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CONSTRUCTION

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



This number contains a 16-page
illustrated article descriptive of
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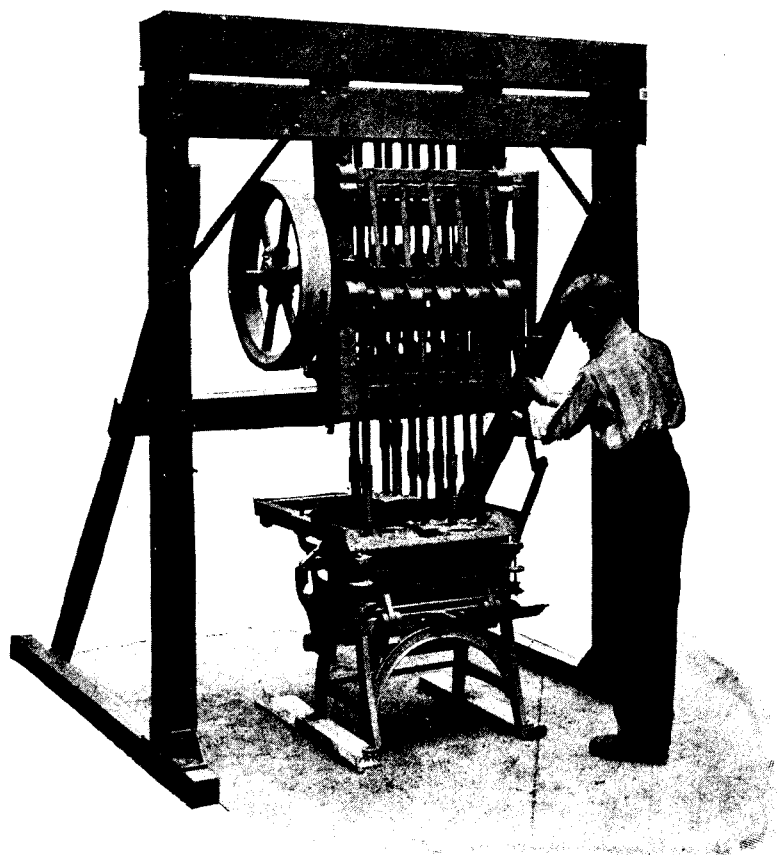
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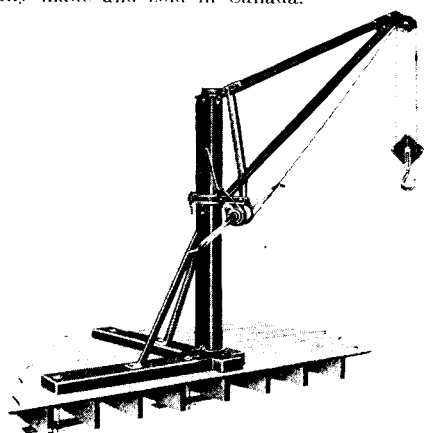
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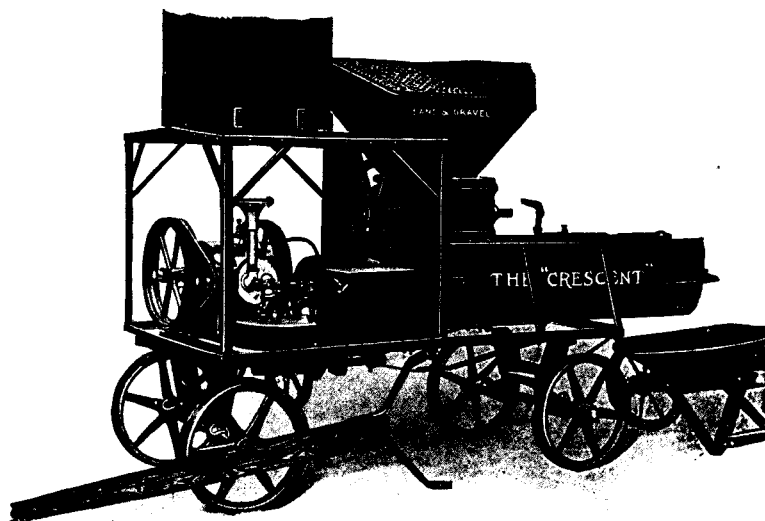
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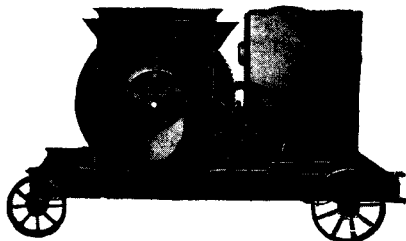
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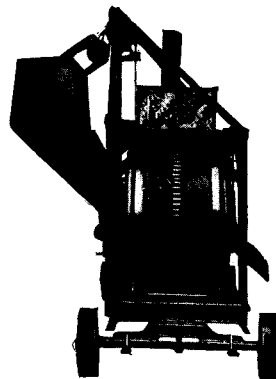
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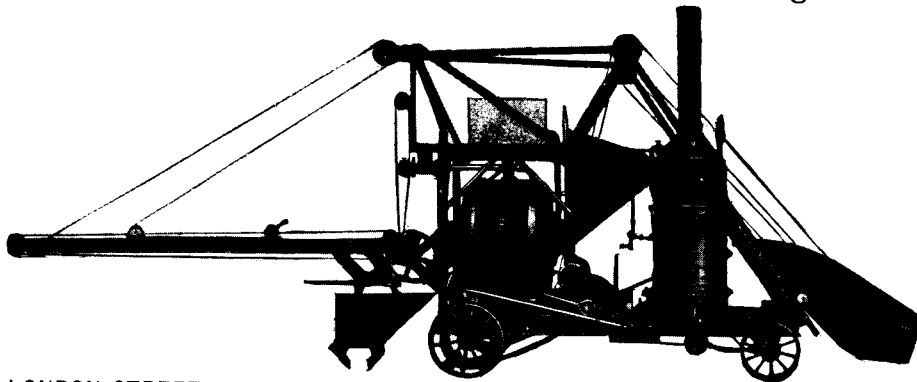


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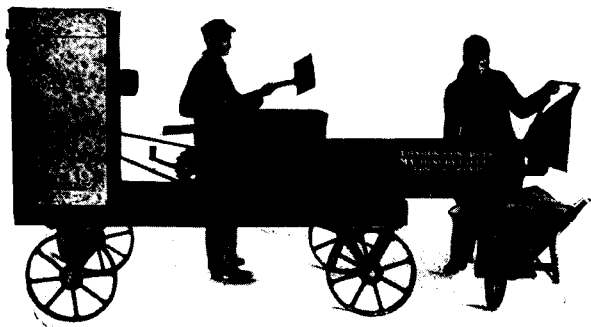
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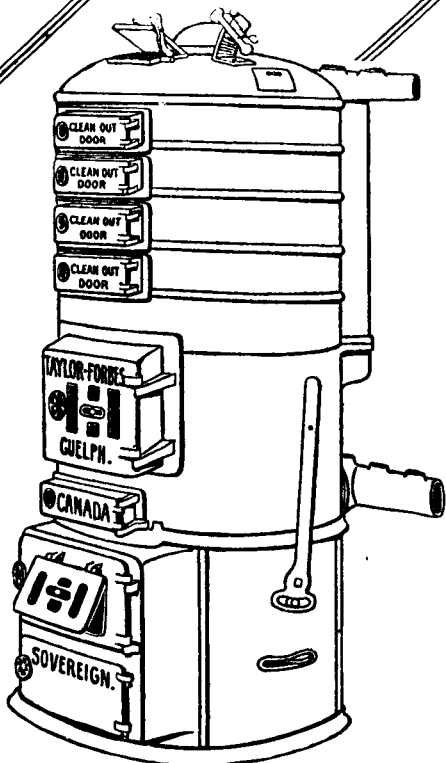
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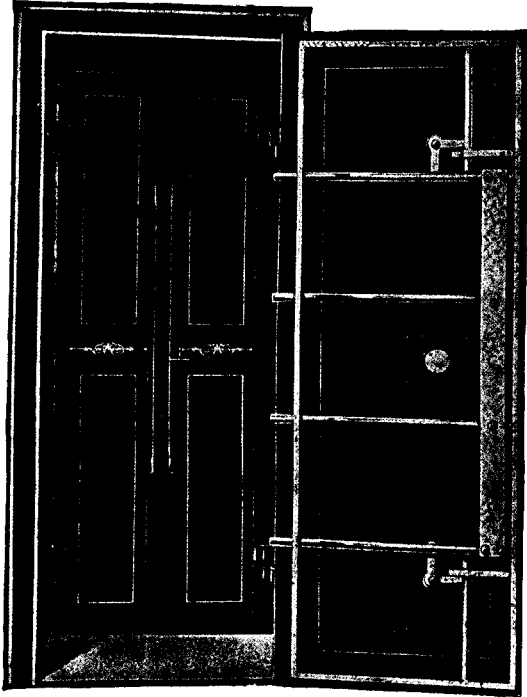
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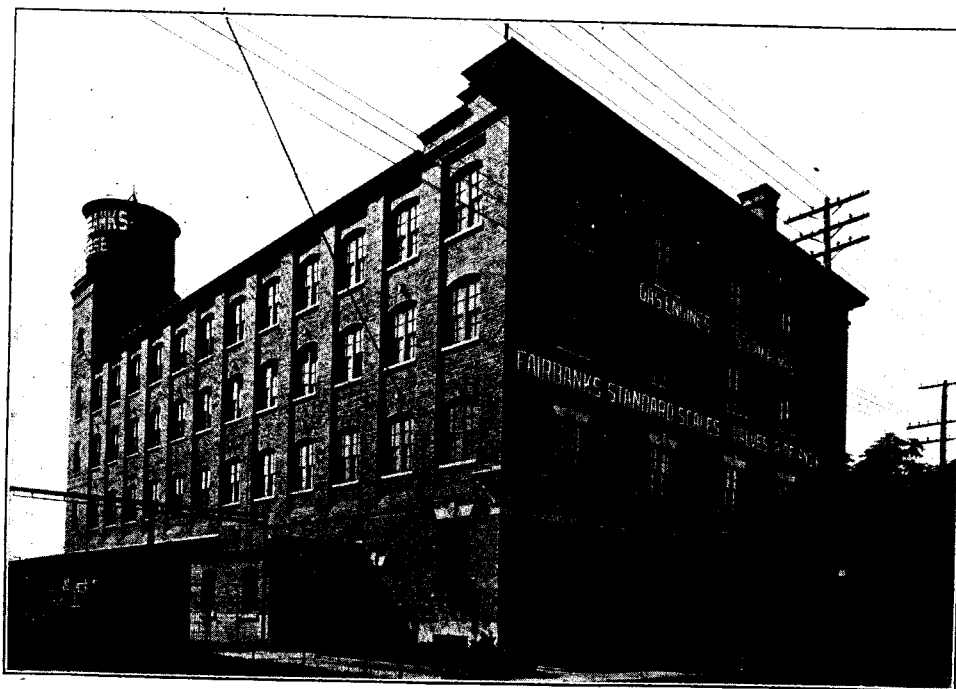
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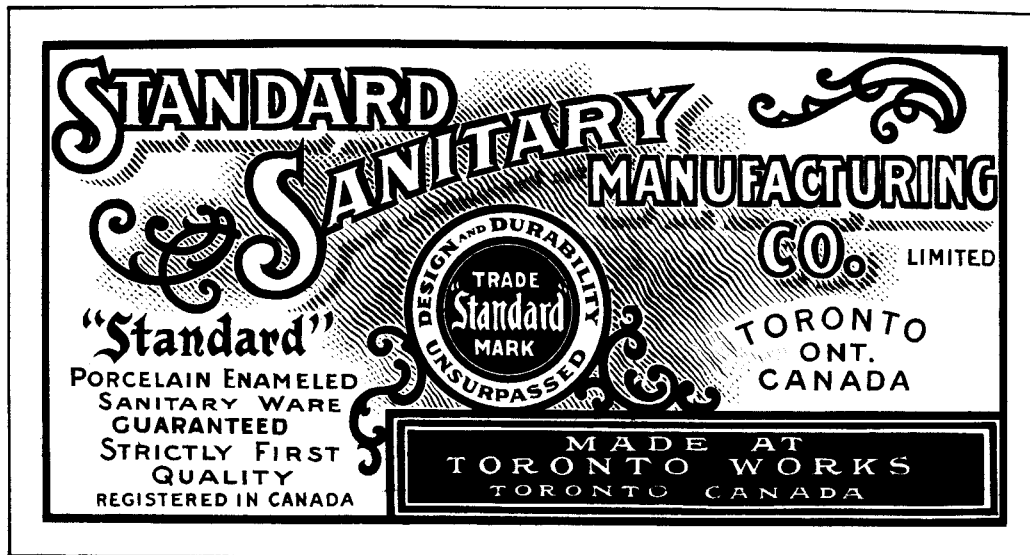
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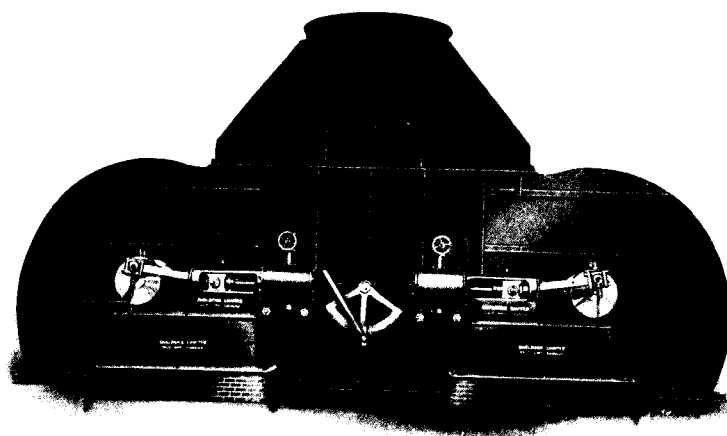
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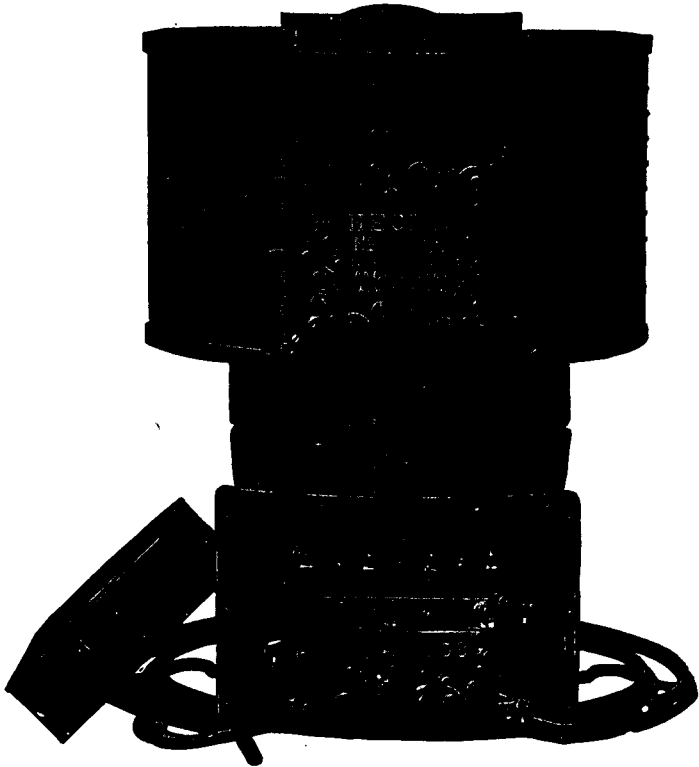
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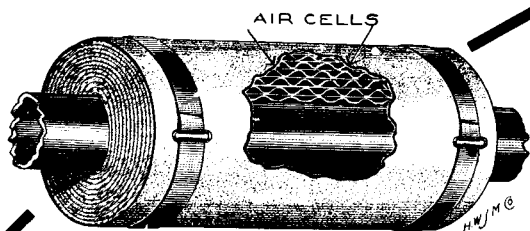
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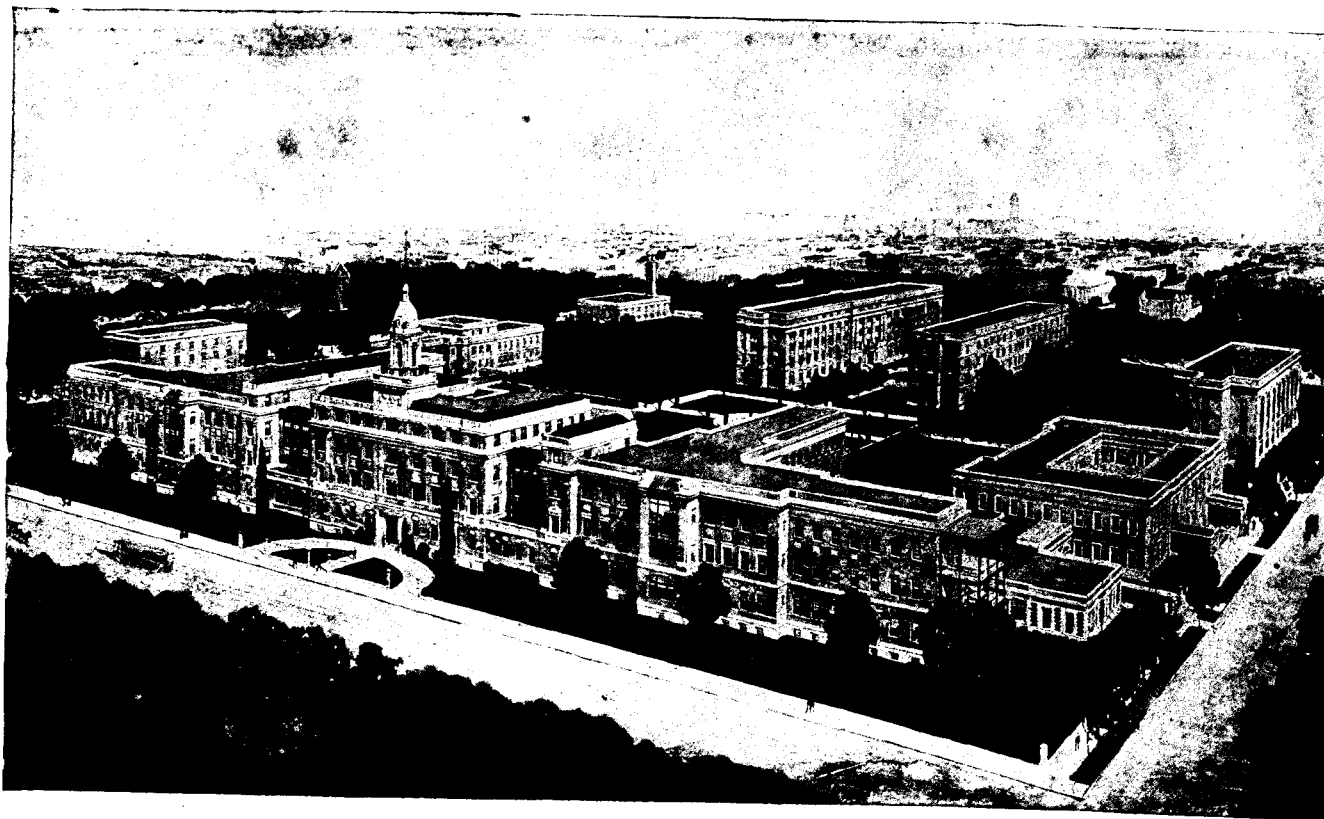
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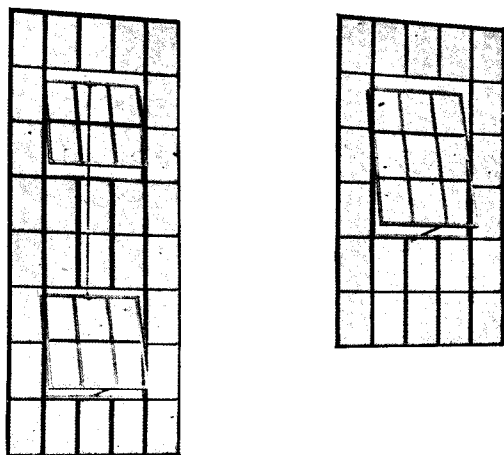
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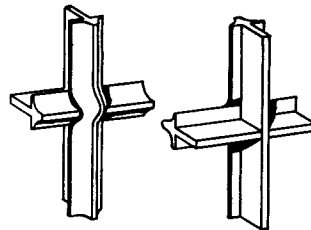
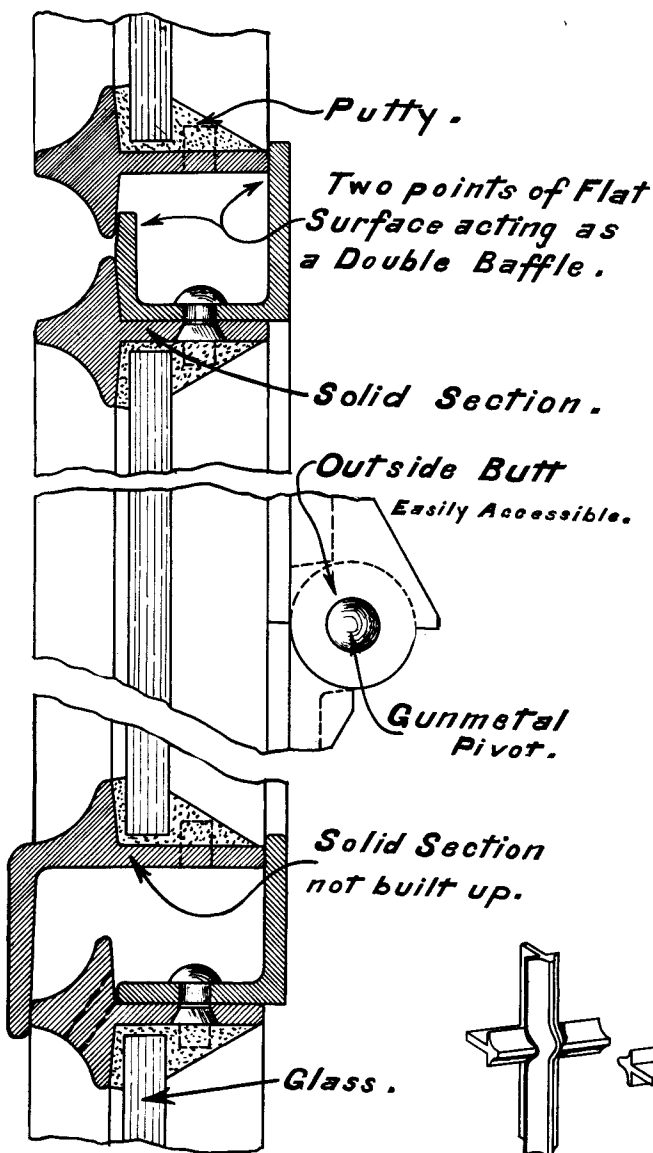
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—you ensure prompt delivery.



