now the first order of business.

POST-WAR HOUSING.

(Continued from page 85.)

the necessary capital to ensure the purchase of material at a value that will safeguard the borrower and the lender.

I would also like to ask if it is the intention to place a maximum on the amount of the loan to any one individual.

Mr. Adams: With regard to the particular scheme just outlined, it would hardly be proper for me to make an observation, because it might be in conflict with the notions of the authorities, but it seems to be a very reasonable proposal. At the same time, it will depend on what attitude the provincial authorities take in the matter.

If you take Ontario as an example, they are proposing to lend the whole of the cost of building provided the borrower owns the lot. In other words, if I own a lot worth $500, I can borrow $2,500 at 5 per cent. to build a house.

You might think that 5 per cent. money is not such a very great catch for the borrower, but if he went to a private lender to borrow the whole of the cost of his house he would have to pay 8 or 9 per cent. More than that, he could not probably borrow above two-thirds of the money. The real benefit to the workman in a case of that kind cannot be represented by the difference between 5 and 8 per cent., which is $1,200 over a period of twenty years. If I give you the money to build a $3,000 home or a $2,500 home at 5 per cent., I am giving you $1,200 over twenty years as compared with what you could raise the money for from a private lender. This means the Government's offer is about 20 per cent. on the cost of building.

I do not believe the individual home-builder can compete with a comprehensive scheme. I think the Ontario Government is doing a good thing in saying that if a man has a lot they are prepared to lend him the money to build on it, subject to its being an improved lot and in a healthy location.

All things considered, if a man has to go to different places to buy his few bricks, and his timber, his doors, his windows, his hardware, and so on, perhaps without any knowledge and without any practical experience, surely there must be something wrong if we could not compete with him by building fifty or one hundred houses, with all the advantages of wholesale buying and wholesale planning and proper architectural advice. In other words, it will pay that man better to sell his lot at a loss and enter the comprehensive scheme, if we carry out the comprehensive scheme satisfactorily.

While we must encourage the individual to build his home on his own lot, yet the most successful method will be when we do it in a very large way, if we apply business principles to it.

You also asked as to the maximum amount. In reply to that, I might tell you that the Ontario Government says "$2,500 for the house and $500 for the land." I think probably the Dominion Government will proceed on a different basis, and will suggest that the maximum for a certain class of construction, say frame, brick veneer, or stucco and frame, shall be $3,000, and if the house is built of stone, or concrete, or hollow tile, with fireproof roof and a proper foundation, it shall be, say, $4,500. It is really improper to offer one sum of money for any kind of construction, and I think the Federal Government is likely to offer a higher sum for the permanent construction, so as to encourage that class of construction being carried out.

It is better policy for a man to borrow $5,000 to build a small five-room permanent house that will last for forty or fifty or sixty years, rather than that he should put up a frame house which is only a temporary structure.

Mr. Dandurand: Is it really the intention of the Government to discourage the building of two-family houses? I ask the question because that seems to be the accepted thing in Montreal, especially for the workingman, who feels that if he has a two-family house he may live in one part of it and get a certain revenue from the other which will help him to pay for it.

Mr. Adams: On the contrary, I stated the fact that the Committee of the British Government had recommended that the cottage home was, taking everything into consideration, the most economical, and that even the two-storey flat was less economical, and that the tenement was still worse. There was, however, this qualification (and it would also apply to Montreal), the Scottish people have developed a sort of habit of living in tenements. Newcastle is in a class approaching Montreal. Newcastle lives in the same kind of houses as Montreal does—a two-family house, one flat below and one above. That, of course, is taken into consideration, and they say: "We believe in the single house, but, of course, we must recognize local peculiarities. It may be difficult, of course, to reach our ideal.

I had a gentleman from Montreal in to see me the other day, and he suggested that there should be tenements built to satisfy the conditions in Montreal. I said: "Surely the kind of houses which the people of Montreal will use is very much better than the tenement. We may try to get some of them to live in separate homes, but, in any event, we should encourage them not to build houses higher than two storeys, even if they have separate flats, and I think by all means we should encourage them not to do so." Of course, they might do it so long as we could not show them something better in the way of a detached home.

It is all a matter of practical demonstration. If the people of Montreal insist on living in that class of house because of the necessity for conserving heat and the difficulty of getting domestic service, there are certain advantages in the flat and the apartment house. If you have four houses together in one block, two below and two above, they are very healthy kind of houses, and when one is newly married and has only small children there is, perhaps, nothing better.

I do not think we should try to discourage what was the local habit, except by means of practical demonstration. We would not say, "We will not help you to build that class of house," but I think we would say, "We will try to show you something better." At the same time, it is really a matter for the provinces, and not a matter for us.

The Chairman: There was a teacher trying to get the children in her class to tell her the meaning of "M-o-u-s-e," but they did not seem to realize what it meant, so she said: "What is that funny little thing that comes creeping up the stairs in the middle of the night, not making the slightest bit of noise?" and a little girl said, "Why, that is papa."

I do not want you to get into that category, and as the evening is getting late, I think we will bring the meeting to a close.

Mr. Brown: Before we disperse, I think a hearty vote of thanks should be offered to Mr. Adams, Mr. Stewart, Mr. Dandurand, Dr. Atherton and Dr. Hodgetts for the pleasant, interesting and enjoyable talk they have given us this evening.

Mr. Archibald: I have very much pleasure in seconding the motion, and in doing so I might, perhaps, be permitted to say that the Province of Quebec Association of Architects has been fully awake to the problems of the occasion, and if there is a Civic Improvement League in the city of Montreal to-day it is due to the efforts of the Province of Quebec Association of Architects. Fourteen or fifteen years ago that association started an improvement in the city of Montreal. We went ahead for about two years, thanks to the donation of a certain gentleman in the city, and certain plans were brought forth. About a year ago those plans were decorating the ante-room of the Council Chamber in the City Hall.

