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# CONSTRUCTION

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



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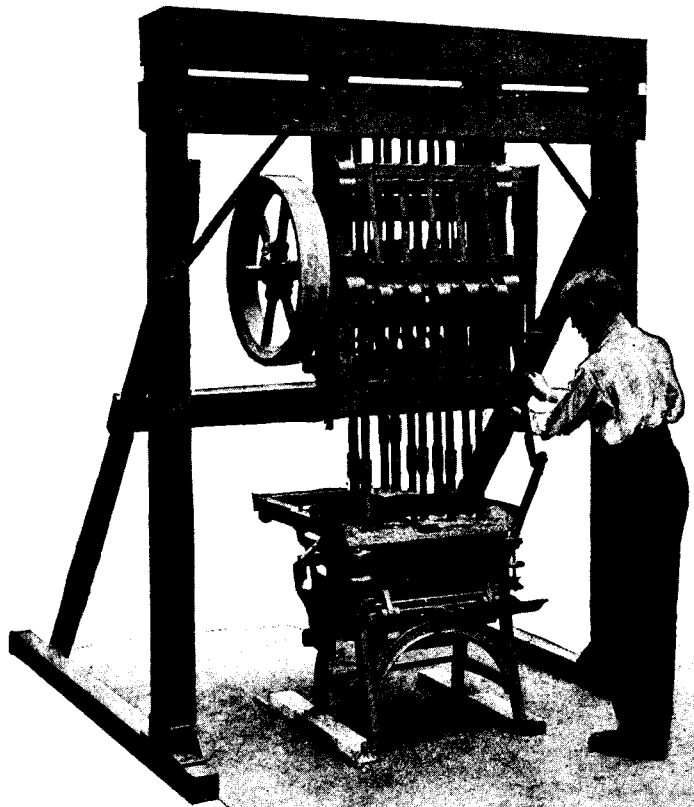
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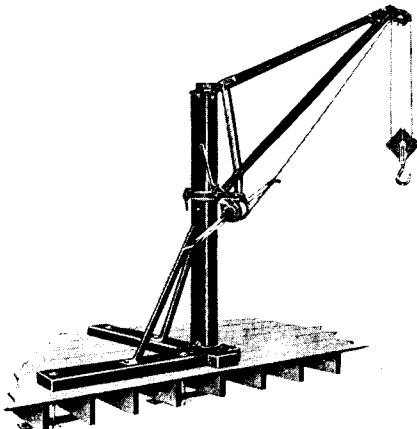
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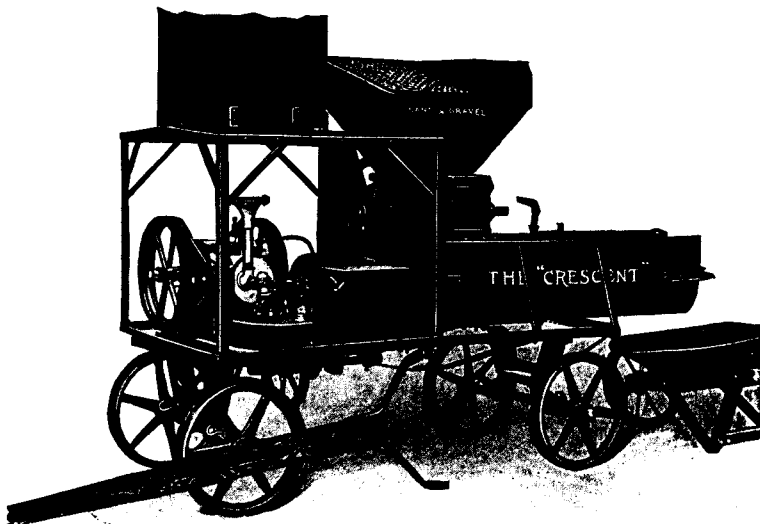
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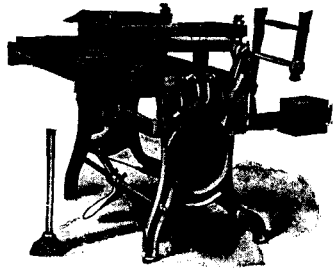
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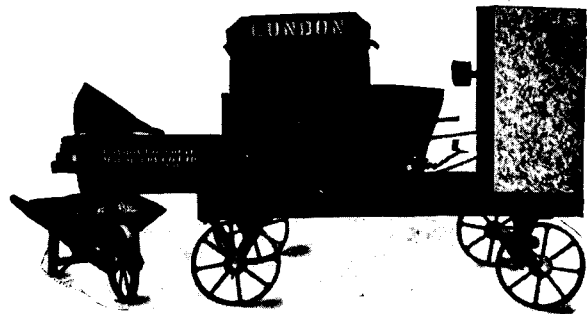
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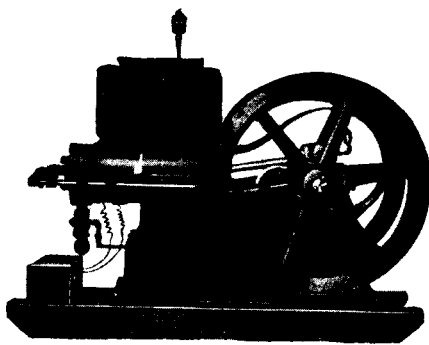
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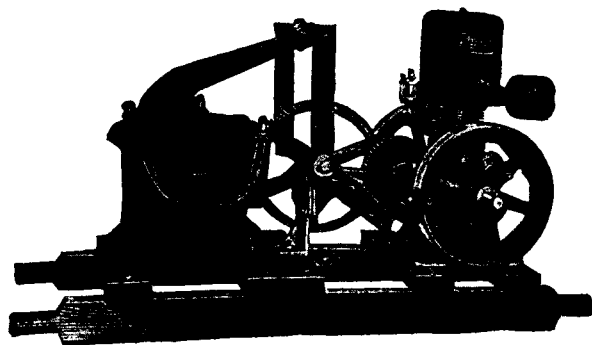
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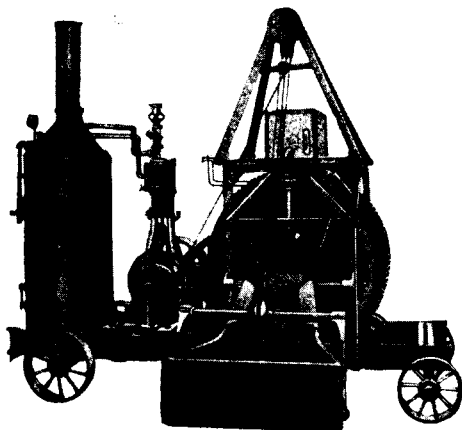
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Mixer  
with side  
loader and  
rear  
discharge.  
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Mixer,  
two sizes,



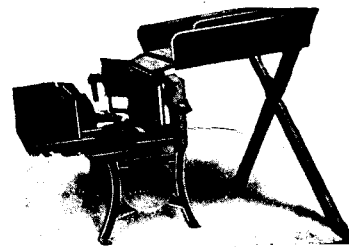
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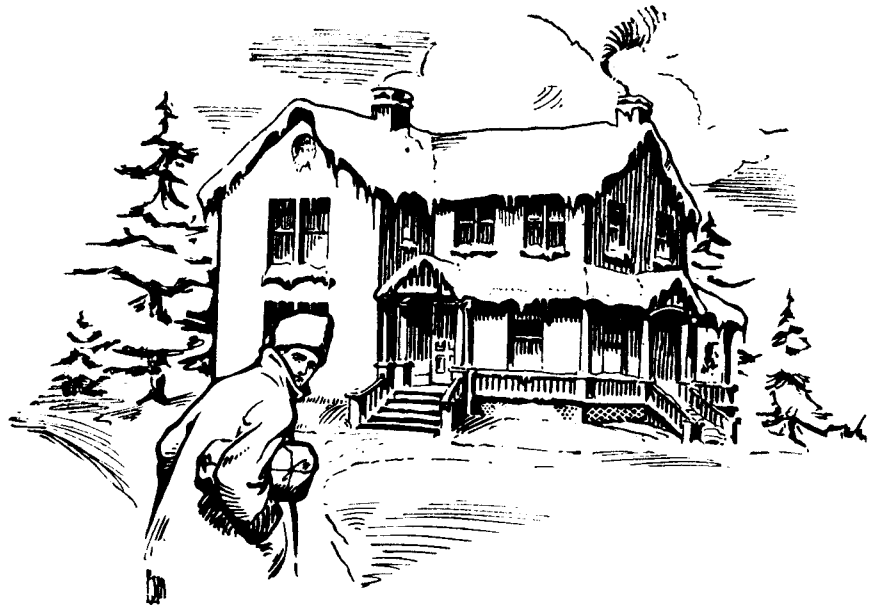
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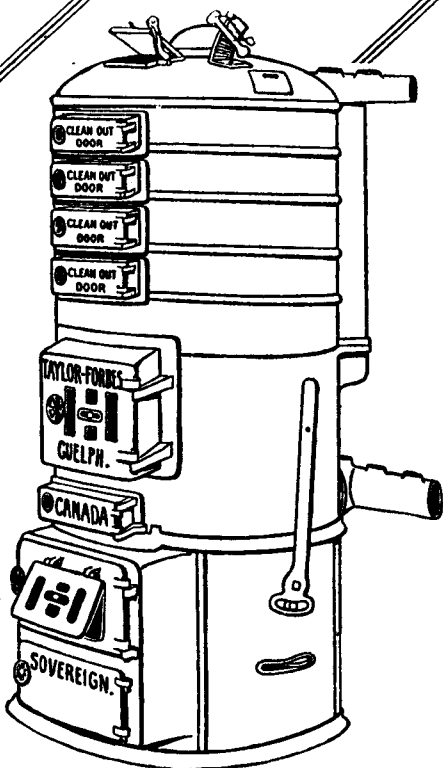
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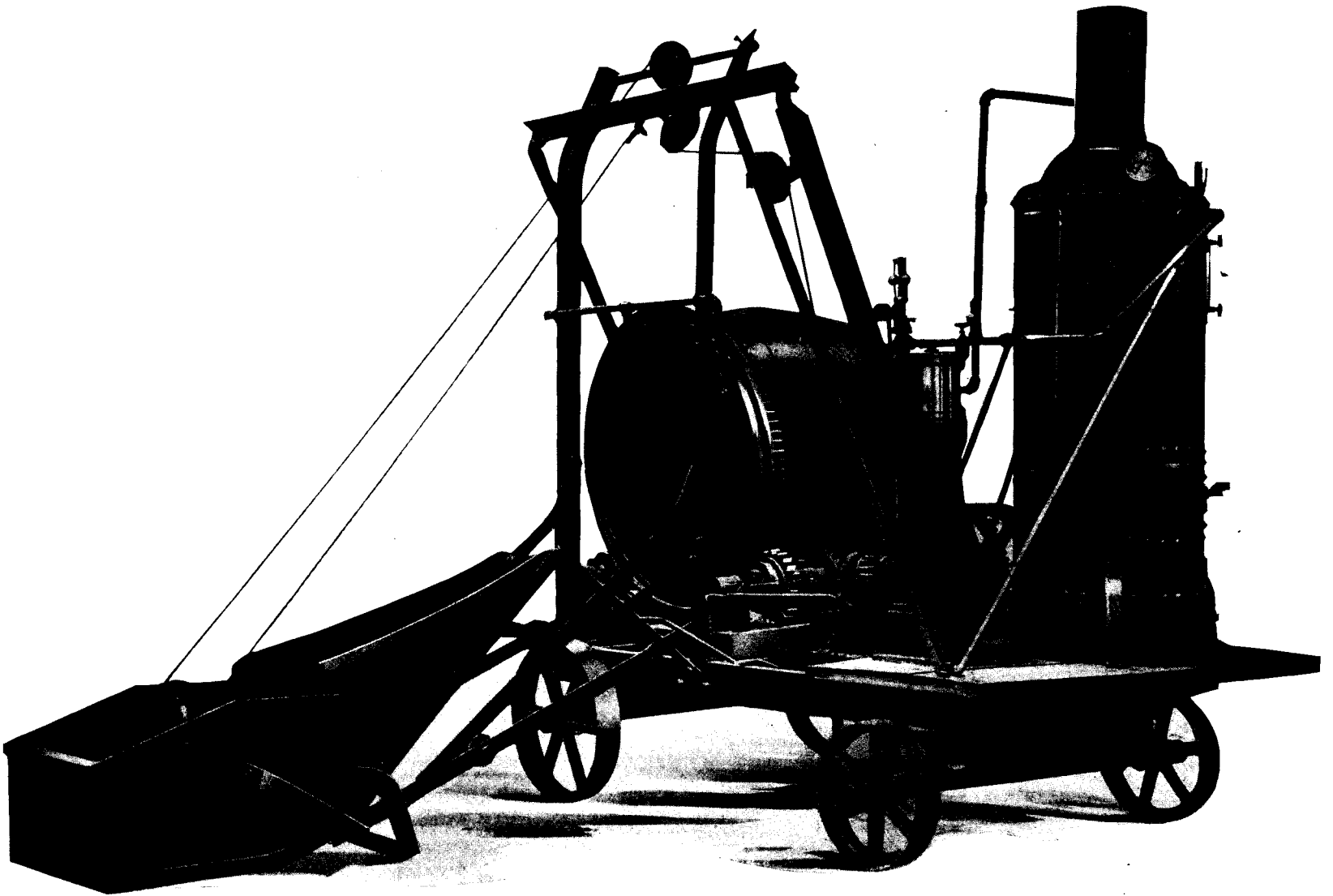
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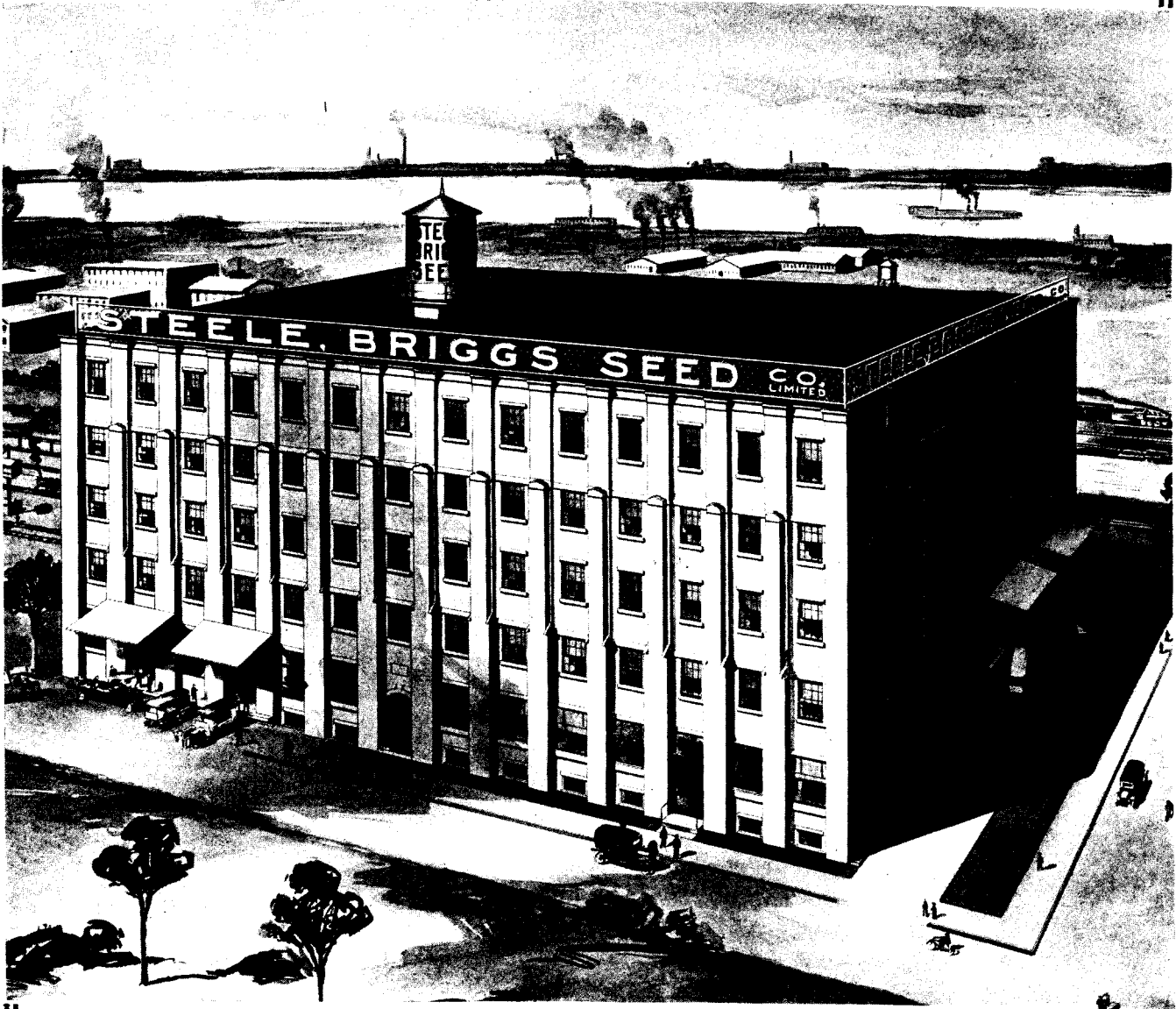
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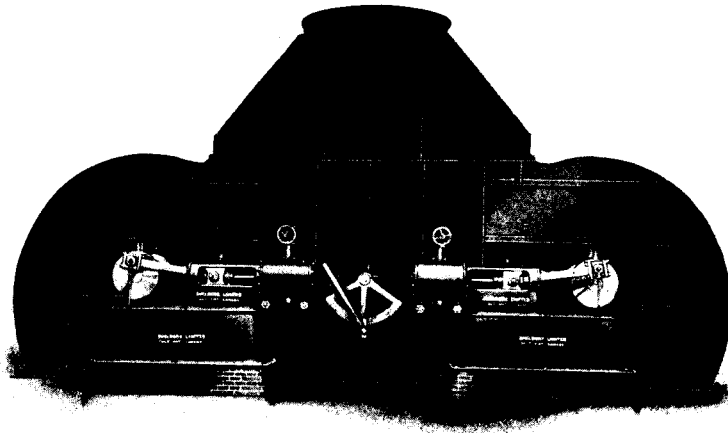
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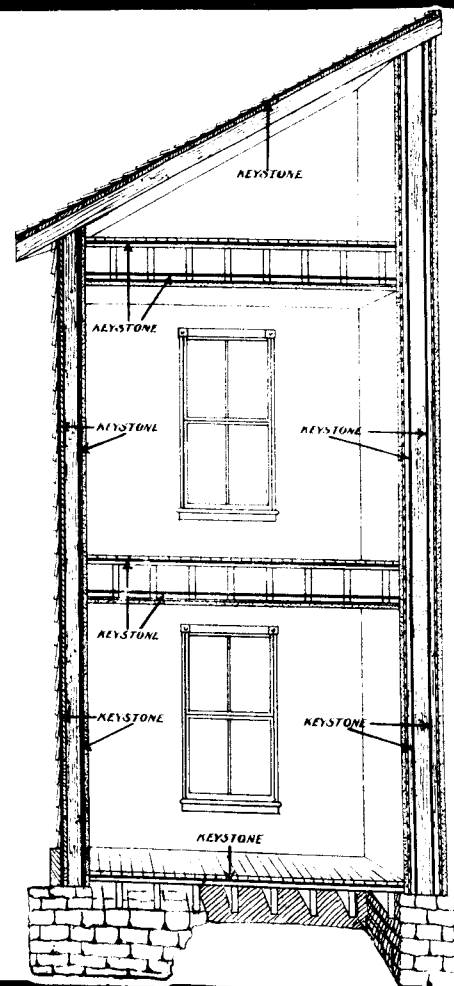
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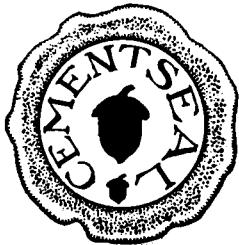
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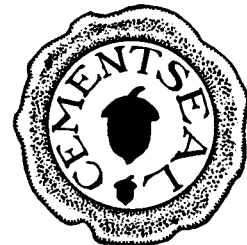
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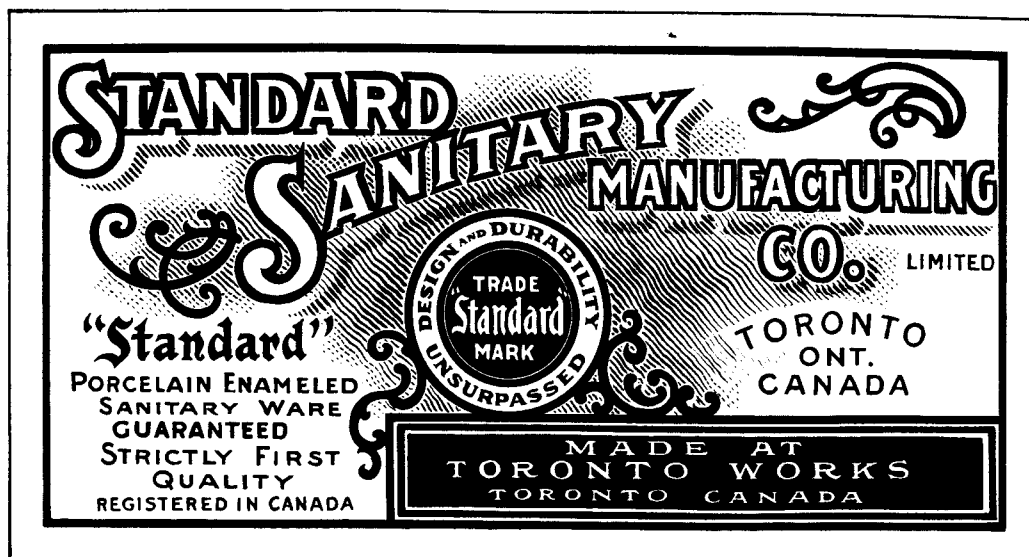
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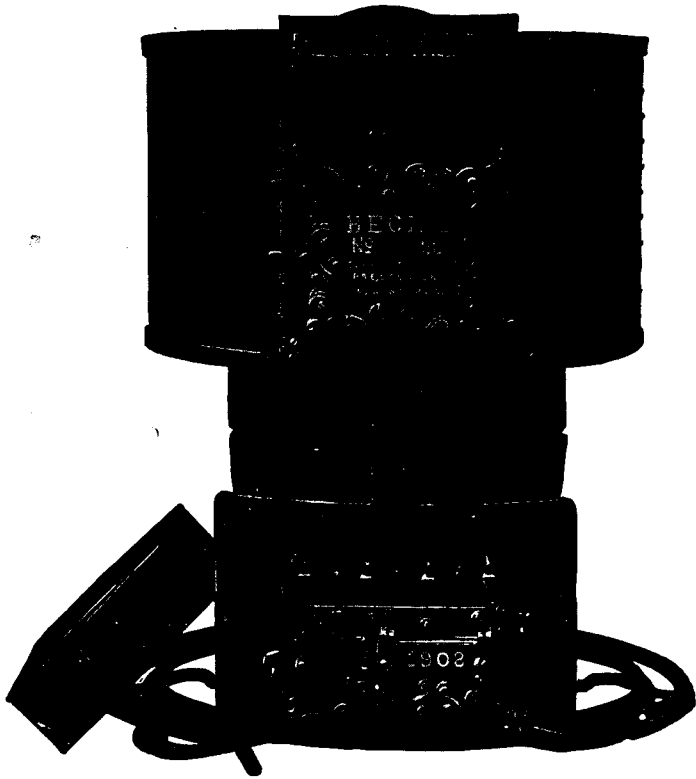


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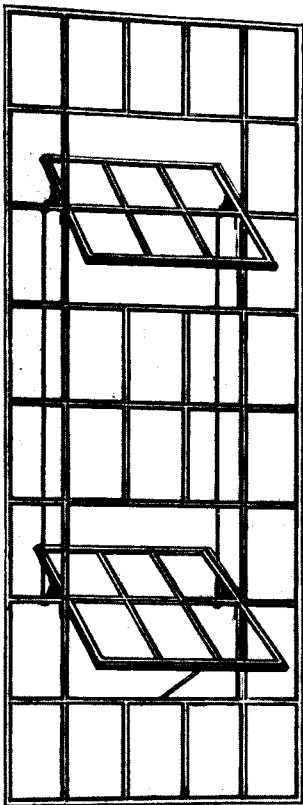
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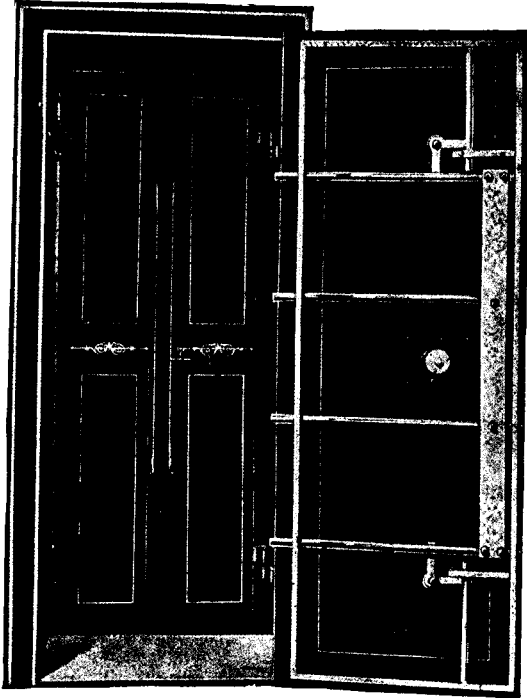
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We carry a line of Fireproof Safes and Vaults manufactured by the Dominion Safe and Vault Co., Limited, at Farnham, Que. They are manufacturing under the patents of the Herring Hall Marvin Safe Co., the oldest and most experienced safe manufacturers in America.

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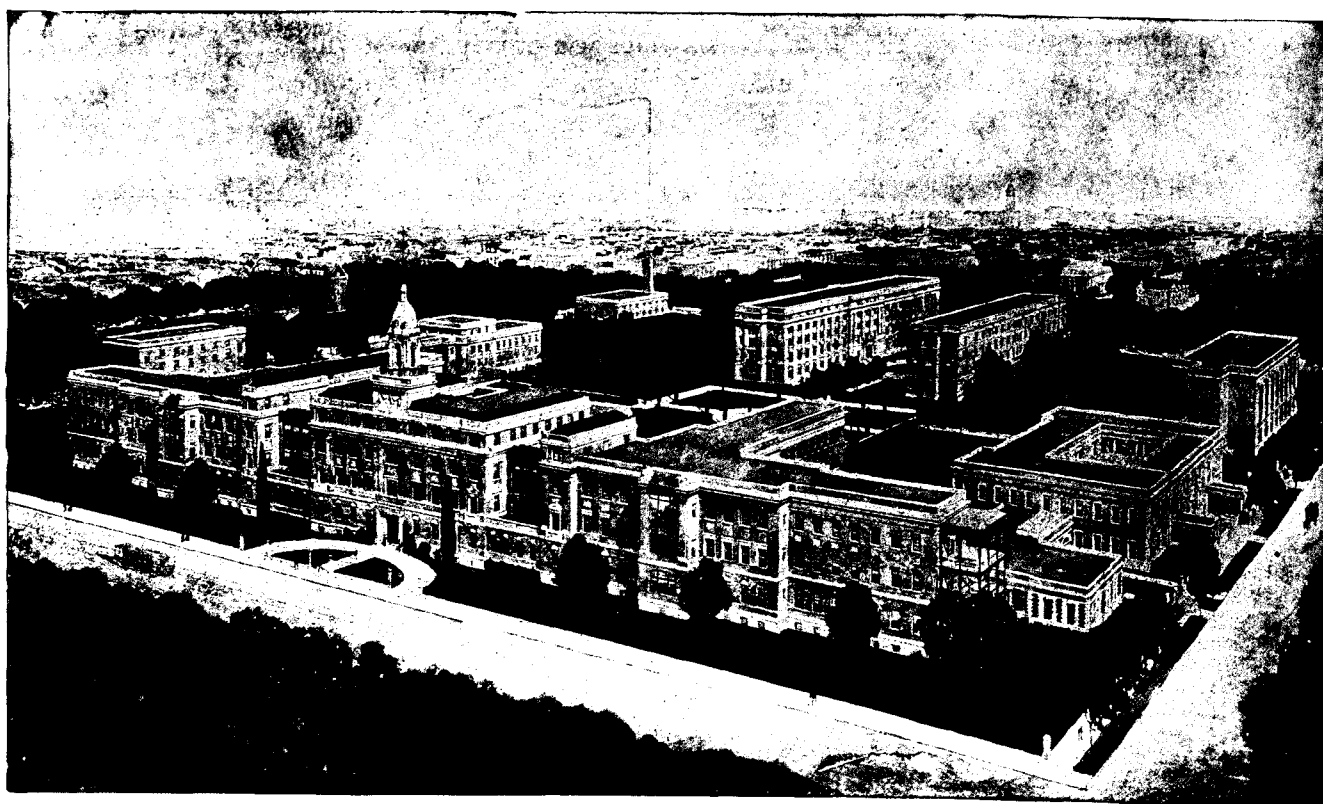
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## Expanded Metal Reinforcement



NEW TORONTO GENERAL HOSPITAL

Reinforced throughout with “STEELCRETE” Expanded Metal, manufactured by  
**STEEL AND RADIATION, LIMITED**

This is only one of the many Large and Magnificent Buildings IN CANADA  
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“STEELCRETE” EXPANDED METAL

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# FENE SOLID STEE

The remarkable growth of the Solid Steel Window Industry has no parallel in building construction, except that furnished by the reinforced concrete system.

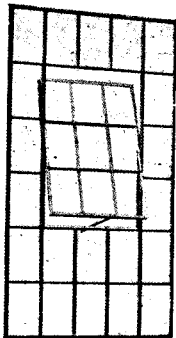
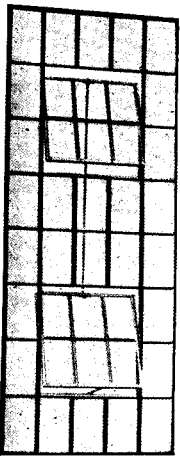
The use of solid steel windows is fast flooding the workshops of the world with sunlight and fresh air. That is why they find favor with architects, engineers and employers.

THEY COST NO MORE IN THE END—AS AN INVESTMENT. IS FIRST COST IN YOUR WINDOWS EVERYTHING? HOW ABOUT SECOND, THIRD—TENTH COSTS? FUTURE UP-KEEP—THAT'S THE POINT.