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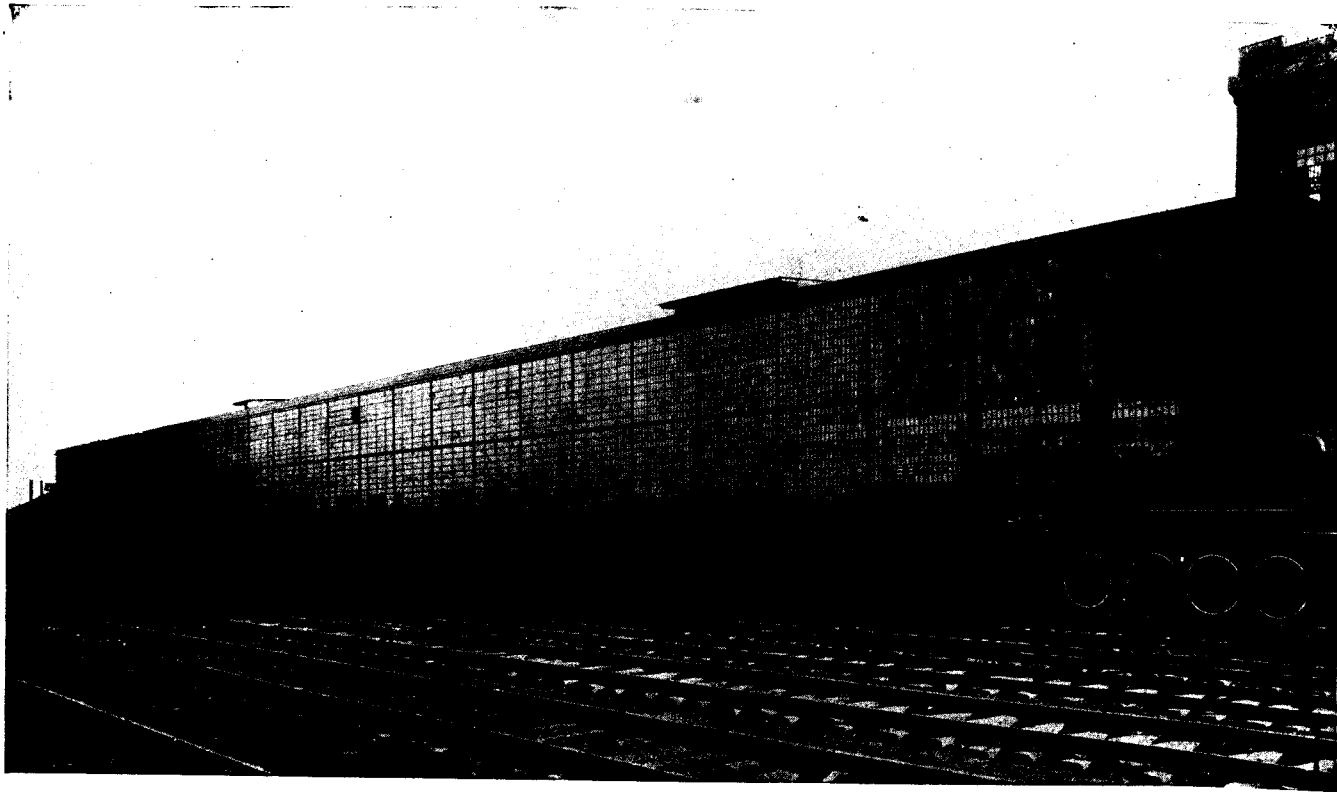


STEEL AND RA

TORONTO

MONT

STR L WINDOWS



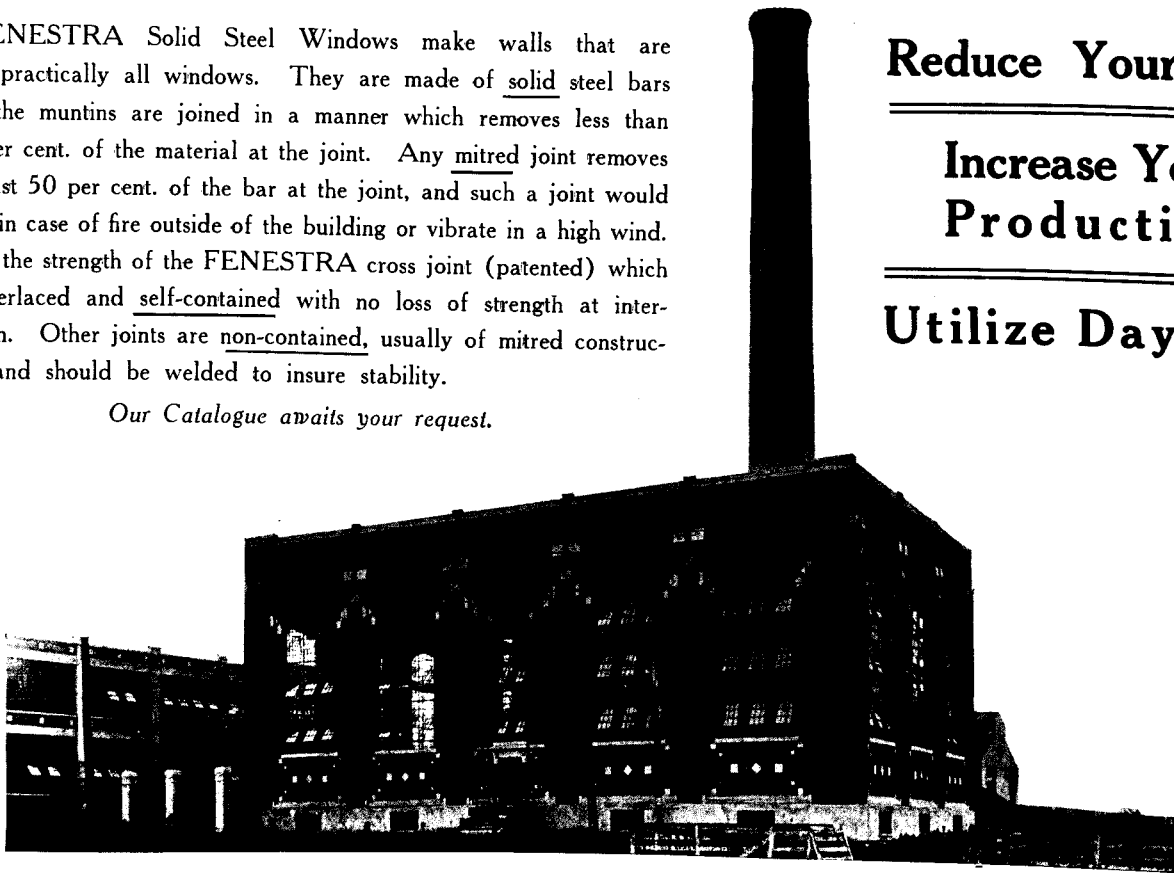
FENESTRA Solid Steel Windows make walls that are practically all windows. They are made of solid steel bars and the muntins are joined in a manner which removes less than 20 per cent. of the material at the joint. Any mitred joint removes at least 50 per cent. of the bar at the joint, and such a joint 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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**Increase Your
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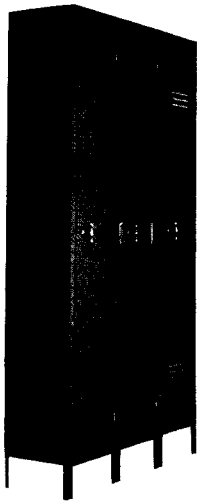
“STEELCRETE” STEEL LOCKERS

The advantages to be derived from the use of Steel Lockers for individual keeping of wearing apparel, etc., are too numerous to mention.

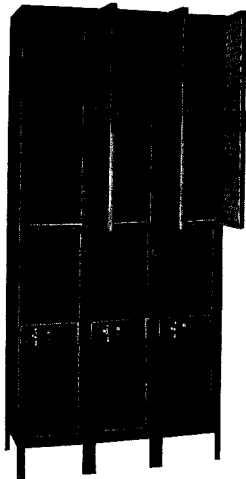
We manufacture Steel Lockers of any description, and we also have a large and complete list of standard sizes of both “Single Tier” and “Double Tier” Lockers, which sizes, experience has shown us, meet with every ordinary requirement in warehouses, gymnasiums, offices, schools, clubs, hotels, banks, hospitals, police stations, railroad shops, etc.

“Steelcrete” Standard Lockers—are unequalled for strength, rigidity and neatness in appearance. The steel angle frames are all welded at the corners.

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Single Tier



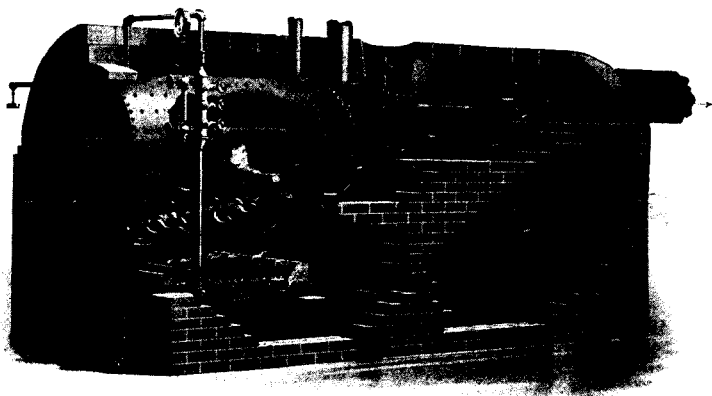
Double Tier

A FEW OF OUR RECENT INSTALLATIONS:

NAME	PLACE
Young Men's Christian Association, New West End Branch	Toronto
Young Men's Christian Association	Fort William
Montreal Harbor Commission	Montreal
North-West Mounted Police	Winnipeg
Quebec Bank	Montreal
Montreal Tramways Co., Limited, St. Henri Shop	Montreal
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KEWANEE Smokeless Fire-box Boiler

was designed and is built by the largest and best equipped manufacturers of Steel Heating Boilers in the world.

The word "KEWANEE" means

The Highest of Engineering Skill; The Most Scientific of Designing;
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 and, An Unqualified Honesty in Business Methods with Everybody.

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The well-known Technical Engineers, Robt. W. Hunt & Co., say so after most exhaustive tests with the best and the poorest grades of bituminous coals. They declare the Smokeless as being over 99.5% Smokeless.

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They also meet the demands of the most exacting smoke ordinances in existence.

Smokelessness means the saving of beautiful buildings, the saving of health and the saving of fuel.

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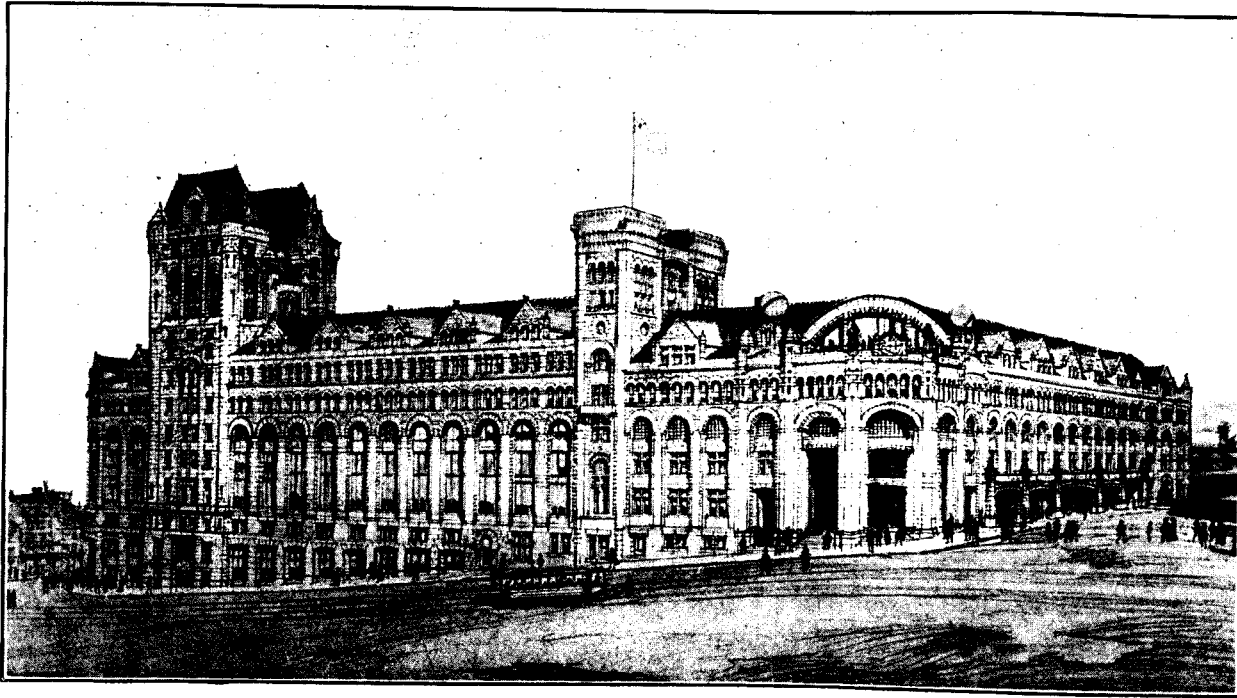
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SASKATOON

P. O. Drawer 1645.

Head Office and Works: OSHAWA

MEDUSA



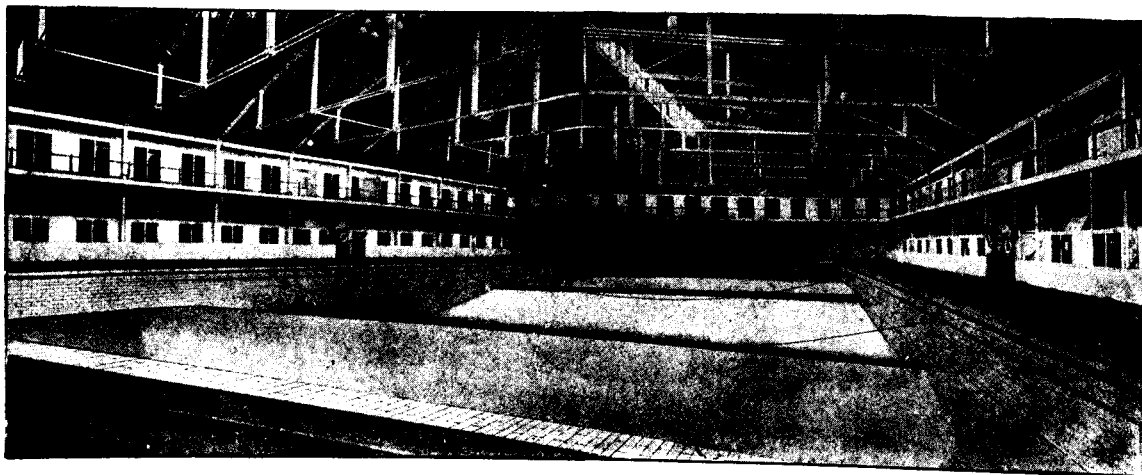
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Used wherever resistance to percolation of water is required. For reservoir linings, cellar walls, concrete blocks, etc.