Shortly after the thing got going it became what you might call a social function. It belonged then to Sherbrooke Street, and from then on the Province of Quebec Association of Architects has been put aside. I am accustomed to talk frankly, and I will talk frankly now. We started the movement, and we were prepared to continue it.

Mr. Adams stated that there was not a proper plan of the city of Montreal. Up to the last few months this was perfectly true. There was not a complete plan of the Island of Montreal in the civic chambers. I am glad to say, however, that there is a plan now, not showing all the hedges and ditches, but showing the streets, with their proper widths, and the street car tracks, etc., as well as where the railways run, and where they do not. This plan has been in existence since the month of April last, and we have loaned blue prints of it to the city of Montreal.

If you are going to do anything in the city of Montreal in the way of improvement of housing conditions, or improvement of anything else, one of the most important steps you could take would be to prohibit the land speculator from buying up farm land and sub-dividing it. To my mind, that is the crux of the whole situation. I sat for two hours this morning with a delegation which wanted street car connection, and for a mile and three-quarters the city plan showed streets crossing the tracks where our plans showed no connection. I could show you thousands of lots north of Mount Royal Avenue where streets put in by land speculators run into the middle of the lots. Those plans are registered, and what can you do about it? You cannot do anything, so far as they are concerned, but you can stop anything of the kind in the future.

I think a commission should be appointed to study the whole question of the sub-division of the Island of Montreal, and no sub-division should be registered unless it gets the sanction of some commission or some authority appointed by the Government.

The Chairman: In Ontario we have an Act which prohibits anyone holding land within five miles of the city limits from sub-dividing that land without the sub-division being approved by a committee, so that we are a little ahead of you in that way. On the other hand, we could show you all sorts of tangles in Toronto resulting from each man wanting to do what was right in his own eyes, and where the consequence was confusion—streets that abutted into long blocks, so that delivery waggons would have to spend the greater part of a day going around to a house on the other side of the block. This has been stopped now, and I hope you will have it stopped here.

Mr. Dandurand: I quite approve of what Mr. Archibald says. For years I have been advocating the borough system of London, by which there would be a council of the whole Island of Montreal, to which all plans should be submitted, for sub-divisions, water mains, drainage, etc. One municipality should not be allowed to lag, a 20-inch sewer, for example, where a 36-inch sewer might be needed, and the streets should all be laid out harmoniously. An alternative to the borough system would be to have a commission with authority to regulate all such plans as are submitted.

It sometimes happens that with the best intention in the world people have laid out farms in a way which did not line up when other sub-divisions were made. Perhaps I have been guilty of this myself, because I have sold 24,000 lots of the city of Montreal. We lay out the plan in the best way we know how, but later on the city grows, and our plan does not correspond with the growth. Anybody is liable to be mistaken, even after giving the matter the most careful consideration. For instance, they expected Washington to grow in a certain direction, and, as a matter of fact, it grew the other way, and the newer part of the city overlooks the back of the Capitol.

When they built the New York City Hall someone proposed that it was not necessary to go to the expense of making a stone wall in the back, because it was never expected that New York would grow beyond the City Hall. Everybody knows what the result has been.

It is important that there should be some proper control. Of course, it is late now, but it is better late than never.

The Chairman: The motion before the chair is that a hearty vote of thanks be extended to the several gentlemen who have addressed us this evening. I do not know that it is necessary for me even to put this motion to you, because I can plainly see it is the unanimous opinion of everybody present that we have had a most interesting and instructive address and discussion.

The motion of Mr. Brown, seconded by Mr. Archibald, was carried amid applause.

The Chairman: I think you will all agree with me that we have had a very good and successful convention this year. I hope our next one will be as interesting. If there is no further business before the chair, I will declare the meeting closed.

And the meeting thereupon adjourned.

Opens Office for Practice at Windsor

Mr. Hugh A. Beaton has opened an office for architectural practice in the Royal Bank, Windsor, Ont. Catalogues and trade literature are desired from manufacturers and supply dealers, especially as regards materials and equipment for apartment houses.

Architectural Refinement

(*Continued from page 76.*)

past ages, and the architect who actually experiments, as Mr. R. M. Butler has done, may do so with the knowledge that his designs cannot, in any case, suffer in the process, since the differences in setting out are exceedingly slight. Any means which serve to concentrate our attention on the effect of the whole rather than on that of detail will probably serve a useful purpose, for excessive concentration on detail has spoilt many otherwise excellent buildings, and mathematical accuracy is now so easily obtainable that it is likely to become the designer's snare.

The broad statement that we incline to be over-influenced by what seems at first sight to be far-fetched and strange, rather than to accept the obvious, is made manifest to anyone who attends lectures on architecture, or, indeed, any form of art. We certainly like to attribute emotions and ambitions to the great artists of the past that they probably never experienced. If Benvenuto Cellini had not given himself away by writing a book, we might have imagined him as a man who was entirely immersed in high conceptions of his art, uninfluenced by mere mundane considerations, and the lives of most of the architects of the Renaissance, as exposed in contemporary literature, are often prosaic and commonplace compared with the golden web of fancy we weave round them. It may be that, if we dispensed with these golden figments of the imagination, we should lose much pleasure, but it is possible that we should find ourselves in more complete harmony with the life we are part of, and better fitted to make our contribution to its wants. Meanwhile, we have only suggested, with diffidence, theories which may be entirely disproved, and are quite ready to acknowledge our complete conversion to the true faith, whatever it may be.—"The Architect," London.

Architectural Competitions

By Thomas Crane Young.

(Reprinted from "The American Architect.")

If the architectural profession is ever to place itself on an equality with other established professions in standing and dignity before the public, it will be necessary to purge from itself some of its inherited practices and customs which serve no proper purpose in the conduct of the business of building under modern conditions. Probably the so-called Architectural Competition, whether of the illegitimate "wild cat" variety or as conducted by orthodox methods under the Code of the American Institute of Architects, has had greater effect in preventing a unity of effort in the professional ranks, and perhaps has done more to create an unfavorable public opinion than any other traditional custom.