Remember we are right here to give you, or your architect, all the facts about

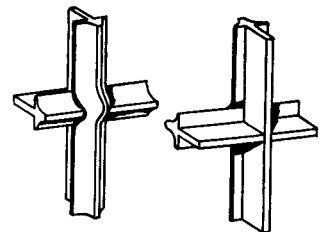
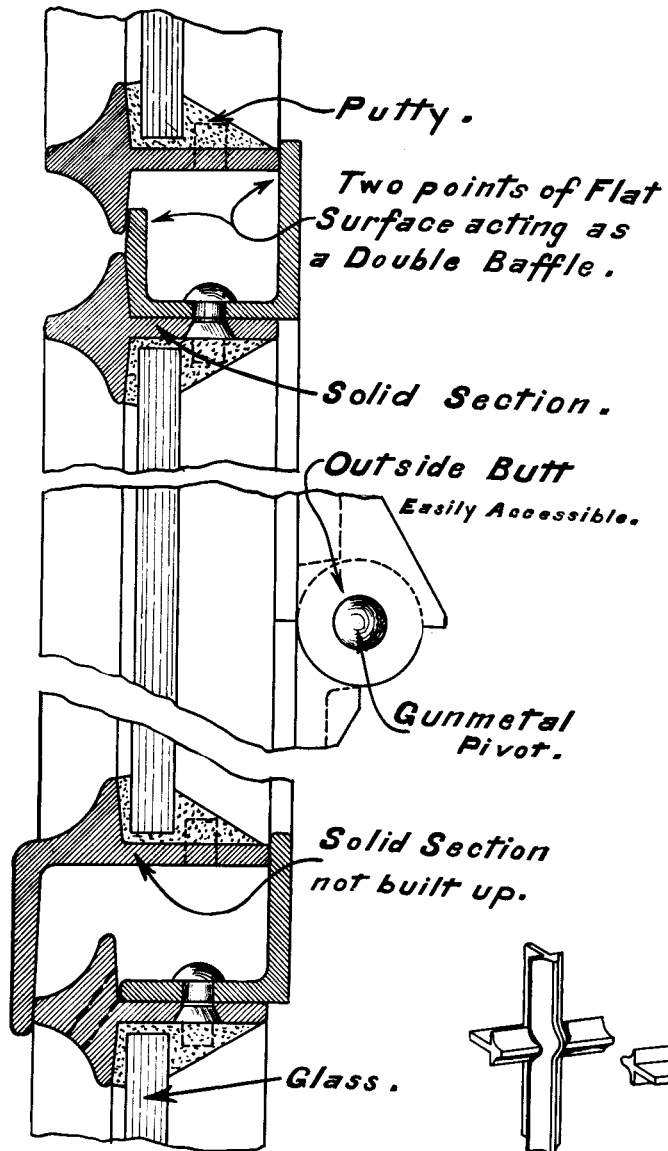
## FENESTRA SOLID STEEL WINDOWS AND VENTILATORS.

Consult us before settling the all-important question of window requirements, then you can make your comparison of all types of windows intelligently and completely.



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By using Standard Sizes -  
12x18 in. Glass or 14x20 in. Glass  
—you ensure prompt delivery.



### Double Contact Ventilator Detail.



# STEEL AND RA

TORONTO MONT

# STRA L WINDOWS



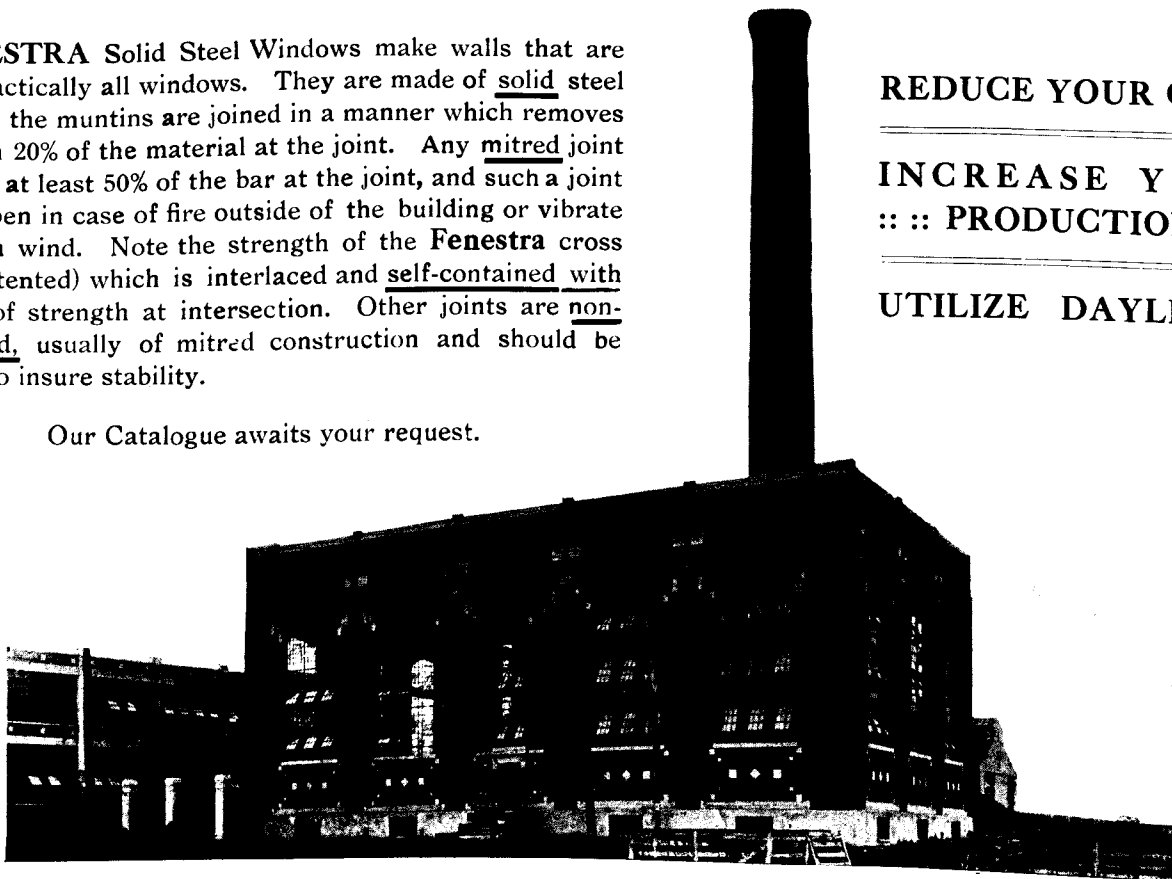
**F**ENESTRA Solid Steel Windows make walls that are practically all windows. They are made of solid steel bars and the muntins are joined in a manner which removes less than 20% of the material at the joint. Any mitred joint removes at least 50% of the bar at the joint, and such a joint would open in case of fire outside of the building or vibrate in a high wind. Note the strength of the Fenestra cross joint (patented) which is interlaced and self-contained with no loss of strength at intersection. Other joints are non-contained, usually of mitred construction and should be welded to insure stability.

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REDUCE YOUR COST

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UTILIZE DAYLIGHT



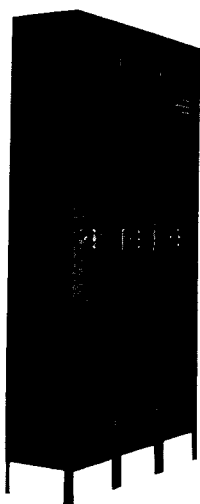
**DIATION, LIMITED**  
REAL QUEBEC



# “STEELCRETE”



## STEEL LOCKERS



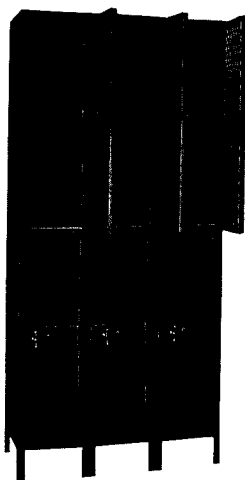
Single Tier

The advantages of an individual Wardrobe fitted with a good lock and key are self-evident. The system of individual Steel Lockers is recognized as being the only correct and sanitary method of taking care of garments and other personal property in Warehouses, Gymnasiums, Offices, Schools, Clubs, Hotels, Banks, Hospitals, Police Stations, Railroad Shops, Etc.

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Double Tier

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Montreal Harbor Commission .....	Montreal
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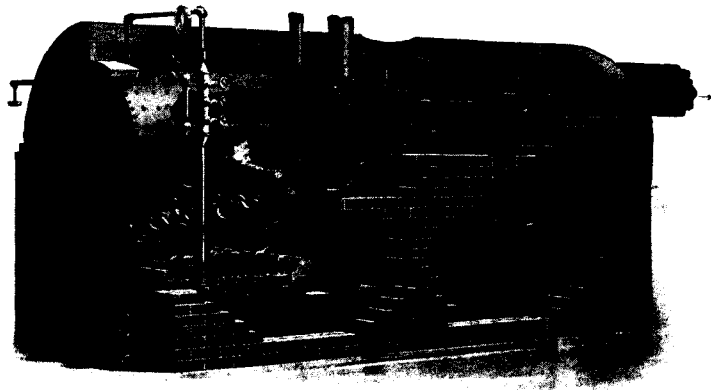
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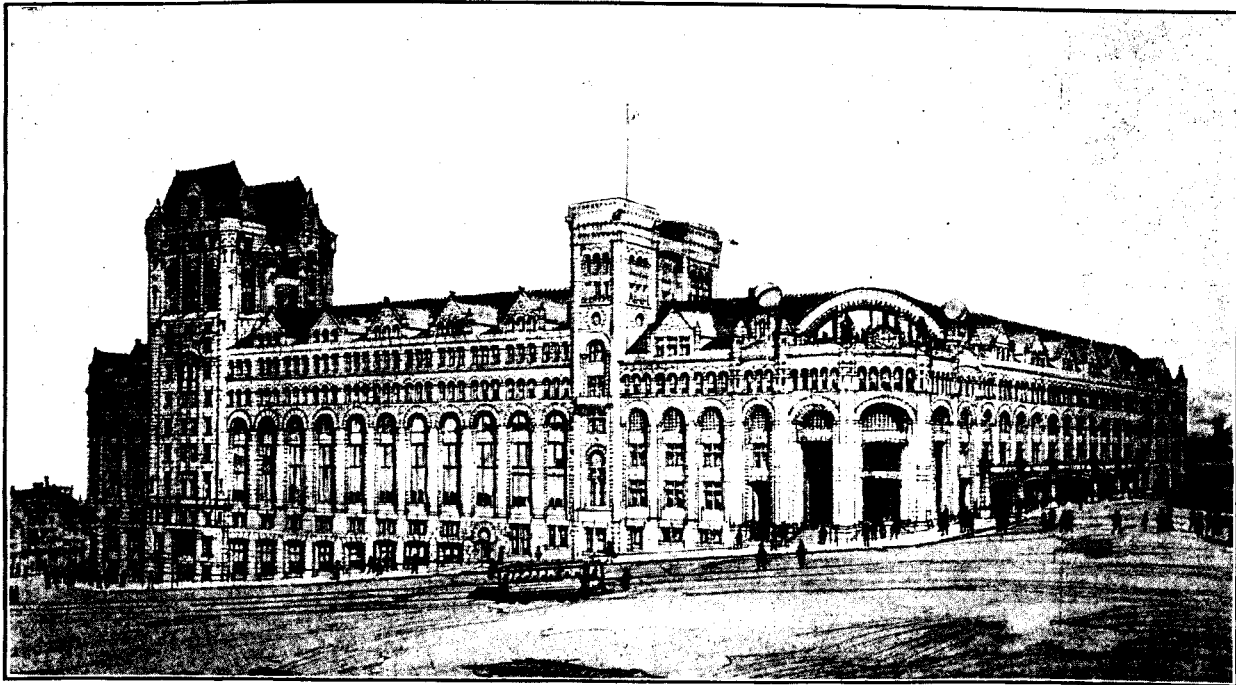
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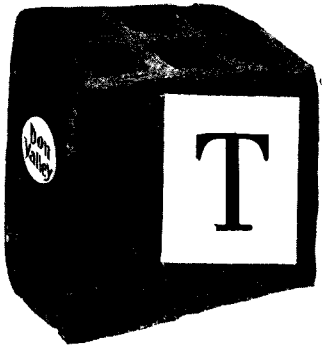
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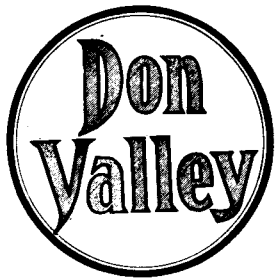
New Residence for Lieutenant-Governor of Ontario, Toronto. Provincial Architect Heakes, Architect.  
Don Valley Brick and Porous Terra Cotta used.

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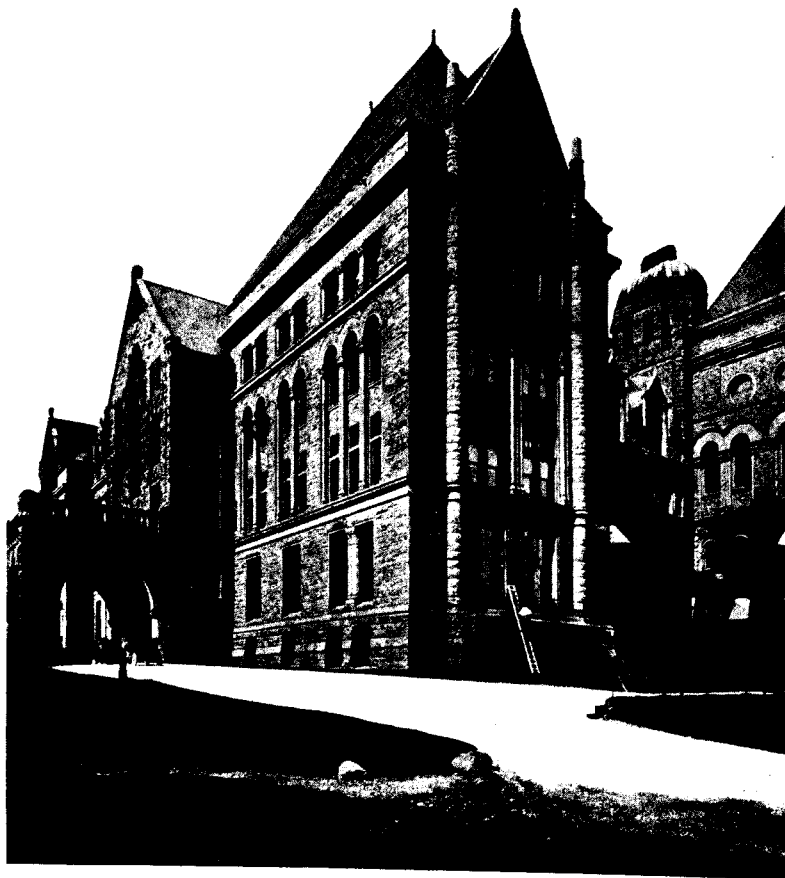
# DON VALLEY



New Rear Wing, Provincial Parliament Buildings, Toronto. Geo. W. Gouinlock, Architect.  
Don Valley Porous Terra Cotta Fireproofing used.



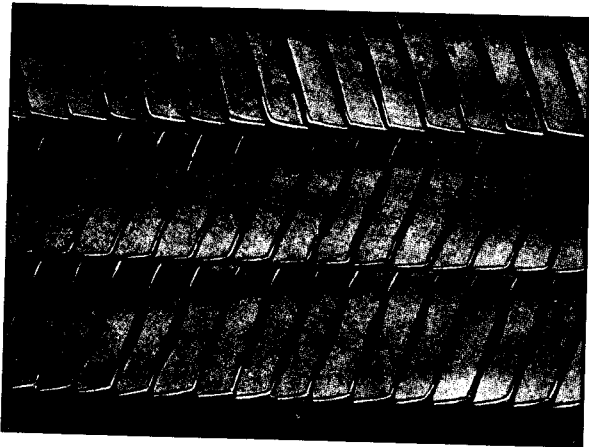
In building the wing of the Parliament Buildings, Toronto, destroyed by fire in 1909, and in the construction of the new addition, pictured here, advantage was taken of the great progress that has been made in fireproofing since the main building was erected. Don Valley Porous Terra Cotta Fireproofing was used, it being conceded to have the structural stability necessary for buildings that are to endure as monuments to the generation that built them.



Rebuilt Wing, Provincial Parliament Buildings, Toronto. E. J. Lennox, Architect.  
Don Valley Porous Terra Cotta Fireproofing used.

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**W**E claim for this window that it is the only one on the market to-day that is absolutely **wind-proof** as well as **fire-proof**. This is accomplished by the flange setting into the rabbet  $\frac{7}{8}$  inch, which not only forms a perfect wind break, but does not interfere with the working of the sash.

The whole window is stamped by steam power, with steel dies, so that all parts are uniform.

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Before you decide to place your order be sure and write to us and get our prices, and let us show you what Acorn Quality Fire-proof Windows really are.

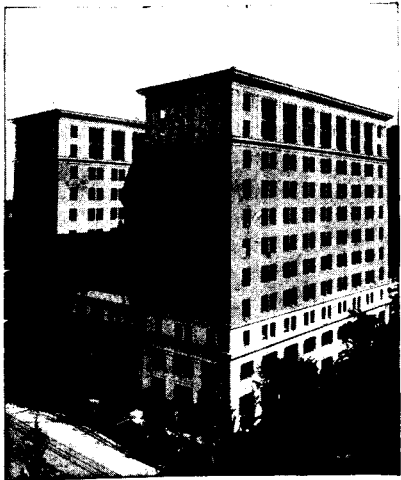
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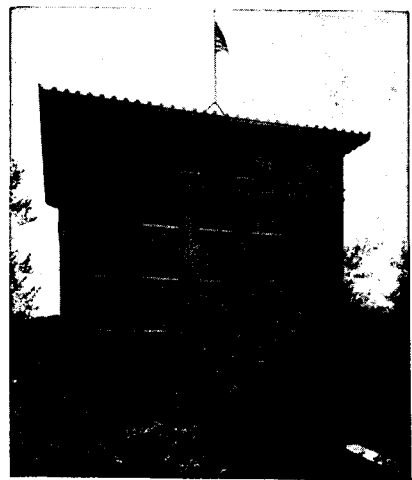


Woodward Building, Washington, D.C.  
"ALCA" Lime used for brick MORTAR

# "ALCA" LIME

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Lime and Calcium  
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Will endure for ages under  
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"ALCA" Lime replaced white cement for brick  
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Mention the use for which you require it, and we will quote you prices.  
Can be stored without deterioration in a dry place.

## MEDUSA WATERPROOFING

Makes a comparatively poor mixture of cement, sand and  
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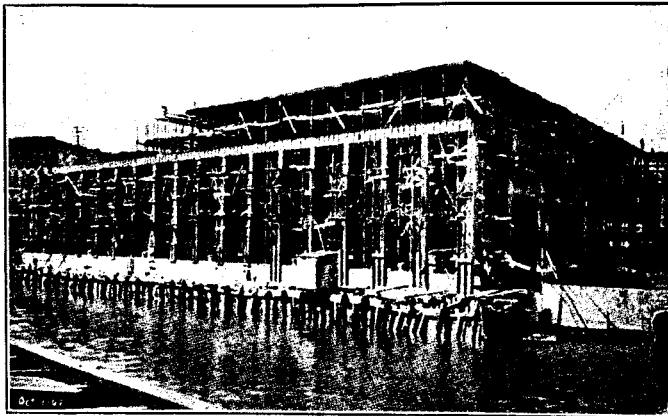
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the cost of the waterproofing is more than covered by the saving in cement.  
Used in concrete blocks and cement walls, it prevents unsightly white  
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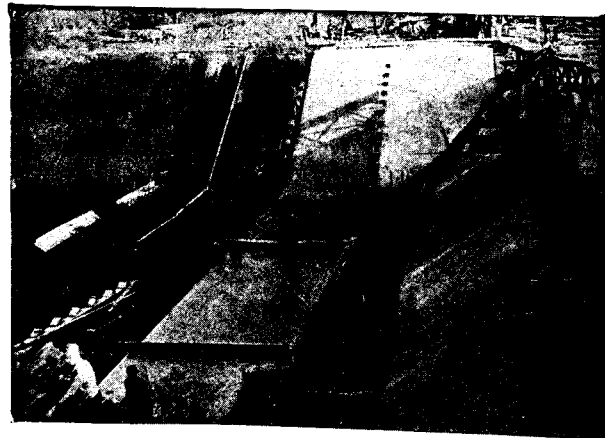
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Bostwick-Brown Hardware Co. Building, Toledo, Ohio. Walls and floor  
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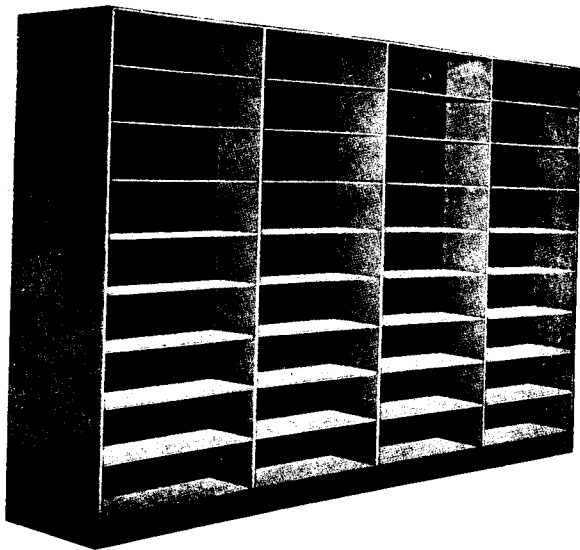
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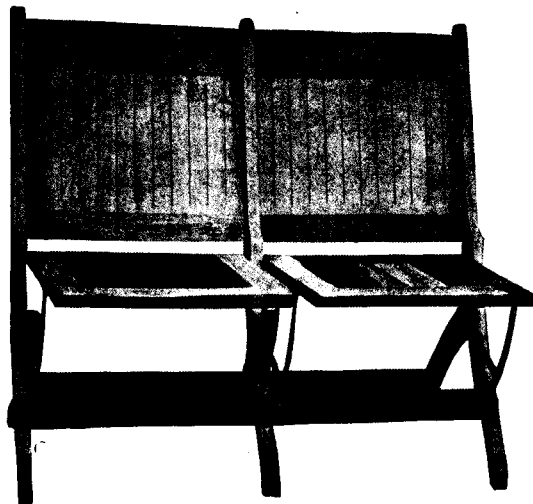
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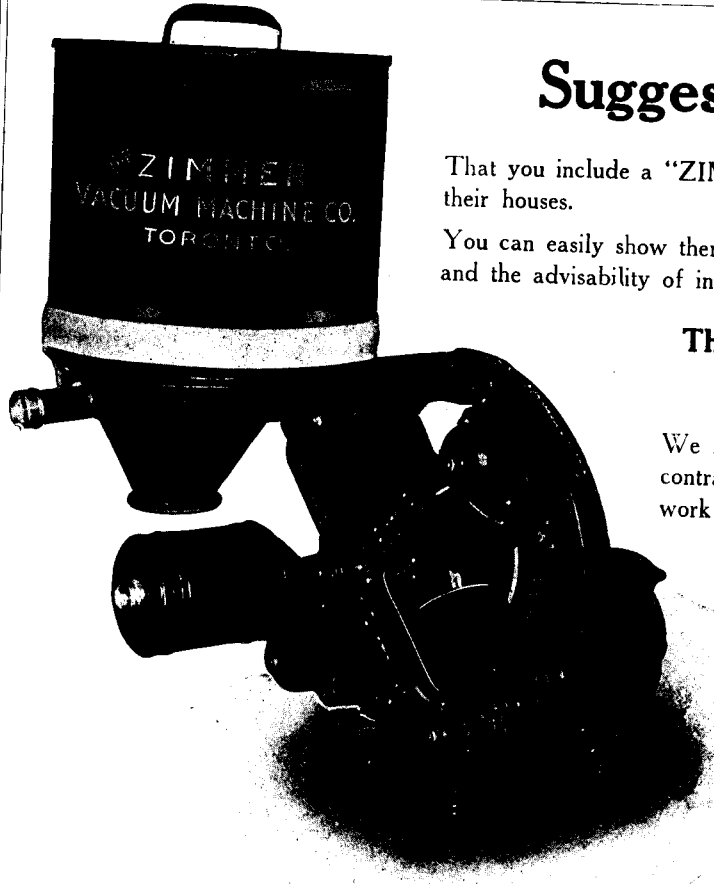
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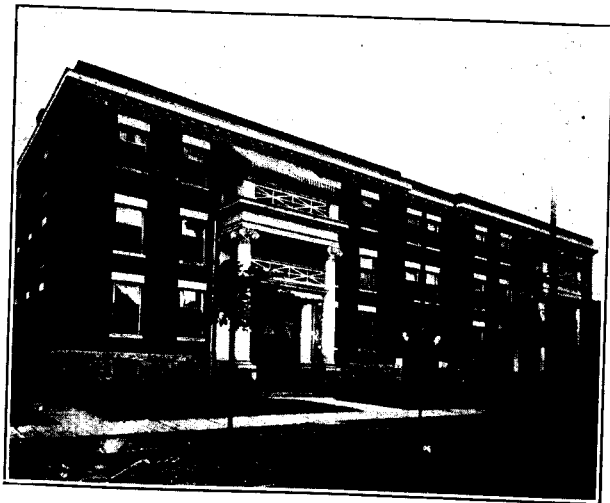
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- DEHYDRATINE MASTIXEMENT.**—A rich bitumen requiring heating, used as a binding material for felt in foundation work. Once heated, will always remain sufficiently elastic to insure permanency on settlement of structure.
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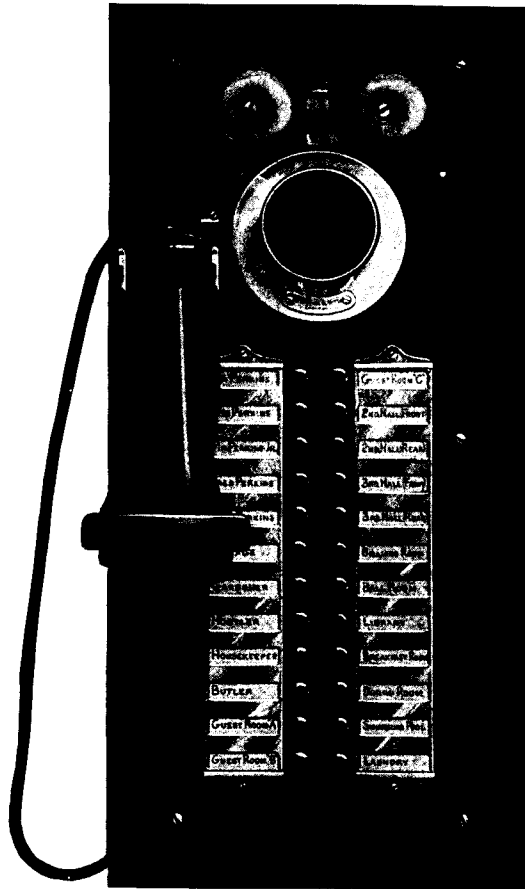
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**Write for Bulletin 2002**



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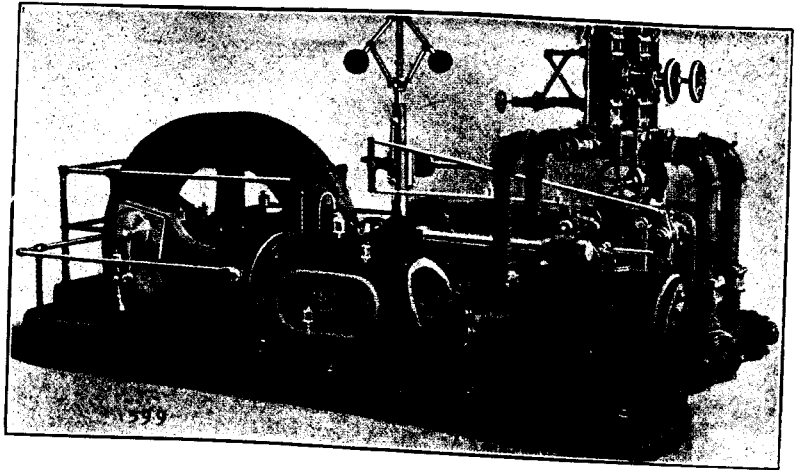