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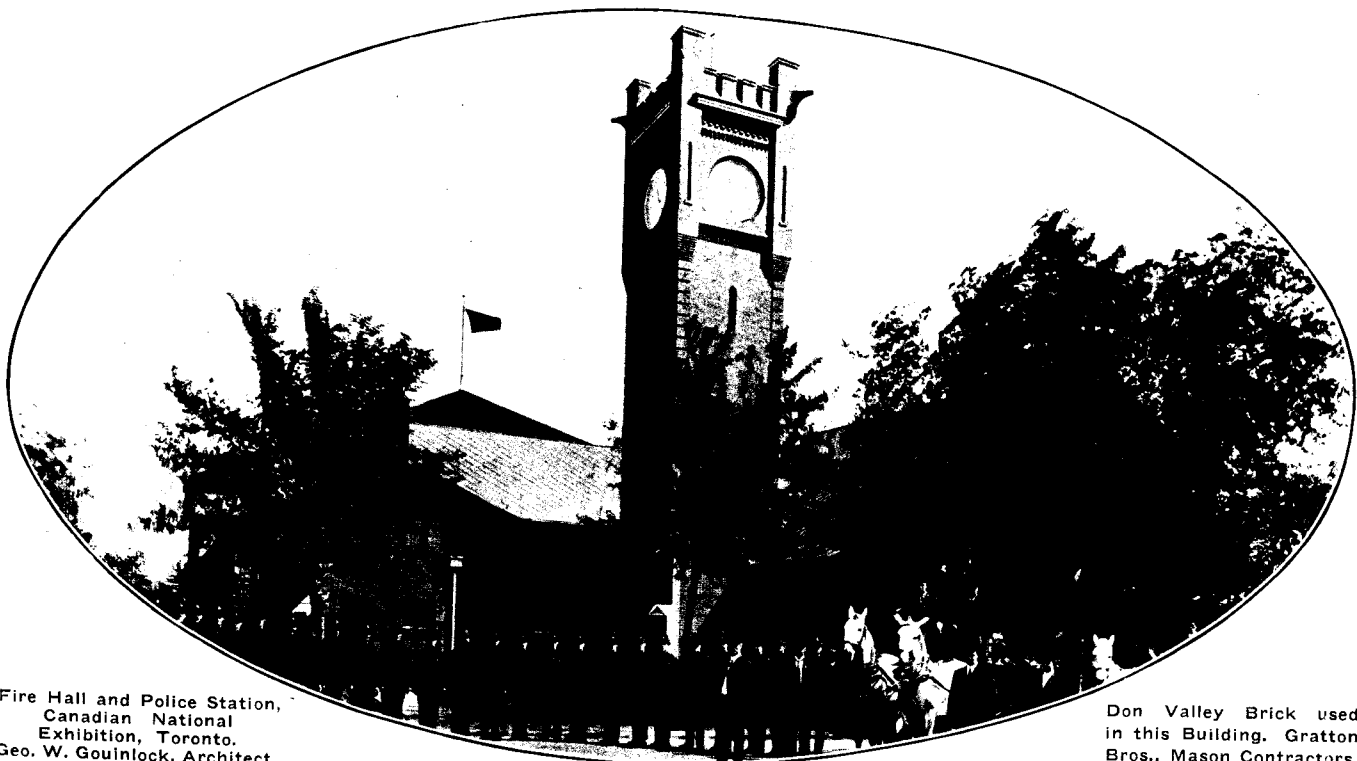
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The "DON VALLEY" Exhibit at the Canadian National Exhibi- tion is the Permanent Feature of that Event.

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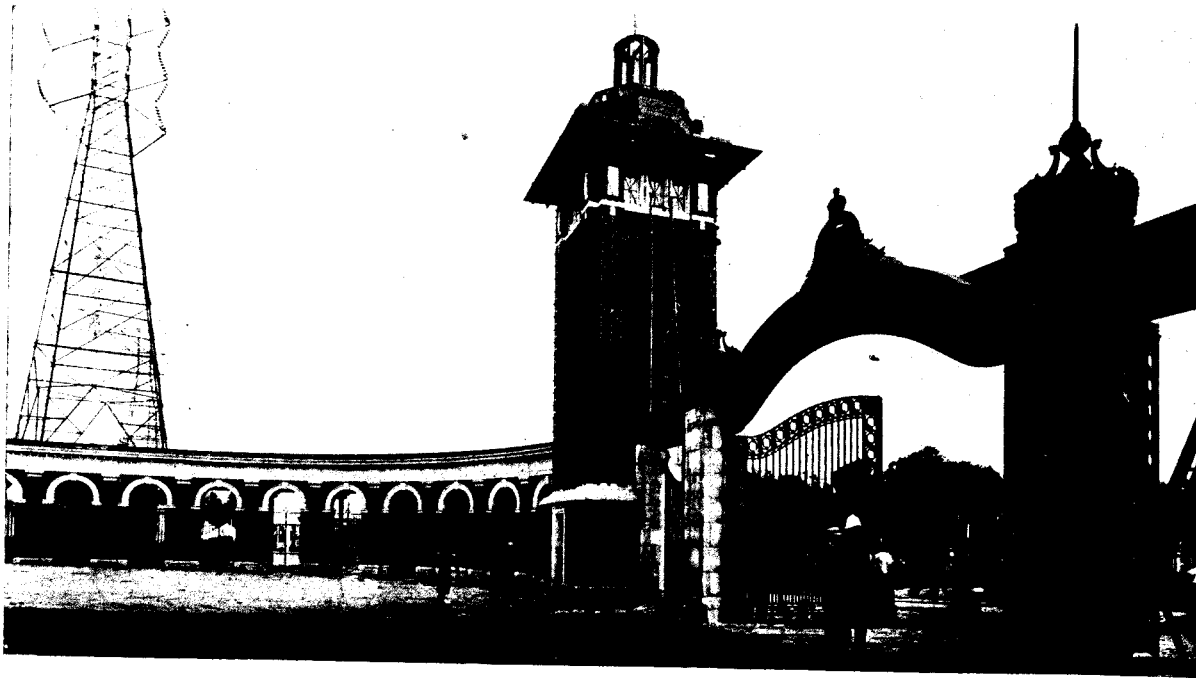


Fire Hall and Police Station,
Canadian National
Exhibition, Toronto.
Geo. W. Gouinlock, Architect.

Don Valley Brick used
in this Building. Gratton
Bros., Mason Contractors.

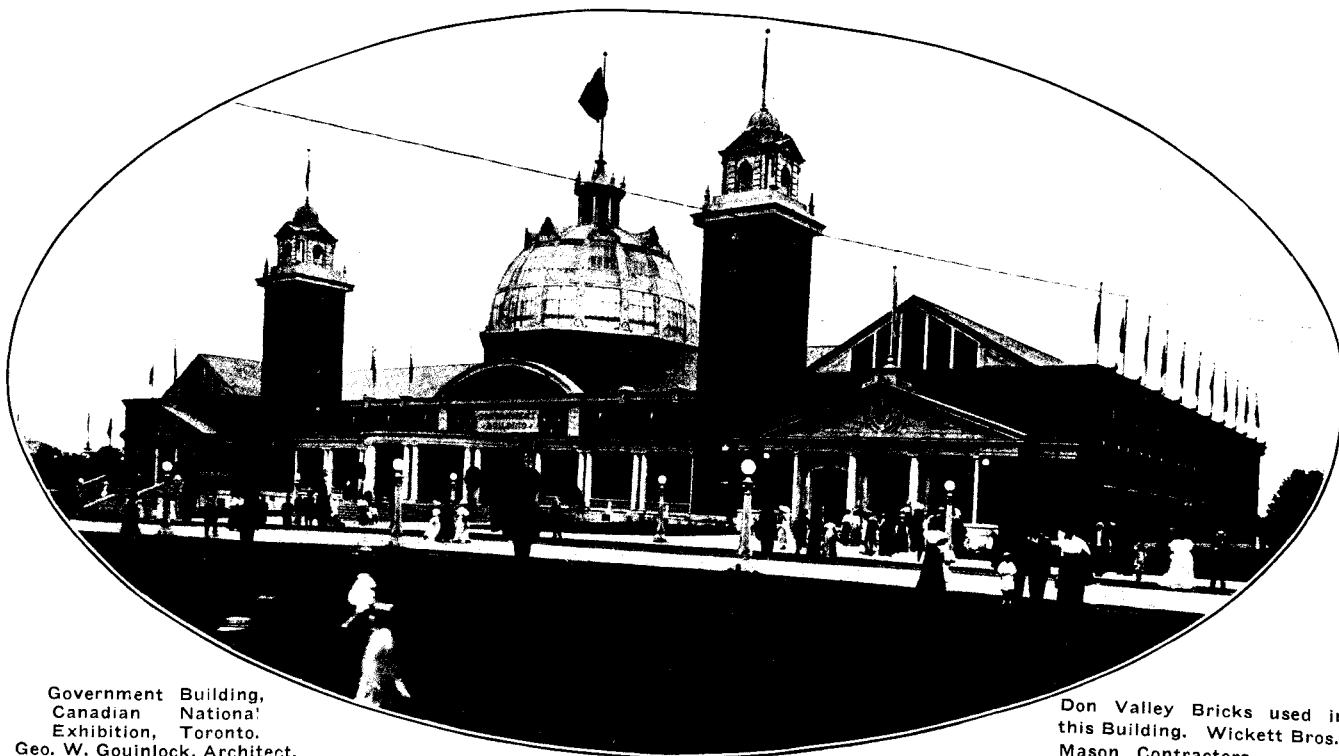
Montreal Agent
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83 Bleury St. - Montreal

DON VALLEY



Dufferin Memorial Gates, Canadian National Exhibition, Toronto.
 Geo. W. Gouinlock, Architect. Wickett Bros., Ltd., Mason Contractors.

Architects who specify "Don Valley" Brick write into their specifications a guarantee of quality. They are taking a precaution that, in this particular, insures the successful carrying out of their plans, and giving their clients a material of proven value.



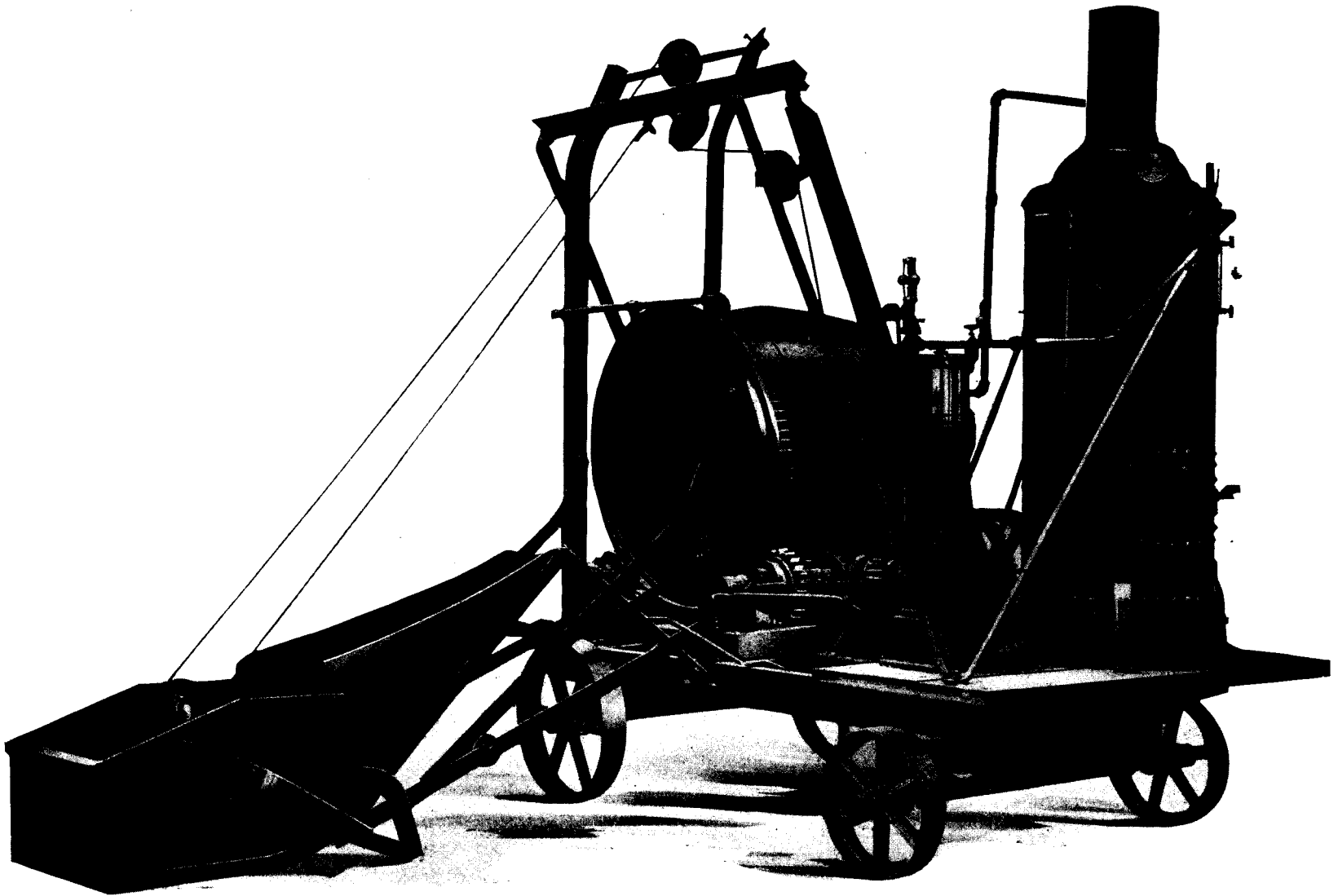
Government Building,
 Canadian National
 Exhibition, Toronto.
 Geo. W. Gouinlock, Architect.

Don Valley Bricks used in
 this Building. Wickett Bros.,
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Contractors find they have to figure pretty closely on concrete work to get the contracts, so if they are to make money, they must have their men working steadily every minute they are on the job. In Toronto alone, 175 Wettlaufer Heart-Shaped Mixers, are enabling them to do this, earning big money for their owners on every job.