It would seem quite ridiculous to request a dozen or so of lawyers to prepare a brief in a given case at law, or a like number of physicians to diagnose a disease and outline a course of treatment and then submit the same for judgment to another practitioner, who might perhaps be no better qualified to decide on their respective merits than any of the contestants.

The actual cost of producing conventional competition drawings is very great and out of all proportion to their usefulness. The aggregate of expense in a single competition often reaches into tens of thousands of dollars and assumes enormous proportions when one considers the amount so spent annually by the entire profession. All this is pure waste for the many who lose and largely so for the few who win, as equally effective results might be obtained by less expensive methods. While in other professions and lines of business every effort is being made to eliminate unnecessary waste, architecture seems to be the only one which deliberately permits and encourages it.

The object of a competition, according to the Code, is the selection of an architect, not a plan. In theory each competitor is selected because of his proved ability to conduct the work should the choice fall on him. It should be unnecessary that the problem be worked out ten or twelve different ways in order to effect a final choice. It would save the futile effort of the unsuccessful and in view of the original selection, accomplish the purpose equally well were the final choice to be decided by lot.

Quite recently the practice has been defended by one high in the councils of the Institute as a regrettable, though necessary, concession to the gambling spirit inherent in the human race. His designation of the practice is unquestionably correct, though why a dignified professional body should find it necessary to condone this or any other vice is difficult to understand. In most straight gambling games the chances of gain or loss are supposed to be equal, but in the

(*Concluded on page 96.*)

CONSTRUCTION

A · JOURNAL · FOR · THE · ARCHITECTURAL ENGINEERING · AND · CONTRACTING INTERESTS · OF · CANADA

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WESTON WRIGLEY, Business Manager
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Toronto School Competition

Schools are important and necessary buildings in any community and should therefore embody the highest element of architectural thought. Consequently in calling for competitive plans for the erection of two new schools, the Toronto Board of Education has taken a decidedly progressive step. It represents a change in policy which is more than justified by the importance of the structures to be built and the additional new schools which the city will be called upon to provide. Heretofore the planning of work of this character has been done by the Board's own drafting department under the supervision of the Superintendent of Buildings, but evidently the conclusion has been reached that better results can be obtained under the system which is at present being inaugurated. However, in adopting competitive methods the Board has at the same time in no small measure nullified its good intentions by failing to appoint duly qualified assessors to pass upon the designs. There is no doubt but what this will greatly limit the number of contestants, and hence deprive the competition of some of the best available talent. In view of this it would seem advisable on the part of the trustees to revise the terms of the programme so as to conform with governing conditions generally approved by the architectural fraternity. Toronto, of necessity, must carry out a large amount of delayed school work in the immediate future and the aim should be to gain the interest of competent designers with a view to securing a plan which might serve as an architectural model for all subsequent buildings.

Ontario Housing Enactment

The Housing Act which has just been passed by the Ontario Legislature is an important measure which will at least afford some degree of relief to the housing situation by giving financial assistance to those who desire to build and own their own homes. By the enactment between $10,000,000 and $12,000,000 will be available for this purpose, and as the first step of its kind in Canada it constitutes an experiment of decided economic importance. While the Act does not contemplate anything as comprehensive as town planning, it nevertheless initiates a policy susceptible to enlargement in that direction and may eventually resolve itself into a town planning act. The principle feature of the present legislation is that it provides means whereby workmen, returned soldiers and others owning a piece of land, or having funds equal to 10 per cent. of the total investment, can build and own their own homes on the basis of what they are otherwise required to pay in rent. In furtherance of the object in view, certain standards are to be established in reference to the design, arrangement and sanitary equipment of the houses coming within the Act. These are dealt with more fully in the recommendations of the Ontario Housing Committee published elsewhere in this issue, and provide for inexpensive houses of a very desirable and commendable type which, if carried out along the lines suggested, will be a credit to any city.

The production of asbestos in Quebec Province in 1917 reached 137,242 tons, valued at $7,198,558, as compared with 133,339 tons, valued at $5,182,905, for 1916. The percentage increases were 3 per cent. in tonnage and 38.9 per cent. in value. The average price per ton rose to $52.45, as compared with $38.87 in 1916, $31.33 in 1915, $26.96 in 1914 and $28.04 in 1913. The output was hampered by shortage of labor, but 2,634,410 tons of asbestos-bearing rock were mined and hoisted during the year.

Architectural Competitions

(*Continued from page 94.*)

competition game, even of the most orthodox variety, this proportion is seldom reached. Let us take, for example, one in which ten contestants are selected, presumably of equal standing and ability, the chance of success can only be as one to ten, and with a larger number of competitors the proportion must be correspondingly decreased. Nor are the stakes inconsiderable, for even in the respectable "paid" competition the individual cash investment often runs into thousands of dollars. As a sporting proposition, it is about on a level with shooting loaded dice, and, of course, as a conservative business venture it can have no standing at all. The feuds and rivalries so frequently engendered by competitions can only spread demoralization among architects and the business world can have but little respect for a "profession" where employment in a serious task may be determined by the issue of a game of chance.

A more serious matter is the effect of this unfortunate custom upon the young, for in them it encourages the idea that sudden fame and fortune may easily be attained through a brilliant architectural *tour de force* or stroke of genius as a substitute for the slower processes involving continuous study and work, which is usually the price of success in other walks of life.