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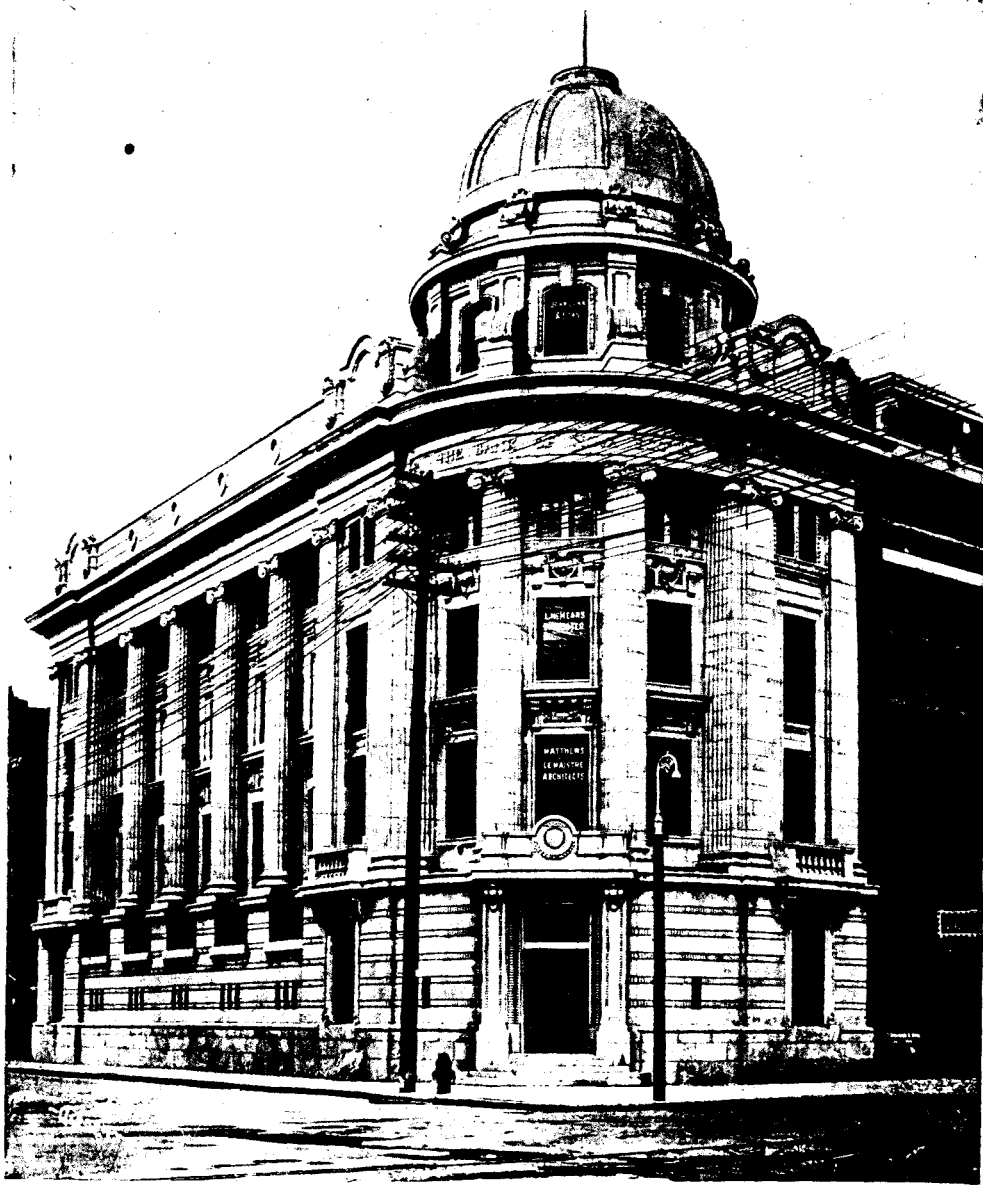
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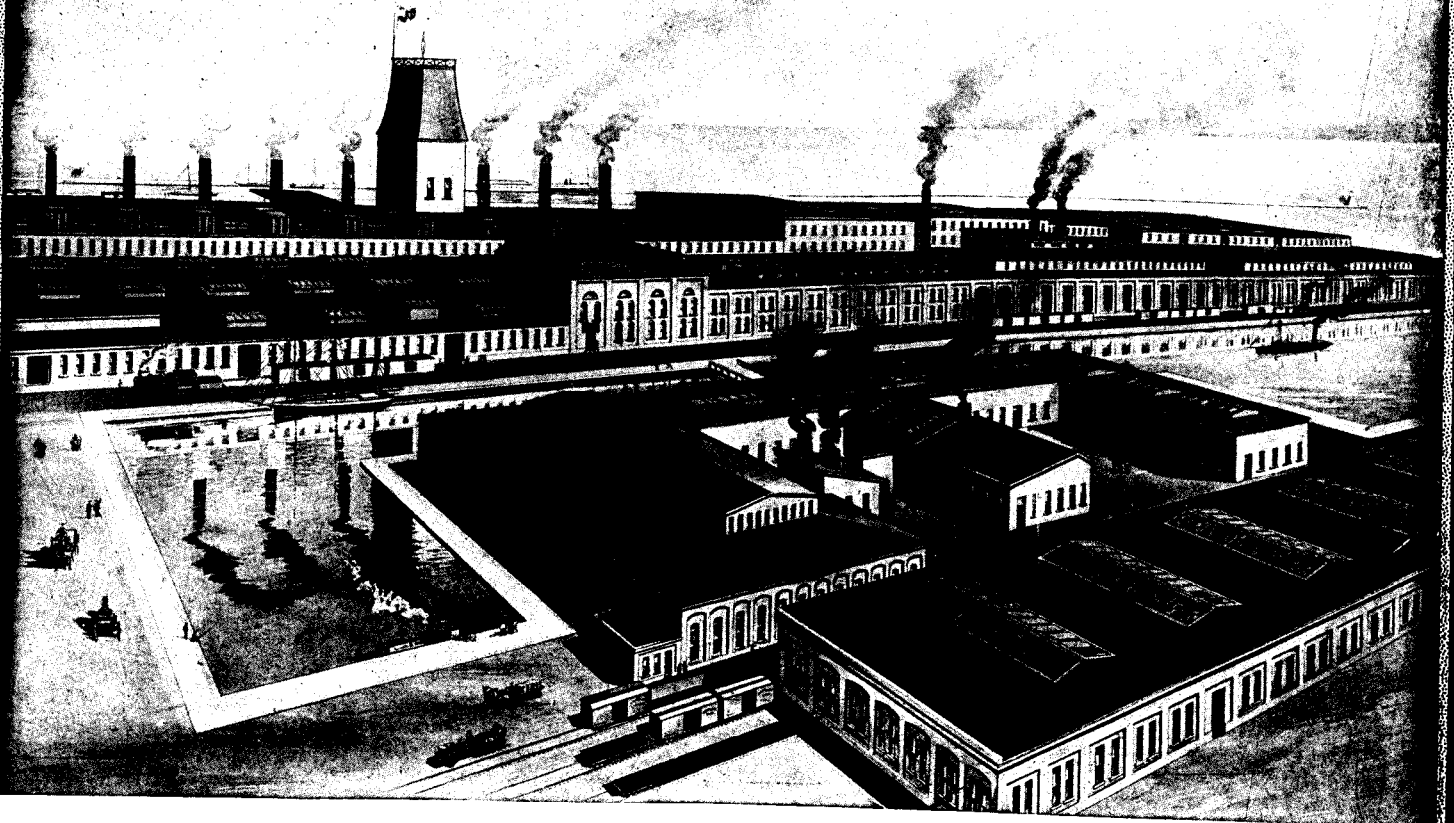
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# CONSTRUCTION

VOL. V

No. 10

## CONTENTS FOR SEPTEMBER, 1912

<b>EDITORIAL</b> .....	47
<p>The necessity for a park and boulevard system in cities only second to that of pure water upon which growth and development depend—A housing congress proposed in which direct methods will be discussed for relieving congestion—Concrete roads a practical solution through first cost of material, construction and wearing quality of surface—The Australian Capital competition won by an architectural school graduate illustrates the value of architectural departments in all colleges—The architectural beauty of the Bloor street viaduct at Toronto necessary to the fame of the city as an example of civic intelligence—Twenty-five years of persistent endeavor to procure safety from fires in cities marks the work of an English military engineer in the United States.</p>	
<b>REMODELING OF THE CHURCH OF OUR LADY OF LOURDES. (Illustrated)</b> .....	51
<b>RECENT UNIVERSITY ARCHITECTS. By Ralph Adams Cram. (Illustrated)</b> .....	56
<b>DESIGN IN CHIMNEY PIECES</b> .....	59
<b>VALUE OF FREEHAND DRAWING</b> .....	61
<b>A PHASE IN ARCHITECTURAL EDUCATION</b> .....	66
<b>AN APPRECIATION OF FRANCIS D. MILLET. By Edwin Howland Blashfield</b> .....	67
<b>DESIGN FOR BAND STAND. (Illustrated)</b> .....	69
<b>SKILL IN CONCRETE</b> .....	70
<b>CURRENT TOPICS</b> .....	71-2
<p>The civic plans of Vancouver—Toronto School Board appoints an architect—The Long Sault dam—Fireproof ordinance in Quebec—Revised building code for Montreal—A summer school for town planning.</p>	
<b>TOWN PLANNING CONFERENCES</b> .....	73
<b>NON-POISONOUS AND POISONOUS PIGMENTS</b> .....	77
<b>TRADE NOTES</b> .....	81

## ILLUSTRATIONS

<b>FRONTISPIECE</b> .....	46
<p>Number 563 Park Avenue, New York. Design awarded the architectural gold medal of 1911 of the Architectural League of New York.</p>	
<b>REMODELED CHURCH OF OUR LADY OF LOURDES, TORONTO. J. P. Hynes, Architect</b> .....	50
<p>One exterior and eight interior views.</p>	
<b>RESIDENCE OF E. J. FREYSENG, TORONTO. Chadwick &amp; Beckett, Architects</b> .....	62-4
<p>Two exteriors, one interior, elevations and floor plans.</p>	
<b>HOTEL GERRARD, TORONTO. James L. Havill, Architect</b> .....	74-5
<p>Exterior view, elevation and plans.</p>	
<b>RESIDENCE OF J. W. KERNOHAN, Toronto. E. G. Wilson, Architect</b> .....	73-80
<p>Exterior view of three interiors and plans.</p>	

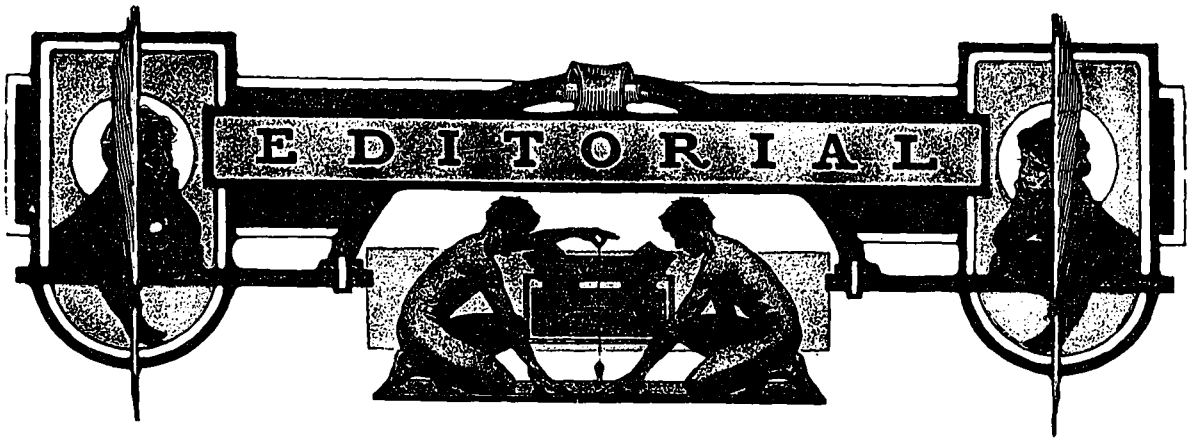
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Apartment Building, No. 563 Park Avenue, New York. Awarded the Architectural Gold Medal of 1911 by the Architectural League of New York. Walter B. Chambers, Architect.



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**Q** *The necessity of a park and boulevard system in cities only second to that of pure water, upon which growth and development depend.*

---

**T**HE ACQUIREMENT of property for boulevard and park purposes is a duty that the present generation owes to the next, no matter what present use is made of the purchase. In too many cities this is left until congestion and other forces operate to make the opening of a park or the establishment of a boulevard an immediate necessity. Then the cost is such that only the least improvement possible is made. In some cities a wise park board, aided by a wise people who have made that board independent of aldermanic interference, have purchased waste land far in advance of any improvement, and now where the city has grown the sole cost is for construction and maintenance. Parks are like the trees that beautify them; they are only completed through years of growth, and when the ground cost is small the upkeep, scattered over a term of years, is not a burden upon the taxpayer. But in improvident cities that have taken the stand that they owe nothing to posterity, the parsimony and selfishness of the past must be paid for, and the longer the payment is withheld the greater the cost will be. In these modern days no city can claim to hold "a respectable position in society" that has not a well arranged and developed park and boulevard system. In this the cities of Minneapolis and Toronto can be compared. Each has the same population, and each is blessed with a natural variety of surroundings that are readily amenable to park and boulevard systems. In the former city a wise park board, elected from among the most intelligent and progressive citizens, and independent in action, commenced when the city was small to lay out the park and boulevard system of the future, and bought vacant and swamp lands that in some cases will not be improved for many years. With only about \$300,000 a year that can be expended for this work, a conservative management is gradually bringing these waste places into a uniform cultivation so that even now with park property enough to supply the needs of a city of double its population the work already done from year to year makes it one of the most beautiful and livable cities in the country.

This reputation going abroad is an advertising asset worth many times its cost, while the people enjoy the benefits of the freedom from congestion. The parks committee of Toronto, handicapped by having to bring each expenditure in the acquirement of property before a board of aldermen, few of whom realize any of the advantages which come from parks and boulevards, are wisely seeking to correct the mistake of their predecessors and endeavoring to purchase at a high cost what would have been given the city for the improvement a few years ago. Handicapped as that city is with no boulevard system connecting the few parks that deserve the name, and every street of any importance occupied by a car line, the most strenuous work of the parks committee can hardly give what the city's importance demands, a circulatory park and boulevard system around its beautiful residence districts, to say nothing of its lake front. A park and boulevard system, is only second in necessity to that of a water system, and each are worth all they cost, be it much or little, for not only does the health and comfort of the present community depend upon these agents of pure air and pure water, but growth and development depend directly upon these civic accessories.

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**Q** *A housing congress proposed in which direct methods will be discussed for relieving civic congestion.*

---

**T**HE HOUSING conference which was inaugurated at Hamilton recently by a preliminary discussion, should be taken up by committees in every city where the rapid growth has changed living conditions beyond the ability of normal building to meet the demand for houses. The merit of this movement lies in the fact that conditions have not yet become acute, but can easily become so through neglect. It must not be forgotten, however, that the increasing congestion in several of the larger cities of Canada is not altogether due to a sudden increase in population beyond the absorbing ability of ordinary residence growth, but largely for lack of transportation facilities to reach the surrounding suburbs, and the speculative value at which such property is held, which places the price beyond the reach of the ordinary home builder, even if his common sense would allow him to make

the investment. In fact the main work of the congress next fall should be to investigate these conditions and search for some method by which they can be relieved. There are thousands who would gladly build homes in the suburbs if these restrictions of inadequate transportation and prohibitive values were removed, and there would for this class be little need for governmental housing schemes to relieve city congestion. There is something economically wrong with any city in Canada that finds within its limits an inadequate supply of habitations where directly outside there are broad fields in every direction waiting for an available population made up of home builders. CONSTRUCTION would not seek to discourage organized housing plans, but it would much rather see a free movement induced by reasonably priced land and adequate facilities for reaching the vacant ground that is so plentiful, and apparently so available, within a short distance of the business centres of Canadian cities. If the housing organizations of which this at Hamilton is but a fore-runner, will aid in solving the longer but more direct method of distributing a population, then the sooner such organizations are formed and get to work the better for the future growth and welfare of Canadian cities.

**C**oncrete roads a practical solution of the bad roads problem through first cost of material and construction and wearing quality of surface.

CONCRETE roads, versus brick or macadam, is a live question with roadmakers throughout the United States and Canada. The manufacturers of the two former products are each urging the superiority of their material, and all concede that macadam must be abandoned wherever there is any amount of heavy automobile and truck traffic. The first cost of brick highways is considerably larger than that of concrete, even when the latter is properly bedded, but the wear is said to be longer. But the decision does not lie with the manufacturers, but with the road superintendents and county authorities. Investigation into the subject shows that a concrete road, properly built, will last from four to seven years without apparent depreciation. While in recent times this is about as long as roads of this material have had a fair test, those built by the Romans two thousand years ago are still doing good service. Michigan and other States have been building concrete roads for some years. Minneapolis, after a thorough investigation, has decided to build an experimental mile on Superior boulevard, a heavily travelled road between that city and Lake Minnetonka, and the county of Wayne in Michigan has used them satisfactorily for four years. Leaving the question of the superiority of brick, which is not conceded, out of the question, the sooner the country begins to build concrete roads, the cost of which is within the ability of most districts to meet, the better for the prosperity of the sections, which are legion, where the loss to the farmers through bad roads would pay, not only the interest, but the principal

on the investment in a few years. The history of roads, from block and macadam to brick, has been that the life of the road lies largely with the foundation upon which it is laid rather than the surface material. In cities it is usually the disturbing of the homogeneousness of the foundation and surface through cutting up for the laying or repair of service pipes that destroys the life of pavements. In suburban districts this does not happen, and proper foundations properly drained will make a concrete road last for generations with any sensible system of upkeep that all roads should have, no matter what the material may be that covers the surface.

**T**he Australian capital competition, won by an Architectural School graduate, illustrates the value of this department in all colleges.

THE COMPETITION for the capital city of Australia was won by Walter B. Griffin, of Chicago, a graduate of the Illinois University Architectural Department. The new capital will be located at Canberra, N.S.W., 70 miles from the east coast. It will comprise an area of 25 square miles in what is now a wilderness. This is the first instance of the planning to the minutest detail of a capital city in order to produce harmony of structure and convenience. The plan is of the radical or gyratory type. There is one principal centre from which streets and boulevards radiate to other centres, from which, in turn, the thoroughfares radiate to subordinate centres. The plan is complete in every detail, covering everything the city will need, including street and steam railroads. The value of the prize is \$8,750.

**T**he architectural beauty of the Bloor street viaduct at Toronto necessary to the fame of the city as an example of civic intelligence.

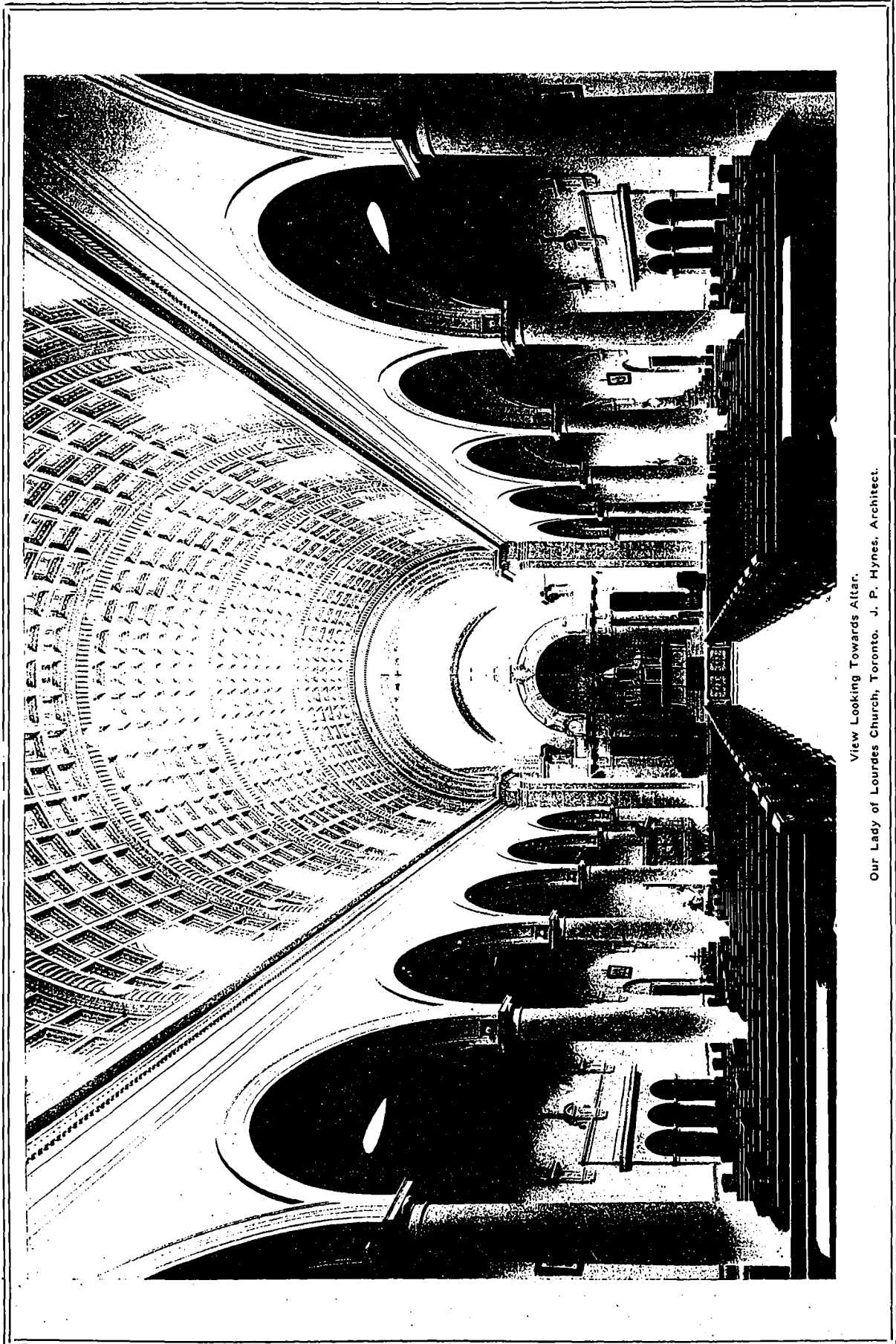
THE BLOOR street viaduct at Toronto promises to become one of the highways most important to her traffic of to-morrow. It may become—and it may not—the key to the beauty of the city's immediate future. Other cities have undertaken like constructions with like prospects. Cleveland, Ohio, and Washington, D.C., have foreseen the local importance of their more important bridges. Both have erected thoroughfares sufficient for all the commercial demands they are designed to accommodate. Both, however, have done more than this. Cleveland and Washington have perceived the enormous importance of making their bridges dividends for the future in the form of municipal beauty. Over Rock Creek in Washington reaches one of the noblest arches in the world. Above the larger grandeur of its great arches is a series of superimposed and smaller arches. Whoever has seen it carries away from it the memory of a structure so beautiful as to contribute to the permanent appeal and charm of the capital, precisely as do the Washington Monument, the Library of Congress, and

the imposing structures which house the Senate and House of Representatives. Cleveland had a less opportunity than Washington, but she did not fail to develop such opportunity as was hers for the full advantage of the city in making the bridge that now spans the Rock River. These results were not accidents. Cleveland and Washington are not in this particular a thousand fold richer than cities with less artistic bridges by any chance. Their reward was earned by these two cities because they sought and obtained the most expert special reasonably available for the full use of their special bridge opportunities. What will Toronto do in the design and construction of the Bloor street improvement? Will she choose to stand with the progressive cities of Europe and the United States or with those that still build of steel by the most rigid and conventional forms? Will her bridge be a concrete monument demonstrating Toronto's love of beauty, or will this viaduct, in the most conspicuous place in all her topography, remain an ineradicable scar upon that beauty?

**Q** *Twenty-five years of persistent endeavor to procure safety from fire in cities marks the work of an English military engineer in U.S.*

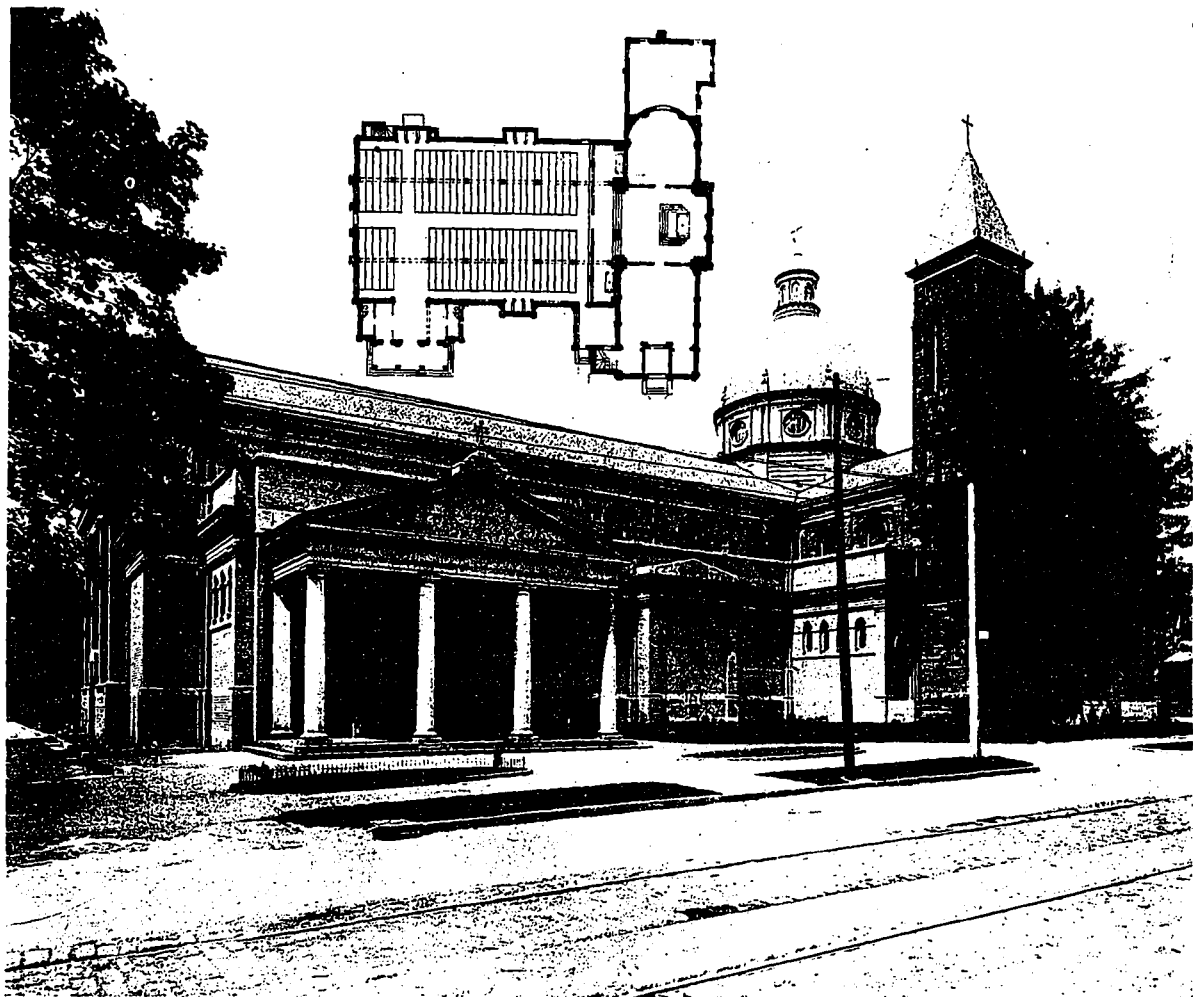
**T**HE BETTER construction of our cities has been the ambition of F. W. Fitzpatrick for the past twenty-five years. Starting with the proposition that a city is but an aggregation of buildings, and as is the character of those buildings so is the city good or bad, he began by clamoring for the prohibition of frame buildings being built in the crowded sections. Then, little by little, he has so forcefully impressed his arguments that now nearly all the big cities prohibit everything but fire-resisting construction within those fire limits. But he is not yet satisfied, and aims to make the cities exact absolutely fireproof construction within their fire limits and not much inferior construction outside of them. What he means by "fireproof" is fireproof, a building that can only be damaged, even by a conflagration, to a very small percentage of its cost and that affords safety to its tenants and contents. He accentuates his insistence on that matter by pointing out that of the more than 12,000,000 buildings standing to-day, there are perhaps not over twenty that really merit that name: buildings like the Underwriters' Laboratory in Chicago or the Singer Tower in New York, where a fire may burn itself out in one room and the people in the next hardly know about it. There are probably over twenty thousand large, important, ornate, immensely costly buildings in the country that are supposed to be paragons of fireproofness, but that afford little or no protection to their tenants and contents and that can be damaged themselves to anywhere from 10 per cent. to 85 per cent. of their cost value. In a vast number of buildings the only real attempt at fireproofing is in the protection of the structural parts. That generally is well done. But in all else there is laxity that savors of criminal ignorance (for it can hardly be design). Windows are unprotected, stairs and elevators are left open, com-

bustible material used in expensive decoration, and seemingly, everything done to invite damage by fire. He has patiently, but persistently, agitated the matter in the press, preached to the cities, heckled the architects, organized civic societies, brought the building departments together, and made so much stir about it that at first a few others followed him, and now literally hordes are marching in his footsteps. There are National Fire Prevention Societies, nearly every State has some such organization; the insurance people preach fire prevention; there are journals devoted to the cause, and the agitation is so widespread that there is hardly a city in the Union that has not just revised its building code, or is doing it now. And it has been recognized that certain restrictions that Mr. Fitzpatrick advised years ago, and that not more than five years ago were looked upon as intolerable hardships, are and always have been veritable boons and the very greatest economies to the municipality and to the individual. And it is time that good, safe construction be compulsory, for our fires have been growing at a far more rapid ratio than has our population or our wealth. We have reached a point where our losses, buildings and contents destroyed, and their incidental expenses, fire departments and such, represent a tax of over \$600,000,000 a year! The population of the United States has increased 73 per cent. since 1880, but fire losses have increased 134 per cent. in the same period. Mr. Fitzpatrick's early training was as a military engineer, but he soon branched off into architecture. He is as well known in Europe and in Canada as he is in the United States as one of the best authorities on construction. He was among the very first to exploit skeleton steel construction, as he was also a pioneer in advocating and planning many notable engineering and economic advances, such as the electrification of the railways and bringing them in tunnels to an underground central station in New York city. At the same time he ranks as one of the most capable of present day architects. His early success was in the Middle West and in Canada, but for the past fifteen years he has lived at the National Capital, at first designing important and notable buildings for the Federal Government and for the States, and latterly confining his practice exclusively to consultation work. He is a prodigious worker, for, in spite of his professional work and his fire-prevention campaign and all the labor it entails, the travel, the writing of city codes, text books, and what not, he still finds time to devote to other almost as useful hobbies. The "City Beautiful" movement, and "Postal Savings," for instance. At the latter he worked for years as a "side issue," and it was owing in no small part to his persistent endeavors that it finally became a law. His splendid physique enables him to do two men's work. Though nearly fifty, he is one of Washington's most earnest and active athletes, a great walker, rides much, plays a fine game of tennis, sleeps out of doors the year round, and pleads guilty of being a good deal of a "crank" in general. His friends qualify that by insisting that he's one of the most useful and interesting cranks in the land.



View Looking Towards Altar.  
Our Lady of Lourdes Church, Toronto. J. P. Hynes, Architect.





Our Lady of Lourdes Church, Toronto. J. P. Hynes, Architect.