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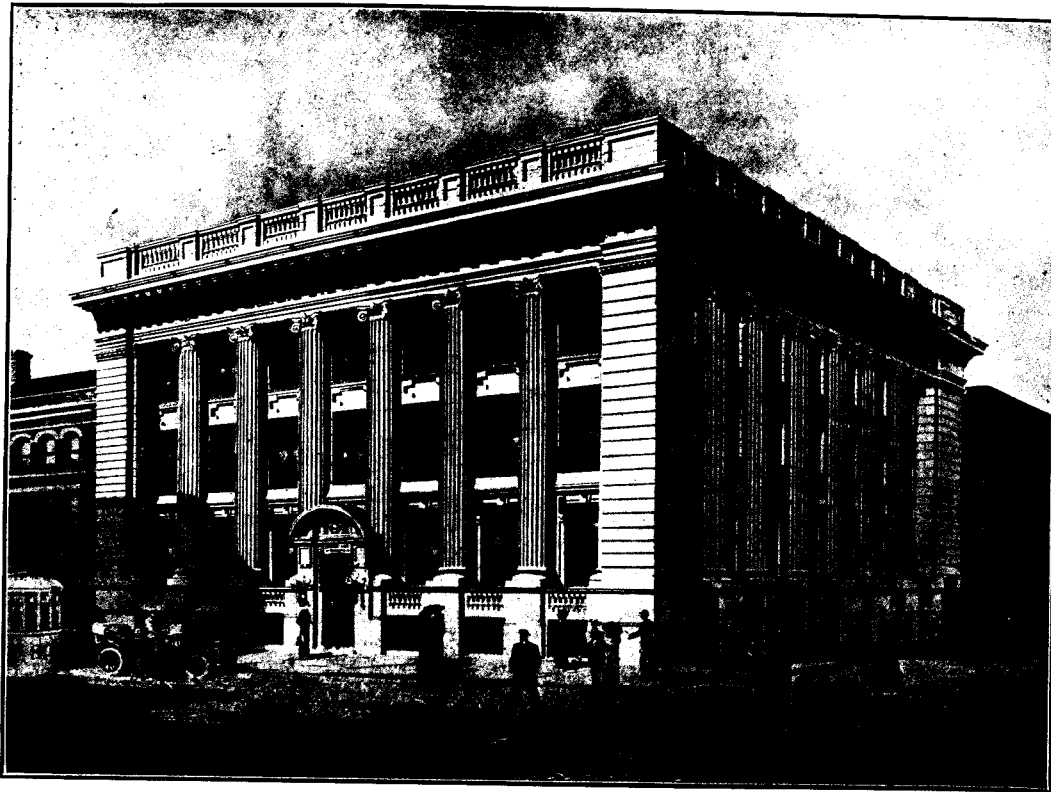
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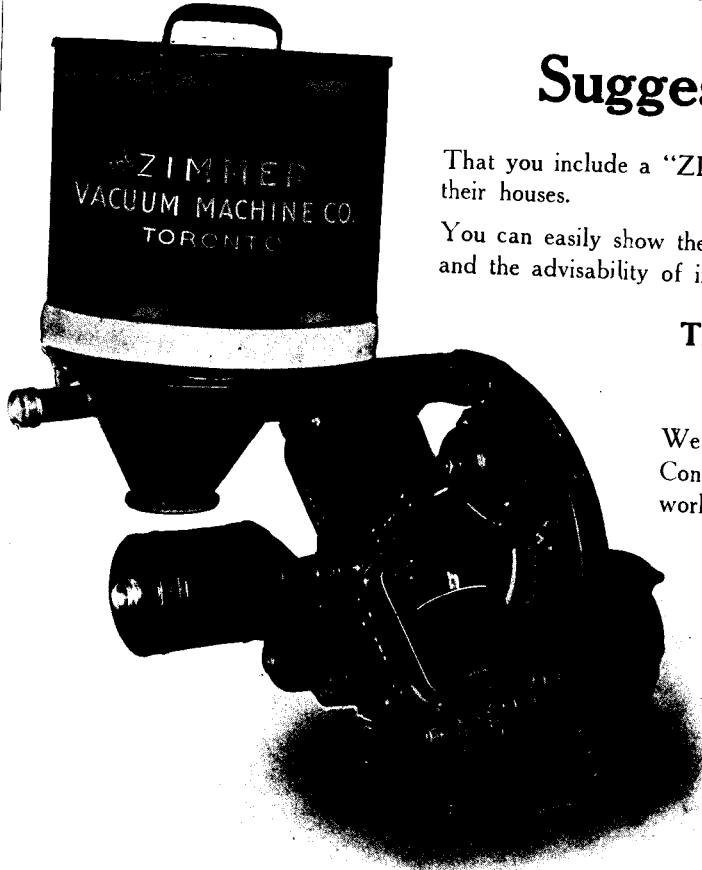
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are what stifle sound. There are over 2,000 dead air cells per square foot in

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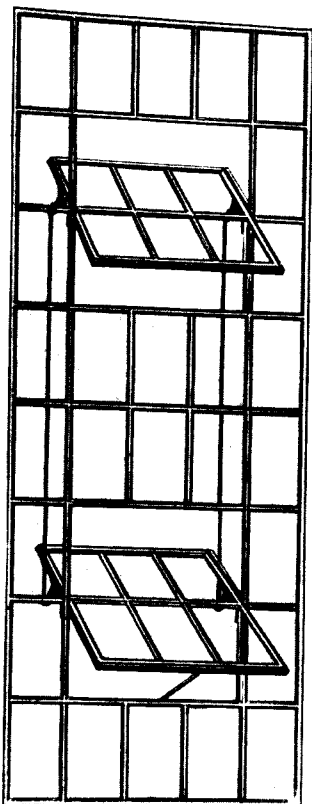
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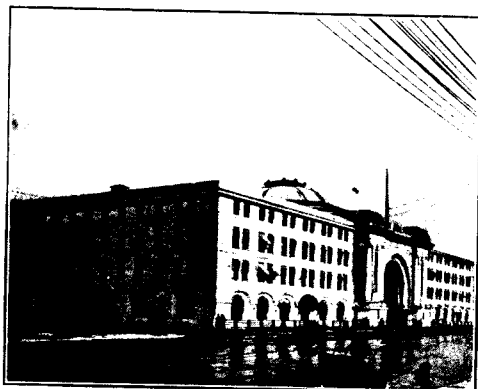
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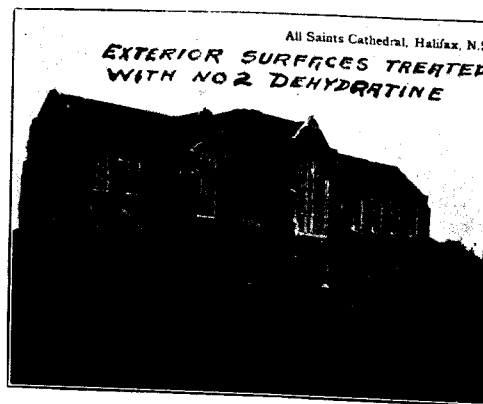
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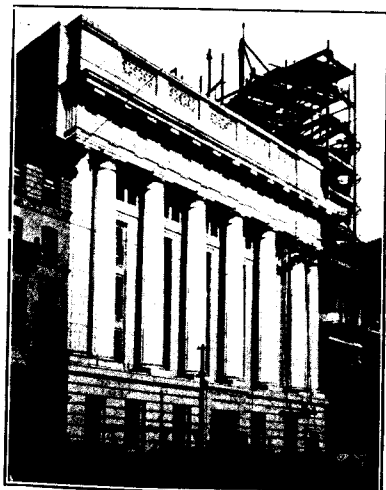
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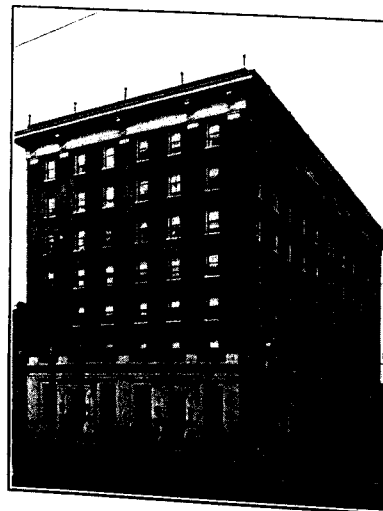


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Automatic Push Button Elevators and Dumb Waiters

THESE are designed for service in Hospitals, Offices, Residences, etc., and are *absolutely* safe.

Press the button and the car goes to the corresponding floor, where it stops automatically.

The door can then be opened—not before. The car cannot be started again until the door is closed.

When one person is using the elevator no one else can interfere with it.

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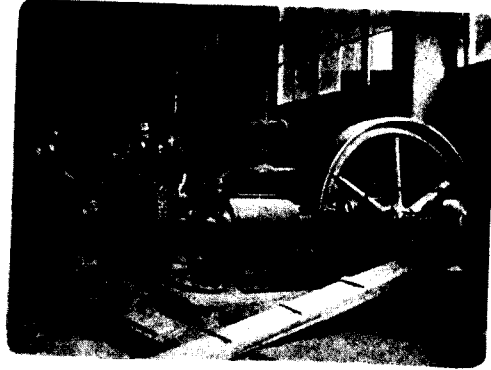
The
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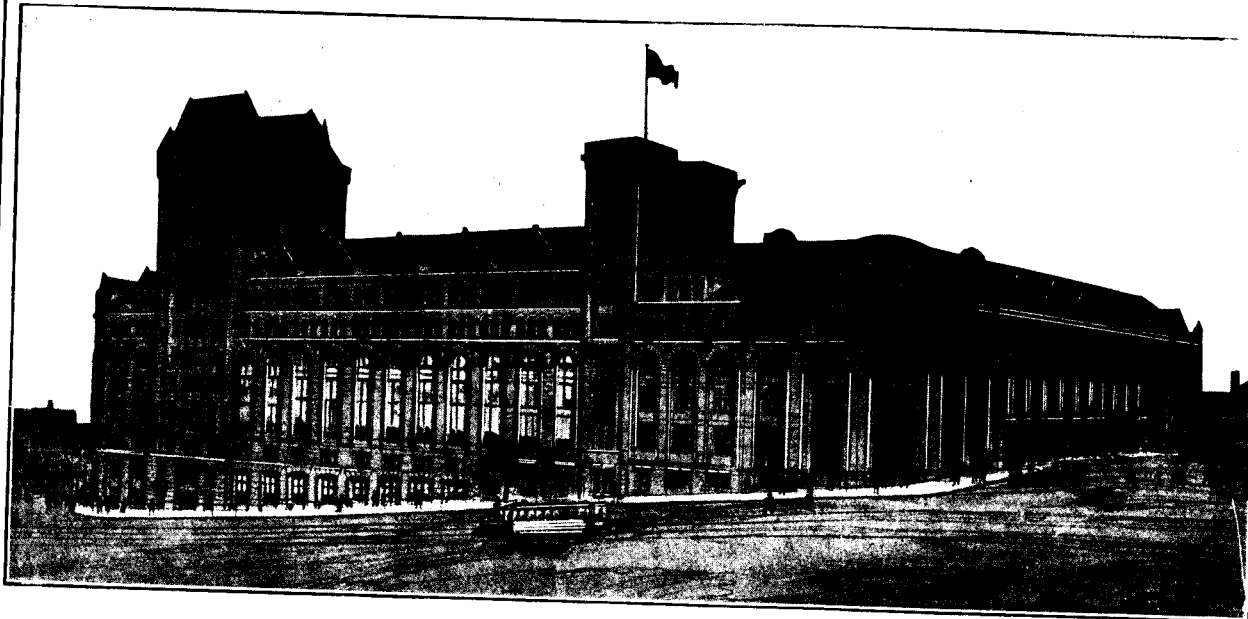
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CANADIAN OFFICES
CORISTINE BLDG.
MONTREAL

On the following tinted pages appear the advertisements of the various firms who furnished materials in connection with

Chateau Laurier

Ottawa

described and illustrated on pages 59 to 74 of this issue:

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Oakley & Son, George	44
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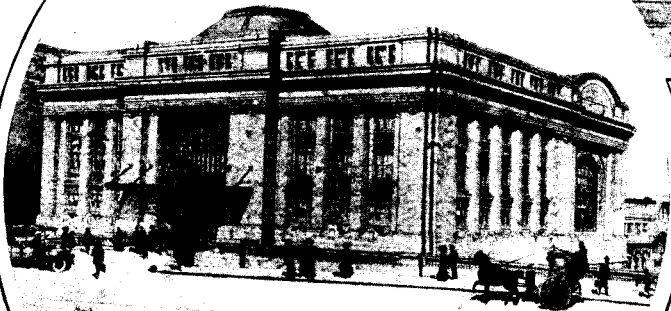
“Construction”

Saturday Night Building

Toronto, Ontario



Chateau Laurier, Ottawa. Ross & McFarlane, Architects.



Grand Central Station, Ottawa. Ross & McFarlane, Architects.

An Otis-Fensom has been installed

In buildings such as the Chateau Laurier and the new Grand Central Station at Ottawa, the elevator service is of the same vital importance that the railroads are to a country. It would not be overstating the case to say that they owe their very existence to their elevator service, for without

it—or even *with* an elevator service that was not perfectly reliable, a hotel building could never exceed two, or at the most three, stories in height, and a railway station would have to be so arranged that all baggage could be handled on the street level.

These buildings, in their class, rank among the finest achievements of Canadian architecture, so it is to be expected that their equipment should be of the highest type. The selection of Otis-Fensom Passenger and Freight Elevators guarantees that in this particular the Chateau Laurier and Grand Central Station have no superiors on the continent.



OTIS-FENSOM ELE

HEAD OFFICE, TORONTO

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Otis Electric Passenger Elevators Installed in Chateau Laurier.

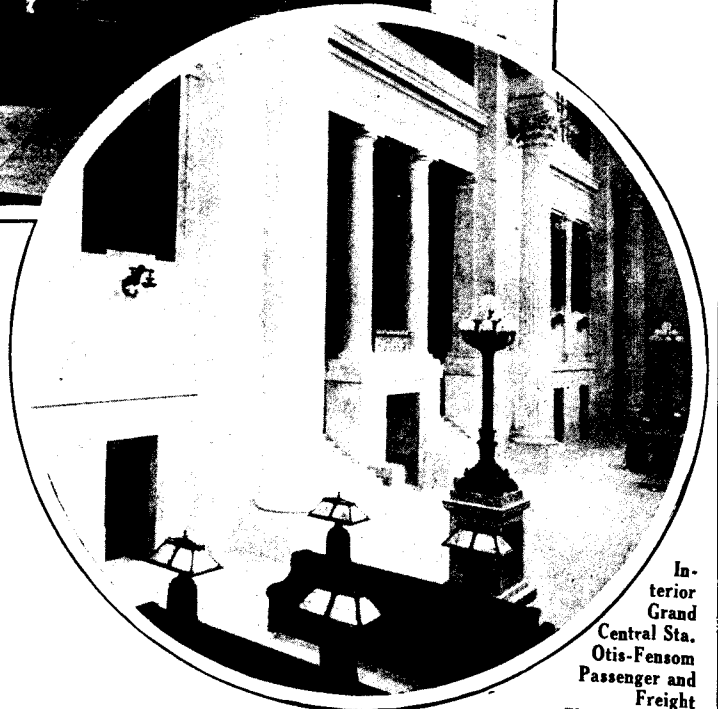
Elevator Service in these buildings

Otis-Fensom Passenger and Freight Elevators are the product of the highest engineering skill and the most thorough methods of construction.

They comprise all types of elevators, to meet the requirements of the various classes of buildings that depend on their elevator service for quick,

efficient transportation of both passengers and freight. It is significant that Canada's foremost architects specify "Otis-Fensom" or equal when writing the details of an elevator installation, and that in every city in Canada, the leading public and office buildings, institutions and mercantile establishments are equipped with "Otis-Fensom" service.

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Interior Grand Central Sta. Otis-Fensom Passenger and Freight Elevators Used.

ELEVATOR COMPANY

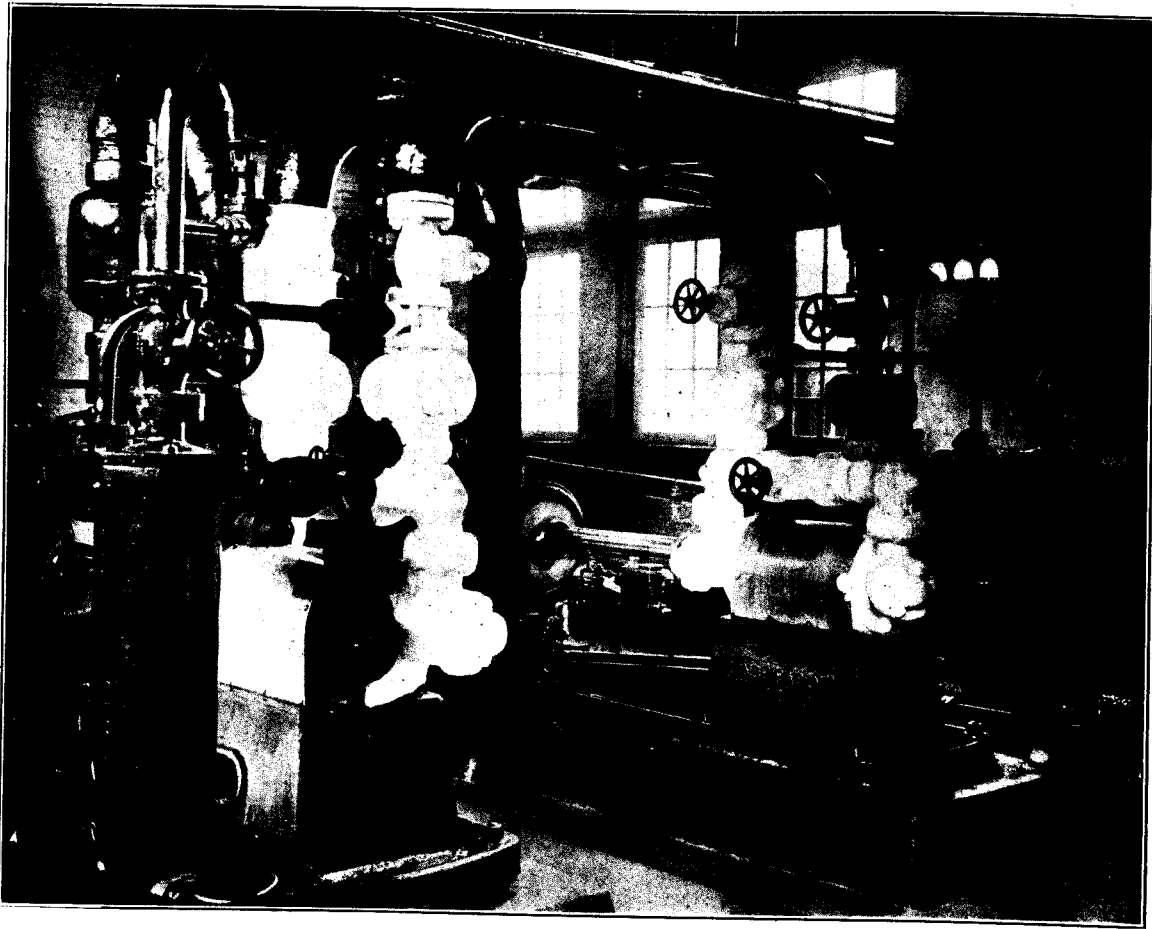
INCORPORATED

WORKS, HAMILTON, ONT.



THE
**Linde Canadian Refrigeration
 Company, Limited**

The Refrigerating Machines for the Chateau Laurier, Ottawa
 were installed by us.



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Refrigerating and Ice Making Machinery
CORK INSULATION

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J. & E. HALL, ENGLAND: CARBONIC GAS ENGINES
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¶ Whether it is for a single room or a complete building, in the simplest or most elaborate and costly style, we are always pleased to place the services of our artists and workmen at the disposal of architects, to co-operate with them in carrying out any decorative scheme.