Our system of education may be somewhat at fault, the schools having (unconsciously, no doubt) fostered a false idea of the purpose for training and the ends to be attained thereby. They have, as it were, cultivated an elaborate and ornate handwriting with too little regard for the thought to be expressed. Neither has the atelier system borrowed from France been more successful in the improvement of American architecture because it encourages imitation of French forms without adaptation to American conditions. Thus architectural "rendering," so expensive and so useless, has become the goal of effort for the student architect instead of the physical substance of the completed building which is the architectural idea expressed through the refractory medium of steel and brick or stone. These elaborate architectural drawings, often exhibiting wonderful workmanship, cost thousands of dollars but have no value as works of art, for they cannot be sold in any market for the price of a song. In contrast with this, the "artist" may take a dime's worth of paper and a pencil and, perhaps, produce a picture worth a substantial fortune. A better instance of misdirected energy than the former case presents could scarcely be devised.

Quite recently an eminent architect, in a public address, defended the Architectural Competition as a means of injecting a little excitement and zest into an otherwise hum-drum existence. One can scarcely think that any of the champions of the ancient Code who have yet spoken have been sincere or themselves shown a high degree of respect for their chosen calling or of the "high ideals" of which they prate so much.

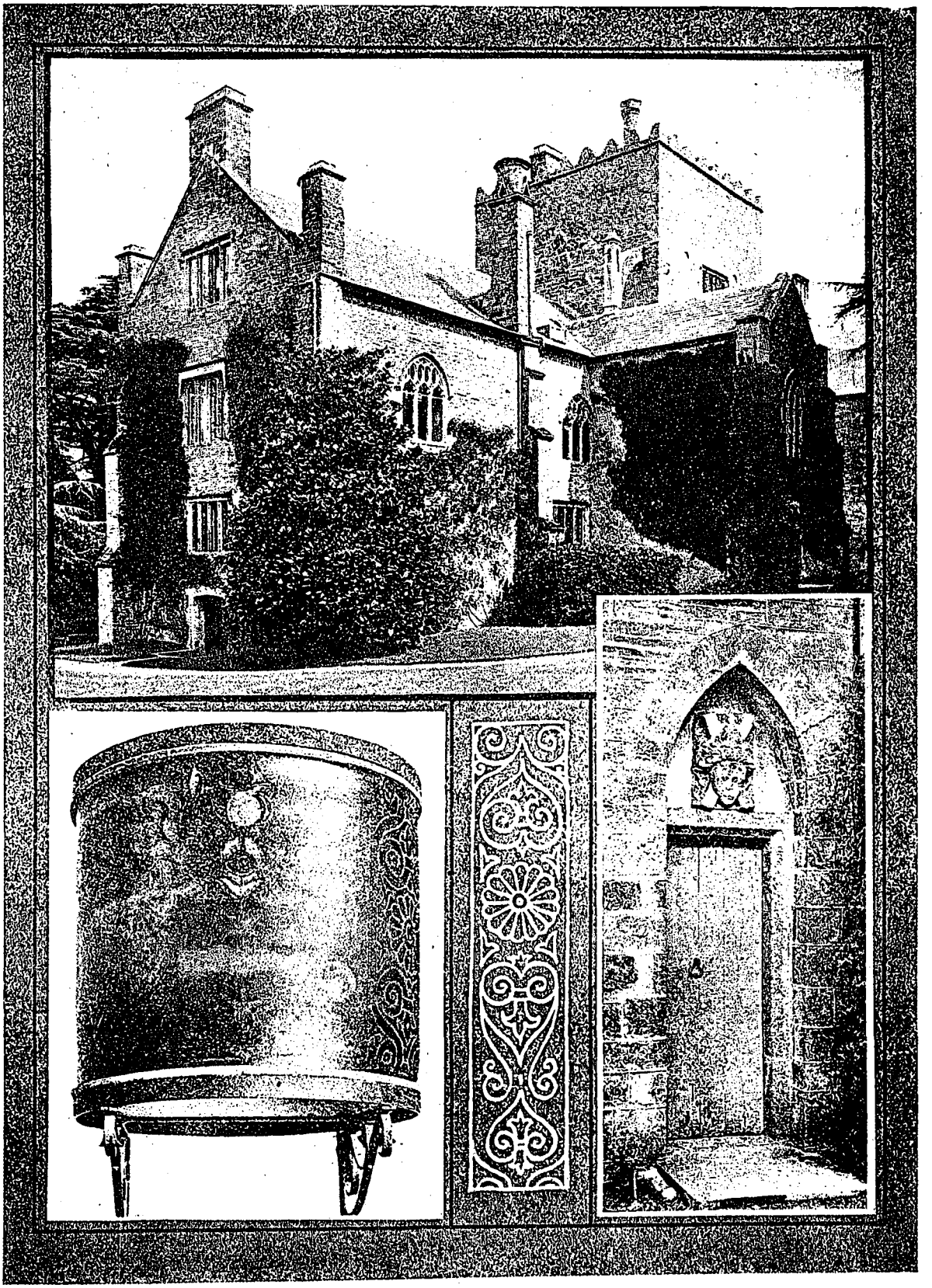
Future of Jerusalem's Architecture

Jerusalem's architectural, political, economic and social future is outlined in the "Spectator," London. As a result of the great change which has put new life in its veins, it is written:

"The Moslems find comfort in the British assurance that the town planning scheme now afoot will not touch the ancient city within the walls. This scheme does not altogether please the Jews, for it involves the destruction of hundreds of the hideous erections which have arisen outside the walls of late years—shops and dwellings which have ruined the approach to Jerusalem. For the Jew, with all his artistic temperament, is not studious of architectural symmetry, and centuries of Ghetto life have not inspired him with much domiciling taste.

"The plans for the new city have been drawn by Mr. McLean, chief engineer of Alexandria, who was responsible for the Khartoum improvements. Among the chief features of the Jerusalem plans is a splendid boulevard running from the southwest toward the old city, intersected by an arboreous rond-point containing the British War Memorial. In future all buildings are to be in keeping with the local character; no more red roofs, no more flaunting gilded domes and other Neo-Byzantine atrocities. That eyesore, the Kaiser's clock tower, is to come down. The Holy City is hereafter to preserve her architectural soul secure from outside violation, and with this security, may become one of the most beautiful, as it is the holiest, the most ancient, and the most interesting city in the world.