## **R**EMODELING OF OUR LADY OF LOURDES CHURCH, TORONTO

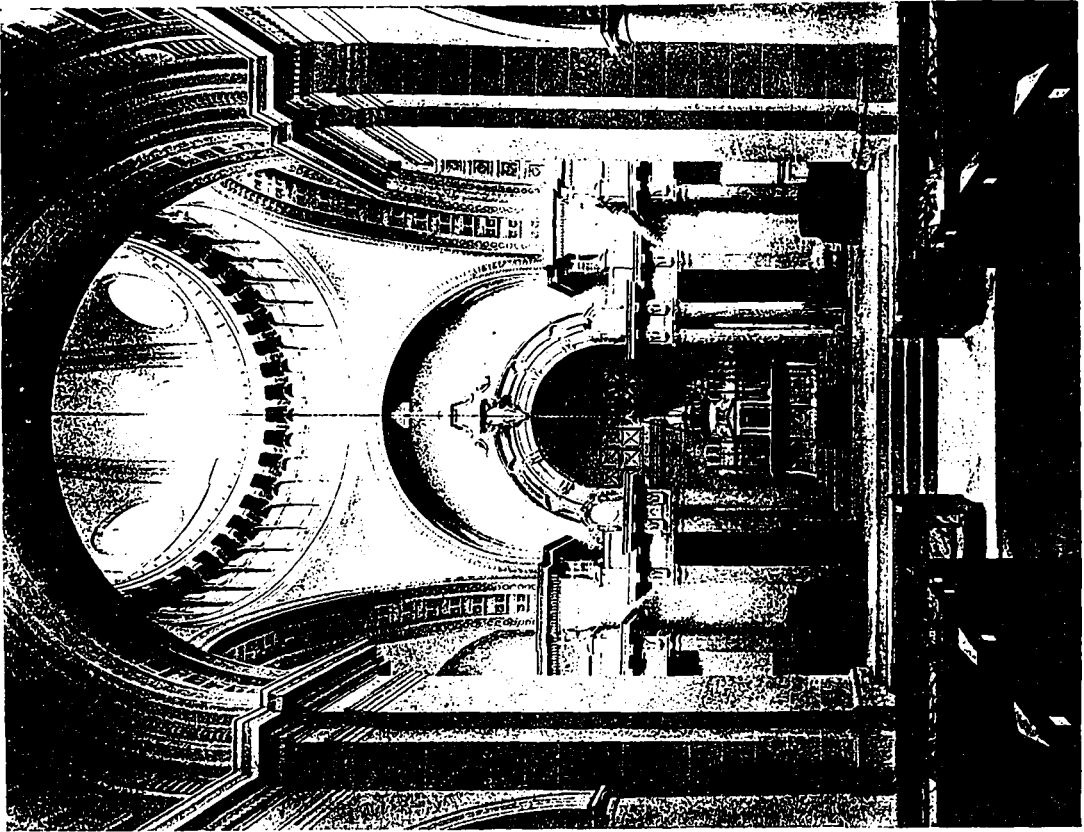
New part designed to form a consistent and co-ordinate development entirely in harmony with original structure erected twenty years ago.

**T**HE REMODELING of the Church of Our Lady of Lourdes at Toronto, from designs by and under the careful and sympathetic superintendence of the architect, J. P. Hynes, is so eminently successful as to warrant a full illustration in the pages of CONSTRUCTION.

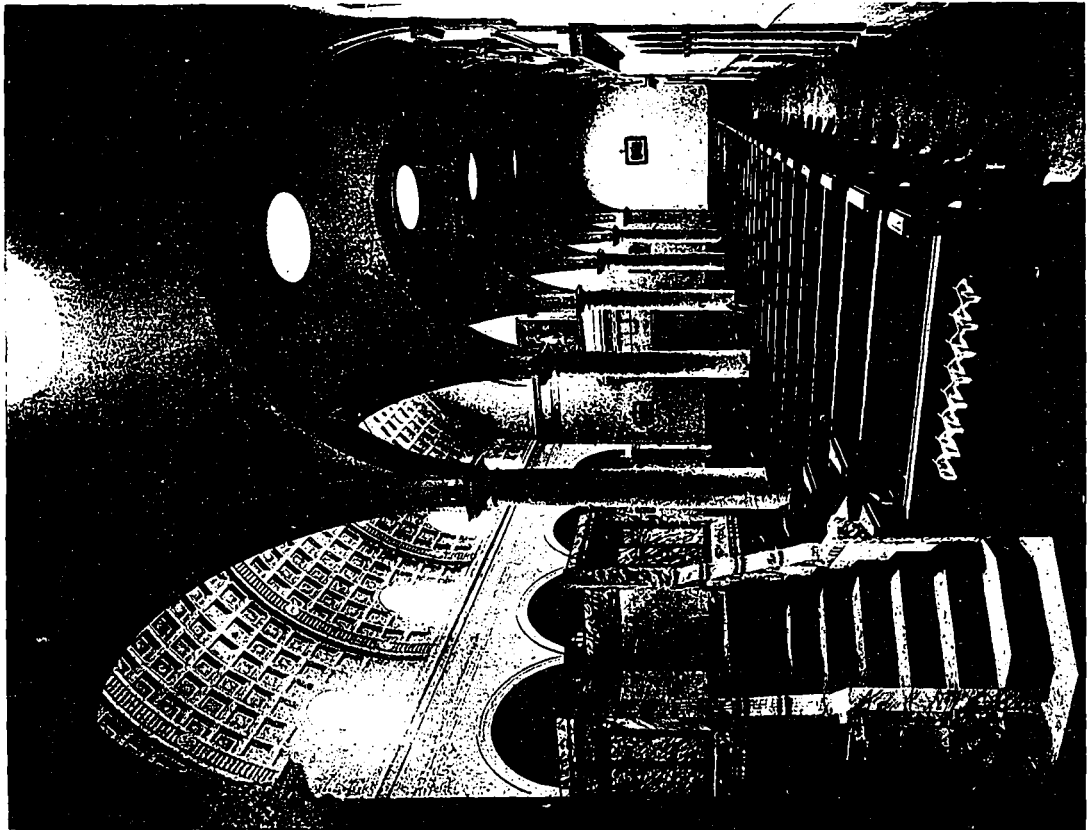
The original church was erected in 1886, from designs by Architect F. C. Law, R.N., on the corner of Sherbourne and Earl streets, and as it appears with the present addition and alterations which have recently been brought to completion, is shown in the accompanying illustrations. The half-tone view shows the exterior in perspective from a south-east point on Sherbourne street, and makes obvious how the new extension was carried out to form a consistent and co-ordinate development entirely in harmony with the existing structure. At the time the improvement was suggested, several propositions were put forth for enlarging the seating capacity, even to the building of another church adjoining the present one;

but as a harmonious and adequate extension was shown to be practical, the latter scheme was adopted. The original church was built as a memorial chapel with a seating capacity of less than three hundred, and was finally converted into a parish church. With the new extension, the accommodation is increased to comfortably seat over eight hundred. The plan adopted provided that the altar be placed under the dome of the original edifice, the existing sanctuary used as a choir, and a portion retained to supplement the seating capacity. The new part extends to the south at right angles to the axis of the original structure, thus making the remodeled structure similar to a T-shaped or restricted cruciform plan; the central portion having a semi-coffered vault supported by an arcade separating the aisles on either side.

The arcades and dadoes are worked in Caen stone cement, and the communion rail is of marble extending the full width of the church, with brass gates in the centre. The sanctuary floor and steps are also of marble, and also the large pier which rises to the cornice under the dome. As an interesting study in church architecture, a combination of the work of two designers separated by twenty-five years of time and changed conditions, this completed edifice is unique, and its successful design expresses the sympathy for the subject as well as understanding of the problem by its architect.

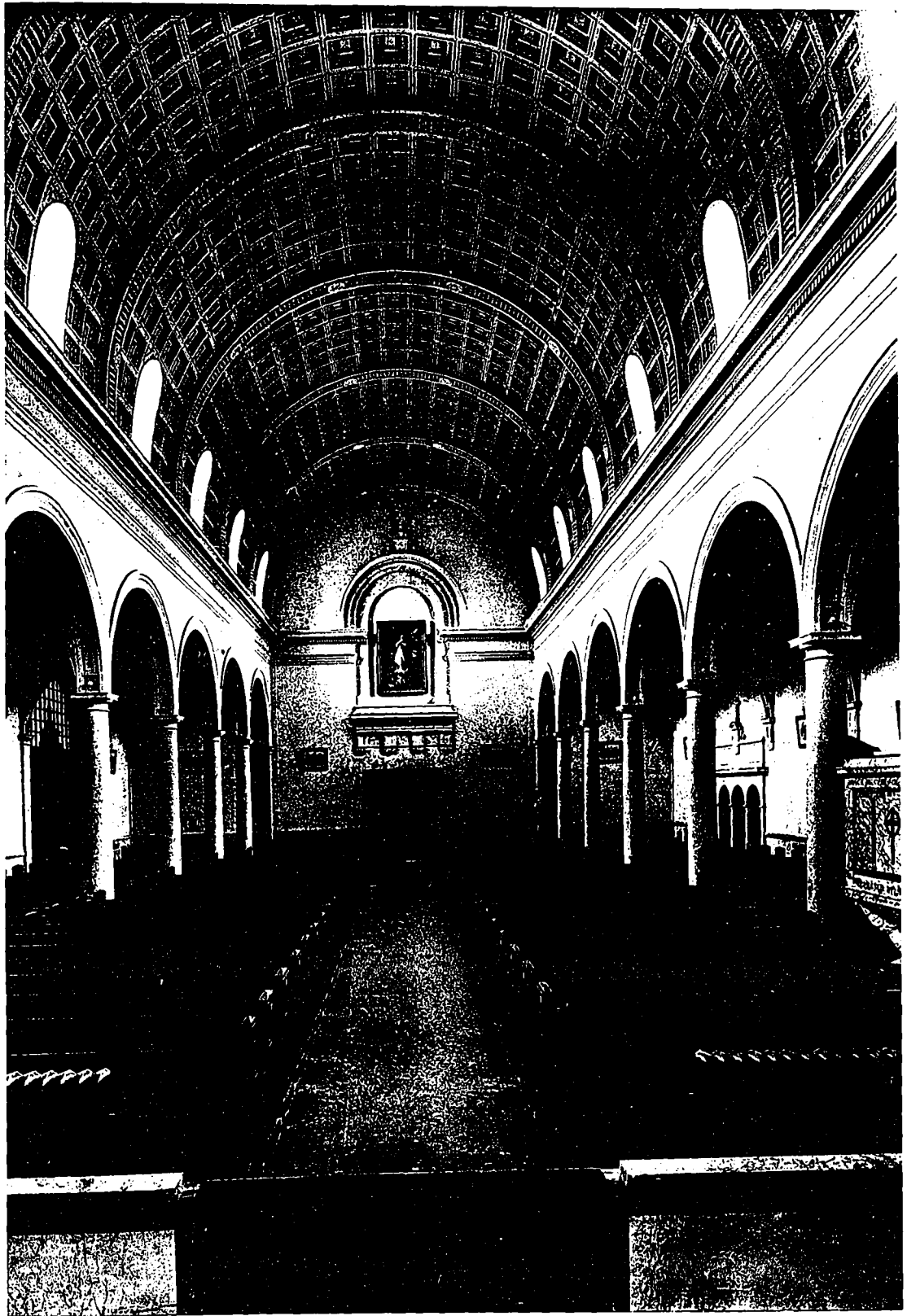


View of Sanctuary.



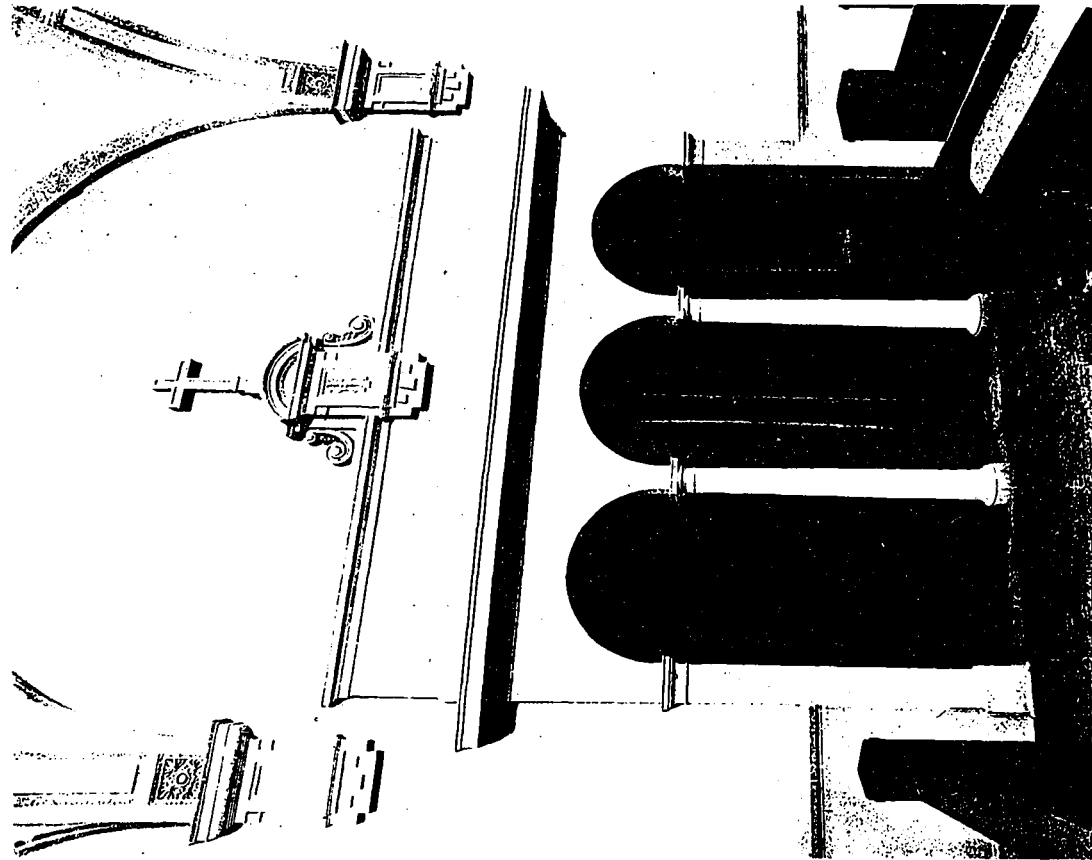
View of West Side.

Our Lady of Lourdes Church, Toronto. J. P. Hynes, Architect.

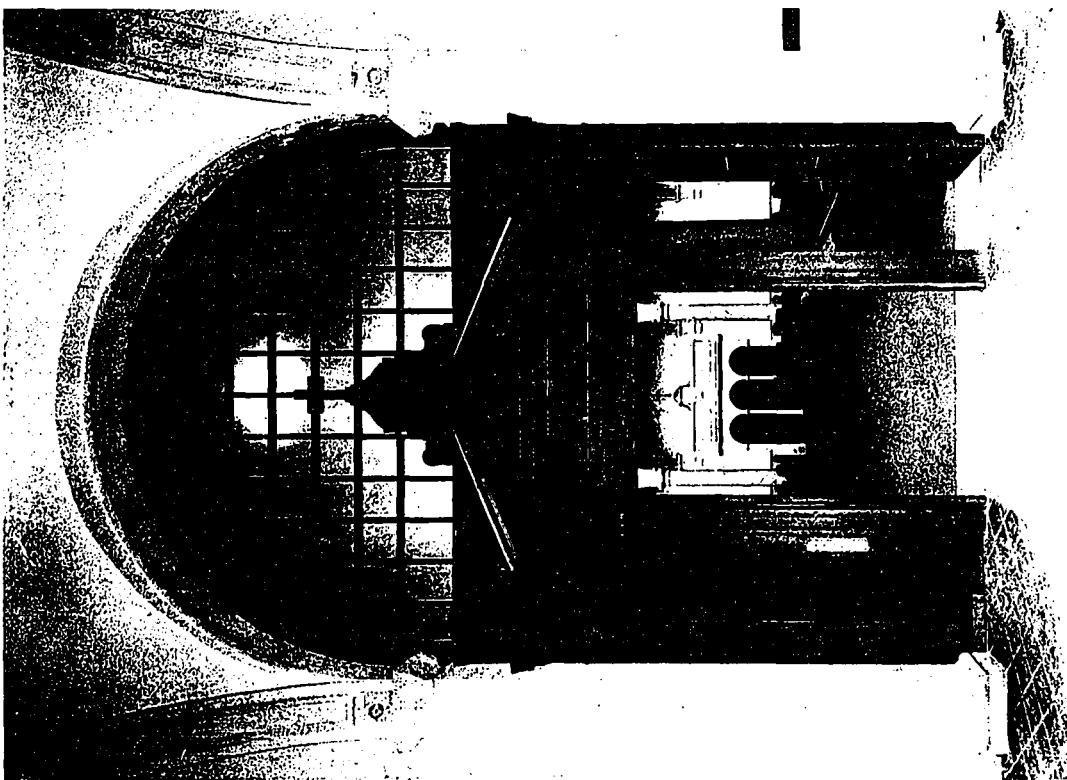


View Looking towards south end.

Our Lady of Lourdes Church, Toronto. J. P. Hynes, Architect.

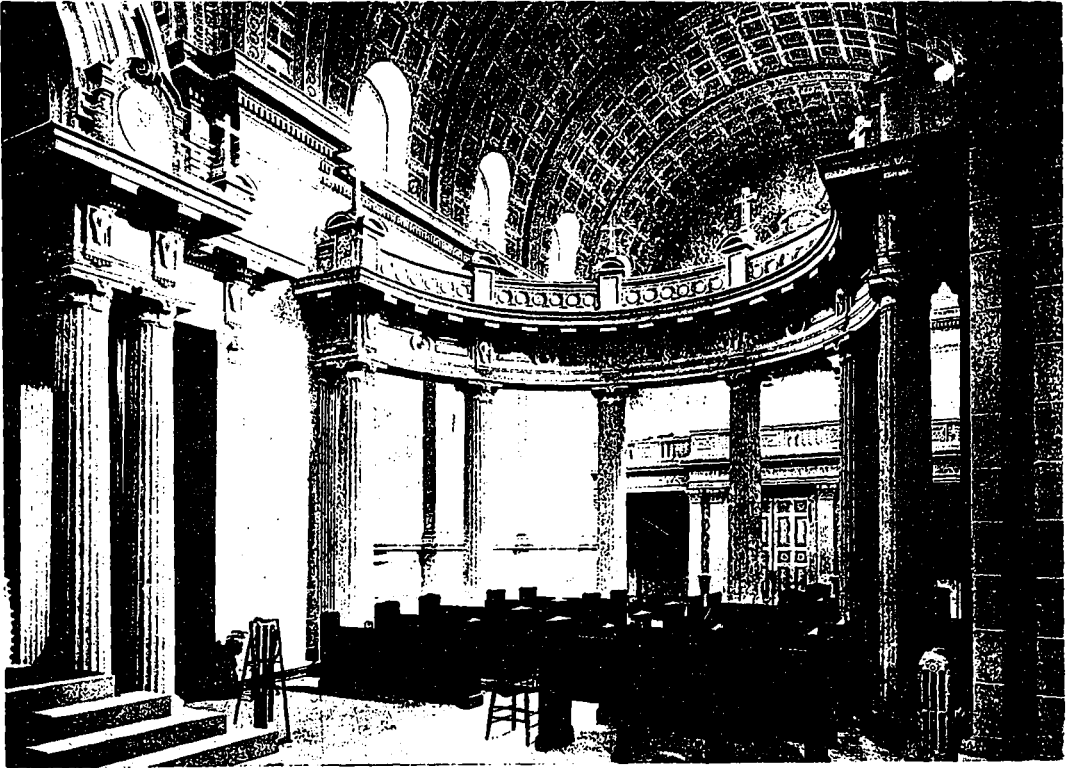


Confessional.

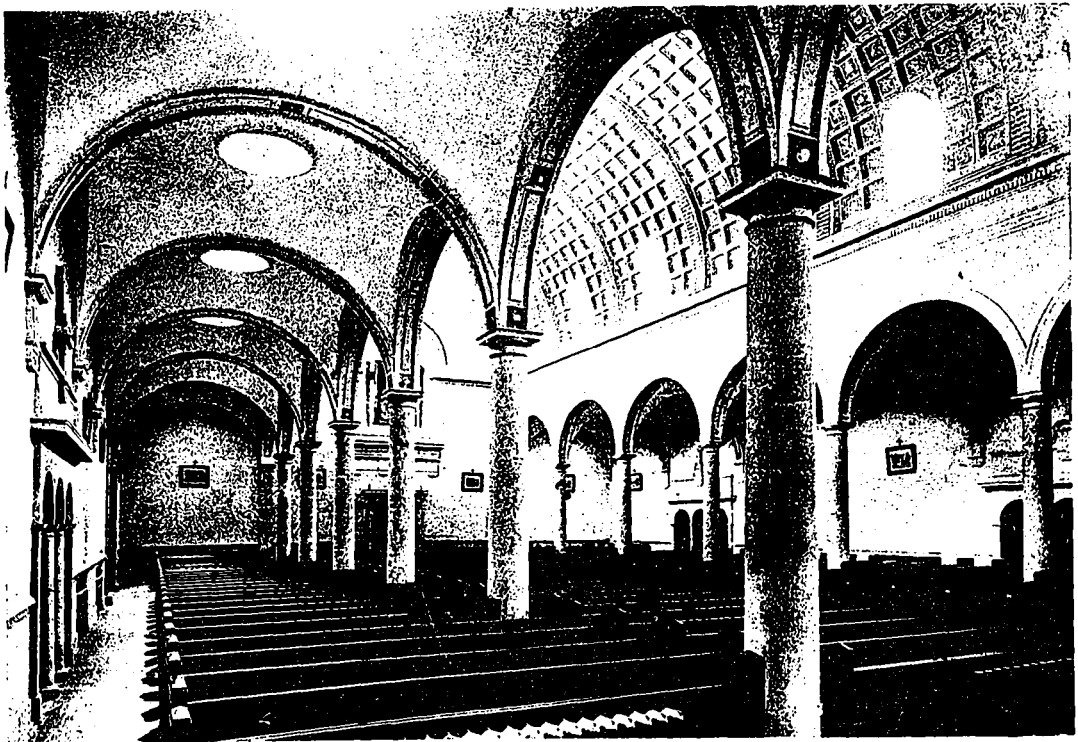


Entrance from Vestibule.

Our Lady of Lourdes Church, Toronto. J. P. Hynes, Architect.



View to East Sanctuary Screen.



View Looking Southwest.

Our Lady of Lourdes Church, Toronto. J. P. Hynes, Architect.



# RECENT UNIVERSITY ARCHITECTURE

*Extract of Paper on Subject Dealing with Conditions in the United States. Read before the Royal Institute of British Architects by Ralph Adams Cram of New York.*

**I**N THE COURSE of his remarks on the above subject in a paper read before the Royal Institute of British Architects, Mr. R. A. Cram said: The foundations of sane and sound and wholesome society are neither industrial supremacy, nor world-wide trade, nor hoarded wealth; they are personal honor, clean living, fearlessness in action, self-reliance, generosity of impulse, good-fellowship, obedience to law, reverence, and the fear of God—all these elements which are implied in the word "Character," which is the end of education and which is the proudest product of the old English residential college, and the old English educational idea that brought it into being, maintained it for centuries, and holds it now a bulwark against the tides of anarchy and materialism that threaten the very endurance of civilization itself.

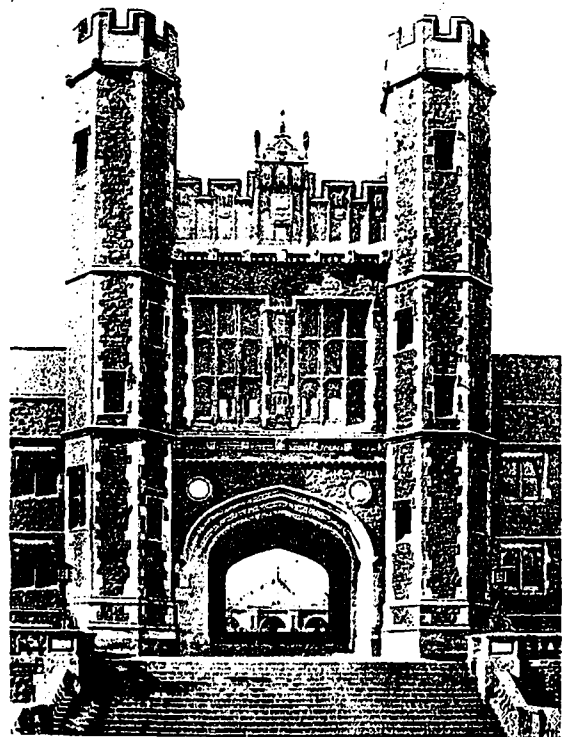
From time to time we have yielded more or less to novel impulses, coquetting with that questionable lady sometimes known as the Spirit of the Age, accepting even her insidious doctrine that, after all, the object of education is not the building of character, but the breeding of intensive specialists, or the turning of a boy at the earliest possible moment into a wage-earning animal. When we stop doing things long enough to think, we all realize that, as the Dean of St. Paul's has recently said, "The real test of progress is the kind of people that a country turns out," and the product of secularized and intensive education is not of a quality that develops a sense either of covetousness or emulation in sane and healthy minds.

We are returning, step by step, to the old ideals and sound methods of English colleges, returning to the mother that bore us, just as we return year after year to our old home for refreshment and inspiration; return even in a wider sense to those eternally battered but eternally enduring principles in life and thought and aspiration which make up the great Anglo-Saxon heritage of which we proudly claim to be joint heirs with yourselves. And in this return we find ourselves recurring once more to the very forms of the architecture—or rather, we hope, to its underlying spirit—through which this great tradition has manifested itself.

In America practically all the 17th century work and nine-tenths of that of the 18th is gone, including much of the best, and we must recreate our vision of the past from shreds and patches, but fortunately at

Harvard there remains a notable group that has yielded neither to vandalism nor conflagration.

The first evidence of decadence appears, I think, in the advent of that more pompous style Jefferson did so much to advance. Hitherto what had been done was done simply and unaffectedly; now came the conscious desire for architecture, which is a dangerous ambition at best. At the University of Virginia we have the original setting out, almost intact, and



Washington University, St. Louis, Mo.  
Cope & Stewardson, Architects.

if we deplore the unnecessarily unreasonable classical porticos with columns, entablatures, and pediments complete—and all built of pine boards framed up in the semblance of a newly-discovered paganism—we must admit the great dignity of the plan and the singular charm of the ensemble.

This "Jeffersonian" style rapidly took the place of the old Georgian, but its day was brief, and somewhere between 1820 and 1830 occurred that ominous point when the last flickering tradition of good

taste and the last weak impulse of instinctive art vanished.

Fortunately there was little collegiate building with us during this dismal second quarter of the 19th century, or, rather, and also fortunately, little of it has survived, and when first the architect appears on the scene as the mentor rather than the exemplar of public opinion it is in novel guise: nothing less, indeed, than as the protagonist of Gothic. He was not very Gothic, I must admit, and in the beginning he contented himself with a few apologetic and quite casual buttresses, pointed arches over his door and window openings, an octagonal turret or two, and, of course, battlements, usually of 2-in. deal neatly painted, and sometimes sprinkled with sand as a concession to appearances.

It was all a "false dawn," however, and ceased almost in a moment (though for a brief period only, as we shall see) when that great genius and greater personality, Richardson, flashed like an unpredicted comet across the sky. He did great work, some of it immortal work, in his powerful mode, but he died before his mission was accomplished, and though he killed the "French roof style" and the futile Gothic, and all the other absurdities, he left behind no one of his own calibre to carry on the crusade.

It may be well to examine a typical American University, in its setting out, in its component parts, and in its organization. I will choose for this purpose Princeton, of which I am a member by adoption, and where I have the honor to act as supervising architect. The title itself will indicate at once one of the many points of divergence between the English and American systems, for I fancy there is no university in the United Kingdom where one man is given almost complete authority over all matters of the choice of architects, supervision of their work both in design and execution, acceptance or rejection of gifts, and their placing if accepted, the development of roads and paths, and the planting of trees and shrubs. Until recently such an office was unknown in America, but since Princeton took the lead some five or six years ago others have followed rapidly, and the practice has now become an established custom.

It was true, too, that something should be done; as I have already indicated, our colleges are like Topsy, they "just grewed," without rhyme or reason, subject to the most vacillating fashion and the quaint whims of emancipated individuals, and the results were generally shocking. At Princeton this growth had been quite lawless, and conditions were even worse at Harvard and Yale. The wide spacing and the lack of co-ordination marks another point of difference; with us almost every college has begun in open country, as an original foundation. We have nothing like Oxford and Cambridge, partly because of this fact, and partly because each college is with us a unit; we have no gathering together of many and independent foundations, loosely knit together for administrative purposes; we have, instead, self-contained units, sometimes of enormous size, and each new benefactor founds not a new college, but a dormitory, a library, a school of law or medi-

cine or forestry or—journalism. Personally, I think this plan must be abandoned, and a breaking up into more manageable units take place. In the new plan of Princeton the tendency is towards the standard type; here the dormitories are assuming quadrangular form, and in time may become full residential colleges, each with its common-room and great hall, and, when times have still further changed, its chapel.

Another thing that will strike you is the magnificence of our gymnasiums and the dominating quality of our schools of science. Then we have general physical directors, as well as special trainers for the varied forms of athletics, and in many colleges regular and searching examinations of the men for physical and functional weaknesses, and as a result the health of our schools is well above normal. As for our science buildings, you know, as we know, only too well, how almost unbalanced we have become in our devotion to practical and "vocational" training, and how obsessed we have become with the mania for natural science. Here at Princeton there is less of this than elsewhere, but two of our newest and most magnificent buildings are devoted, the one to biology, the other to physics, though as yet we have no



Chapel at West Point.  
Cram, Goodhue & Ferguson, Architects.

schools of mechanical and electrical and mining engineering, as happens so often elsewhere. One novelty you will not notice at Princeton, and that is the clubs and fraternities. We have as many "Greek Letter Societies" (which are very awful and very secret organizations) as we have colleges, and there are some institutions in America where these fraternity houses almost outnumber the academic buildings themselves. At Princeton no Greek Letter Societies are allowed, but there are two old secret organizations, the Whig and the Clio, whose white marble mausoleums form the very centre of the campus, while to the east stretches a great street absolutely lined with the private clubs which grew up when the fraternities were taboo. These clubs take in only a certain number of new members each year, they are distinctly aristocratic in their tone, though aristocratic of a sound and healthy type, and they generally follow the lines of an old and palatial country house.

From all these points of difference you will see, then, that our American university is a very different matter in its architectural form to those in England. Our newest graduate colleges come nearer, as the now rising buildings for Princeton testify.

In the meantime, let us examine the beginnings of what has been a notable Gothic Renaissance amongst our colleges. Cope and Stewardson's work at Princeton set the pace, however, and so beautiful was it, so convincing as to the possibilities of adapting this perfect style to all modern scholastic requirements, the university authorities, with a wisdom beyond their generation, passed a law that for the future every building erected at Princeton should follow the same general style.

Columbia University in New York—the old King's College of Colonial days—stands, of course, as the noblest type of the pure classical idea, and its majestical library will always remain a national monument. Unfortunately, the site is crowded and fatally restricted; the mistake was made of fixing this—when the change was necessary a generation ago—too near the outposts of the advancing city, which, like a conquering army, has already swept up to its gates and miles beyond.