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Show Rooms:
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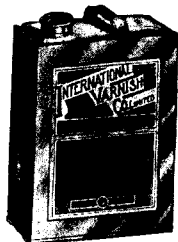
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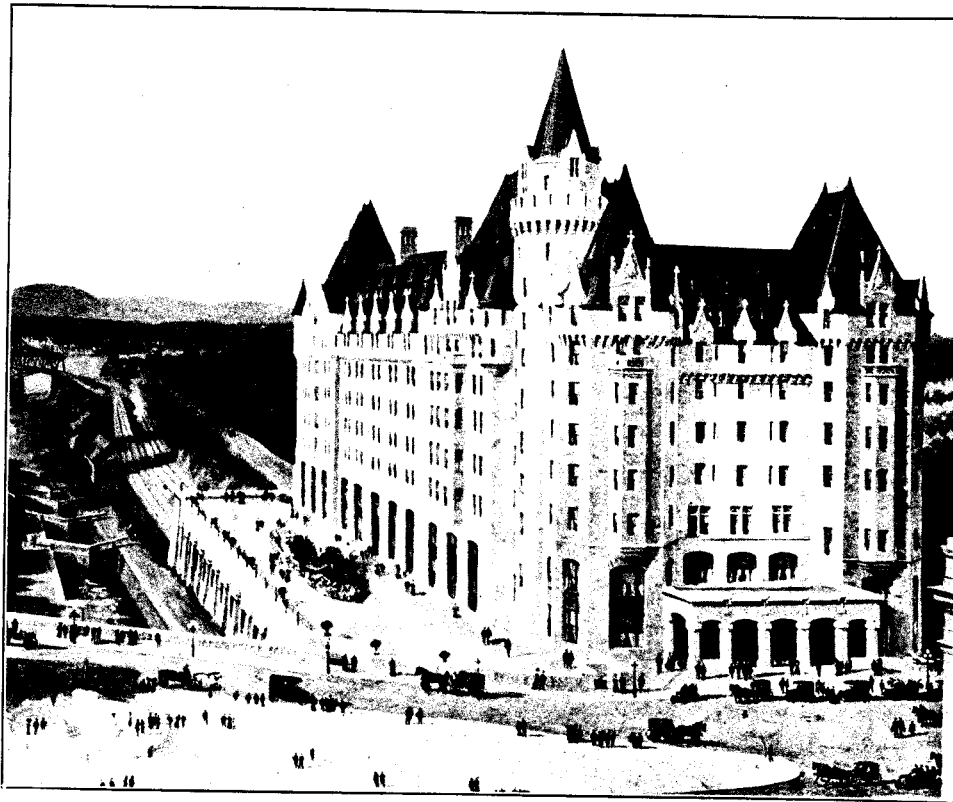
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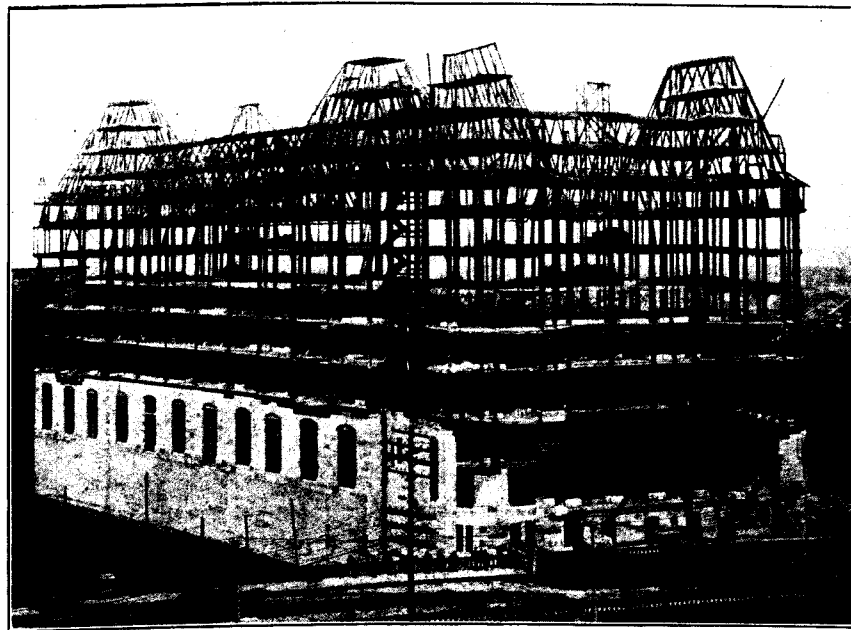
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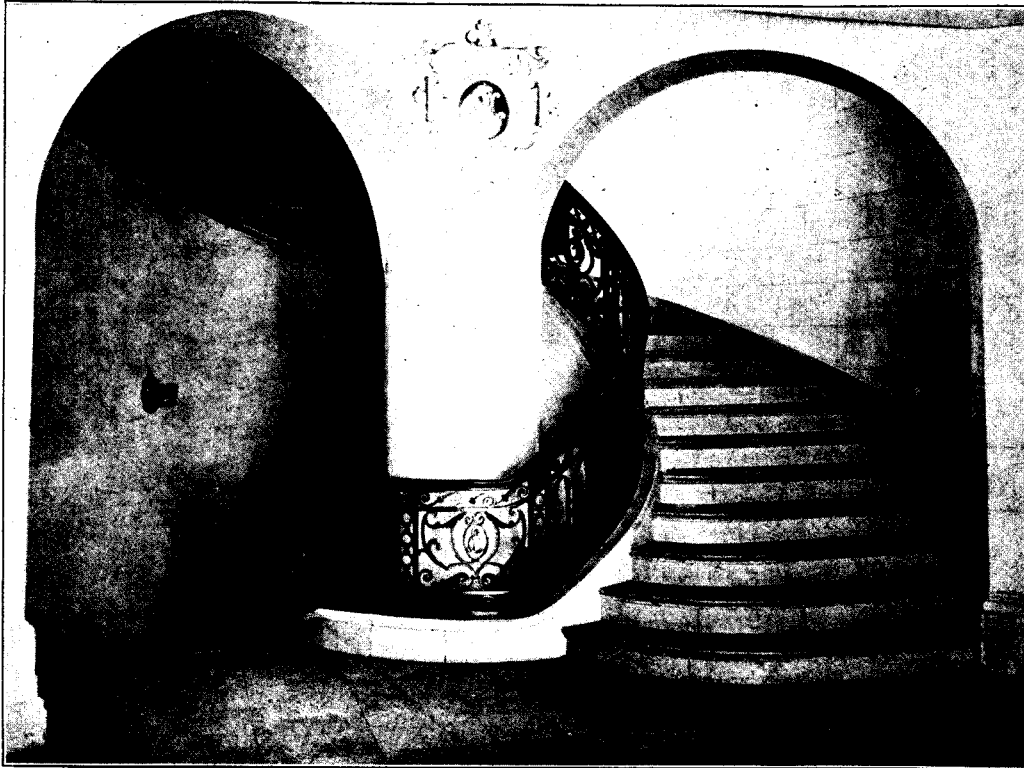
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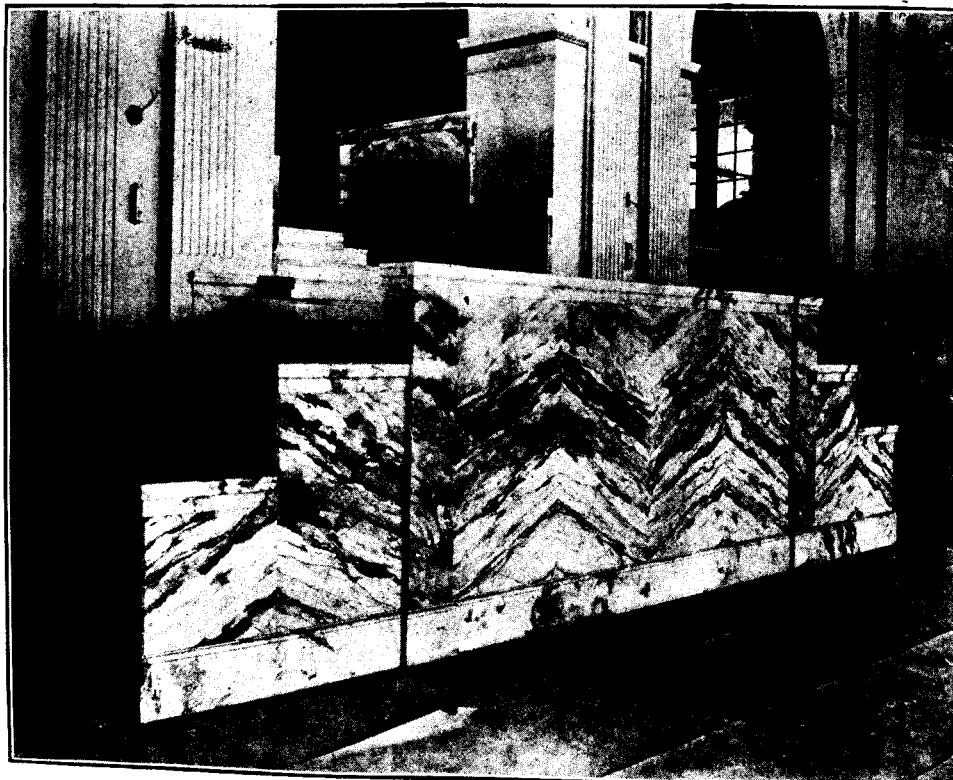
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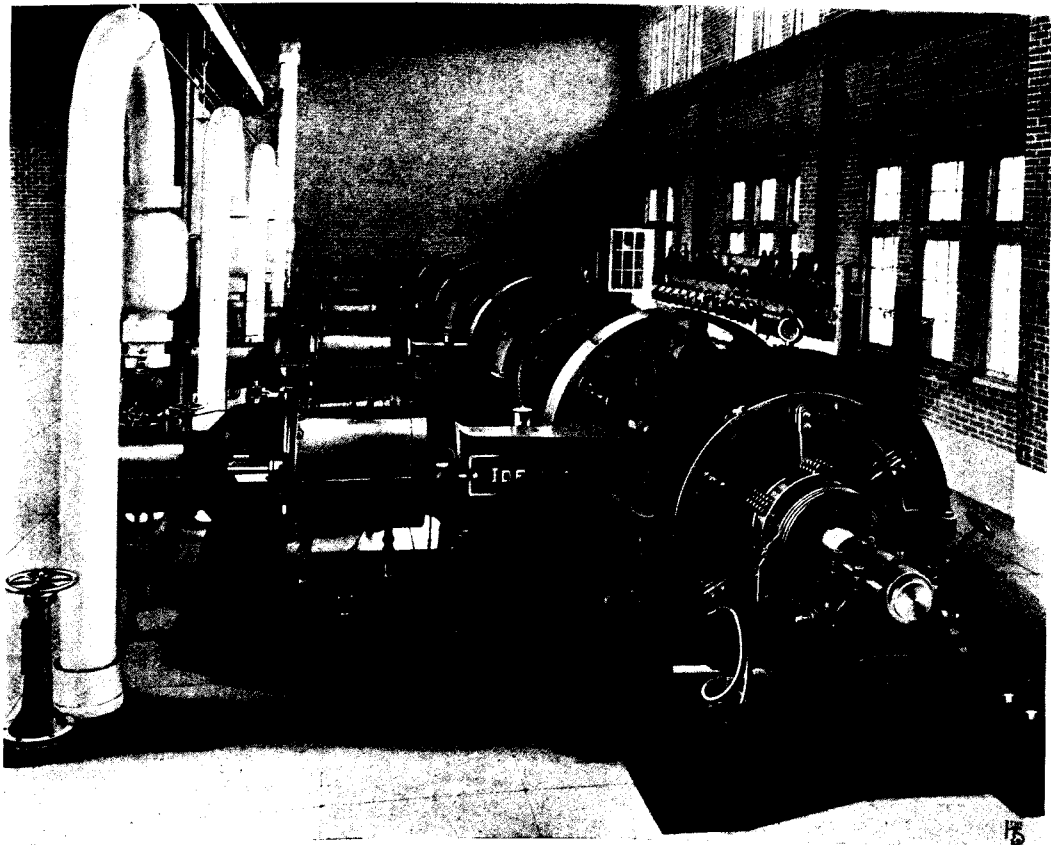


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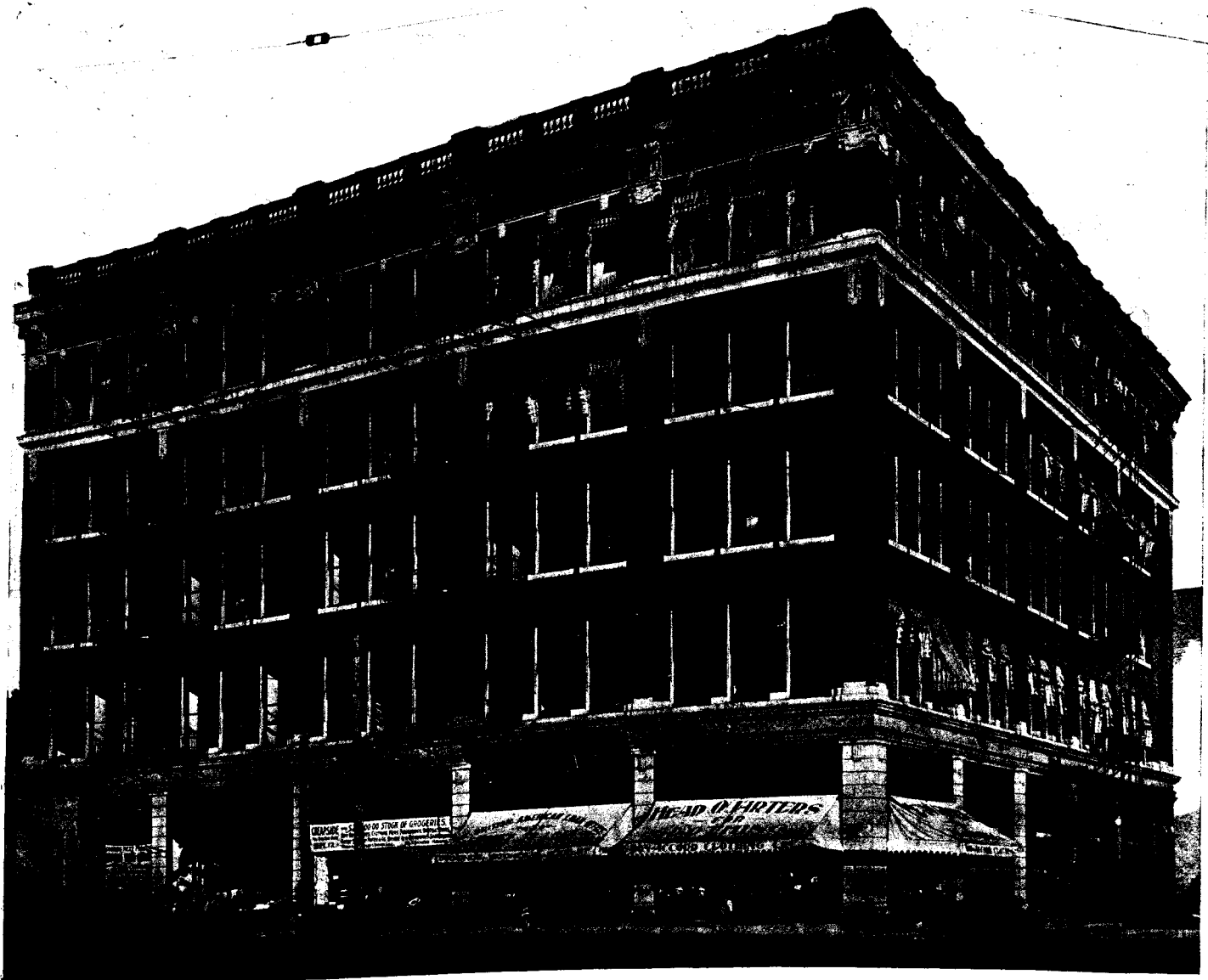
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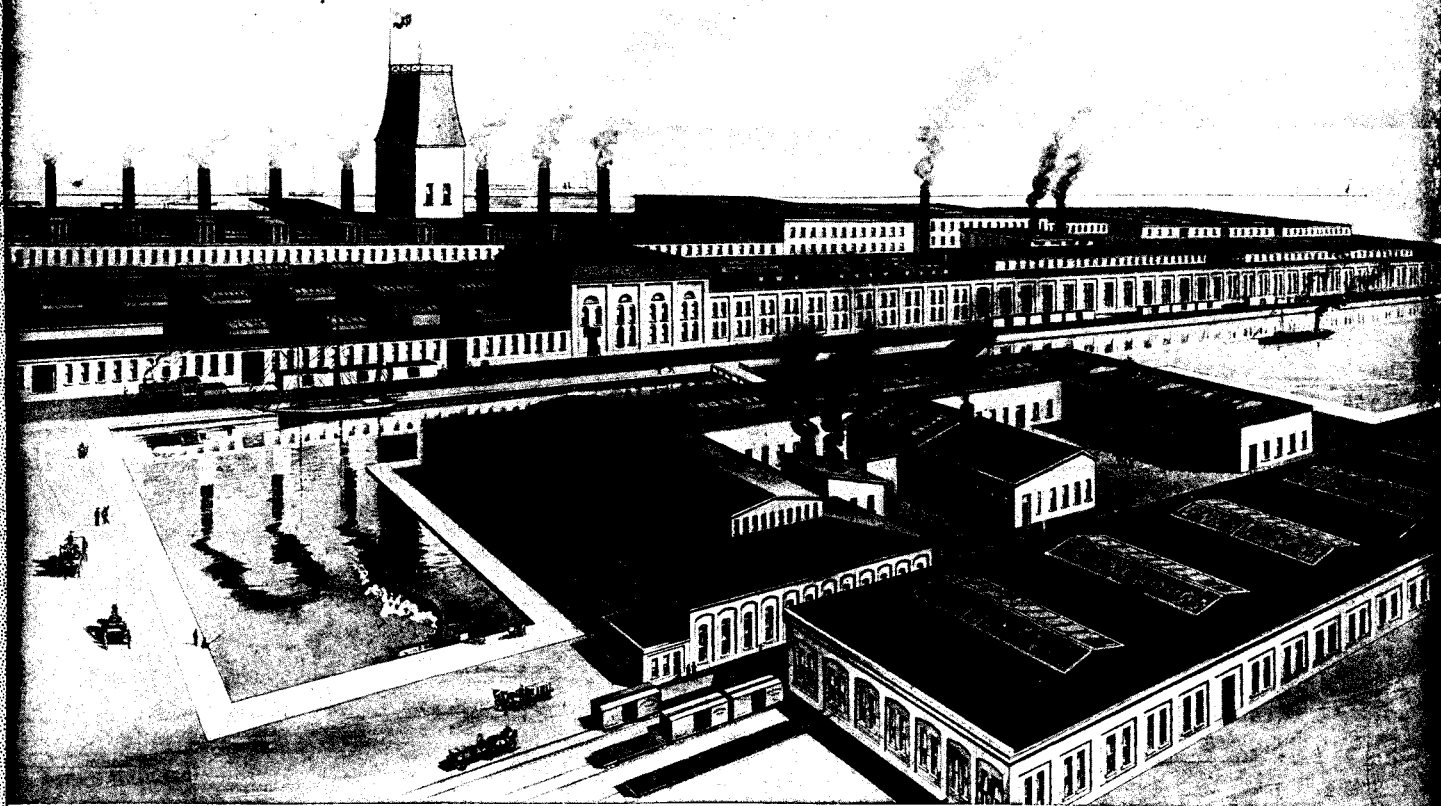