"Jerusalem is giddy with prosperity. The British 'Tommy' is here, and a Pactolian stream of piastres floods the shops, bazaars, the very gutters. None so meek, so dull, so unenterprizing but can divert some of this torrent; and Turk, Jew, and Gentile, shopmen, curio-sellers, restaurants, cabmen, guides, photographers, artisans, hucksters, barbers, shoeblacks, and beggars, are enjoying an affluence they have never known or dreamt of since King Solomon's day. Jerusalem in war time has become very much like one of the numerous febrile, army-infested towns of Northern France, and in her streets a thousand allurements, from cheap jewelry to pink ice cream, appeal irresistibly to the passing thousands of dust-covered soldiers."



AN HISTORIC HOME IN DEVON.

Buckland Abbey, Devonshire, is one of the historic homes of England, where Sir Francis Drake spent the latter part of his life. The upper picture shows the south-east view of the abbey; on the left is "Drake Drum," which, tradition says, sounds whenever England is in danger; on the right is the doorway with the head of Amicia. This lady was a Countess of Devon, who, in 1278, founded the house for Cisterclan Monks.

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Brick, Russell & Co., Blake Avenue.
Electric Fixtures, F. C. Henderson.

ANNOUNCE CHANGES IN STAFF.

The C. A. Dunham Co., Ltd., Toronto, announce that a change has been made in their branch sales office at Montreal. Mr. A. Kastello, recently superintendent of construction for the Imperial Munitions Board at Trenton, and formerly with the Dominion Government and Grand Trunk Railway, has been installed as new branch manager in charge of their office at 711 New Birks Building.

Mr. Kastello is to be assisted in the company's growing business by Mr. F. O. Hamel, as heating engineer, formerly first assistant engineer in the Public Works Department of the Dominion Government at Ottawa.

The C. A. Dunham Co., Ltd., are very optimistic over the prospects of building activity, and this change has been made to strengthen their organization and to render better service to their trade and clients in Montreal.

This company has experienced a very healthy growth during the war period through wider use of its product under conditions requiring more efficient heating methods.

STEEL FACTORY AND SHOP EQUIPMENT.

High-grade furniture steel has proven most adaptable and versatile in the construction of factory and shop equipment, such as cabinets, shelving, stock-room partitions, lockers for employees and for material, etc., and is fast being adopted by Canadian firms generally.

There are many reasons for the universal use of steel in such items of equipment, chief among which are its quality of being fireproof, its capacity to bear heavy weights, its apparent indestructibility, its capacity for standardization, permitting a concern to start with a small amount of steel equipment and add other uniform pieces as requirements demand, and its low ultimate cost as compared with wood.

The Dennis Wire & Iron Works Co., Ltd., of London, Ont., have pioneered in this industry in Canada, and have achieved for their well-known line of factory and shop equipment a very high reputation for quality and durability. This firm has just recently made an important installation at the plant of John Bertram & Sons Company, Dundas, Ont. In the warehouse for small tools alone, this company had no less than one-tenth of a mile of shelving installed, with bin fronts, label holders, etc., besides a great many stacks fitted with drawers for small drills, taps, etc., aggregating a total of some 1,200 drawers, each with label holder to indicate contents. These stacks are built to carry extremely heavy weight on account of the nature of the material stored. The standard type shelving and drawers was used in anticipation of the necessity of adding similar units from time to time.

All this equipment was planned and installed so that the stacks, instead of being placed along walls, run out from the walls to the centre of the warehouse, leaving passageways between, and the layout is such that between each row of stacks there is a window, providing sufficient light and air. All stacks extend the same length, and the whole presents a most orderly, uniform appearance, and will make the task of stock-taking comparatively simple.

For the same firm, the Dennis people are installing some 200 steel wardrobe lockers for the use of employees, besides complete equipment of steel tables, foot-rests, stools, etc., in the drafting room, the whole making one of the most up-to-date installations of all-steel units in the Dominion of Canada to-day.

INDUSTRIAL HOUSING.

Three outstanding features characterize industrial housing at the present time, viz.: (1) The increasing number of projects being completed and carried out; (2) the improvement shown in the matter of design and grouping of the houses, and (3) the substantial type of construction that is being employed in their erection. In an exceptionally large number of cases hollow tile is the material used, making the dwellings sanitary and to a large extent fireproof in character. The National Fireproofing Company's booklet (Bulletin 172), just issued, shows some noteworthy schemes recently developed by industrial companies. The illustrations are of a very high class order and show some very interesting houses of a diversified type. There is an instructive preamble as an introduction to the booklet and valuable information and data as to the material to which it relates. A copy of the bulletin may be obtained from the company upon request.

A recent issue of "Conservation" states that fire waste in Canada is increasing in leaps and bounds. During the first ten months of 1918 the value of property destroyed by fire was 45 per cent. greater than during the same period of 1917, and almost 70 per cent. greater than in 1914. Nearly 79 per cent. of the fire losses, it points out, occurs in large business properties, and adds that good fire prevention strategy should concentrate on factory and business risks.

It was recently announced by Hon. T. A. Crearer, Minister of Agriculture, that approximately one million dollars have been appropriated for the construction of a Government cold storage plant at Montreal. Work on the project, he said, would commence this coming summer, and that the plant when completed, would be one of the most up-to-date and best equipped of its kind in the world.