There is little else that is purely classical amongst our universities, though Carrère & Hastings have built a most engagingly Parisian Alumnae Hall at Yale, the Naval Academy at Annapolis is strictly French, and the University of California is growing on scrupulously *Beaux-Arts* lines afar on the Pacific coast. Harvard is conscientiously following the Georgian manner, and so is Williams, where we ourselves are trying to show we have no hard feelings by building a Commencement Hall, and a new quadrangle, in this quite characteristically American style. Georgian also, with rather quaint Roman elements, has been used by McKim, Mead & White for the vast War College at Washington, and altogether it is, as we say, in our colloquial way, giving Gothic "a run for its money."

The University of Pennsylvania shows still more of Cope & Stewardson's wonderful work, though here it is couched in an extremely rich Elizabethan vernacular. Bryn Mawr is built of the wonderful stone that underlies all Pennsylvania and New Jersey, putting a premium on good architecture. Here in England all building stone is finely dressed, but in America we have adopted the practice of using "ledge stone" for our ashlar, our trimmings only being tooled. Fortunately, we have a wide variety of singularly beautiful stones, ranging in color through all shades of grey, brown, purple, and tawny, easily obtained, inexpensive, and durable. In a way, I think we gain a richness in color and texture that is obtainable in no other way, while we also acquire something of that effect of age, which is, after all, so essential a part of architecture.

Good Gothic is encroaching steadily on the preserves of Classicist, Boulevardier, and Colonial, and this in spite of the fact that, with the single exception of Harvard, every one of our schools of architecture absolutely disregards every type and phase of Gothic, both in design and in theory. Of course, it can't

quite be suppressed in history and archæology, but it is treated rather as the madcap escapade of a callow youth, and passed over as lightly as possible. In spite of this, architects do appear who love Gothic, and what is more, know about it also. Religion clamors for it, education annexes it, and at West Point the Government of the United States itself accepted it with alacrity, and has found it not half as bad as it looked. I cannot begin to give you any idea of the extravagant beauty of the site of West Point. It is like the loveliest part of the Rhine, only bolder and more dramatic. Mountains rise from the river on either hand, deeply forested. Storm-King and Dunderberg lifting highest of all—and on a narrow plateau, 150 feet above the river, stands the academy, its buildings forming a rampart along the cliff, and creeping up the mountain sides all around. Of course, there wasn't anything one could do there except Gothic—of sorts—though others had thought differently, as one who built there a lovely pagan fane like a dream of Imperial Rome. Moreover, most of the old work was pseudo-Gothic, and it had made a tradition, so it was not startling, after all, that our classical Government should have endorsed a Gothic school.

I am not sure they got it. I think the chapel on its crag, dominating the whole group, would pass, though it surely is not archæological; the site is compelling, however, and really what we tried to do was to translate the rocks and trees and ribbed cliffs into architectural form. Just what the cavalry and artillery buildings may be I don't know, nor does it much matter; they are an attempt to express outwardly their function, and in the simplest terms; the stables sweep in an enormous arc around one side of the cavalry plain, and at the back, against the towering hills, are the barracks, one for each branch of the service. The riding-hall is no more architectural than a rampart of rock, heavily buttressed, and 600 feet in length.

I think of the finished buildings the post headquarters is not the least interesting. It is built on the edge of the cliff, and the entrance by the base gate is four stories below the main court, which is entered from the upper level. It is a pretty big building, but it is wholly occupied by the administration of the academy. Not only the buildings at West Point, but practically all the other works I have shown you as well, are all real masonry; no steel frame skeleton clothed indifferently with a veneering of masonry. We do, indeed, indulge in skeleton construction, and reinforced concrete and other structural expedients and substitutes, but deep in our racial consciousness, as in that of all other Anglo-Saxon peoples, is the solid conviction that, after all, there are but three real things in the world—the home, the school, and the church—and that when we are dealing with eternal verities honest and enduring construction is alone admissible. And it is to the same consciousness I think that we may attribute the very universal return to Gothic of some form for our churches and our colleges and our schools. We have not hammered out our own intimate style, or national and contemporary architecture, any more than have any



other modern races and people, but this will come by-and-by. In the meantime, like the monks in the dim monasteries of the Dark Ages, we cherish and conserve all that was great in our greatest past, building as well as we may new Oxfords and new Westminster Abbeys, new Lincolns, new Richmond Castles, new Haddon Halls, not as the last new word in architectural expression, but as schoolmasters and as prophets, content with the educational work we are accomplishing, leaving to our successors the equal but not more honorable task of voicing in novel and adequate form the new civilization we are helping to create."

## DESIGN IN CHIMNEY PIECES

Comments by "The Architect" on the general subject of chimney pieces and ingle nooks, with some reference to Mr. Guy Codogan Rothery's book of that name.

OF ALL the features that go to form points of interest within a house none is of greater importance than that which emphasizes the hearth, the *focus* of the Romans, whose very name has become in our own language the synonym for the point of concentration and the centre of radiation. The study, therefore, of the various means by which the expression of all that the hearth implies has been attempted at various periods of artistic development is one of both absorbing interest and valuable instruction for those who have, in our own day, to produce in modern architecture the accentuation of the most prominent centre of the home. Thus Mr. Rothery, in his monograph of the treatment of the fireside has had a subject richly stored with admirable instances of diverse treatment, and he has made good use of his opportunity.

In dealing with chimney-pieces and ingle-nooks our author has adopted the historical method, and has traced the development of the fireplace and its adjuncts from the heating arrangements of the Greeks and Romans to the latest devices of the twentieth century. The practical absence of the chimney, and the greater prevalence of the hypocaust system of warming amongst the Romans leads to the inference that the fireplace of their civilization must have been closely allied to the primitive methods of semi-nomadic tribes and hut dwellers, and that whilst these latter led, on the one hand, to the central open hearth of our early mediæval halls, a development in another direction produced the mound-like enclosed stoves of Central Asia and the northern regions of our continent.

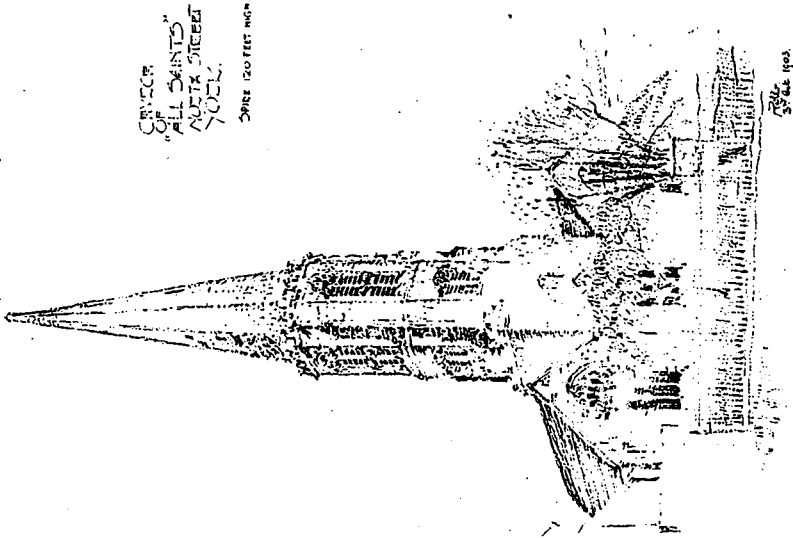
As Mr. Rothery points out, the lateral fireplace with its consequent chimney-piece and the still further development of the ingle-nook "possess no great antiquity, as antiquity is measured by the long strides of human progress." The eleventh century of our era seems to have seen the first commencement of the struggle between the primitive, but from the

point of view of warmth, effective central open hearth, and the more convenient fireplace on a lateral wall, and the well-known example at Penshurst shows how protracted was the struggle ere the inconveniences of the former type led to its complete abandonment.

In the days when wood was practically the only fuel of the domestic hearth it will be noticed that the hood of the chimney-piece was of more importance than the jambs. The burning logs occupied a considerable space on the hearth, their smoke was widely diffused, comparatively slow in ascent, and, if at times wafted into the apartment, not entirely unpleasant, either in its odor or its blackness, whilst the wide distribution of the actual sources of heat rays rendered it desirable that lateral as well as frontal radiation should be obtained as far as possible. Hence the broad and strongly projecting hood usually corbelled out considerably from the supporting jambs.

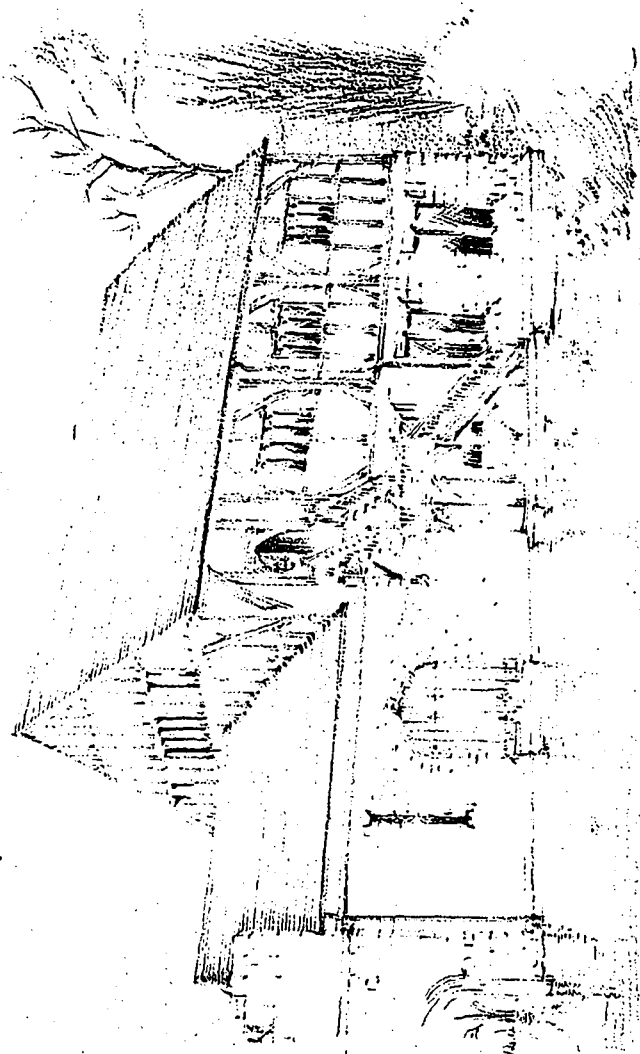
The corbelled hood was most readily and suitably constructed in stone, and hence we may understand why, as Mr. Rothery tells us, "carved stone was the usual material for chimney-pieces up to well in the sixteenth century. Such material as was locally at hand was commonly chosen. Thus we have hard building material in Derbyshire and Northumberland, white and greyish yellow chalk in Kent and Sussex, hard, but easily handled, sandstone, and the more brittle, greyish-black slate in Italy, the soft stones in Normandy and Brittany." The use of stone, occasionally but rarely combined with brick, was then the prevalent custom in mediæval fireplaces, and the author gives descriptions of individual instances, both of typical and of exceptional treatment. In this way he builds upon the historical basis of his book an explanatory exposition of the methods of design that find exemplification in the well-chosen examples to which he alludes. By grouping together examples of allied treatment, we are led to recognize the existence of types as, for example, in the description given us of fireplaces with multiple hearths, a more general method we are told of providing, in the middle Gothic period, for the adequate warming of great halls than the multiplication of separate fireplaces.

When in the middle of the sixteenth century wood came into favor for chimney-pieces, gradually usurping the primary place in England, northern and middle Europe, it should be regarded, we think, as part of the general disposition to develop the art and craft of the joiner in the internal architecture of buildings rather than as something peculiar to the fireplace. We may, indeed, see that instead of being a distinct and isolated entity as was the stone-built hood, the wooden mantelpiece became an element in a general scheme of panelled treatment of an interior, and this without the fireplace losing the character of the dominant feature of the room. The change from stone to wood also brought with it a variation in the general form of the chimney-piece. The conical or pyramidal form of the hood gave way to the rectangular and vertical breast, the stone corbelling to enclosing jambs, and the chimney-piece



CHURCH  
OF  
"ALL SAINTS"  
NORTH STREET  
SOUTH  
SPIRE 120 FEET HIGH.

Scale 1/8" = 10'



Scale  
1/4" = 10'

HOSPITAL  
ST. MARY'S ABBEY  
SOUTH

Pencil Sketches of Old Country Work, by Andrew Follo, A.R.I.B.A.

became a frame around the fireplace rather than a smoke-collector above the hearth.

A pleasing divergence from the strictly historical method of his book is given by the author's chapter on the use of human figures in Gothic and Renaissance work, more particularly in connection with chimney-pieces. In this chapter is discussed the merits and the defects of various applications of the figure, and the main lesson is enforced that whilst such figures should be not merely ornament, but integral portions of the design and therefore filling the function of support, they should do so without conveying any expression of undue strain or overpowering load.

Resuming the historical method our author leads us through a consecutive contemplation of the earlier and later Renaissance chimney-pieces to those of the nineteenth century, giving us on the way some excellent criticism of the individual characteristics of the masters of the English school, Inigo Jones, Christopher Wren, Grinling Gibbons, William Kent, Isaac Ware, Robert Dance, William Chambers, Robert Adam, John Soane, and others. Then we come to the consideration of current practice, in which descriptions of thoughtful design by living architects, with their varied experiments in form and material, are critically furnished. Mr. Rothery draws attention to some excellent applications of the use of brick and other constructive material in modern fireplace design, but does not sound the warning note, which strikes us as necessary, of an affected over-accentuation of roughness and rusticity.

Although descended by way of the farm-house chimney corner from the mediæval hooded fireplace, the ingle-nook is really a modern institution, and the examples illustrated are therefore of recent design. It is notable that at the present day our architects have, for the most part, recognized that the ingle should not be too much of a nook, but that whilst providing a cosy corner should still permit of the adequate warming from the fireplace of the remainder of the room.

A final chapter on the closed stoves of Germany and Russia brings to a close a book of high educational value, whose admirably selected illustrations are most usefully supplemented by the opportunities afforded for further study in the cited examples and appended bibliography.

hasty lines will clearly explain. For example, let the reader try to describe a dovetailed angle without the aid of a sketch.

To those connected in any way with building operations the value of being able to draw freely and readily can hardly be overstated, and it is surprising that it is not cultivated to a far greater extent than is actually the case. There are men who have spent practically all their lives interpreting and working from the drawings of others who are scarcely able laboriously to mark down detailed sketches of matters which must of necessity be as clear as crystal in their minds. And this, not because of any actual disability, but simply because they have neglected to acquire the faculty for doing so.

It would seem that the great difficulty of the artisan is expression. He knows from long practice how to do a certain thing, often to the point of perfection, but unless he is able to formulate the process by which he does it, first in his mind, and then to shape and express that process through a medium which enables him to convey it to others, he is using his powers blindly and mechanically, and there is little hope of his skill leading him into further channels of ability. In learning to draw he is therefore not only adding an accomplishment to his craftsmanship, but also what is really a fresh faculty to his mind, which will interact and help to develop other sides of his knowledge. It might be worth remarking, in passing, that men whose business it is to draw—architects, for example—who are familiar enough with the representation of things on paper, would stand to gain equally if they had to take a short practical course with the materials themselves.

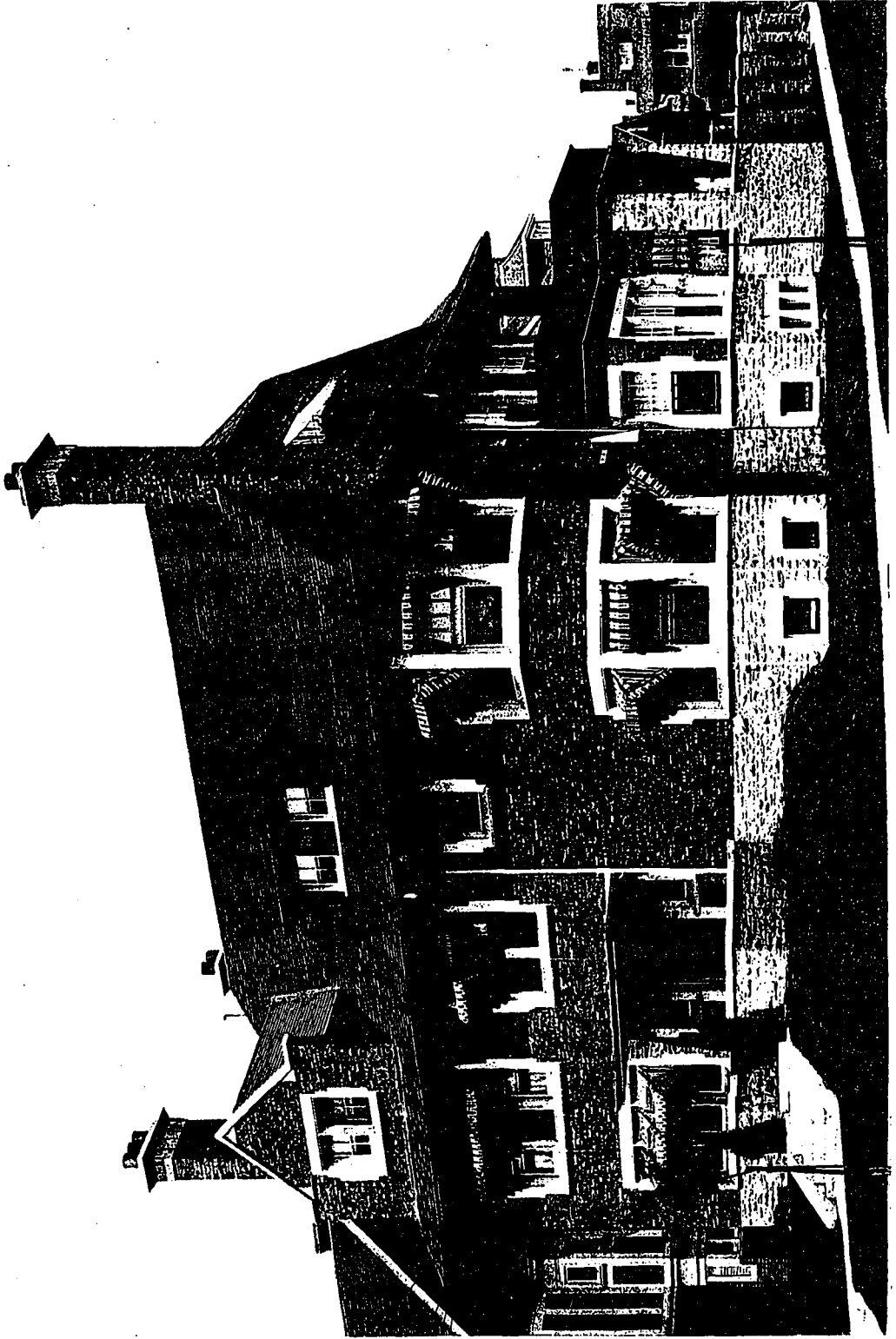
No more than in anything else is there a royal road to skill in draughtsmanship. Interest is the principal incentive to progress, and our advice to all who wish to learn is to start sketching everything that interests them. The constant companionship of a pocket sketch-book and pencil is invaluable. The type of drawing taught in the technical school is mainly mechanical work, and, whilst by no means to be disparaged—it has its proper sphere and necessities—it is not what we advise the artisan-student to aim at principally. T-square and board work is more a matter of mathematics than facility of expression. The sketch contains the idea—the life. Few realize how the first steps taken by an architect in designing of any kind are all expressed and shaped by means of sketches—plan, design and details. Therefore we recommend every young artisan to make a certain facility in sketching matters connected with his work an important part of his training. It should become habitual with him to jot down any special feature of construction, any pleasing piece of design, any ingenious means of overcoming a difficulty, in short everything which should come in his way of this nature that interests him. Doing this will well repay him in his after career by fixing the ideas in his mind, and at the same time helping him to acquire a facility of expression which is bound to react beneficially upon his whole outlook and mental development, and incidentally, of course, to affect his commercial value to his advantage.



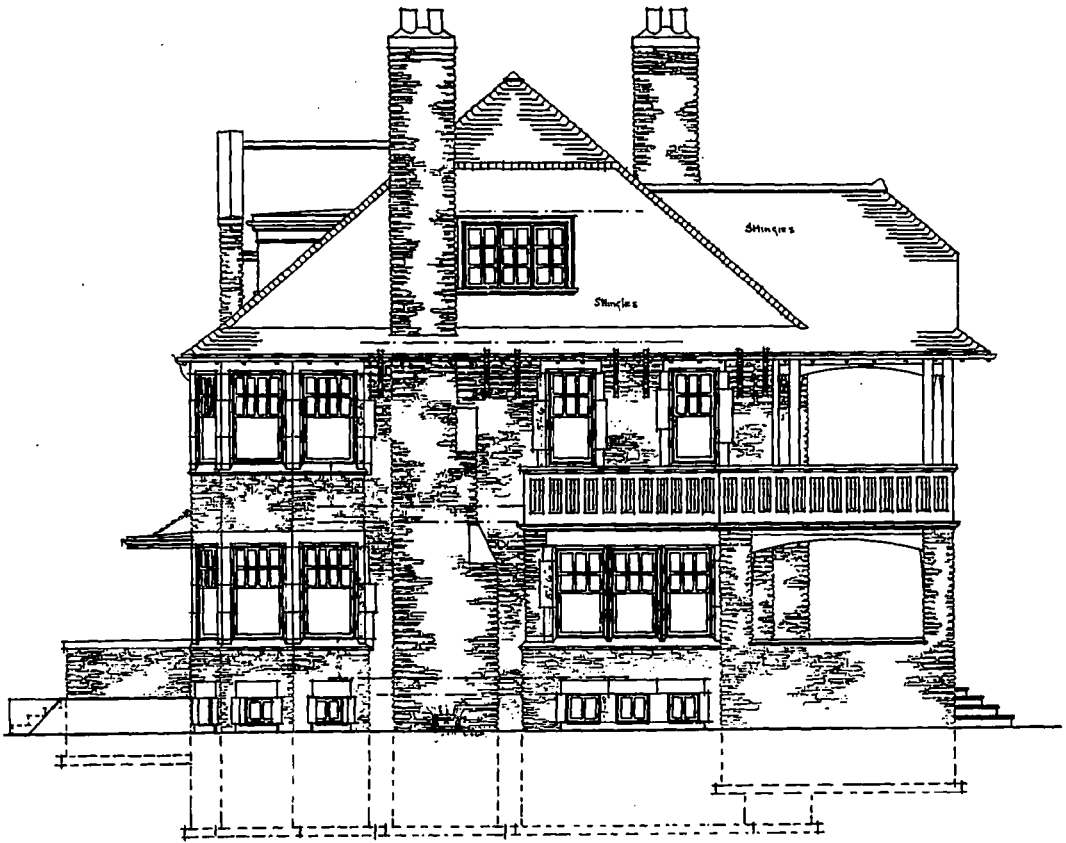
THE VALUE  
OF FREE-HAND  
DRAWING

Ability to sketch an attribute to good draughtsmanship. Makes possible the power of adequate expression and trains faculty of observation.

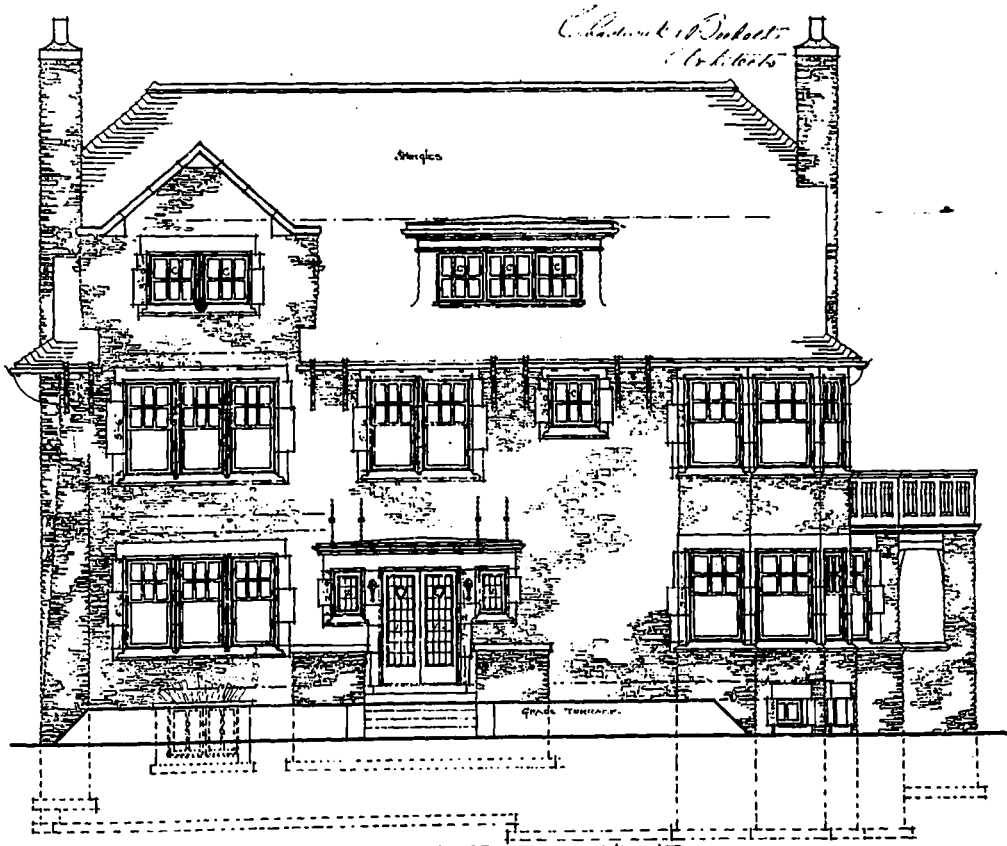
**D**RAWING, in the sense in which our readers most frequently meet with the word, is the craftsman's principal medium for expressing and conveying his ideas. It is essentially the most direct way of so doing; in fact, says a writer in the Illustrated Carpenter and Builder, there are many pieces of work almost impossible to convey correctly to the mind by means of words alone, which a few



Residence of E. J. Freyseng, Toronto, Ontario. Chadwick & Beckett, Architects.



East Elevation.



South Elevation.

Residence of E. J. Freyseng, Toronto, Ontario. Chadwick & Beckett, Architects.

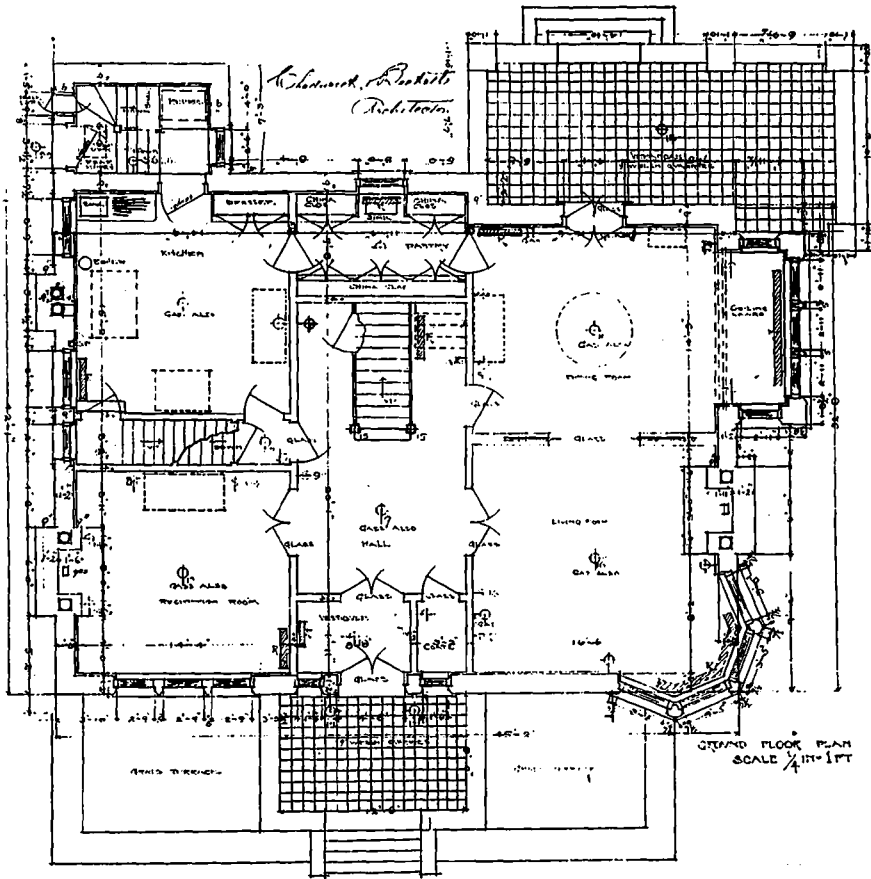


Dining Room.

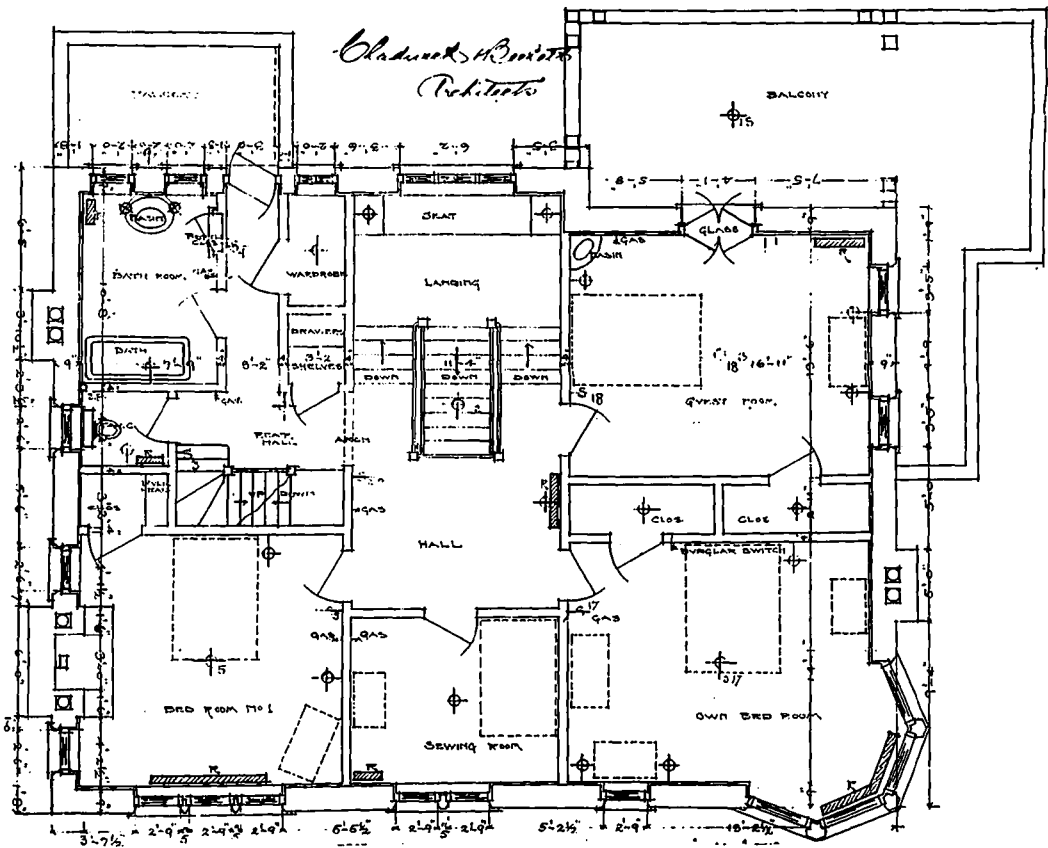


Exterior.