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CONSTRUCTION

VOL. V

NO. 11

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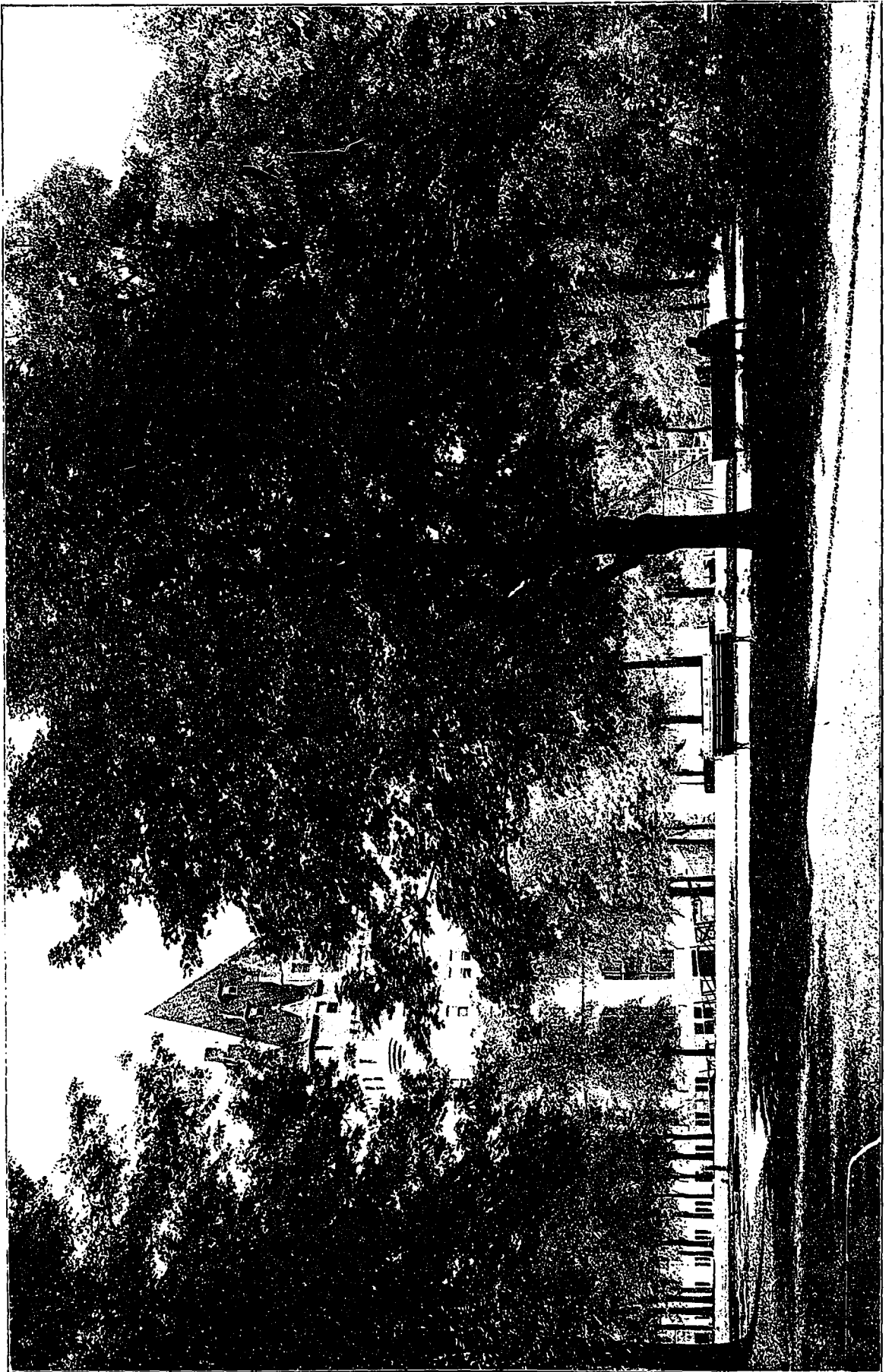
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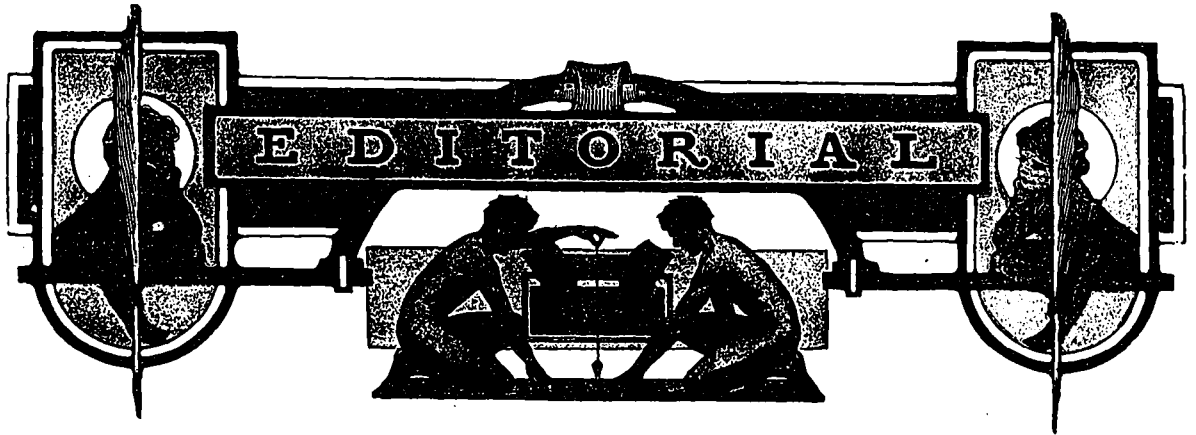
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CHATEAU LAURIER.



Q *Amalgamation of the Toronto Society with the Ontario Association a progressive step tending towards the establishment of architectural unity*

WITH THE OBJECT of unity of purpose toward the accomplishment of improved conditions as relating to regulations governing the conduct of the profession, and incidentally the encouragement of higher ideals in architecture, the Toronto Society of Architects have amalgamated with the Ontario Architects' Association. As the latter organization is already closely affiliated with the Royal Architectural Institute of Canada, and actively co-operating in furthering the important work it has in hand, the step taken by the Toronto Society makes a still further approach towards a united profession, operating through a parent body who has exerted, even in its short existence, a broadened beneficial influence. The coalition, for such it can be properly termed, which was celebrated within the last month at a largely attended dinner where the best of good fellowship prevailed, brings to an end a friendly rivalry between two factions each having the same object in view, but differing in certain essentials of policy. When the University of Toronto, through the overtures of the Ontario Association, decided to enlarge its facilities for architectural education, and which made it quite possible for the latter organization to forego any further effort towards its earlier plan of seeking compulsory registration by legislative enactment, the greatest obstacle of contention was removed. According to the arrangement with the University the draughtsmen at present working in the various offices will be given the advantage of a night course covering a period of three years, after which only those who are graduates of accredited schools, will be admitted to any of the present offices, or permitted to practise as members of the Association. As this has been the desideratum on both sides as regards the question of education, an amicable adjustment of the existing differences was easily effected, and made possible the consolidation which followed as a logical sequence. In that each organization has assisted through its individual efforts to vastly improve the status of the profession

in the Province, much can be expected by the amalgamation in the attainment of still greater results, such as are certain to eventuate when concentrated energy is set to work in the accomplishment of an important task. The action of the Toronto Society in deciding to become an integral part of the older association, displays a progressive spirit on which it is to be heartily congratulated, for while it submerges its identity as an individual unit, it lends numerical strength and moral support to a concerted movement tending towards the establishment of principles that are deemed best for the profession and public's interest. The annual meeting of the Ontario Association at which the amalgamation was confirmed was held at Ottawa on October 7th, at the same time the R.A.I.C. was in session. The officers elected for the ensuing year are: President, C. P. Meredith, Ottawa; first vice-president, Jules F. Wegman, Toronto; second vice-president, C. H. A. Bond, Toronto; treasurer, J. P. Hynes, Toronto; registrar, H. E. Moore, Toronto. The other members of the Council are: Professor Wright, Toronto, and Fennings Taylor, Ottawa. The proceedings of both of these meetings will be dealt with in the next number of CONSTRUCTION, owing to a lack of space in this issue.

Q *Toronto housing scheme a commendable enterprise having for its object the physical and social betterment of the wage-earning class.*

IN THE SCHEME now being projected by the Toronto Co-partnership Garden Suburb Limited, there is a definite promise of something materializing in the near future in the way of an ideal residential undertaking, having for its object the housing of the wage-earning class under more sanitary and livable conditions than what usually exists at the present time. While the undertaking is to be heartily commended as the first enterprise of its kind attempted in Canada—for we know of no like development except in a few restricted districts for the wealthier class—it is more the admirable manner in which the project is to be carried out that unquestionably excites the greatest approbation. In order that the scheme may not lack in any of the essentials necessary to its success, the promoters,

after giving careful study to the economic side of the proposition, have wisely decided to bring the work under the direction of capable hands so that the landscape and architectural features may be consistently considered to produce a wholly satisfying total effect. With this end in view the services of Messrs. Dunington, Grubb & Harries, a firm of English landscape experts, have been engaged to prepare the site, which lies east of Broadview between Bain, Sparkhall and Logan avenues, at a level considerably below that of the adjacent territory. The scheme will embrace one hundred houses in all, consisting of the detached and semi-detached types, as well as several terraces providing separate dwelling accommodations for three and four families. These are to be arranged around a central court or park intended as a children's recreation grounds, and will be erected from designs of Sydney V. Kendall and Leonard Martin, F.R.I.B.A., of London, England, whose plans were selected in the recent competition, which was adjudged by a Board of Assessors consisting of Messrs. Eden Smith, J. C. B. Horwood and Henry Sproatt, all prominent Toronto architects. As the available area of the site takes in 228,300 square feet, this will give each house considerably more than 2,000 square feet of land and allow for an arrangement of adequate lawn and garden space which, in an undertaking of this nature, is an important and necessary adjunct. Behind the project, it may be said, is a motive more altruistic in its aim than that of a mere profit-making venture. Investment enters only to the extent as will make possible its existence and assured maintenance, and warrant a still greater development in this direction. Each tenant will be required to subscribe to shares, payable in moderate instalments, to the extent of his holding, which is not to exceed in value the sum of two thousand dollars; thus establishing the project on a co-partnership basis which gives each tenant an equity and hence a responsible interest in the property. In this manner the promoter hopes to attain the object in view, that of an ideal community modelled along similar lines to the famous garden suburbs of England and European countries with which both the landscape experts and architects employed in this case have had experience. The movement in Toronto is the outcome of a suggestion made by Professor Kylie, of the Toronto University, at a meeting held sometime back to consider the adopting of means to relieve the housing situation; and has the unqualified endorsement of such public spirited bodies as the Guild of Civic Art, the Toronto Board of Trade, and other interests that have the advancement of the community at heart. No problem of greater civic or economic import confronts the authorities of our rapidly populating industrial centres than the one with which Toronto is endeavoring to cope in this instance; and for this reason the development of the scheme will undoubtedly be followed to its ultimate result with profound interest by those who are concerned in the physical and social betterment of that class whom it is the intention to directly benefit.

Influence exerted through organized architectural effort productive of a vast improvement in the conditions governing recent competitions.

IT HAS BEEN ANNOUNCED on several occasions by the daily press that the Borden Government intends to inaugurate a new competition for the proposed new Departmental Buildings at Ottawa, and thus in a measure to make reparation for the breach of faith of its predecessor, with the architectural profession. Whether or not this will come to pass, it is nevertheless certain that a much better order in the conduct of affairs of this kind has come to obtain. That proof of this statement is not wanting, is evidenced in the City Hall project at Winnipeg; and the recent competition for the new Manitoba Legislative Buildings which was recently decided by President Stokes of the British Institute, who, by virtue of his acceptance of the office of arbiter, placed the high endorsement of that body on the governing conditions. This greatly improved state can be ascribed to two direct causes: first to co-operative architectural effort finding expression through the agency of the R.A.I.C. and provincial bodies; and again to a general awakening on the part of municipal and governmental authorities, to the knowledge that experience teaches that the employment of expert service constitutes a fundamental principle of good economy. Compared with similar undertakings of a year or two back, both the above competitions stand out in singular contrast and demonstrate what it has been possible to accomplish in so short a time by concerted action on the part of architectural organizations. A still further sign of encouragement is found in the wholesome influence that is beginning to exert itself in even the secondary towns and cities, such, for instance, as Moose Jaw, which has in the past month instituted a competition for a new City Hall. This latter competition is restricted exclusively to Canadian architects, and the terms provide that the architect of the accepted design be given the commission for the erection of the building. In addition three cash prizes of fifteen hundred dollars, one thousand dollars, and five hundred dollars, respectively, will be awarded to the authors of the designs placed second, third and fourth in order of merit. The fact that President F. S. Baker of R.A.I.C. and Mr. Percy Nobbs, Professor of Architecture, McGill University, Montreal, constitute two of the three duly appointed assessors, is a positive assurance that the conditions accord with such governing principles as the profession demands. Taking all this into account and considering the effort that is being made by the architects of British Columbia to secure better regulations, there is ample evidence to show that much progress is being made in this direction. So, if the Ottawa Government has any intention of re-opening the Departmental Building competition (and there is reason to believe that it has), it is quite certain that the architectural interests will insist upon such terms being embodied in the programme as will leave no doubt as to the result of its outcome.

Q Manitoba architects adopt resolution recommending the appointment of competent assessor for Lord Selkirk Memorial competition.

THAT NO EXCEPTION be made to the rules of competition governing recent undertakings, the Manitoba Association of Architects has adopted a resolution expressing its disapproval of the present terms for the Lord Selkirk monument, and recommending that a competent assessor be appointed to pass on the designs submitted. This action, which was taken at the recent annual convention held at Brandon, shows that the architects belonging to the association are active in participating in all matters of their province affecting the interests of the profession. The meeting was a representative one in every way, being largely attended, and resulting in the transaction of much important business. In his address, the retiring president, Mr. J. Woodman, of Winnipeg, reviewed the year's work and dwelt on the gradual advance that the association is making in its sphere of usefulness. Among the other important subjects that came up for discussion was the new Winnipeg building by-law, which, it is considered, will bring about a number of needed improvements in the erection of buildings. During their stay the architects were the guests of the Brandon Automobile Club on an enjoyable trip about the city and surrounding country, including a visit to the Fair grounds, the Industrial Home, the new asylum and Government experimental farm and other places of interest. The convention came to a close at a banquet tendered the members at the Prince Edward Hotel, which was presided over by the mayor, and attended by a large number of citizens prominent in professional and business circles. The annual election of officers resulted as follows: President, W. Fingland; first vice-president, W. A. Elliott; second vice-president, J. Pender West; secretary, R. G. Hanford; treasurer, D. W. N. Nichols. With the exception of the first vice-president, W. A. Elliott, who is of Brandon, all the officers are residents of Winnipeg.