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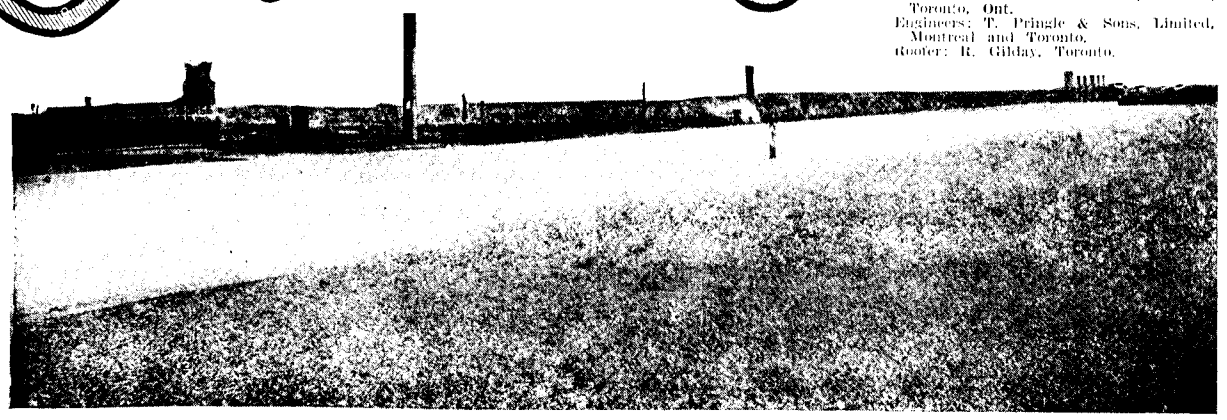

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Canadian Blower and Forge Co., Ltd.
Goldie & McCulloch Co., Ltd.
Sheldons Limited.
Waterous Engine Works Co.

Engineers.
Jackson-Lewis Co., Ltd.
Lyall, P., Construction Co.
MacKinnon, Holmes & Co.

Engineers' Supplies.
Canadian Blower and Forge Co., Ltd.
Sheldons Limited.

Exhaust Fans.
Canadian Sirocco Co.
Northern Electric Co., Ltd.
Sheldons Limited.

Expanded Metal.
Noble, Clarence W.
The Pedlar People.
Trussed Concrete Steel Co.

Expansion Bolts.
Northern Electric Co., Ltd.

Factory Lunch Room Furniture.
J. G. Pickering & Co.

Fencing (Iron and Wire).
Banwell Hoxie Wire Fence Co.
Canadian Allis Chalmers, Ltd.
Dennis Wire and Iron Works Co., Limited.

Fire Brick.
Elk Fire Brick Co.

Fire Doors.
Douglas Bros., Ltd.
Ormsby, A. B., Co., Ltd.
Pedlar People, Ltd.
Richard Wilcox Canadian Co.

Fire Door Fittings.
Allith Manufacturing Co.
Canada Wire & Iron Goods Co.
Richard Wilcox Canadian Co.
Yale & Towne.

Fire Extinguishers.
Dunlop Tire & Rubber Goods Co., Ltd.
Vogel Co. of Canada, Ltd.

Fire Escapes.
Canadian Allis Chalmers, Ltd.
Canada Wire & Iron Goods Co.
Dennis Wire and Iron Works Co., Limited.
Dominion Architectural Iron Works.
Reid & Brown.

Fire Hose.
Dunlop Tire & Rubber Goods Co., Ltd.
Gutta Percha & Rubber Co.

Fireproofing.
Asbestos Mfg. Co.
National Fireproofing Co.
Noble, Clarence W.
Ormsby, A. B., Co., Ltd.
Pedlar People, The.
Trussed Concrete Steel Co.

Fireproof Steel Doors.
Canada Wire & Iron Goods Co.
Dahlstrom Metallic Door Co.
Douglas Bros., Ltd.
Ormsby, A. B., Co., Ltd.
Pedlar People, The.

Fireproof Windows.
Ormsby, A. B. Co., Ltd.
Pedlar People, The.
Trussed Concrete Steel Co.

Fire Sprinklers.
Keiths Limited.
Vogel Co. of Canada, Ltd.

Floor Hardener.
Sonneborn, L., Sons.

Flooring, Rubber.
Dunlop Tire & Rubber Goods Co.

Garage Hardware.
Richard Wilcox Canadian Co.

Galvanized Iron.
Ormsby, A. B., Co., Ltd.
Pedlar People, Ltd.

Galvanized Iron Works.
Pedlar People, The.

Garden Furniture.
Sheridan Nurseries.

Gates (Iron and Bronze).
Canadian Allis Chalmers, Ltd.
Dennis Wire and Iron Works Co., Limited.
Dominion Architectural Iron Works.
Mitchell Co., Robt.

Glass.
Hobbs Mfg. Co., Ltd.
Imperial Glass Co., Ltd.
Toronto Plate Glass Imp. Co.

Graphite Paint.
Dominion Paint Works.

Greenhouse.
Lord & Burnham Co.

Grille Work.
Canada Wire & Iron Goods Co.
Canadian Allis Chalmers, Ltd
Dennis Wire and Iron Works
Dominion Architectural Iron Works.
Mitchell Co., Robt.
Taylor, J. & J.
Turnbull Elevator Co.
Tuttle & Bailey Mfg. Co.

Guy Anchors.
Crouse Hinds Co. of Canada.

Hangers.
Allith Mfg. Co.
Richard Wilcox Canadian Co.
Waterous Engine Works Co.

Hardware.
Belleville Hardware Co., Ltd.
Yale & Towne.
Richard Wilcox Canadian Co.

Hardwood Floors.
J. R. Eaton & Sons, Ltd.
Georgian Bay Shook Mills, Ltd.

Headlights.
Crouse Hinds Co. of Canada.

Heating Apparatus.
Canadian Blower and Forge Co., Ltd.
Canadian Sirocco Co.
Darling Bros., Limited.
Dunham Co., C. A.
Goldie & McCulloch Co., Ltd.
Keiths Limited.
Modern Heating & Engineering Co.
Murphy Iron Works.

Record Foundry & Machine Co
Sanford Riley Stoker Co.
Sheldons Limited.

Heaters—Feed Water.
Canadian Allis Chalmers, Ltd

Heating Engineers and Contractors.
Canadian Blower and Forge Co., Ltd.
Canadian Sirocco Co.
Keiths Limited.
Sheldons Limited.