Residence of E. J. Freyseng, Toronto, Ontario. Chadwick & Beckett, Architects.



Ground Floor.





## PHASE IN ARCHITECTURAL EDUCATION

A paper read before the last Convention of the American Institute of Architects by Lloyd Warren, concerning phases that are appearing and awaken the concern of every practitioner who looks to the future of his art

**H**OW INTERESTING it would be could we follow the phases of architectural training through the middle ages. How inspiring it would be to us, who seek to perfect this training at the present day, if we knew the influences which raised the art from the crude barrel vault and block capital of the early Romanesque to the tenuous stone construction and the florid carving of Troyes and Notre Dame de Brou!

Nothing, however, is left to give us a hint as to how the science of the builders was transmitted from generation to generation in those days. The mediæval master builder has passed away and has taken his secret with him; scarcely a document has remained, and nothing to inform us of his educational system. The builders before the Renaissance were a vast secret association, living and working apart from the rest of the world; migrating in companies when one cathedral was finished to the site of another which was beginning, guarding their secrets jealously, mystic and tenebrous as was the age wherein they lived, and with that age they melted away before the brilliant rays of the Reformation and the Renaissance.

Then came the age of the despots, the litterati, and the precious; the pagan worship of the purely beautiful, which thrust aside the expression of construction as a thing inelegant and barbarous, and summoned the artist of pure form to build its temple. Aeneas Sylvius and Filippo Strozzi thus called for the services of the sculptors Rossellino and Benedetto da Majano and for nearly a century after only sculptors and painters occupy themselves with the design of monumental edifices, then Palladio and Serlio codify the science of building design in such a way as to put its technique within reach even of the in-artistic constructor; unfold, as it were by machinery, the secrets of the artists' magic of form and proportion, and create that phase of architectural education which with little change has come down to the present day.

Thus we may describe these phases from the time of the downfall of Rome; traditional through the middle ages; purely artistic, through the Renaissance, and codified or systematized thereafter.

That this last phase still exists in Europe I believe, but in this country we are rapidly developing a new one which we cannot but recognize, and that is, that of intensive specialization. The elements which now enter into the profession of architecture are so vastly complex that it is virtually impossible for one man to master them all—think of them for a moment. Is it only necessary that one be a man of general culture,

a man of affairs and a gentleman (I quote a speaker at the conference of the various committees on education) for the public to hasten automatically to one's office? If we would not have important work slip through our fingers we must be so eminently men of affairs that affairs must occupy the larger part of our time to the neglect of many other things, and those chiefly artistic. I think you will not cavil if some one insists that we must also be scientific; and you know how absorbing is the science of modern construction. Then what place in all this is left for art? Shall architectural design never be anything but Palladian colonnades; shall decoration and ornament be ever at the mercy of some clay-puddler in a modeller's shop?

In short, what part is art playing in our profession? Is it merely one of those confounded things after another of which it is said the American's life is composed? Is it forever to consist of different copies of the splendid motives which Letarouilly has put within our reach, or in touched-up reproductions of the rather mediocre designs of modern European publications? Do you suppose that this great land of ours which has produced eminent statesmen, writers, orators and soldiers, cannot also bring forth its Albertis and its Sansovinos? And if they come along, what are we going to do with them; give them their pay by the week, and, as Mr. Cram said, "force them to sketch themselves into a grave of watery deliquescence?" What part shall the artist play; shall it be a chief and honorable part, or shall it be that of the salaried, and, therefore, not independent draughtsman?

There can be but one answer to this: the place of the artist in the practice of architecture should be second to no other, and to this artist should be opened an education which will enable him to assume that place.

Our architectural schools up to the present have refused to accept this phase of intensive specialization; twenty years ago they differentiated themselves very little from the schools of civil engineering; to-day they will decline not to differentiate the scientific from the artistic in the profession itself; and though in the scientific branch the instruction is excellent, in the artistic it still leaves much to be desired, and students are not encouraged to choose one or the other on which to concentrate.

The realization that we had unavoidably passed into this educational phase of intensive specialization came to me only very recently. It had been my fond notion that all draughtsmen had the ambition to become all-round architects, and ten years ago I had urged Columbia University to open a night school with that end in view. Being unable to pass this measure through at that time, it was with great interest that I saw Columbia last year, at the instigation of our Commission on Education, establish extension courses, which, taken in conjunction with the problems in design of the Society of Beaux Arts Architects, would give a complete course in architecture. Imagine my surprise then when I found that, though the extension courses were well filled,



only two of this society's students were enrolled in them. All these boys were studying to specialize, each one, in some one branch of architectural practice.

And after all, is not this quite right? Do we not need in our offices men highly trained in each of the widely differentiated branches? The sanitary and ventilating experts each up to date with the ever-improving apparatus; the writer of specifications, keenly alive to every new advice for good and economical construction; the landscape gardener with a minute knowledge of plants and trees to protect the client from the florists' extravagances.

All this we are producing, but what is *horrible* is that we are rapidly producing, too, an artisan designer who in knowledge of plan and of composition excels the architect, his employer! Just stop a moment to realize what this means; the architect, that is, the man of culture, of affairs and the gentleman, is ceasing to be the artistic inspiration of the work signed by his name, and soon the architect's office will be the mill, run by a business man, where art occupies a nameless and salaried position. The result of such a condition may have the quality of opportunism, but surely, where the artist is not in authority, his work can never rise to genius.

To my mind there can be but one escape from this condition, and that is, to give the man who bears the promise and has the chance of being an architect, advantages of artistic training which the night school man does not get. At present his training in this is vastly inferior.

We cannot manufacture geniuses, but we can give them opportunity to develop. We cannot develop the genius simply by the T square and triangle; his every esthetic instinct must be aroused and given play. Rossellino and Benedetto did not produce the marvels in Pienza and Florence because they had technique in architectural drawing, but because they were *artists*, primarily sculptors, and who knows whether they were either gentlemen or men of affairs?

And so I speak to you earnestly to-day, at this convention, where much interest in educational matters has been shown—I speak to you earnestly, to urge that everywhere, where the higher education of the architect is aimed, that it be not restricted to that of the draughtsman, but that he be trained in the practice and observation of the beautiful through every medium.

The technique of architectural drawing is all very well, the principles of planning and the composition of façade are essential, but what is of overwhelming importance is to offer to the genius who may arise the possibilities of developing himself by practice in the three allied arts. Our universities must admit plastic art in their curricula; they must realize that the artistic side of our profession can only be developed in an art school, or America to the end of time will unfeelingly and without understanding reproduce Palladian colonnades and eighteenth century ornament *ad nauseam*.



## AN APPRECIATION OF FRANCIS D. MILLET

By EDWIN H. BLASHFIELD

Mr. Blashfield is President of the Society of Mural Painters, and this short address, delivered at the Century Club, New York, at the request of President Shoate, is an analysis of a man whose human quality was a model for all men, and an ornament to the guild of art.

SOME fellow members have asked me to say a few words about Frank Millet, but how can any one of us find words which are good enough, simple enough, effective enough to pay tribute to him, who was so good, so simple, so effective? It seems to be the wish that the general voice of the club shall speak out through one person to say how we all admired and believed in and loved the man. Everybody loved Frank Millet, and his personality was so vital, so abundant that no one can quite feel that he is gone. I see him always, we all see him—vigorous, unquenchable and bringing service and gaiety and comfort. We have all worked with him, for he never ceased working with whomsoever he might be. His capacity was so many sided, as to be almost universal. When still a boy he performed an amputation—in later years he restored a mediæval building—to give only two widely separated instances of his versatility. He painted delightful pictures of eighteenth century life with English backgrounds taken from his adopted Worcestershire home, and these later years dignified mural panels, modeled, wrote, organized, administered. He was a great fighter, a greater peace-maker and diplomat. His untiring vitality was prodigious. He was actively present in three wars. He traveled over most of Europe, the United States and Alaska. He crossed Siberia and knew the Asiatic archipelago. Besides a knowledge of the more familiar modern languages he had some acquaintance with Turkish, Greek, Swedish, Dutch, much acquaintance with Russian. He told me that during his recent voyage to Panama, while others lounged, he analyzed some score of printed Chinese characters and in spite of his all-around talent of every sort, he showed us always by his example, how much more important is character than talent.

Power was in him, and gentleness. He was all compact of both, and with them, based upon the broadest humanity, was the tactful sympathy which enabled him to control that power at need, or enforce that gentleness. He was of the very type of democracy. Not the democracy which levels, but that which lifts, that which helps its fellow to feel that his position in the race is as promising as any. No one can ever say how many people Millet helped to find life easier, and some of his most devoted service was given to the coming generation of young men in the establishment of the school of Rome; in this latter service indeed he died. He was always helping, helping, but was never in the limelight and at crucial moments was in the background making no noise, but *doing the work*.



SOME EUROPEAN BAND STANDS.

Many of us have known him intimately for a good deal more than a quarter of a century; have worked constantly at his side for a dozen years, and now that the touch of his elbow is gone, we feel a sense of emptiness, of an emptiness that cannot be filled, for there cannot be anyone again quite like him. "Call no man happy till he dies." Looked back upon years from now, Frank Millet's life will seem in the highest and deepest sense a rounded and absolute success.

Sixty-five years of a life devoted to the tireless, cheerful service of his fellow men were crowned by a heroic death. What more could be asked by the most exacting in words? But to us now, the acute pain of loss is too near, and we mourn him. His life was an example. His tragic death was a glory, and to us who were all his friends, it will be forever a matter of personal pride.

## THE DESIGN FOR THE BAND STAND

Examples of the band stands in Euro:ean capitals and the important place their design and construction occupies, where public music is a featu e of civic life.

**B**ANDSTANDS and many similar structures are commonly built up of cast iron in which the cast frame supported the roof. Within recent years we have had a great variety of those musical platforms, from the stucco or monolithic bandstand to the type which has been built both suitable for band and entertainment platform. More attention is now paid to the comfort of the patrons of these entertainments, with the result that the most of stands are now formed with either a terracing in front, a terracing all round, or with a glass shelter in front.

The style of building of these structures is greatly influenced by the material to be used, and there is no doubt that successive periods have had their distinctive materials, of which the architect seems to have exhausted the possibilities, and the resulting method of treatment is forced on by the introduction of new material. This means that the old forces of tradition and prejudice must have been laid aside, and that the new force of utility, reason and cost which draws attention to the innate qualities of the newer material which, finding expression, develops to a greater or less degree of perfection the new structure.

Figure 1 shows a recessed bandstand which was built for the run of the Scottish National Exhibition in Glasgow during 1911. The design is Scottish Baronial, which resembles the early Renaissance of France very closely. The principal characteristic features are round turrets and projections thrown upon bold corbels. The floor of the stand is raised at the back in three stages, and retiring rooms for the performers are formed at both sides.

The illustration, Figure 2, shows a terraced bandstand which is for permanent use. The base of the stand, which supports a concrete floor, is built of

pressed brick finished with a sandstone cope. On the top of the floor are the cast iron columns which support the ceiling beams, which are connected together on the cantilever principle; to the ceiling beams are connected the light semi-steel trusses, which are grouped together at the centre to form a support for the ornamental cast iron plates and the ogee domical roof. The eaves of the roof are formed with a cast iron plate bolted to the ends of the ceiling beams, and at the junction of those plates cast iron shields and pedestals are fixed. The roof of the stand is boarded vertically and is covered with tinted asbestos slates.

Figure 3 shows a stand of a classical design, or what is called a monolithic bandstand. The supports of the structure are of cast iron and light steel sections, which are covered with stucco and painted white.

The illustration, Figure 4, shows one of a Saracenic type, in which the horseshoe dome is a special feature. At each of the corners of the roof are small domical constructions which are plastered outside and painted in Oriental colors.

Figure 5 shows another form of stand in which the scheme of electric decoration is very complete, and which has a system of angular braces connected to the iron support.

The illustration, Figure 6, shows a form of monolithic stand which is finished with stucco both inside and outside. Recent changes in outdoor entertainment has led to a design of a platform as at Figure 7. This is to meet the requirement of sketch parties, vocal and musical entertainments. The small boxes on each side are the retiring rooms, and the glass screens on the sides of the platform are to protect the entertainers and to cause the sound to be shot forward. In some of the public parks glass shelters are built for the convenience of patrons in showery weather. A corner of one is shown on the left hand of Figure 7.

Figure 8 shows the front view of this structure, which is entirely of glass supported on an iron frame. Terraced bandstands are now to be found in most of the large cities, and the photo shown at Figure 9 is of one which was erected for the recent London Exhibition.

Figure 10 shows an enlarged view of the bandstand. The cast iron supports are converted into round piers with capitals and bases. In general the hanging foliage on the eaves is treated in a naturalesque manner, and with such features as the pinnacles and the fret frieze forming the round piers the display of ornament is more considered than the grace of outline.

**THE ORGANIZATION** of the Canada Brick Company of Montreal indicates the inclination of men high in finance and achievement to enter the field of building material production. It also ensures that such a concern will be now organized on thoroughly business principles and have the confidence of the building public. The Canada Brick Company enterprise is headed by C. H. Cohan, H. A. Lovett and Messrs. F. Loomis, Hyles and Cameron, Montreal.



## KILL IN THE USE OF CONCRETE

Failure in this building method due to bad workmanship, not faulty design or inferior material. From "Building and Industrial News" of San Francisco, where concrete is largely used.

**T**HE COLLAPSING of the reinforced concrete building in Indianapolis last winter, killing eight men and injuring twenty-one others and other similar accidents continue to bring forward for discussion the cause of failures in construction of reinforced concrete.

At the outset we can accept as a premise that it is inexperience and lack of intelligent supervision which is the most prolific cause of failure. This will be better understood by considering the following possibilities of failure from faulty design and faulty construction. Taking up first the possibility of failure from faulty design, it can be broadly stated that there is less danger from this source than from faulty construction. There is nothing problematic about the strength of good concrete, or good concrete reinforced with steel, any more than there is about the strength of bricks or stone. The only trouble is that in designing the architect must assume that the work will be well done, and the reinforcing properly placed, and this only good, intelligent supervision will accomplish. If the work is improperly done, or poor materials lacking in strength are used, either through ignorance or carelessness, the designer's calculations will be brought to nought, just the same as if sun-dried bricks were used instead of granite, or wooden beams were substituted for steel girders. Assuming that the materials used will be good, knowing their strength and allowing the usual factors of safety common to architectural and engineering design, there is nothing about the planning of an ordinary building which would overtax the ability of a good reinforced concrete engineer. Even if an error did creep into his calculations, the checking and rechecking which work of this character receives would reveal the defective design, if, indeed, good judgment would not detect the false proportions from previous experience with the same class of work. We may dismiss as improbable, then, the likelihood of faulty design being the cause of reinforced concrete buildings collapsing.

It is in the construction end of the building, then, where the greatest responsibility lies, and where the greatest care, the utmost experience, the constant vigilance and skilled supervision are needed. Indeed, the very weakness which makes reinforced concrete an unknown quantity is the fact that one poor batch of concrete, or the misplacing of the reinforcing materials, might write disaster in the history of the structure. Unfortunately, the impression has gone abroad, that it requires only unskilled labor to erect a reinforced concrete building; unfortunately, for that is not true; it is only partly true. It is quite true that the ordinary laborers are used in

concrete work, while in a brick building high-priced bricklayers would be required. But the real difference comes in when the personnel of the superintendents is considered. The man in charge of a brick-laying crew owes his position to his success in getting work out of his men. That is all that is required of him, for the materials are of such a nature that all they require is careful laying to develop their entire strength. Such a foreman would be absolutely worthless in charge of reinforced concrete work, his "hurry-up" methods are not conducive to the best results, and, unfortunately, when reinforced work is given to the ordinary contractor that is the kind of man usually in charge.

The superintendent in charge of reinforced concrete construction must be more than a labor driver. He must be, first and foremost, a trained engineer who understands not only cement, concrete, steel, and the combination of the three, but likewise possesses a good knowledge of building in general, and has an intimate and first-hand knowledge of the strength of beams, the loads walls, floors and columns will carry, and has a keen perception and broad judgment to guide him in his work.

In short, reinforced concrete work is not common laborers' work, and the sooner that truth is realized the sooner will failures in this class of buildings cease. On the contrary, reinforced concrete work is a highly specialized form of building, and requires more than the ordinary supervision to carry it successfully through. Instead of giving such work to the ordinary contractor it should be given to specialists, and specialists only, for there are specialists in reinforced concrete construction. This is the point to remember. Where the great mistake is made in the erection of buildings of reinforced concrete is in giving the work to an ordinary mason contractor, believing he can do the work satisfactorily because it is mason's materials that are to be used. What the architects seem not to have grasped heretofore is that reinforced concrete work is engineering work, not mason work; that an engineer, not a workman, must have charge of the work if it is to be properly done, for the design and construction go hand in hand. The placing of the reinforcing rods in the walls, floors, columns and beams in even the best work is left to the superintendent to carry out properly.

In the erecting of steel framework for buildings the beams are all cut and punched at the shops, under direction of the structural engineer, or in accordance with plans prepared by him, and erected according to other drawings. In such a case every beam must be used in that place or it will not fit. Nothing is left to the judgment of the workmen on the building. There will be fewer reinforced concrete failures in the future if architects will just keep that fact in mind. The success or failure of their plans and reputation depends more on the people entrusted with their work than in any other method of construction. To entrust the work to ordinary contractors, under the mistaken impression that concrete building is rough work anybody can do, is to invite failure in a double sense to the architect who designs a building that collapses.

# CONSTRUCTION

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**CONTRIBUTIONS**—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and duly returned.

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## CURRENT TOPICS

*THE CIVIC* plans of Vancouver, which are in the hands of Thomas Mawson, of London, for development, are reported by that architect to be in process of completion. The influence of the approaching completion of the Panama Canal and the consequent growth that will come to coast cities, is an active reason for employing Mr. Mawson's services, but beyond that is the possible design and intention to meet modern living requirements in all Western cities with the necessary reconstruction along economic and artistic lines.

\* \* \*

*MONTREAL'S* memorial to his late Majesty, King Edward VII., is to be executed by Mr. Philippe Hebert, the eminent Canadian sculptor, whose group on Place d'Armes Square is one of the public attractions of that city. The monument will be forty feet in height, the base of granite, surmounted by the bronze figure of the king by Keller. The shaft will be surrounded by four groups. The front group will be composed of alle-

gorical statue representing Peace in an attitude of calmness and power, holding the conventional olive branch in her right hand, and a shield and sword in her left as the emblems of the armed peace characteristic of modern life among the nations of the world. The right and left groups will represent Concord and Plenty, while the back of the monument will consist of a figure, showing the breaking up of the fetters of past intolerance and establishing religious freedom and protection, bringing about a new era of harmony and brotherhood throughout the Empire. Mr. Hebert will start to work immediately upon the big undertaking, and Mr. F. Todd, landscape artist, has been engaged to attend to the proper settings of the memorial.

\* \* \*

*IN SPITE* of the apparently hazy idea of just what an architect was for, the Toronto Board of Education have appointed an "Architect Assistant Superintendent" in the person of Franklin E. Belfry, an architect with considerable experience both as a designer and a constructor to give to Toronto an improved class of school buildings. Though no instructions were given Mr. Belfry on his appointment, a fact noted by one member, it is possible that that architect does not need such further than a memorandum the school buildings will cover. In fact, it seems to CONSTRUCTION that "instructions" would be rather embarrassing under the circumstances. Mr. Belfry is quite capable of the duties before him, and under his direction, if he is not interfered with by instructions, Toronto will be supplied with sightly as well as economically planned and creditably detailed school buildings, which is a long step for any city to make where even the educational department is not clear upon the subject of an architect's value in the design and erection of buildings further than that he will serve as a buffer for administrative mistakes and "to watch contractors." CONSTRUCTION believes that in Mr. Belfry the public will find an architect of ability and value.

\* \* \*

*THE DAMMING* of the St. Lawrence River at the "Long Sault" is a project somewhat different than any that has yet been attempted, and is somewhat speculative in spite of the confidence of engineers. To interfere with the natural flow of water is a risk at any time. It is believed that this project can be carried out. The commercial side of the project is, as with all such works in Canada, that it will afford abundant reliable and cheap power to all districts within the radius of the transmission of electricity from the power houses. This power will create many new industries and will be of great advantage to those already established. The work will require the expenditure in Canada of over \$5,000,000, which will be distributed among Canadian transportation companies, manufacturers, tradesmen and workmen. It is impossible to estimate the amount which will be expended in Canada directly or indirectly consequent upon the utilization of this power, but the amount required for the construction of the works, installation of transmission lines, etc.,

will run into the millions. The power for the entire development will be used almost exclusively for manufacturing purposes.

\* \* \*

*QUEBEC* has established in three wards an approximately fireproof condition in which no shed or other small building shall be erected of material other than brick, concrete or other fire-resisting material, and that the roofs shall be of asbestos and metal, or gravel. With other rules relating to the keeping and storing of gasoline, that city has gone a long distance toward eliminating a most prolific cause of incipient fires and preventing large conflagrations.

\* \* \*

*DUSSELDORF*, the "park city," the most beautiful and modern city in west Germany, long since won the distinction of being the most successful exhibition centre in the Empire. This summer, from June 29 to October 31, the principal cities of Rhineland and Westphalia are uniting in an exhibition at Dusseldorf, which presents their extraordinary industrial, economical, and political development, the importance of which can scarcely be rivalled throughout Europe. The exhibition is divided into five groups: City building; hygienic institutions and development; hospitals, and care of the sick; house building; and industry of all Germany. The first four groups will be devoted to plans and models of the most modern achievements in these lines of work, with special attention to a systematic treatment of the various methods, whereas the fifth group represents thousands of industrial products, especially such as are of importance to every city, in carrying out its wide reaching undertakings. As a whole it gives a splendid idea of the activity of German cities, their governments and institutions, many of which may be justly pronounced models of their kind. The highest point of interest will be reached from September 23 to 28, when a Congress of Municipal Methods will be held, which to a certain extent will be international in character. The object of this congress will be a general exchange of opinions and the discussion of all subjects relative to methods by which the greatest degree of perfection in city building and management may be attained.

\* \* \*

*A HEAVY* stamp tax is levied in France on all signboards that can be seen from any public path, road, or railway. All such advertisements set up, except on the wall of a house or inclosure or within 328 feet of any group of houses or buildings, are taxed. Many people would like to suppress signboards in rural districts altogether, but it is considered an encroachment on the personal liberty of a landowner to prohibit him from allowing signboards to be erected on his own property. It is, however, possible, through legislative enactment, to impose a tax sufficiently high to diminish the quantity of signboards that are increasing in a disturbing manner in some of the most beautiful regions in France.

*EXTENSION* of the use of electric railways into the shipping of goods, material, and collecting garbage, is indicated by the special designs in cars manufactured for the British Columbia Electric Company by the Orenstein-Arthur-Koppel Company of Pittsburg for this class of traffic. The cars in question are provided each with three bodies, which are independent of each other and which enables them to be used in carrying three different kinds of material at the same time. It also permits them to dump part of the load to one side of the track and a part to the other, and also distributes the load at different points.

\* \* \*

*ADVANCE* reports would indicate that Montreal is seeking to establish building regulations on a model more applicable to present conditions than it has enjoyed heretofore. The main effort of the code seems to be the lessening of fire risks, and other restrictions, which are said to be modeled on those of New York, are made as stringent as can be passed. The use of fireproofing material is insisted on in the fire limits, and encouraged in all forms of construction, with the addition of safeguards of wire glass, sprinkler systems and smoke proof towers and stairways to replace the comparatively useless fire escapes of the past. The making of partitions and fire walls of fireproof material, and many other structural amendments which will give to Montreal a lessening of fire risk that will pay many times the slight extra cost in construction, are features of the new fire ordinance now being completed by the city building inspector, Mr. Alcide Chausse, and a number of experts in building construction and maintenance, which will be finished in October.

\* \* \*

*UNDER* the auspices of the University of London Extension Board a summer school for the teaching of town planning is to be held at the Hampstead Garden suburb from August 3 to 17. It has been arranged in view of the rapid progress of the town planning movement and the coming into force of the Town Planning Act. The Hampstead Garden suburb has been chosen as the centre (says the prospectus) because it affords a good opportunity for studying the results of town-planning methods. The lectures will be given at the institute of the suburb. Courses of lectures will be given by experts on town planning from the practical, legal, engineering, surveying, and public health aspects, and on its developments in foreign countries. There will be special lectures on suburb planning, garden city estates, the financial aspects of town planning, and modern town planning in Germany and America. The fee for the lectures and demonstrations (excluding excursions) is 1½ guineas (\$7.66). Those who attend regularly will be given a certificate under the authority of the London University Extension Board.

*MORAN & McPHAIL*, architects, formerly of Haileybury, Ontario, have transferred their business offices to 604 Ganley building, Sault Ste. Marie, Ontario.



## TOWN PLANNING CONFERENCES

That in England in April, followed by one in the United States similar in object, the general principals of both being voiced by Elmer E. Forbes, of Boston.

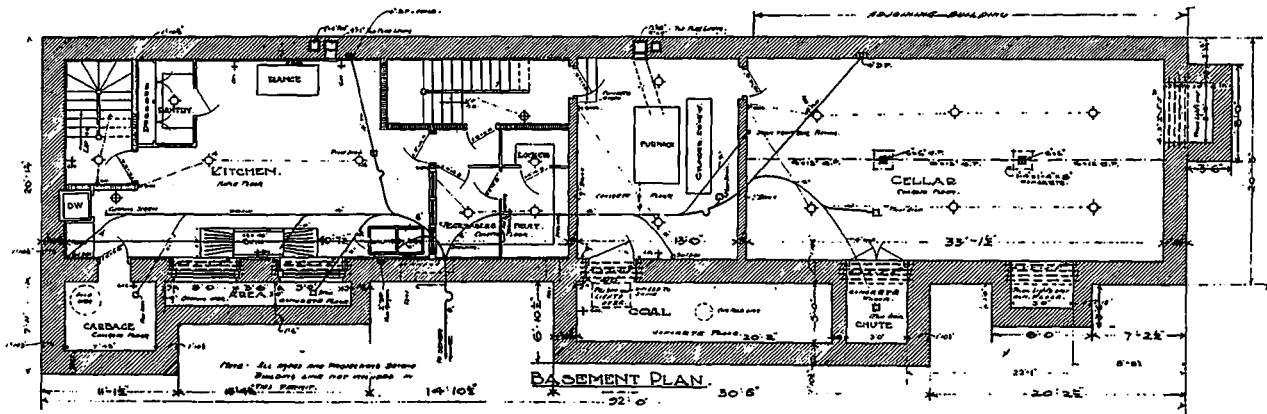
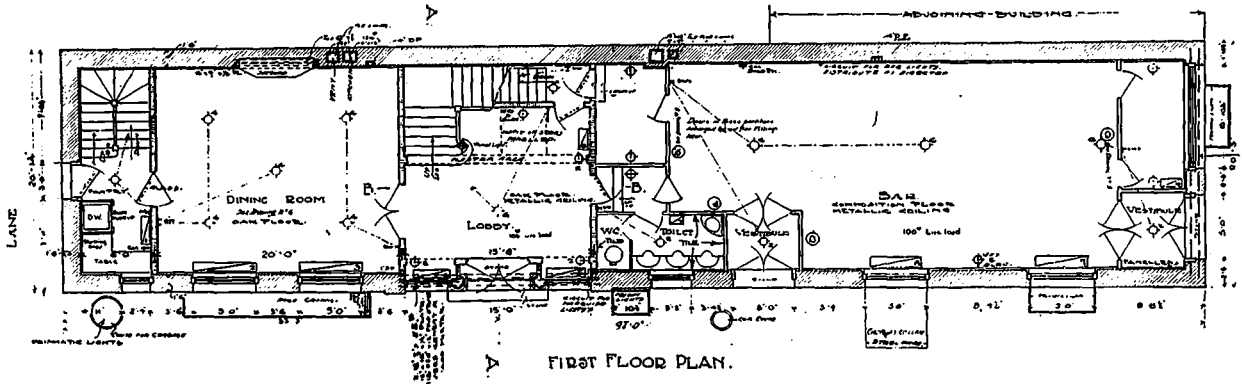
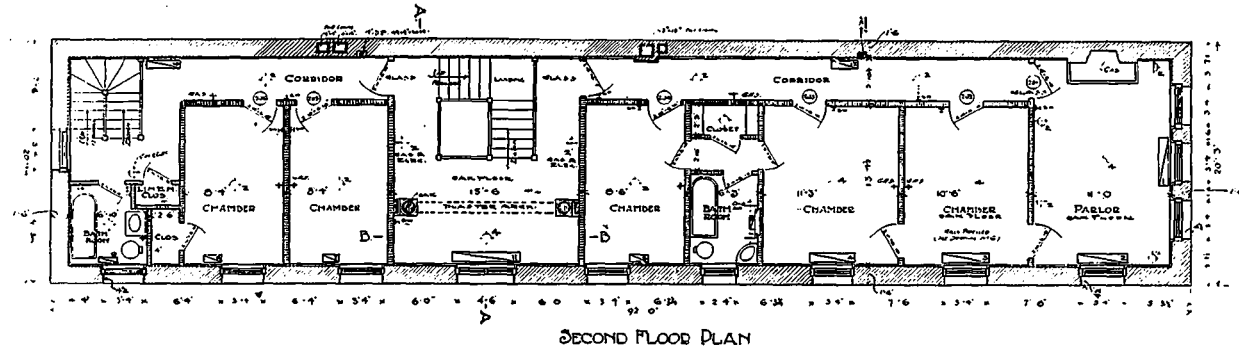
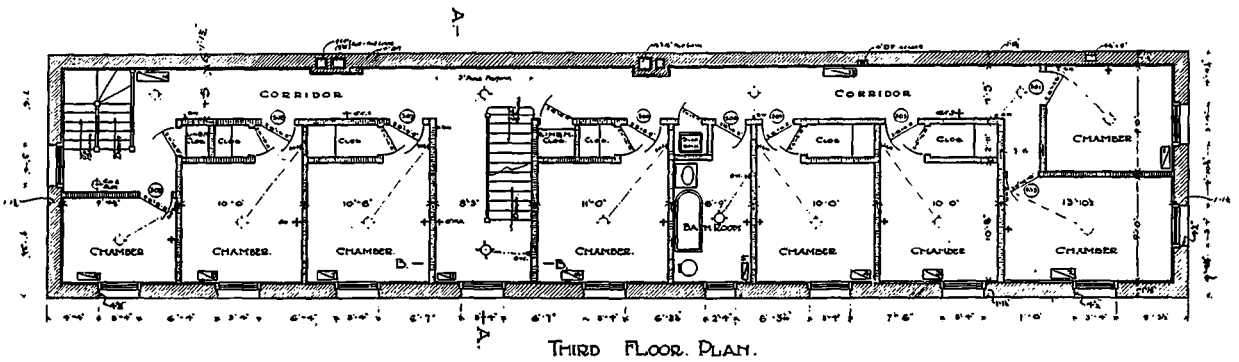
**T**HE NATIONAL Town-Planning Conference was held at the Westminster Palace Hotel, London, S.W., on April 24 and 25, Alderman W. Thompson (Richmond) being in the chair, and nearly 120 public authorities and societies interested in housing and town planning being represented. The object of the conference was to obtain a clear idea and precise information as to the procedure to be followed by local authorities in town-planning work.