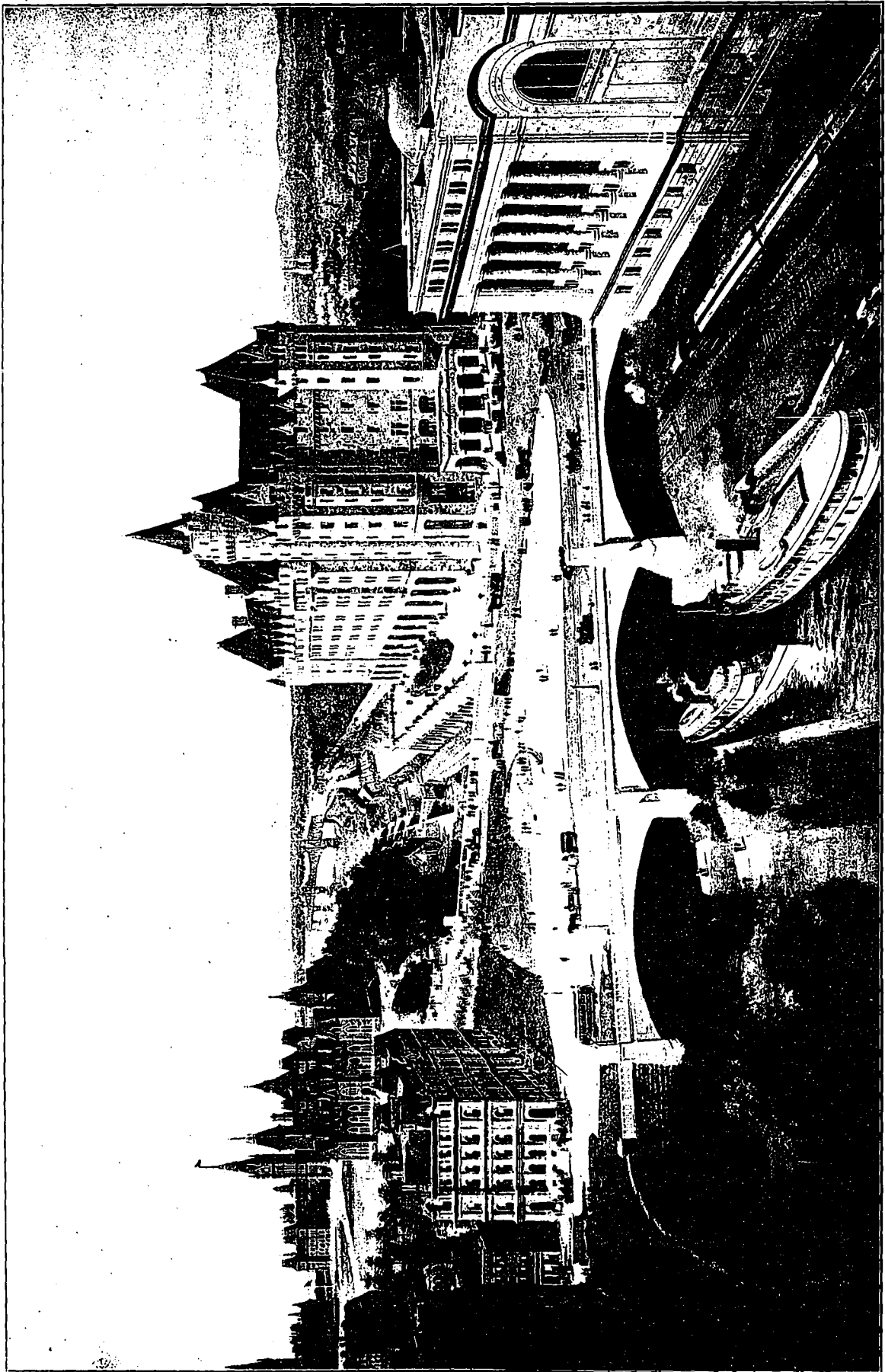
Q Factors governing the heights of commercial buildings as worked out in the new regulations adopted in a Southern United States city.

THE FOLLOWING HEIGHT regulation for strictly fireproof commercial buildings, says the *Architectural Record*, has been worked out in Houston, Texas, a city of intermediate size, with rather uniformly broad streets: "A building may occupy its entire lot to a height not exceeding the width of the principal street upon which it faces, and not exceeding in any case 100 feet. Above this height the cubage of the building shall not exceed one-fourth of such height multiplied by the area of the lot." Arthur C. Comey, who is making a city plan for Houston, and who is probably responsible for the regulation, contributes a discussion of it to *The American City*. He observes that in regulating the height of fireproof commercial structures "three

underlying factors alone are of controlling importance to the public—congestion, light and air, and architectural effect." These three factors are dependent directly on the width of the street and would not seem very difficult to care for. Nevertheless, most American cities which have attempted to limit building height have done so imperfectly. The existing regulations, Mr. Comey observes, may be classified in six main groups: 1. Flat limit. This does not necessarily consider street width, and it prohibits tower building which has both architectural and practical value. 2. The limitation simply in proportion to street width. This also does not permit tower building. 3. Height controlled by a sloping line from the opposite side of the street. He considers this ill adapted to architectural treatment. 4. Height controlled by area of cross sections or elevations. To this he makes the same objection. 5. Limit by cubage. This does not necessarily meet the requirements of light and air. 6. Limit by cubage proportioned to width of street. This he considers open to the same objection as the simple cubage method. Mr. Comey's conclusions were presented to the City Planning Conference last spring in Boston and aroused much interest.

A PORTION of the King Edward Highway is to be built of concrete, the contract having been let on September 11th, by the Honorable J. E. Caron, Minister of Agriculture and Highways of the Province of Quebec. The King Edward Highway is the Canadian section of the International Highway connecting Montreal with several large cities of the United States. Ultimately, it is expected that this road will continue as far south as Miami, Florida. It was the original intention that the entire highway should be built of macadam; but the Honorable Minister, who has under his jurisdiction the Canadian branch of the work, has become interested in concrete roadways and has decided upon this important undertaking as a good place to try it out. Governments and municipalities are gradually coming to recognize the necessity of a more permanent form of roadway construction. That concrete is the material which best fulfills all the requirements of a permanent roadway, is a fact that will ultimately obtain world-wide recognition.

THE ORIGINAL timber area, omitting semi-treeless lands, in Canada, says an official publication, was approximately 1,900,000 square miles; 98,000 square miles have been cleared for settlement, and 100,000 square miles have been cut over by lumbermen, leaving a timbered area yet untouched of 1,702,000 square miles. Assuming the average of 3,000 feet per acre, there should yet remain 3,279,000,000,000 feet of timber in Canada at a very conservative estimate. The highest estimate that has been made hitherto, that given by the Conservation Commission, places the amount of saw timber and pulp wood in Canada at 494,600,000,000 feet and 1,100,000,000 cords, respectively.



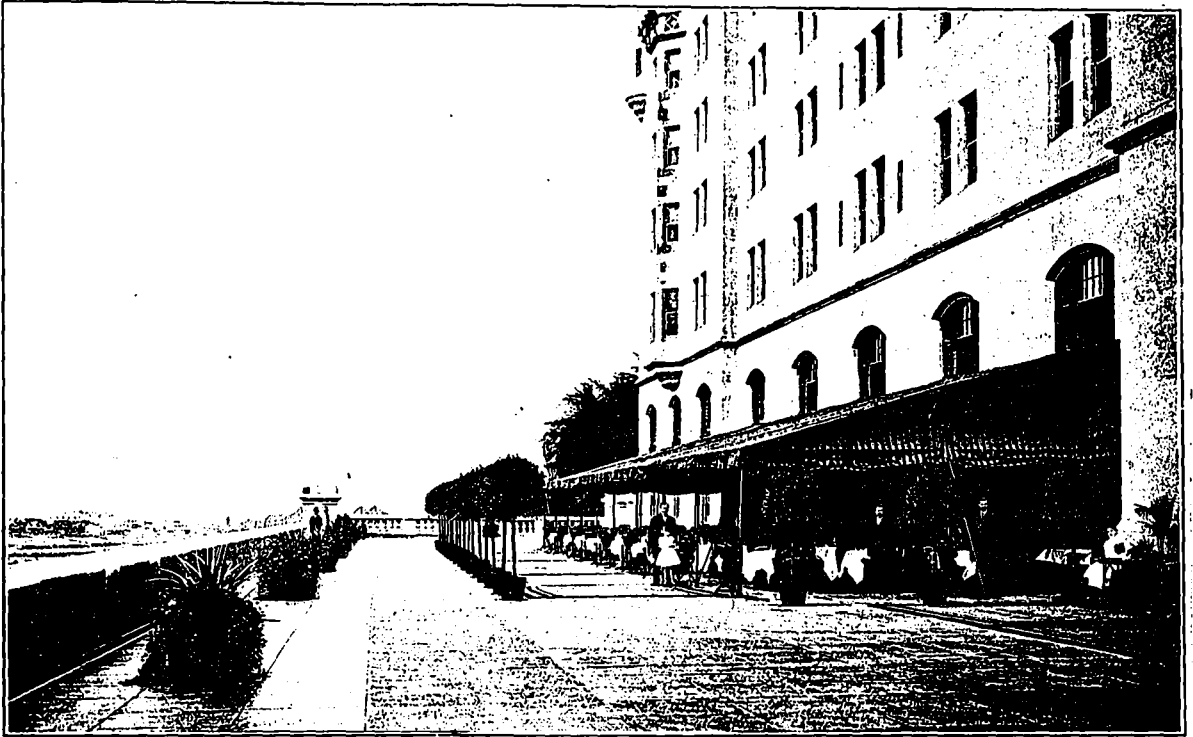
Perspective View of the Hotel and Grand Central Station, Indicating their Respective Positions and Showing their Relation to the Parliament Buildings Situated on Elevated Grounds Across the Rideau Canal. The Site is both Magnificent and Unique and the Architectural Investiture such as to Result in a Structure that not only Graces the Site, but Harmonizes with its Surroundings to an almost Consummate Degree.

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Structural Steel supplied by the Dominion Bridge Co.

Geo. A. Fuller Company, General Contractors.



Terrace or Promenade Overlooking the Canal and Affording a Most Delightful View of the Surrounding Landscape, Including the Imposing Group of Government Buildings Opposite on Major Hill. This Feature will Undoubtedly Prove Exceptionally Popular and Contribute Much to the Enjoyment and Social Life of the Many Visitors who will make the "Chateau" their Stopping Place While in Ottawa.

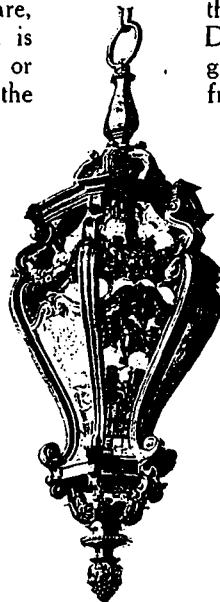
Ross & MacFarlane, Architects.

Cut Stone erected by Geo. Oakley & Son.

Chateau Laurier

By HERBERT M. CLARK

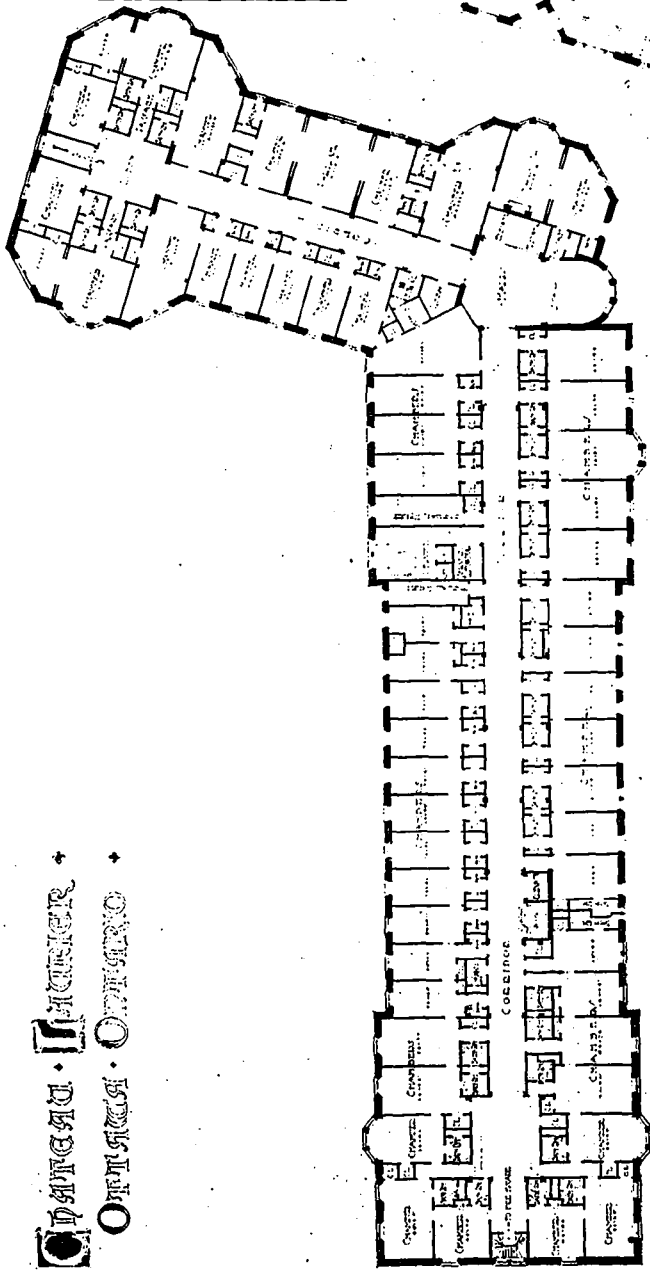
AS ONE GAZES at the surrounding country from one of the upper floors of the new Chateau Laurier, at Ottawa, one experiences a feeling of deep content. Ample open space with a picturesque flanking canal, a glimpse of a steep-banked river, and for background, one of the fairest landscapes in Canada, frames a wooded "lot" of generous extent. Nature had done her share, and a building site—as magnificent as it is unique—was here for the architect to make or mar. Let it be admitted at once that the architect has done his part, and has not only produced a building worthy of the site, but has taken full advantage of the possibilities of the situation. The substantial but quiet dignity suggested by the style of architecture adopted—early French Chateau—is emphasized by the towering slopes and graceful pinnacles which form the broken sky-line. The building befits the site, and not only befits it, but harmonizes with it. Perhaps it is one's association of French chateau architecture with water—here emphasized by the canal on the west side—which makes the exterior rest the more happily in its surroundings—in any case a second glance at the building and its environment, confirms one's feeling of satisfaction.



The conditions surrounding a building site play so important a part in determining the character of the building to be erected, that it seems necessary to emphasize the natural beauty of the surroundings of this part of Ottawa. Misapplication of term has rendered us somewhat sceptical of any city describing itself as beautiful, but it may be pointed out that the selection of Ottawa as the capital of the Dominion was determined, not only by its geographical situation at a reasonable distance from the border line between Canada and the United States, but also by the natural beauty of the surroundings. This was demonstrated to Queen Victoria by the paintings made by Lady Head when staying in the Dominion with her husband, the Governor-General. Nor is the site without historical associations. We do not readily couple the personality of the Duke of Wellington with the Ottawa district, yet the canal before mentioned—the Rideau—was cut by the Duke's command when he was Prime Minister. The Sappers, under Colonel Bye, the godfather of Bytown, executed the work, together with the Sappers' Bridge, which has now given way to a larger and more graceful span included in the improvements in connection with the hotel build-

OPICHA • LINDER +
OFFICE • ENGINEERS +

Typical Bed Room
 Floor Plan.



TYPICAL FLOOR PLAN
 2nd FLOOR PLAN

Ground floor
 Plan.

ROSS • ARCHITECTURE
 ARCHITECTS • CHICAGO

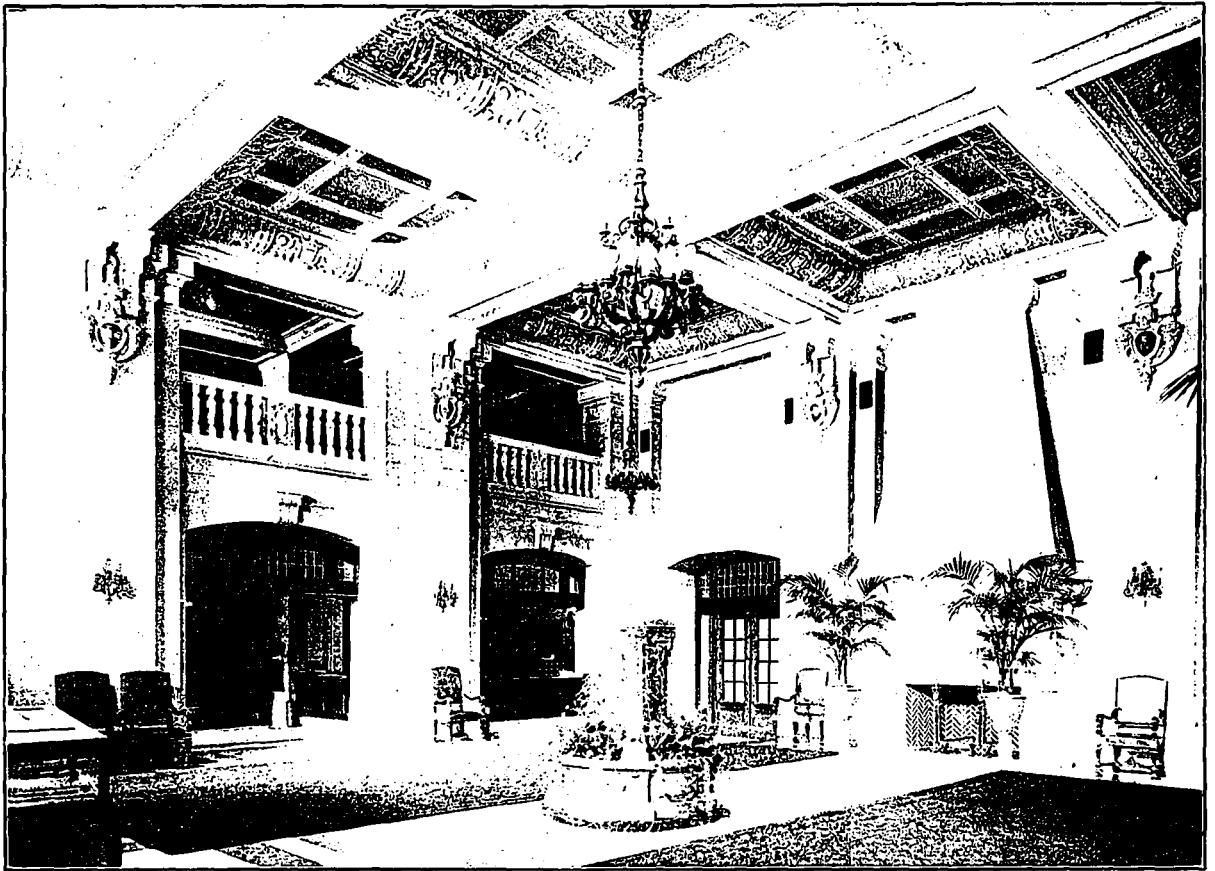
ings. The French name "Rideau," given to the falls in the Rideau River, betrays the presence of Montcalm in earlier years. Other traces there are of travellers in days still more remote, for the site of the Chateau Laurier overlooks the direct line of Canada's first trans-continental route, the route by which the voyageurs, coming up the St. Lawrence and the Ottawa River, crossed to Lake Nipissing and thence to Georgian Bay. It is a pleasant coincidence that the hotel should be owned by the builders of another trans-continental route.