Hollow Tile.
Don Valley Brick Works.
National Fireproofing Co.
Sun Brick Co.

Hoists (Steam, Gas or Electric).
Wettlaufer Bros., Ltd.

Hoisting Machinery.
Turnbull Elevators.
Waterous Engine Works Co.

Hose.
Dunlop Tire & Rubber Goods Co.
Gutta Percha & Rubber Co.

Hospital Furniture, Steel.
Canada Wire & Iron Goods Co.
Dennis Wire & Iron Works Co.

Hospital Trucks.
Canada Iron & Wire Goods Co.
Brantford Oven & Rack Co.
Dennis Wire & Iron Works Co.

Hot Water Boilers.
Gurney Foundry Co., Ltd.
Dominion Radiator Co., Ltd.
Spencer Heater Co. of Canada.
Steel & Radiation, Ltd.
Taylor Forbes Co., Ltd.

Ice Machinery.
Canadian Ice Machine Co.

Ice Making Plants.
Canadian H. W. Johns-Manville Co., Ltd.

Industrial Lunch Room Furniture.
J. G. Pickering & Co.

Inspecting Engineers.
Canadian Inspection and Testing Laboratories, Limited.

Insulation.
Armstrong Cork & Insulation Co.
Asbestos Mfg. Co.
Canadian Asbestos Co.
Canadian Johns-Manville Co

ARCHITECTURAL DIRECTORY—Continued

Interior Woodwork.
Canadian Office & School Furniture Co., Ltd.
Eaton, J. R. & Sons, Ltd.
Georgian Bay Shook Mills.

Iron Doors and Shutters.
Canada Wire & Iron Goods Co.
Dennis Wire and Iron Works. Co., Ltd.
Taylor, J. & J.

Iron Stairs.
Canada Wire & Iron Goods Co.
Canadian Allis Chalmers, Ltd.
Dennis Wire and Iron Works

Jail Cells and Gates.
Canada Wire & Iron Goods Co.
Dennis Wire and Iron Works
Goldie & McCulloch Co., Ltd.
Taylor, J. & J.

Kitchen Equipment.
Brantford Oven & Rack Co.
Gurney Foundry Co.
McClary Mfg. Co., Ltd.
Wrought Iron Range Co.

Joist Hangers.
Richard Wilcox Canadian Co.
Trussed Concrete Steel Co.

Lamps, Electric.
Canadian General Electric Co.
Northern Electric Co.

Lamp Guards.
Harvey Hubbell Co. of Canada

Lamp Standards.
Canadian Allis Chalmers, Ltd.
Mitchell, Robt., Co., Ltd.

Lath (Metal).
Noble, Clarence W.
Pedlar People, The.
Trussed Concrete Steel Co.

Lighting Fixtures.
Benjamin Electric Mfg. Co.
Canadian General Electric Co.
McDonald & Willson, Ltd.
Mitchell, Robt., Co., Ltd.

Lockers (Steel Material).
Canada Wire & Iron Goods Co.
Dennis Wire and Iron Works
Dominion Architectural Iron Works.

Mantels.
Yokes Hardware Co.

Marble
Italian Mosaic & Marble Co.
Mariotti Marble Co.
Smith Marble Co.

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Dunlop Tire & Rubber Goods Co., Ltd.

Mechanical Rubber Goods.
Dunlop Tire & Rubber Goods Co., Ltd.
Gutta Percha & Rubber Co.

Metal Shingles.
Ormsby, A. B., Co., Ltd.
Pedlar People, The.

Metal Store Fronts.
Pedlar People, The.

Metal Walls and Ceilings.
Noble, Clarence W.
Pedlar People, The.

Oil Burning System.
Fess System Co. of Canada.

Ornamental Iron Work.
Canada Wire & Iron Goods Co.
Canadian Allis Chalmers, Ltd.
Dennis Wire & Iron Works Co.
Meadows, Geo. B., Wire & Iron Works.
Mitchell Co., Robt.
Turnbull Elevator Co.

Overhead Carrier Systems.
Richard Wilcox Canadian Co.

Packing.
Jenkins Bros., Limited.

Packing (Rubber).
Dunlop Tire & Rubber Goods Co., Ltd.
Gutta Percha & Rubber Co.

Paints (Preservative).
Barrett Co., Ltd.
Canadian H. W. Johns-Manville Co., Ltd.
Dominion Paint Works.

Paints (Steel and Iron).
Barrett Co., Ltd.
Dominion Paint Works.
Jamieson, R. C. & Co.
Martin Senour Co.

Paints and Stains.
Barrett Co., Ltd.
Carter White Lead Co., Ltd.
Jamieson, R. C. & Co.
Martin Senour Co.

Panel Boards.
Crouse Hinds Co. of Canada.

Partitions.
Asbestos Mfg. Co.

Partitions (Lavatory).
Canada Wire and Iron Goods Co., Ltd.
Dennis Wire and Iron Works
Pickering I. G., & Co.

Pencils.
American Lead Pencil Co.
Dixon, Joseph, Crucible Co.

Pipe Covering.
Asbestos Mfg. Co.
Canadian H. W. Johns-Manville Co., Ltd.
Canadian Asbestos Co.

Plate and Window Glass.
Hobbs Mfg. Co., Ltd.
Toronto Plate Glass Co.

Plugs.
Harvey Hubbell Co. of Canada

Plumbing Fixtures.
Canada Metal Co., Ltd., The.
Mott Company, Ltd.
Port Hope Sanitary Mfg. Co.
Robertson, Jas., Co., Ltd.
Standard Sanitary Co.

Porcelain Specialties.
Crouse Hinds Co. of Canada.

Projectors.
Crouse Hinds Co. of Canada.

Pumps (Centrifugal and Diapragm).
Canadian Allis Chalmers, Ltd.
Canadian Blower & Forge Co., Ltd.
Wettlaufer Bros. Ltd.