A similar conference was held at Philadelphia in May, at which conditions in the United States were outlined in a paper read by Elmer E. Forbes, of Boston, Massachusetts, in which he said that "the country is at last awake to the presence of a housing problem in the cities. For fifty years and more philanthropists have been trying nobly to stem the tide of disease, insanity, crime, involuntary idleness, poverty and the whole miserable brood of social ills, but the work has grown faster than it can be handled. This method of approach had been largely a failure, and social students and workers finally have come to see that they must deal with these evils at the point of their origin if they are ever to be conquered and banished from society. Three years ago at the meeting of the National Conference of Charities in Richmond, Miss Fulmer, Superintendent of the Chicago Visiting Nurses' Association, declared that two-thirds of the deserting fathers, one-third of the shiftless mothers and two-thirds of the sick and delinquent children came from the congested districts of the cities; and it may be added that a very large proportion, perhaps two-thirds, of the current vice, crime, degeneracy and poverty come from the same locality. The dwellings of the people are in a strategic position. If they are clean, light, well ventilated, with plenty of space around them, neither overcrowded on the land without nor by human beings within, you will have a well ordered, law abiding, self respecting, progressive community. If, on the other hand, dwellings are dark, dirty, ill smelling, unsanitary, dilapidated, and over-crowded you will have precisely the situation which obtains in every city of any size from Bangor to San Francisco.

"Although the country is awake to the housing problem of the city, the country is not yet awake to the fact that similar conditions are developing in hundreds and probably thousands of the places ranging from 2,500 to 5,000 in population. They are most noticeable in places which are near the cities or in which there is some considerable manufacturing interest, but you will find them everywhere. They are not so much in evidence in the average town, but here and there on the outskirts of the

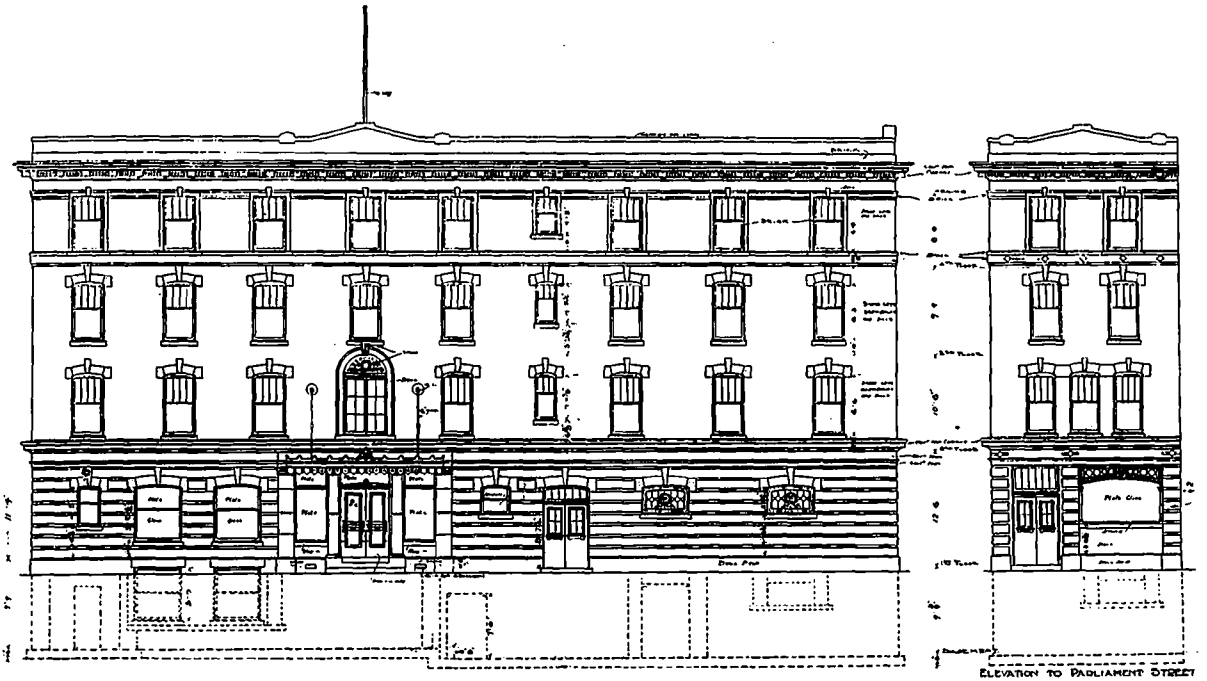
village or on back streets and alleys and even in the open country there can be seen old houses or shacks which exhibit all the characteristics of the worst slum, as unsanitary and filthy and overcrowded as any building in any large city.

"As a rule, towns and villages do not have slum districts; they have slum spots, the possible nuclei of larger areas, which under favorable circumstances will develop rapidly. These slum spots are of three sorts. First, there is the dilapidated shack or hovel, very often outside the town altogether, where people are living in defiance of every law of health and decency. I can think of half a dozen such moral pest houses in as many towns, in which no farmer who cares anything for his reputation would dream of stabling his cattle. It is utterly impossible to make these places fit for habitation, and nothing but fire can cleanse them of their filth. Drastic treatment is needed both for the buildings and their occupants, who are frequently as disreputable as the dwellings. Next, in country manufacturing towns there are typical tenement houses and lodging houses, dingy barracks where the open front door discloses a dark and forbidding hall, and where further investigation reveals all the common features of tenement house life, plus a battery of yard privies stewing and festering under the summer sun and threatening the health of the entire community. There is no excuse for the tenement house in the country, there is no excuse for this way of living, and where land is as cheap as it is in some parts of most towns and villages every family ought to have a house and seven or eight thousand feet of land to itself. A third form of dwelling house construction which deteriorates very rapidly and soon falls into the slum class is the three-family flat or 'three decker.' It is enormously popular with speculative builders both in city and country. The Dorchester district of Boston has become a city of three deckers and it is a type which is appearing in the smaller places near the cities. These flats are cheap and flimsy; sometimes they are furnished with but one stairway and are often fire traps. Frequently, they are built close to the front line of the lot, often only six or seven feet apart and nearly as close together in the rear. Some of the rooms in the lower stories may never receive sunlight nor, indeed, any direct light; the yards are damp and dark and littered with ashes and garbage. They soon fall into the class of slum dwellings, and their occupants become a source of expense to the community, entailing larger appropriations for schools, police, fire protection and all the other usual departments, while they contribute nothing to the town treasury but a poll tax. There is a better class of this type of building which stands in a more spacious lot, costs more and is free from some of the worst features of the cheaper flats, but even so it is scarcely less objectionable. In a recent address at the City Club in Boston, President Eliot, commenting on the fact that these houses are being built in large numbers in Cambridge, where he lives, remarked that they house a class of nomads, families that are here to-day and gone to-morrow, which have no stable footing in the town and no interest in



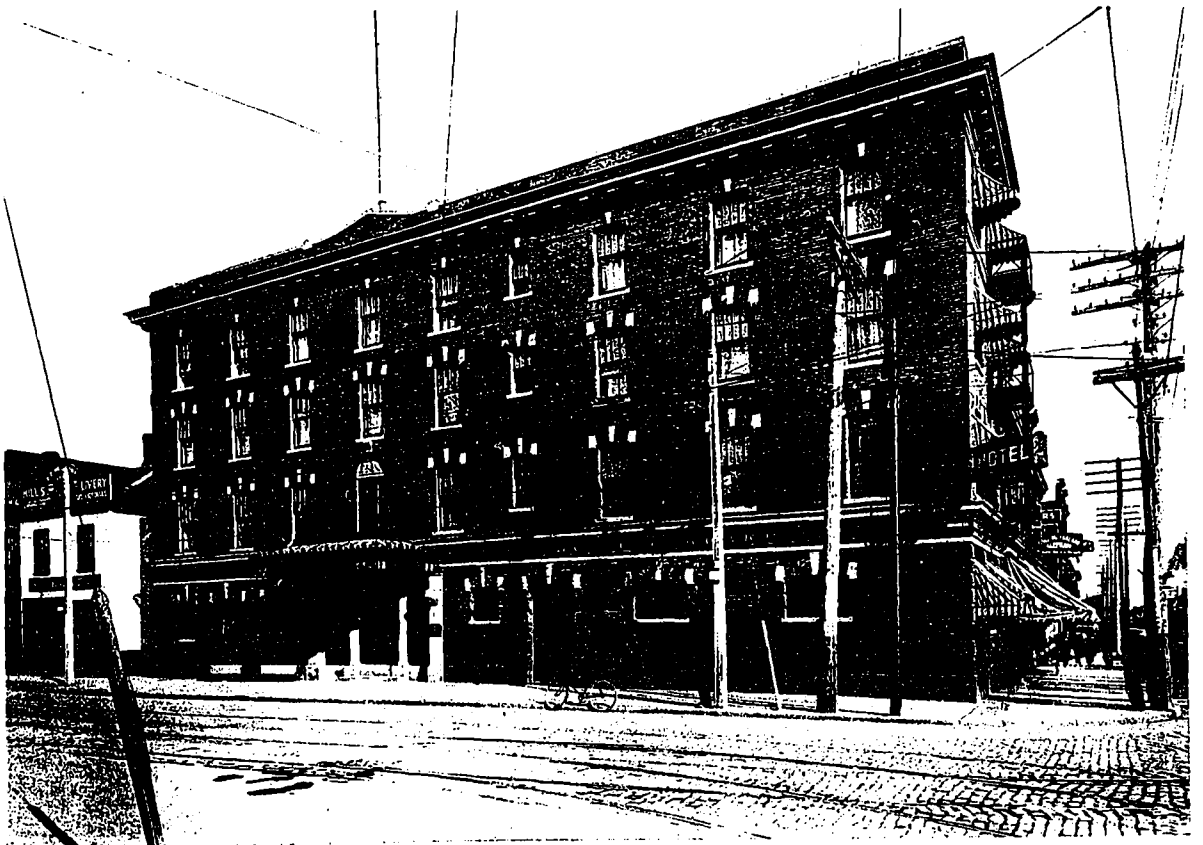
Plans of Hotel Gerrard, Toronto, Ontario. James L. Havill, Architect.





Elevations of Gerrard Hotel, Toronto, Ontario. James L. Havill, Architect.

A Successful Solution of the Narrow Lot Problem, in a building designed for hotel purposes. The structure has a frontage on Gerrard Street of 97 feet, by an extreme depth of but 20 feet. Despite this latter restriction, the architect has produced a satisfactory arrangement as regard plan, in addition to investing the structure with pleasing proportions and a substantial structural character. The outside walls are of reddish brown brick of rough texture with rusticated courses for the first story and piers, and Indiana limestone trim. The marquee overhanging the entrance indicates the location of the hotel office, which gives direct access to the upper floors, where the arrangement results in all outside rooms opening from well lighted corridors.



Hotel Gerrard, Toronto, Ontario. James L. Havill, Architect.

its affairs. A nomad race never has developed a high civilization, and he held some apprehension for the effect which a nomad class would have upon ours. Apart from the occupants of the three decker the building itself has a depressing effect on property values, and wherever it appears it sends down the price of real estate.

"The housing problem of the small town, then, is the dilapidated shack, the ordinary overcrowded and unsanitary tenement house, and the three decker flat. The situation is full of danger, especially in towns which are near the city, and may become acute at any moment, but it can be handled much more easily than can the conditions in the older cities. Slum germs in towns and villages can be destroyed and the future development prevented.

"To accomplish this, first and foremost there must be a general campaign of education. Just as the public is being educated on the subject of tuberculosis so it must be educated on the subject of housing. Of the two, housing is the more important, for tuberculosis is a disease of bad housing. Let in the sunlight and fresh air and you banish consumption. What does it profit the public to spend millions of dollars on hospitals and sanitoriums if patients when cured go back to the dens where they contracted it? By all means teach the public how to avoid tuberculosis, but above all so to live that it may be crushed out and destroyed. The same methods may well be followed that anti-tuberculosis societies are pursuing. Short and pithy circulars should be prepared which can be distributed broadcast, each one of which should drive home some pointed facts. An effort should be made to get the subject before as many groups of people as possible in the towns and villages, women's clubs, church clubs, lodges, trade unions, debating societies and any other available gatherings. The stereopticon is very useful and should be used wherever possible, because what is seen makes a much stronger impression than what is heard. The suggestion has been made that moving picture films on this subject might be used with great effect. Travelling exhibitions should be prepared showing housing conditions in towns and cities, pointing out the effects in terms of disease, death, crime, delinquency and poverty, and also showing examples of towns which have met these evils and overcome them, or which have taken steps to escape them altogether. The exhibition may well be left in the town library for ten days after an address has been made before a local organization, and together with well written circulars will do much to sustain public interest.

"An effort should be made to get the towns to adopt a simple tenement house law as a part of the town by-laws. Such a law should aim to improve the public health and to protect life against danger from fire. Towns do not require, and ought never to be cursed with, tenement houses. If there is any disposition to put up buildings more than two and one-half stories high, or housing more than two families, it may well be provided as a preventive measure that they shall be of fireproof construction. The propor-

tion of the lot which can be built upon, the distance between buildings, the size and lighting of rooms, the necessary sanitary safeguards and healthful maintenance should be regulated, and these measures, if properly enforced, will go far towards warding off the evils which afflict the cities.

"An efficient board of health is necessary to enforce any such by-law, and in Massachusetts at least there is room for great improvement in the personnel of these boards. As now constituted, the chairman may be a physician, but the other members of the country boards are very likely to have meagre qualifications for their work. A board has large powers and its members should be chosen from the best equipped and most conscientious men in the community. In the discharge of its duties it will frequently come in conflict with fellow townsmen, especially in the enforcement of an effective housing law, and its members should be men who are not afraid to act. An energetic and fearless board would make short work of the disreputable shacks scattered around the country which are now being used as dwellings. Here, again, is seen the necessity for general information as to the principles of good housing and dangers of bad housing, because if public opinion on the subject is not aroused it will be very difficult to get the best men to serve on boards of health and to secure backing for them if they do consent to serve.

"A town plan will be found a valuable aid in securing the right kind of housing. City planning is becoming common, but thus far the movement has scarcely reached the towns, although a plan is just as desirable for a town as it is for a city. Besides securing the more popular features of town life, a plan may provide for the laying out of new streets, so that dwellings upon them will receive the maximum of sunlight in the living and sleeping rooms; it may provide for roadways of suitable width and construction, thus materially affecting the value of abutting property; may insure the planting of trees in such numbers as to save a town from the hideous bareness of streets so often seen; establish the size of lots so that, in conjunction with a by-law fixing the proportion of the lot which can be built upon, proper light and ventilation will forever be preserved; and fix a building line, and a height of construction which may not be exceeded. Such provisions, and regulations of any kinds, will be bitterly fought by land speculators and speculative builders in rapidly growing towns, but they will be of immense service in preventing the evils which come from overcrowding the land and which are already showing themselves in towns and villages where they ought never to have been permitted to gain a foothold.

"Much attention should be given to the small house for the families of wage earners. The ideal of life for any family is a house to itself, well built and sanitary, containing from four to six rooms and bath, or at least with some provision for bathing, and with land enough about it for a garden; the rents to range from \$10 to \$25 per month. A constant excuse

for the tenement house in the country town is that at the present prices of building material and labor it is impossible to build single houses to rent for as low as \$10 per month. If this is true it means that unskilled labor, earning from \$1.70 to \$2.00 or \$2.25 per day, cannot live decently and healthfully and reproduce itself; and this is a situation which may well cause alarm. It is intolerable that human beings should be condemned to such conditions of living anywhere and most of all it is intolerable in the smaller communities, and if there is no escape we need not be surprised if the rumblings of social discontent grow louder. But I do not believe it is true that single houses are beyond the reach of the unskilled laborer. I am not an architect nor the son of an architect, and I may not be able to give a very good reason for the faith that is in me; but we do know that Washington and Philadelphia have come very near to a solution of this problem with their two family houses, with three and four rooms and bath to the apartment, renting for from \$9 to \$12 per month, and I believe when the same intelligence and skill are applied to the problem of securing the small detached house at these rates in country towns that it will come. In this connection an interesting item appeared in a recent number of the 'Survey,' in which it was stated that the Worcester County Institution for Saving in Worcester, Mass., has prepared a large collection of plans for such houses to cost from \$1,500 to \$5,000 each, which it offers for the free use of the public. This is an attack upon the housing problem from the constructive side which ought to be widely imitated.

"Taxation has the closest connection with housing reform in the cities and with the encouragement of good housing in the towns. Vacant land does not bear its proper burden. There are towns where it is extremely difficult to get land for building purposes at anything like a fair price because it is held for speculation, and yet it is taxed at a low valuation compared with land similarly located which is already built upon. This policy inevitably checks building and raises rents. On the other hand, tax land to its full value as land, whether occupied or not, make it more expensive to hold it than to use it, and building will be stimulated, rents will fall, and the housing problem will be solved in the cities and will never appear in country towns; and this conference will go out of business." Mr. Forbes concluded by saying: "Fight the three decker at every point. Demand that it be of fireproof construction if it must be built at all."

*IF ARCHITECTS* who are friends to CONSTRUCTION, and appreciate its efforts in behalf of the profession, would realize how much it would increase its revenue, and thus enable it to add to the sum of valuable matter printed from month to month for their benefit, and without extra cost to them, they would take pains to mention CONSTRUCTION as the medium from which the information was obtained when writing advertisers in its pages.

## POISONOUS AND NON-POISONOUS PIGMENTS

White pigments and lead poisoning, according to Arthur Seymour Jennings in an exhaustible article read before the Bristol Society of Architects on House Paints and Painting, with special reference to non-poisonous pigments.

HAVING dealt with oil, turpentine, driers, and colors, I now pass to a consideration of the pigment, and will confine myself, for the sake of brevity, to white pigments, which form the base of many paints. The chief of these are white lead, zinc oxidé, and other zinc compounds. White lead has for many years been used as a paint base, in fact, so many years that a great majority of painters imagine that no other white pigment is, or can be, so good for protective purposes. In this view they are supported by many architects and engineers, who have not inquired closely into the subject. I have no intention whatever of condemning white lead, excepting for two reasons, namely, its susceptibility to sulphur compounds, and its well-known poisonous qualities—qualities which are only now becoming realized, although, happily, a correct knowledge of the subject is growing every day. Recently this question was put to me by a close, personal friend, who is an architect: "How is it that it is only of late years that we have heard so much about white lead poisoning? I suppose all the fuss is made by some makers of a rival material." I gave my friend, in substance, an explanation which I will endeavor to reproduce now. It is true that it is only since about twelve years ago much attention has been paid in our country to the poisoning of operatives who make and apply lead compounds. Abroad the agitation has been going on for a long time, and as a result, the use of white lead will cease at the end of the present year in France. In Belgium dry white lead is not allowed on sale, but only when ground in oil. In Switzerland white lead has been experimentally discarded for four years. On Government building and elsewhere certain restrictions are enforced, the most important of which are that burning off old paint is not permitted, and neither is dry rubbing down. These are useful rules because when an old painted surface, consisting chiefly of white lead, is either burnt off or rubbed down with glass-paper, particles of lead are certain to float in the air and be inhaled by the workman. Both operations, too, can be carried out in a practical way without much extra trouble. Old painted work that is in such a bad condition that it must be removed prior to re-painting, can be rendered quite soft with a paint solvent, and it can then be very readily scraped off. While in the case of a surface that is in a fair condition the glass-paper used for smoothing can be moistened with turpentine, and in that way the quantity of lead dust be minimized.

In regard to lead poisoning, now let us see what happened at home. For years past the Board of Trade regulations relating to white lead factories

have year by year been made more stringent, and the undoubted poisonous nature of the pigments has been recognized, and every precaution taken to prevent the work-people being affected. Notwithstanding this, the cases of poisoning still continue, as the following statistics will show: Sir Thomas Oliver, in his "Diseases of Occupation," published three years ago, states that 399 cases occurred among workers in lead factories in 1899, 358 in 1900, with a diminishing number until 1906, when 102 cases were reported.

It must be remembered that cases of illness in a lead factory for many years past have been notified, and also that a medical officer at frequent intervals visits and inspects the work-people. I would ask you to remember that baths are insisted upon, and food, coffee, etc., are given to the operatives, as well as a dust-excluding respirator, to be worn during certain stages of the work; in brief, everything possible is done to ward off danger. And yet the cases of poisoning continue with all these precautions. Now let us see what happens to the painter who applies the lead, who is not compelled to take baths or wear a respirator, or, indeed, to take any other precautions. He is subject to the effects of lead which come in contact with his skin, to the lead fumes arising in burning off paint, and, as just stated, to the fine lead dust which inevitably floats in the air, and must be inhaled in the necessary operation of rubbing down old lead painting work preparatory to the application of new paint. Can it be greatly wondered at if he contracts lead poisoning?

And now we reach an explanation for my friend the architect who enquired why one heard so much on this subject, while some years ago it was not often mentioned. Until the Workmen's Compensation Act of 1904 came into force, lead poisoning among painters was not notified. Undoubtedly there were as many cases about that time as there are now—probably more. A journeyman painter was stricken with the disease and died. The doctor attending him would give a certificate that he died from lead poisoning, or more probably from another disease set up by the poison. The man was buried, and there the matter rested. But the Act referred to changed all that, because it made lead poisoning "an accident." In other words, the Act dealt with illness or death arising from lead poisoning exactly as though a workman injured himself by a fall. As compensation is paid under the provision of the Act, cases which previously would never have been heard of came to light, and we have now actual figures which cannot be disputed. I give them from a Blue Book published but a few weeks since. They are as follows: During the year 1910 there were 454 cases of lead poisoning, and in 348 of these the first payment by way of compensation was made in that year. In the face of these figures, can anyone have the hardihood to say there is no danger?

## TRADE NOTES

*THE HADE, DAVOCK & BELTAIRE CO.* have recently been organized with headquarters in Toronto, to devote special attention to the re-organization and systematizing of manufacturing concerns. The company is now engaged upon important work of this kind and have an organization well equipped in all branches of modern manufacturing and merchandising to take up the problems of scientific management, organization and sales.

\*\*

A *TORONTO* concern, McGregor & McIntyre, the structural steel manufacturers, are erecting a mill plant on unique lines. After the foundations for the mill, 140 x 400 feet, are laid, a locomotive crane will set down the mill machinery on the foundations, and after the machinery and motors are installed and in operation, the crane will bring along the structural steel for the building. The machines will work and fabricate this steel, and it will be set up around and above the mill plant. This, so far as known, has never yet been attempted in structural work.

\*\*

*THE COATING* of cement mortar applied by the pneumatic cement gun which was sent to the Isthmus of Panama a little less than a year ago for use in spraying the surface of certain rock faces in Culebra Cut, which disintegrated on exposure to air, was found not to prevent this disintegration. The concrete mixture sprayed on the smooth surfaces adhered uniformly, but was not sufficiently air-tight to retard appreciably the progress of disintegration. The gun was used recently on the relocated line of the Panama Railroad, in coating the surfaces of hand-laid revetment wall, made of hard Bas Obispo rock. In this case the concrete penetrated the interstices between the rocks as far as several feet, and thus obtained a firm hold. Using a mixture of 1 part of cement to 3 of sand for the inner coating and 1 part of cement to 2 of sand for the final surfaces it was practicable to lay a smooth, strong coat from 2 to 3 inches thick over an area of about 25 feet square a day. The spraying was continuous. By the time the work had been carried from one end of the area under treatment to the other, the first part was ready for another coat. In all, about 10,000 square feet of revetment was treated.

At the present price of building material, fireproof construction can be erected at a cost of not to exceed 10 or 15 per cent. more than non-fireproof, and when we consider that fireproof buildings deteriorate about one-ninth of 1 per cent. per year, as compared to 4 per cent. for ordinary buildings; that they rent better and that money can be borrowed on them on better terms; that they are vermin-proof, cooler in summer and warmer in winter, it would certainly seem the part of wisdom and self-interest to adopt a

CORRECTION—In the advertisement of the Otis-Fensom Company appearing in the August issue, the name of J. Wilson Craig was given instead of J. Wilson Gray as architect for the new Confederation Life Building, Winnipeg. CONSTRUCTION regrets the occurrence of this mistake, which was due solely to a typographical error.



Exterior View.



Reception Hall.

Residence of W. J. Kernohan, Toronto, Ontario. E. G. Wilson, Architect.

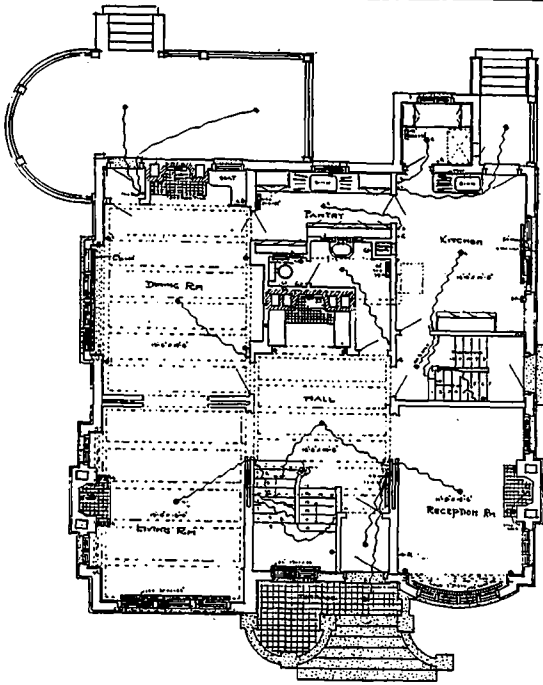


Living Room.

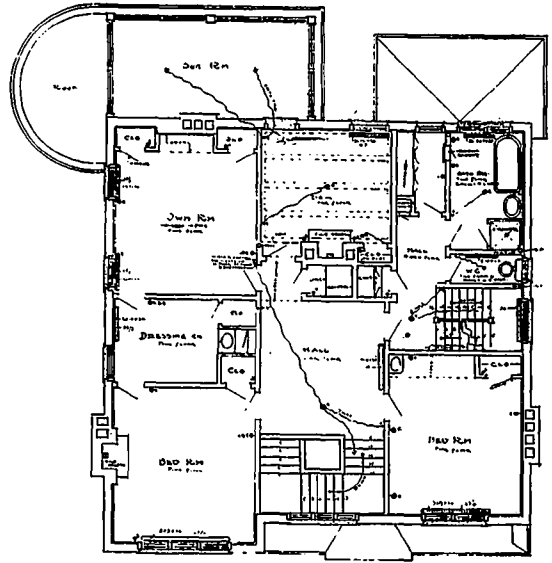


Dining Room.

Residence of W. J. Kernohan, Toronto, Ontario. E. G. Wilson, Architect.



Ground Floor.

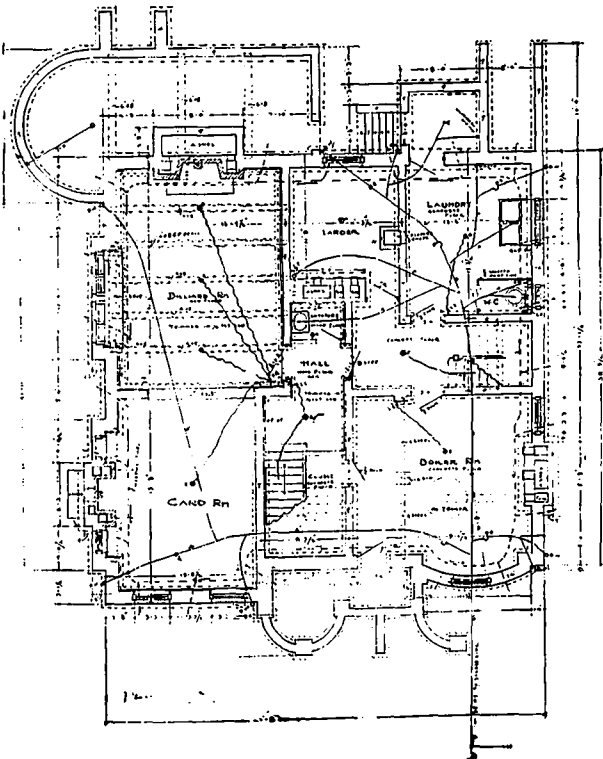


First Floor.

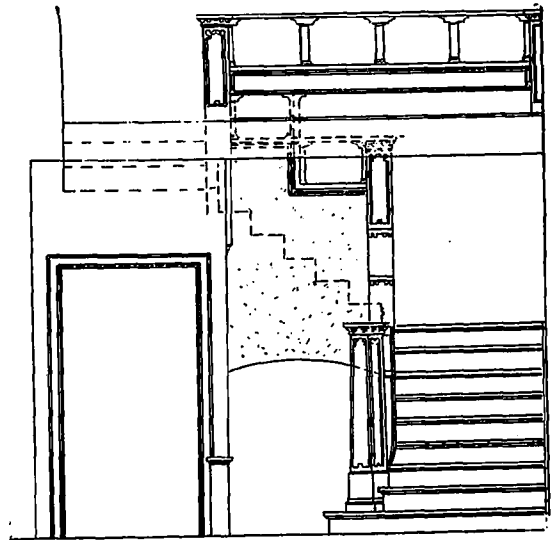
Residence of W. J. Kernohan, Toronto, Ontario. E. G. Wilson, Architect.