Pumps—Steam and Power.
Canadian Allis Chalmers, Ltd.
Canadian Blower & Forge Co., Ltd.
Darling Bros., Limited.
Ontario Wind, Engine & Pump Co.

Radiators.
Dominion Radiator Co., Ltd.
Steel & Radiation, Ltd.
Taylor Forbes Co., Ltd.

Radiator Traps.
Dunham, C. A., Co.

Radiator Valves.
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Refrigerators and Equipment.
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Registers (Heating and Ventilating.
Canada Wire and Iron Goods Co., Ltd.
Dennis Wire and Iron Works Co., Limited.
Tuttle & Bailey.

Reinforcing (Concrete).
Noble, Clarence W.
Pedlar People, The.
Page Wire Fence Co.
Trussed Concrete Steel Co.

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Hercules Brand.

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Hendry, Geo. M. & Co.
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Waterous Engine Works Co.

Sheathing.
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Bishopric Wall Board Co.

Sheet Metal Workers.
Douglas Bros., Ltd.
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Sheldons Limited.

Shelving (Steel).
Canada Wire and Iron Goods Co., Ltd.
Dennis Wire and Iron Works Co., Limited.

Shingles.
Asbestos Mfg. Co.
Barnett Co., Limited.

Sidewalk Doors and Grates.
Canada Wire & Iron Goods Co.
Dennis Wire and Iron Works
Dominion Architectural Iron Works.

Signal Systems.
Canadian Independent Telephone Co., Ltd.
Dominion Messenger and Signal Co., Ltd.
Northern Electric Co.

Signs (Brass, Bronze, Wire Factory, etc.).
Dennis Wire and Iron Works Co., Limited.
Mitchell Co., Robt.

Skylights.
Douglas Brothers.
Ormsby, A. B., Co., Ltd.
Pedlar People, Ltd.

Sockets.
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Canadian H. W. Johns-Manville Co., Ltd.
Paterson Mfg. Co.

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Vogel, H. A., Co. (Canada).

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Canadian Allis Chalmers, Ltd.
Cole, Geo. W., Ltd.
Darling Bros., Ltd.
Jenkins Bros.
Sheldons, Limited.

Steel Bars for Concrete Reinforcement.
Baines & Peckover.
Burlington Steel Co., Ltd.
Canadian Des Moines Steel Co., Ltd.
Corrugated Bar Co.
Hamilton Bridge Co.
Steel Co. of Canada, Ltd.
Trussed Concrete Steel Co.

Steel Cabinets.
Dennis Wire and Iron Works

Steel Concrete Construction.
Noble, Clarence W.
Pedlar People, The.
Trussed Concrete Steel Co.

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Dennis Wire and Iron Goods Co., Limited.
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Office Specialty Mfg. Co.
Metal Craft Co.

Steel Doors.
Canadian Allis Chalmers, Ltd.
Canada Wire & Iron Goods Co.
Douglas Bros., Ltd.
Ormsby, A. B., Co., Ltd.
Pedlar People, The.

Stokers.
Murphy Iron Works.
Sanford Riley Stoker Co.

Stone.
Canada Crushed Stone Corporation, Ltd.
Oakley, George & Son.
Queenston Quarry Co., Ltd.
Stanstead Granite Quarries Co., Ltd.

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Structural Iron Contractors.
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Dominion Bridge Co.
Hamilton Bridge Co., Ltd.
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Reid & Brown.
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Steel Co. of Canada, Ltd.

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Bishopric Wall Board Co.

Switches (Knife and Radial).
Crouse Hinds Co. of Canada.

Switchboards.
Crouse Hinds Co. of Canada.

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Canadian Allis Chalmers, Ltd.
Canadian Blower & Forge Co., Ltd.
Canadian Des Moines Steel Co., Ltd.
MacKinnon, Holmes & Co.
Ontario Wind and Pump Co.
Waterous Engine Works Co.

Tablets (Brass and Bronze).
Canadian Allis Chalmers, Ltd.
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Dennis Wire and Iron Works Co., Limited.

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Tile & Sewer Pipe Machinery.
London Concrete Machinery Co.
Wetlaufer Bros., Ltd.

Tile, Roofing.
Ludowici-Celadon Co.

Tiling (Rubber)
Dunlop Tire & Rubber Goods Co., Ltd.
Gutta Percha & Rubber Co.

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Italian Mosaic & Marble Co.

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International Business Machines, Ltd.
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The Vitrolite Co.
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Metal Craft Co.
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Vacuum Cleaners.
United Electric Co., Ltd.

Valves.
Dunlop Tire & Rubber Goods Co., Ltd.
Kerr Engine Co.
Jenkins Bros., Limited.

Varnishes.
Ault & Wiborg.
Barrett Co., Ltd.
Jamieson, R. C., Co.
Martin Senour Co.
Sherwin-Williams Co.

Vaults and Vault Doors (Fireproof and Bankers').
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Goldie & McCulloch Co., Ltd.
Taylor, J. & J.

Ventilators.
Canadian Blower & Forge Co., Ltd.
Canadian Sirocco Co.
Ormsby, A. B. Co., Ltd.
Pedlar People, The.
Sheldons Limited.

Wallboard.
Asbestos Mfg. Co.
Bishopric Wall Board Co., Ltd.

Wardrobes (Steel).
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Dennis Wire and Iron Works Co., Limited.

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Co., Limited.
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Canada Wire & Iron Goods Co.
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Window Shades.
Lavigne Window Shade Co.

Window Guards.
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Wire Cloth.
Canada Wire & Iron Goods Co.

Wire Fence.
Banwell Hoxie Wire Fence Co., Ltd.
Page Wire Fence Co.

Wire Work.
Canada Wire and Iron Works Co., Ltd.
Dennis Wire and Iron Works Co., Limited.
Mitchell Co., Robt.

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