*AN INTERESTING* example of recent domestic work, including several attractive interiors, is shown in the views illustrating the residence of J. W. Kernohan, Warren road, Toronto, on the two preceding pages. The exterior, which is both pleasing in proportions and substantial in appearance, is built of dark red brick of rough texture with stone trimmings, stucco gables and slate roof; the woodwork being stained brown with white painted sashes. Entrance is by a hooded door into a large central

hall, having a mottled brick fireplace in the opposite wall, and finished in oak with beam ceilings and stucco frieze. The decorative scheme here is continued to a large extent into the living and dining rooms, which are placed to the left and open one into the other. The staircase, which is on the right, is shown in detail in the accompanying drawing. The upper rooms are finished in white enamel with delicate wall pattern, except the den, which has a large open fireplace and follows the decorative scheme of the lower rooms. The general arrangement, as indicated by the drawings on this page, provide for a most satisfactory plan, with ample wardrobe space and lavatory accommodations; the billiard room in the basement proving an attractive feature that adds substantially to the completeness of the scheme.



Basement Floor.



Detail of Staircase.

Residence of W. J. Kernohan, Toronto, Ontario. E. G. Wilson, Architect.

## EXHIBITION NOTES

TORONTO'S BIG ANNUAL event, the Canadian National Exhibition, which has just been brought to a close after the most successful two weeks in its existence, was signalized this year by a marked improvement in practically every department, everything being on a much larger scale and more comprehensive in scope than at any previous time. As in the past, a large number of manufacturers of building materials availed themselves of the opportunity to display their products to the thousands of daily visitors; although the one disappointing feature, if any, as regards this particular industry was the fact that the exhibits were, as heretofore, scattered more or less about the grounds instead of being brought within a given area, where those interested might compare values and become fully informed regarding such products in the least possible time. There are few of the many thousands who visit this important yearly event, but what are interested, at least remotely, in materials and appliances of this character, and a building erected and set aside for this express purpose, with a comprehensive exhibit, would undoubtedly prove a great convenience to prospective buyers, and hence result in increased business for the manufacturers. The suggestion in this instance is by no means original, as the advantage of a permanent building at the Exhibition for material firms, has been discussed both in the columns of this and other journals on several occasions, of the general opinion being that the benefits to be derived would more than justify the undertaking. However, nothing will probably be done, until the firms interested unite in making representations to the board of management for better accommodations. Possibly the ideal way would be to obtain the use of sufficient ground and erect a building that would embody in its construction, as far as possible, the products to be displayed, the various firms interested contributing the necessary materials and labor required. In this manner a practical demonstration could be made in addition to housing a specific class of goods in a building erected along novel lines. With improved conditions a large number of firms, who up to the present time have been unrepresented at this annual event, would be induced to take space and thereby add greatly to the number and variety of the exhibits, thus making the whole more representative in scope and bringing the merits of various products to the direct attention of thousands who would possibly be otherwise unreached. The scheme is something that is well worthy of consideration and the quicker its possibilities are realized the sooner will a move be made in this direction, as the constant growth of the Exhibition year by year, together with its steadily increasing attendance, emphasizes its great worth to manufacturers in all lines as an institution whose commercial value is of first importance. As it was, the exhibits of builders' supplies and appliances proved a big attraction; in many cases the displays being arranged to practically demonstrate the application of materials to the purpose for which they are intended. One of the big exhibitors

was the Standard Ideal Co. of Port Hope, which displayed to advantage a most complete line of bath tubs, wash stands, foot baths, shower receptors and other toilet room necessities, including a full line of their well-known "Alexandra Ware," which is meeting with such universal favor among architects and owners throughout the Dominion. This display occupied an entire section in the Process Building, the pure white enamel fixtures standing out conspicuously against a black velvet wall forming the background.

Across in the next section the George B. Meadows Iron and Brass Works occupied a large space, which was taken up by an extensive display showing specimens of this firm's work applied in a practical way to modern building requirements. This exhibit was a decidedly novel one, being arranged like an office with counter grilles flanking a cashier's cage, and an iron spiral stairway leading to the upper floor. Several excellent designs in bronze and wrought iron showed the technique and care to detail which is characteristic of the firm's work, and together with the "Meadows" metal lockers made the exhibit most complete in every way.

South of the Machinery Hall were several outdoor exhibits, including the huge tent of Wettlaufer Bros., where a battery of "Heart Shape" concrete mixers in sizes of varying capacity operated by approved power equipment, drew a number of daily visitors, and netted the firm several important sales. The best proof, perhaps, of the merits of this particular type of mixer is found in the steadily increasing factory output, and the fact that their use on important jobs has reached almost universal proportions.

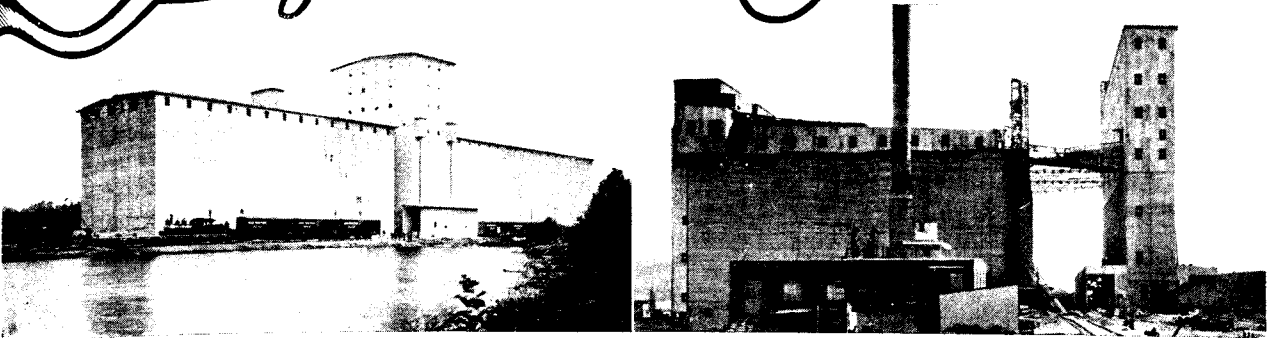
The London Concrete Machinery Company had one of the largest exhibits on the ground—comprising concrete block machines, mixers, gasoline engines and cement working tools and appliances. Practical demonstrations were conducted for the benefit of the many builders and contractors who were daily in attendance—an interesting feature of the display being a large power tamper designed for factory work where concrete blocks are manufactured in large quantities.

"Five times as many used as any other make," was the claim made for the product of the Zimmer Vacuum Machine Company, in a large printed sign over their exhibit, which occupied an entire section under the grandstand. The display included stationary plants, truck machines and portable outfits such as their well-known "Junior" two and three stages machines. All these were demonstrated in a most thorough manner, and left no doubt as to the efficiency and constructive excellence of this firm's products.

The Canadian H. W. Johns-Manville Company were located in Machinery Hall, and had a very complete exhibit, showing their extensive line of insulation, pipe covering, packing and many other products; a feature of interest being a miniature house showing the practical application of this firm's well-known asbestos roofing.



# Barrett Specification Roofs



## On Four Great Granaries

### Special Note.

To cover the four huge granaries illustrated herewith the Canadian Pacific R. R. engineers chose Barrett Specification Roofs for good and sufficient reasons.

These practical men know that these roofs will last *20 years or more*.

They further know that they will need no painting or maintenance expense of any kind and that the net cost per year of service will be infinitely lower than could be shown by any other type of roofing.

It is for these very reasons that Barrett Specification Roofs are used on more first-class buildings in the United States and Canada than any other kind.

A big roof generally means a Barrett Specification Roof, for the reason that the cost of big roofs is carefully scrutinized and ultimate economy carefully considered. Small roof areas ought also to have Barrett Specification Roofs, because they are just as economical and satisfactory there.

Copy of The Barrett Specification with tracings ready for incorporation into building plans free on request. Address nearest office.

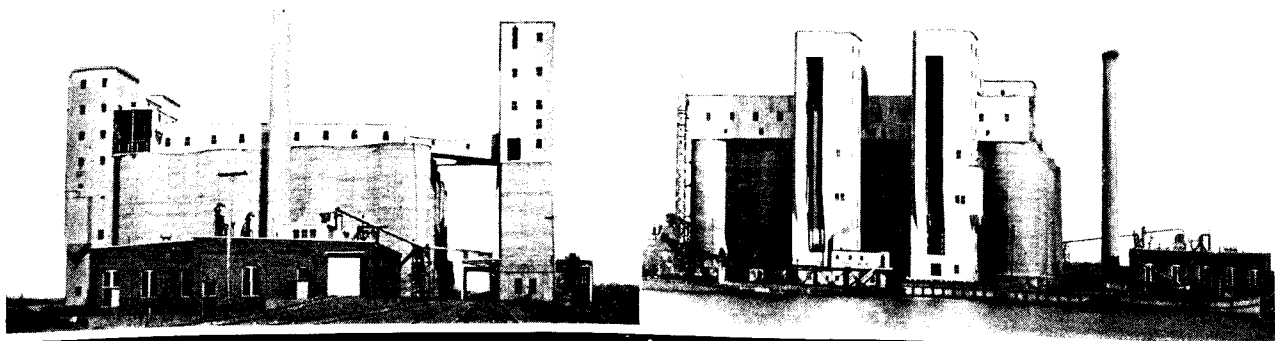
### THE PATERSON MANUFACTURING CO., Limited

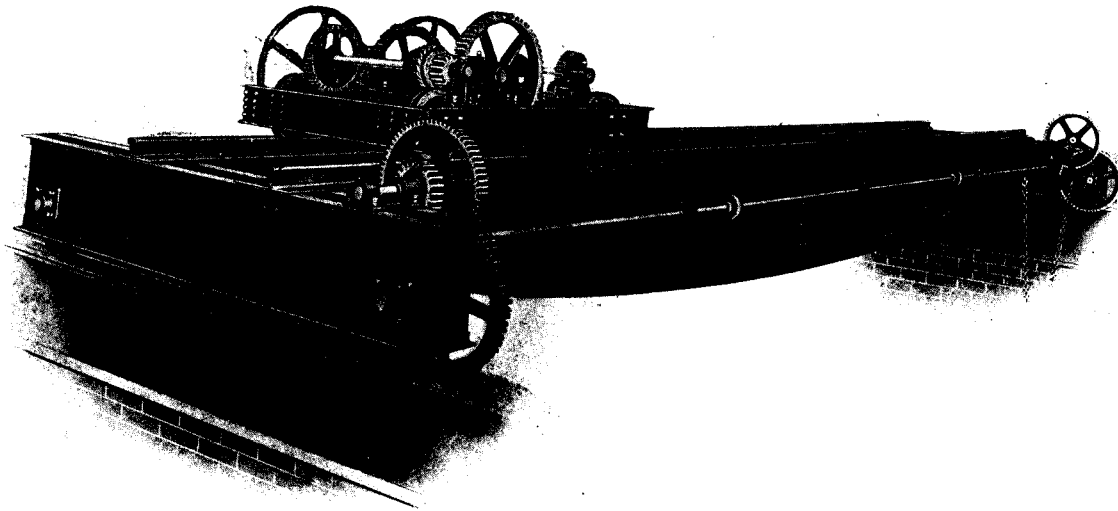
Montreal, Toronto, Winnipeg, Vancouver, St. John, N.B., Halifax, N.S.

We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding.

If any abbreviated form is desired, however, the following is suggested:

ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15, 1911, using the materials specified, and subject to the inspection requirements.



ALL TYPES**C R A N E S**ALL SIZES

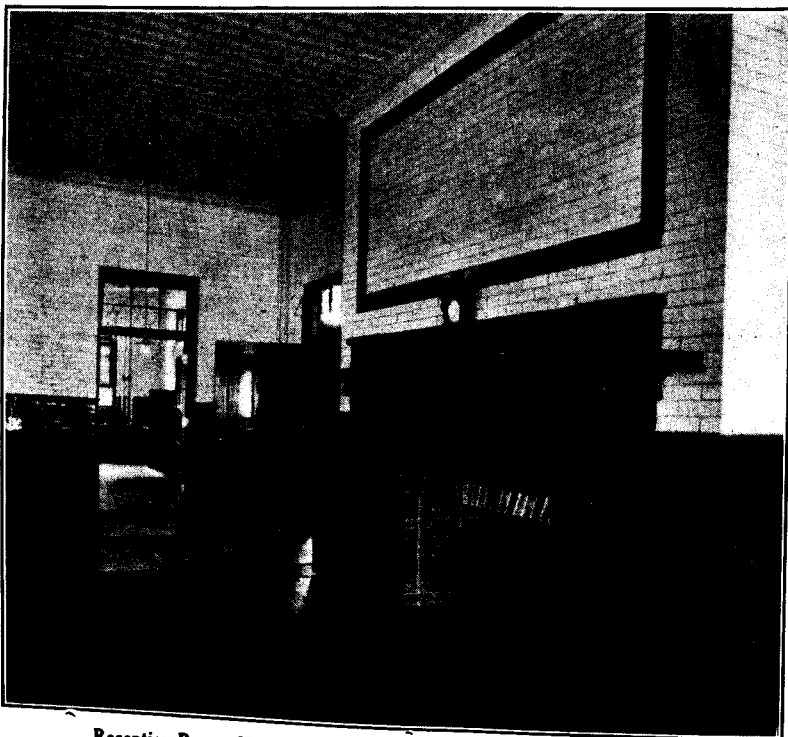
20 Ton Hand Operated Traveller

WE DESIGN AND MANUFACTURE ALL KINDS OF LIFTING AND HAULING APPLIANCES.

**International Marine Signal Company, Limited**  
OTTAWA, ONTARIO

## “American” Enameled Brick

Used For Large Government Jobs



Reception Room, Home for Disabled Volunteer Soldiers, Hampton, Va.

250,000 White and Red Brown Enameled Brick used for Interior Lining. Cut shows the Reception Room only; other departments are lined with Enameled Brick.

If interested, write for descriptive matter.

**American Enameled  
Brick & Tile Co.**

Head Office, 1182 Broadway, New York City

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EMPIRE SYPHON JET OUTFIT

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CLOSETS**

are the choice of plumbers who know, and to recommend them is to advertise your own standing in the trade.

The seat is of special construction, the tank large and the bowl well made and of good shape.

Full range of Plumbers' Supplies.  
Immediate shipments guaranteed.

**EMPIRE MANUFACTURING CO., LTD.  
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**MESSRS. WAILES, DOVE & COMPANY, LTD.**  
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The Old Proverb Declares That  
**The Proof of the Pudding is the Eating**  
SO WITH  
**BITUMASTIC ENAMELS & SOLUTION**

The proof of their value is in their universal use and they are now recognized to be absolutely indispensable for the preservation of steel. All other preparations are but feeble imitations, but as "imitation is the sincerest form of flattery," they serve only to accentuate the value of "Bitumastic" preparations.

Bitumastic holds the world's record as a protective coating against any influences either of time or laboratory tests and its world-wide adoption, after years of practical testing, is its guarantee of quality. Among the latest additions to the list of its captives are the huge ocean liners.

**“OLYMPIC” and “TITANIC”**

and now the contract for the whole painting of the steel structural and bridge work of the

**“PANAMA CANAL”**

has been allotted to us for Bitumastic Enamel and Solution, at a cost of

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**THESE ARE NOT THEORIES, BUT HARD FACTS.  
NEED WE SAY MORE?  
TIME AND SPACE WOULD FAIL US,**

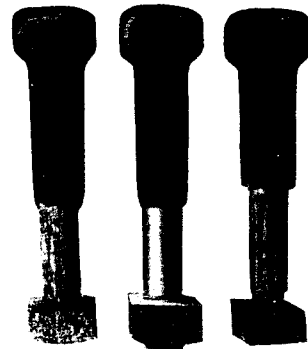
but Architects, Engineers, Shipowners, Bridge Builders and all interested in steel preservation as well as waterproofing concrete tanks or walls should specify Bitumastic.

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MONTREAL - Cables: “Macron” - Tel. Main 6812**



Steel Plate partly coated with Bitumastic Enamel—after seven days' test in chemical solution.

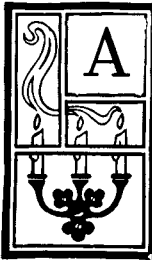


Iron Screw Bolts and Nuts, partly coated with Bitumastic Enamel. Before and after seven days' test in chemical solution.

**WAILES, DOVE & CO., LIMITED,  
Manufacturers,  
NEWCASTLE-ON-TYNE.**



## You read it in the papers



AFTER it is all over you read it in the papers that Montreal spent \$15,715,859 on new buildings in 1911. Ottawa spent \$2,997,610. Toronto, \$2,375,539. Hamilton, \$4,255,730. Winnipeg, \$17,550,400. Calgary, \$12,907,638. Vancouver, \$17,652,642.

But of what use is it to know this after the contracts have been awarded and the materials bought?

To be of value, the information should have been furnished when the buildings, which went to make up this vast sum *were being planned*. Builders and dealers in builders' supplies and materials who knew in advance that this work was being contemplated were in a position to get a big share of the business thus created.

"Construction" Daily Reports perform this service—thoroughly and intelligently. Every day we receive reports from all parts of the country on all new building and engineering projects and this we send out to our clients. "Construction" Daily Reports contain all the available information, and they have it first. They indicate clearly what class of building is to be erected, what equipment will be needed, so that those who receive the reports know at once if it would be profitable for them to go after the business.

An enquiry addressed to "Construction" will bring you full information about our daily report service. The records of 1911 are an indication of what to expect in 1912—which means that—great projects will be undertaken—much profit will be made, and those who share in this profit will be those who are first in the field.

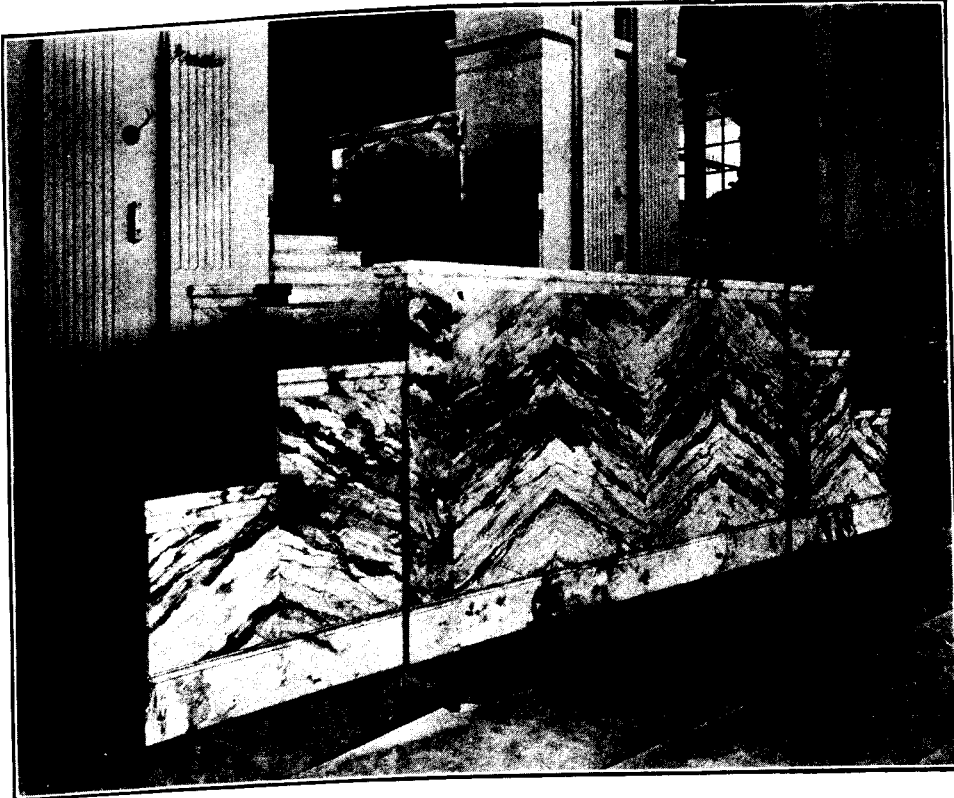
# 'CONSTRUCTION'

TORONTO ————— CANADA

# Dominion Marble Company, Limited

Factory—MONTREAL, QUE.

Quarries—SOUTH STUKELEY, QUE.



## Royal Dominion Marble

This cut shows a view of a stairway in the  
**Chateau Laurier**  
Ottawa

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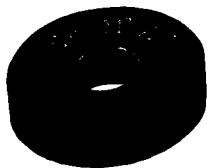
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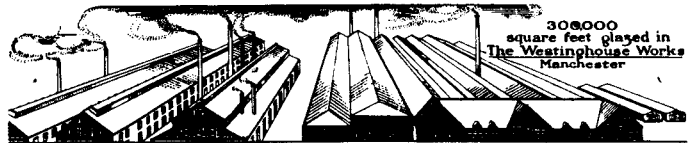
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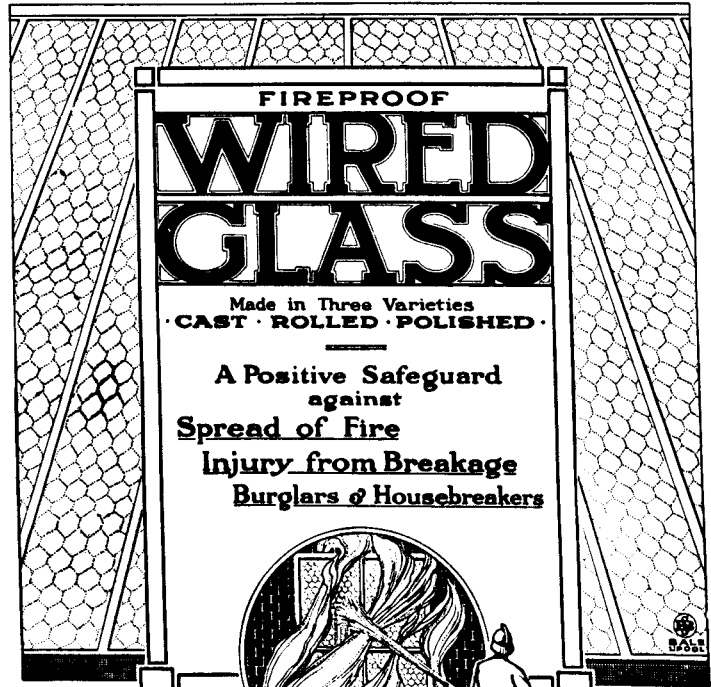
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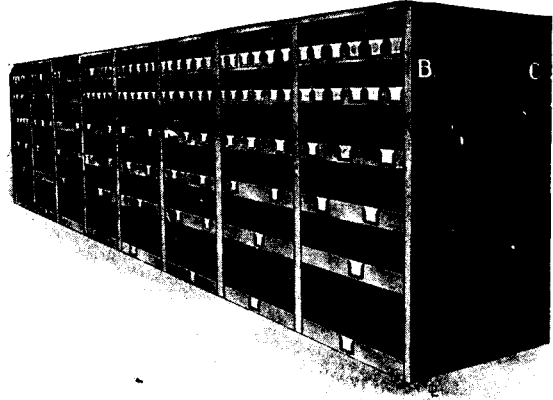
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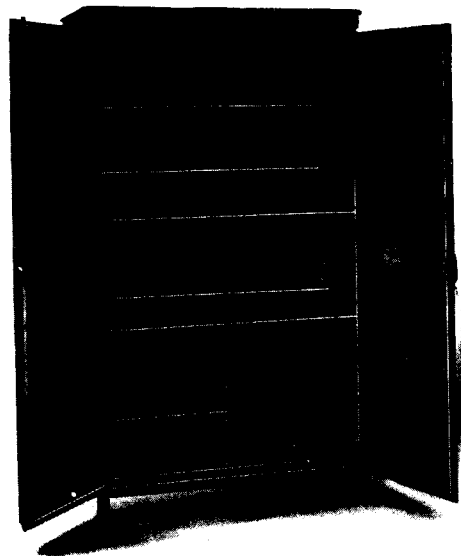
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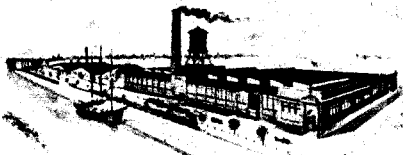
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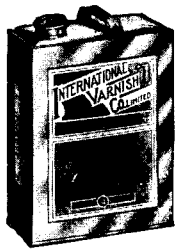
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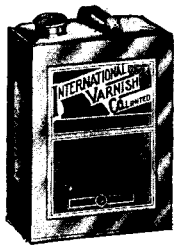
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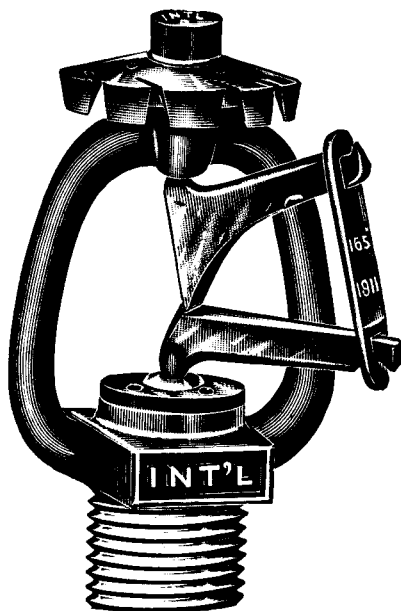
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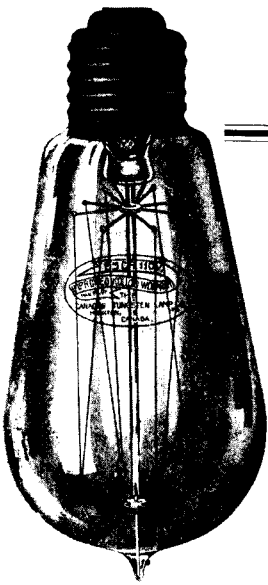
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B. Greening Wire Co. Limited
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B. Greening Wire Co. Limited  
Mussens, Ltd.  
Otis-Fensom Elevator Co

An Index to the Advertisements

Allith Manufacturing Co. ....	Inside Back Cover	Greening Wire Co., The B. ....	93	Pease Foundry Co. ....	92
Asbestos Manufacturing Co. ....	91	Galt Art Metal Co. ....	14	Patterson Manufacturing Co. ....	83
Ault & Wiborg .....	30	Gibb, Alexander .....	87	Pedlar People, Limited .....	25
American Enamel Brick and Tile Co. ....	88	Hamilton Bridge Works .....	Outside Back Cover	Port Credit Brick Co. ....	12
Berry Bros., Limited .....	89	Hobbs Manufacturing Co. ....	14	Pilkington Bros. ....	86
Bird & Son, Limited, F. W. ....	32	Hoide Marble Co. ....	Outside Back Cover	Pinchin, Johnson Co. ....	34
Bishop Construction Co. ....	Inside Front Cover	Holmes & Son, Fred. ....	Inside Back Cover	Reid & Brown .....	92
Bowes & Francis .....	Inside Front Cover	Hynes, W. J. ....	87	R.I.W. Damp Resisting Co. ....	90
Brandram & Henderson .....	Inside Front Cover	Hickley, E. W. ....	Inside Back Cover	Robertson Co., Jas. B. ....	33
Brunswick-Balke Collender Co. ....	37	Ideal Concrete Machinery Co. ....	5	Robinson Bros. Cork Co. ....	96
Burton & Baldwin Mfg. Co. ....	Inside Front Cover	Imperial Varnish and Color Co. ....	Inside Back Cover	Roman Stone Co. ....	31
Canada Foundry Co. ....	16	International Varnish Co. ....	91	Sheldons, Limited .....	10
Canadian Fairbanks-Morse Co. ....	18	Johns-Manville Co., The Canadian H. W. ....	88	Seaman, Kent Co. ....	94
Clare Bros. Co. ....	15	Kent Co., Limited .....	11	Standard Ideal Co. ....	39, 40, 41, 42
Cloisome Glass Co. ....	Inside Back Cover	Kerr Engine Co. ....	36	Steel and Radiation, Limited .....	19, 20, 21, 22
Conduits Co., Limited .....	Outside Back Cover	King Bros. ....	93	Stinson-Reeb Builders' Supply Co. ....	29
Consolidated Plate Glass Co. ....	Inside Front Cover	Knight Bros. Co. ....	Inside Front Cover	Stratford Manufacturing Co. ....	30
Contractors Supply Co. ....	Inside Back Cover	Leslie & Co., Limited, A. C. ....	96	Structural Steel Co. ....	94
Canadian Tungsten Lamp Co. ....	96	Linde Canadian Refrigerator Co. ....	17	Standard Sanitary Manufacturing Co. ....	13
Dartnell Limited .....	Outside Back Cover	London Concrete Machinery Co. ....	6	Steel Company of Canada .....	Inside Front Cover
Dennis Wire and Iron Co. ....	89	Malloy & Hebron .....	84	Star Expansion Bolt Co. ....	11
Dominion Bridge Co. ....	92	Maloney & Co., John .....	Inside Back Cover	Solomon & Spielmann .....	16
Dominion Marble Co. ....	86	Manitoba Gypsum Co. ....	94	Swedish Steel and Imp. Co. ....	95
Dominion Radiator Co. ....	23	Meadows & Co., George B. ....	30	Taylor, J. & J. ....	95
Don Valley Brick Works .....	26-27	Metal Shingle and Siding Co. ....	28	Taylor-Forbes Co. ....	7
Dunham Radiator Trap Co. ....	Inside Front Cover	Missisquoi Marble Co. ....	95	Toronto Plate Glass Co. ....	90
Dancy, H. N. & Son .....	Inside Back Cover	Mussens, Limited .....	4	Toronto Laundry Machinery Co. ....	Inside Back Cover
Eaton & Sons, J. B. ....	Inside Front Cover	McGuire, W. J. ....	95	Trussed Concrete Steel Co. ....	92
Empire Manufacturing Co. ....	Inside Back Cover	Moore & Co., Benjamin .....	18	Turnbull Elevator Co. ....	9
Gutta Percha Rubber Co. ....	84	National Bridge Co. ....	94	Toronto Iron Works .....	87
General Fire Equipment Co., Limited .....	86	Noble, Clarence W. ....	94	Vogel Co. of Canada, Ltd. ....	Inside Back Cover
Glidden Varnish Co. ....	93	Ormsby, Limited, A. B. ....	35	Wetlaufer Bros. ....	8
Goulds Pump Co. ....	3	Otis-Fensom Elevator Co. ....	38	Walkerville Hardware Co. ....	12
Goldie & McCulloch .....	24			Watson, Smith Co. ....	89
				Zimmer Vacuum Machine Co. ....	32



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