Yet if the site presented the architects—for there are two of them—with natural advantages, it also furnished difficulties. For example—a tunnel beneath the street leading from the station opposite had to be provided for the use of hotel guests, necessitating a separate entrance of some dignity through the basement of the hotel to the ground floor. On the west the electric cars run alongside the canal on a right of way practically adjoining the hotel. Very successful is the manner in which these difficulties have been overcome, especially in the latter case, the method adopted in which completely conceals all traces of electric cars, wires, etc., so that unless a visit be made to the basement, one is unaware of their existence.

The Chateau Laurier has a frontage on Rideau street of 135 feet and a frontage on the canal of 285 feet, comprising a ground area of 24,600 square feet. The adoption of a basement and sub-basement, carrying the nine storeys of the building, has secured an elevation which compares favorably with the higher ground across the canal on which the post office and Parliament Buildings are placed. This basement is most solidly constructed of granite, the material used above the ground floor being Indiana limestone. The stone at present has a very "new" and fresh-looking appearance, but when "weathered," it will convey still more effectively the spirit of the period of the architecture. The generous frontage on Rideau street and the really magnificent frontage of 285 feet on the canal, forming an irresistible focussing point for the eyes of everyone on the open spaces of Parliament Hill, presented a rare opportunity for the imagination of the architects. That they fully appreciated it, will be seen by the accompanying illustration. From the point of view of the aesthetic, the proximity of the canal before referred to, seems to render this early chateau style the more effective. It recalls the Chateau of Chantilly with its moat. Even the drawbridge is suggested at the Chateau Laurier, and at certain angles especially, the fine masses of stone suggest the bastions and flanking towers of the old citadel at Carcassone.

A successful exterior certainly stimulates one's curiosity to cross the threshold and examine the interior. The main entrance of the hotel opens from a large portico upon a very spacious hall or entrance rotunda, the dimensions of which indicate generous provision for guests arriving and departing, and for visitors calling upon residents in the hotel. It should be mentioned here that the hotel office on the ground floor is conveniently placed to command the entrance

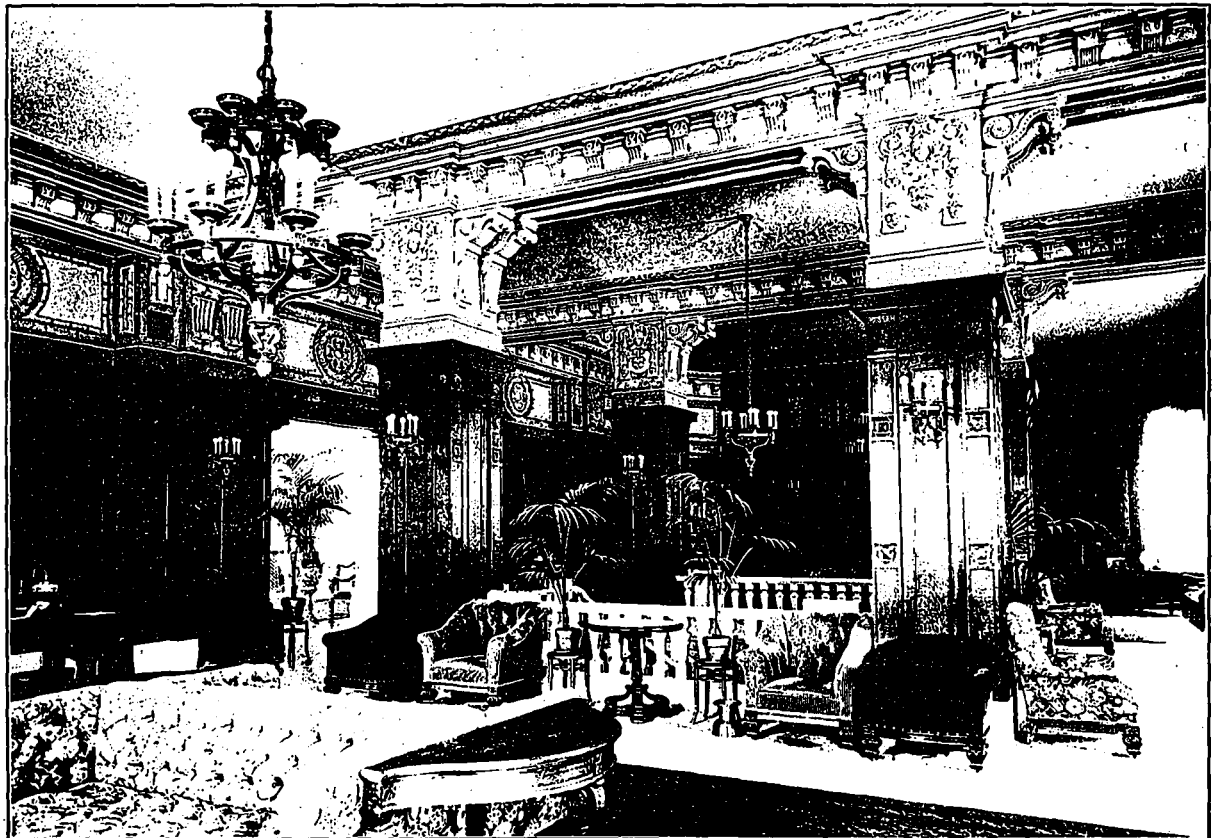
from the railway subway. Very dignified in appearance is this entrance rotunda—the dimensions are 50 feet by 45 feet, and it gains considerably by the height of the ceiling, which is 24 feet. This height gives a lofty and spacious effect, which is further enhanced by the light color of the stone walls. The surface of the walls is well broken up into panels, the projections between which carry decorative stone brackets supporting the cross beams of the ceiling. The simplicity of the panels is accentuated by the projecting keystone in the arches over doorways and blind doorways. Facing the entrance is a fireplace carved in Caen stone in a conventional design of the period, and having a raking hood carried right up to the ceiling. The ceiling is cut up into a series of richly-modelled panels resting between cross beams. The floor is of Napoleon grey marble, an effective design being secured by the insertion of pieces of Belgian black marble. The lighting, too, is well arranged, with regard to the light coloring of the interior; Tiffany's leaded glass being employed in the decoration of the clerestorey windows. For artificial lighting, "candle" electric lights are provided in wall brackets, together with electric clusters suspended in the centre of the hall. The first glance on entering the hall is very striking, comprising, as it does, the opposite wall with its hooded white stone fireplace, carved and decorated, flanked by dark wood glass-panelled doors. The dark oak doorways, with their leaded transom lights, form a sharp contrast with the white stone walls, and the statuary bronze candelabra and bracket lights give a very grand effect. Indeed, the whole entrance hall is well in keeping with the fine exterior of the building. On the right of the main entrance is the "lounge," a spacious room 68 by 40 feet by 17 feet high. The decoration of this room, in simple Flemish style, is very attractive. It is wainscotted to a height of about 12 feet in dark oak with richly modelled plaster frieze, "old ivory" in color. The window space affords a pleasant subdued lighting during the day, the settees and armchairs harmonizing with the general simple scheme. Artificial lighting is by means of wall-brackets and suspended candelabra in statuary bronze, a metal which is largely used for the lighting equipment throughout the public rooms, and which lends itself admirably to treatment in conjunction with the general use of dark oak. This room is designed to be used principally as a men's writing room. In the centre is a staircase leading down to the grill room and bar in the basement. The balustrade, with balusters are of French (Hauteville) stone, and are supported at the four corners by oak columns, with the dark coloring of which the light French stone contrasts pleasantly. Beyond the main entrance lies the palm room, a beautifully proportioned room, 60 feet by 26 feet. The walls of this room, like those of the rotunda, are in imitation Caen stone, the floor being paved with tiles of a shade to match the scheme of decoration, which is Renaissance in character. A beautifully designed fireplace of real Caen stone and marble, with a well-proportioned hood, is flanked by dark oak entrance doors contrasting sharply with



Entrance Rotunda, with its Spacious and Lofty Effect. Finished in Imitation "Caen" Stone with Napoleon Grey Marble Floor Inlaid with Belgium Black Marble, the Simplicity of the General Scheme being Accentuated by Decorated Wall Brackets and Ceiling.

Ross & MacFarlane, Architects.

Decorations by Tiffany Studios.



Lounge Adjoining Main Entrance. Decorated in Flemish Style with Dark Oak Panelling and an "Old Ivory" Frieze. The Lighting Fixtures are in Statuary Bronze, and the Balustrade Around Stair Opening at Centre of French (Hauteville) Stone.

Ross & MacFarlane, Architects.

Decorations by Tiffany Studios.

Marble Work by Smith Marble and Construction Co.



Main Dining Room where Three Hundred Guests can be Seated. The Dimensions are 85 by 55 by 24 feet in height, the Decorative Treatment being in Elizabethan Style with Wainscoting and Ceiling Beams in Dark Oak, and Decorated Plaster Frieze. As in the other Main Rooms, the Ceiling Lights and Bracket Fixtures are in Statuary Bronze. The Carpet is Brown in Tone, the Curtains are of Heavy Velour, and the Upholstering Designed to Effect a Pleasing Harmony with the General Scheme.

Ross & MacFarlane, Architects.

Furniture by Murray-Kay, Limited.

Silver Service by Martin, Hall & Co., Limited.

the light stone of the walls. Above the doors and also above the fireplace, oak panelling is carried up and frames three wall paintings of bright open-air subjects, the coloring contrasting well with the dark oak. All the windows are placed in the wall facing the fireplace, and being generously spaced, combine with the light stone wall to render the room exceedingly bright. The ceiling is barrel-vaulted, 24 feet high, with modelled foliated ribs, and this barrel-vaulting, combined with the apsidal ends of the room, accentuates the Renaissance character of the decoration. Verde antique furnishings and chairs rest happily in these surroundings.

From the palm room a marble staircase leads to the ball room. The dimensions of this room, 70 by 40 by 20 feet, gave the architects a great opportunity of which they have taken full advantage. The decoration is in the style of Louis XVI. The coloring of the walls and ceiling is light—almost gay—in tone, with touches of gold. The wall surface is broken up into plain panels with large painted panels of classic subjects above, treated so daintily as to conform with the general light and airy feeling of the room. The effect of height and space is greatly

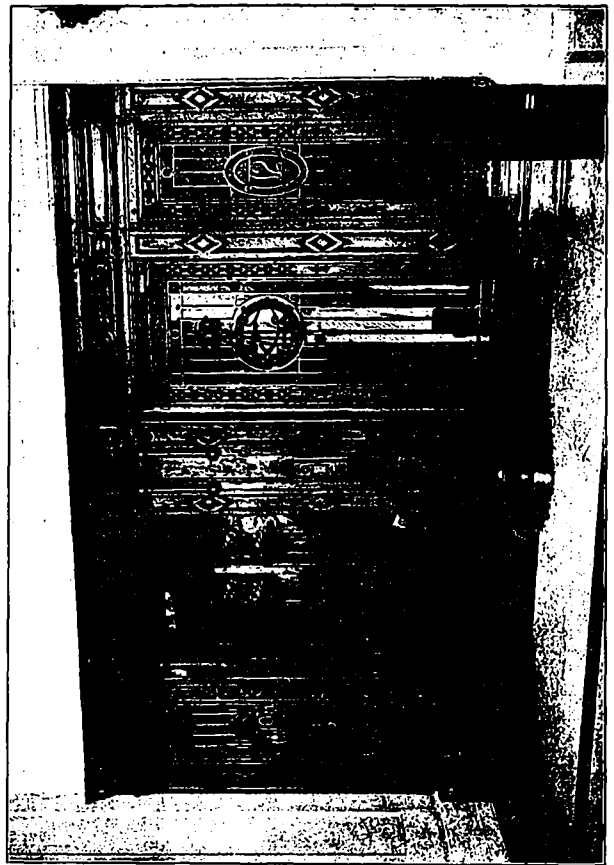
enhanced by the delicate nature of the decoration. Most effective is the treatment of the marble staircase leading from the centre of the ball room to the foyer. The veining and coloring is as beautiful as it is unusual, and it is interesting to note that this is Canadian marble from a local quarry which has been recently opened. The floor of the ball room, which has been built according to the latest improvements in ball room floor construction, is of light oak, which lends itself well to the touches of gold furnished by the decoration. The importance of heating and ventilating in this ball room has been fully realized, a thermostat system being installed and no less than twelve large brass framed ducts are provided, permitting the room to be rapidly heated or cooled as desired. The electric lighting is from pendant crystal-cluster candelabra and wall candle-brackets of the period, which are so arranged as to give very brilliant lighting. The marble staircase before mentioned, leads to the foyer, the wall of the ball room on the same side being broken up by the stairway and flanking balconies. These balconies view the room, which at night presents a very brilliant sight. The ball room is very successful. Not



Ball Room.

Marble Work by Dominion Marble Co.

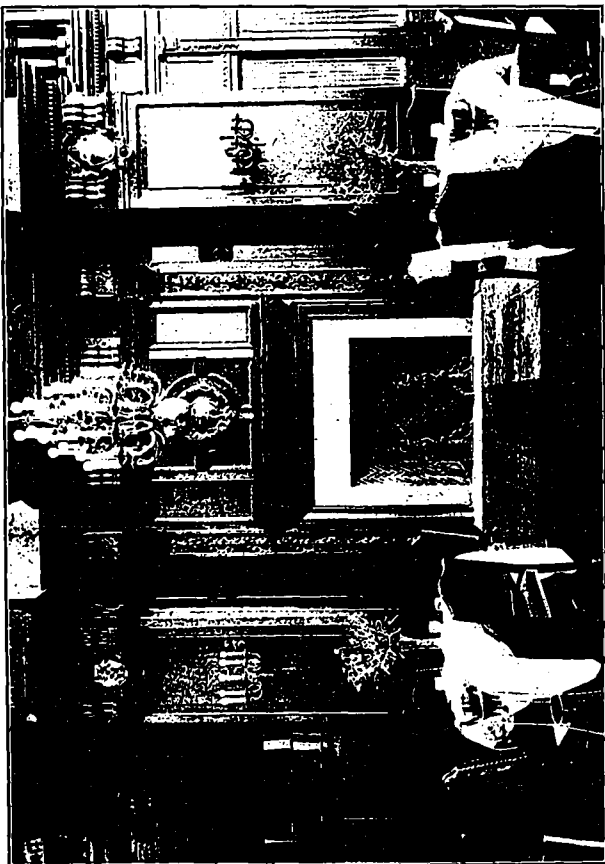
Furniture by Murray-Roy, Limited.



Elevator Enclosures.

Elevators installed by Otis-Fansom Co.

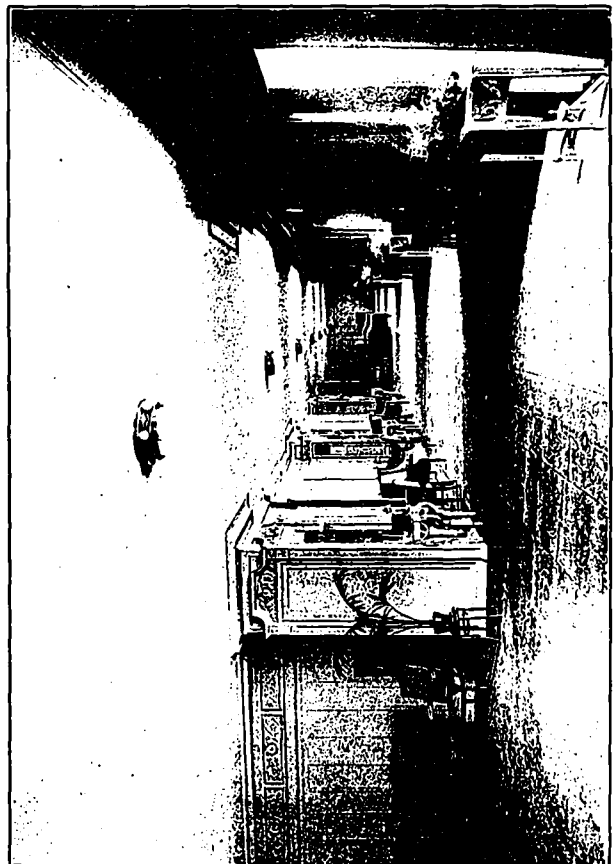
Bronze Work by The Canada Foundry Co.



Fire Place in Palm Room.

Ross & MacFarlane, Architects.

Decorations by Tiffany Studios.



Ladies' Corridor.

Ross & MacFarlane, Architects.

Decorations by Bell's Galleries.

only is the dainty character of the decoration in keeping with the nature of the room, but it suggests a bright May morning freshness which is emphasized by the ample provision for maintaining a cool temperature so desirable in a ball room.

The foyer, which is 50 feet by 45 feet, is in the Louis XVI. style, similar in character to the ball room. The structural conditions in this room rendered the problem of successful and harmonious decoration somewhat difficult, but the result is very satisfactory. The four supporting pillars in the centre of the room, which also serve as air shafts, have been rendered decorative by wood panelling and by the insertion on all four surfaces of large plate glass mirrors framed in dull gold. The walls also carry numerous mirrors, the gold harmonizing well with the color selected for the walls, the effect resulting from this multiplicity of mirrors is very attractive, giving, as it does, unexpected glimpses of passers-by, or of the ball room with its dainty panels. The effect when the stairway and foyer are crowded may be imagined. The white marble fireplace, bearing dull gold metal decorations, is placed in the wall adjoining the banquetting room, which is entered by two glass doors. This foyer is one of the most interesting parts of the building. The view from the marble staircase, gazing on the ball room at the one end and looking through the foyer and the whole width of the building on to the massive white stone winding staircase at the far end, is very striking.

The banquetting room is 60 by 26 feet, and, as before mentioned, it adjoins the foyer. It has two large double-doored entrances and can, therefore, be utilized if necessary in connection with the ball room. The furniture and decorations are in the same style as those of the foyer. The doorways are framed by a dull gold conventional design and the use of mirrors in the foyer is continued in this room, which contains eight large panelled wall mirrors in which a like number of dull gold candle brackets are set, giving a very pretty effect. In addition, three central hanging candelabra of an exceptionally graceful design are provided. The green and gold scheme is carried out very effectively, and here, as elsewhere in the building, even the slightest detail has received careful attention, the gold panels of the door-handles attracting one's attention by the dainty design which they carry. Very generous provision for heating and ventilating is also made, and the serving room adjoining is conveniently placed to ensure good service.

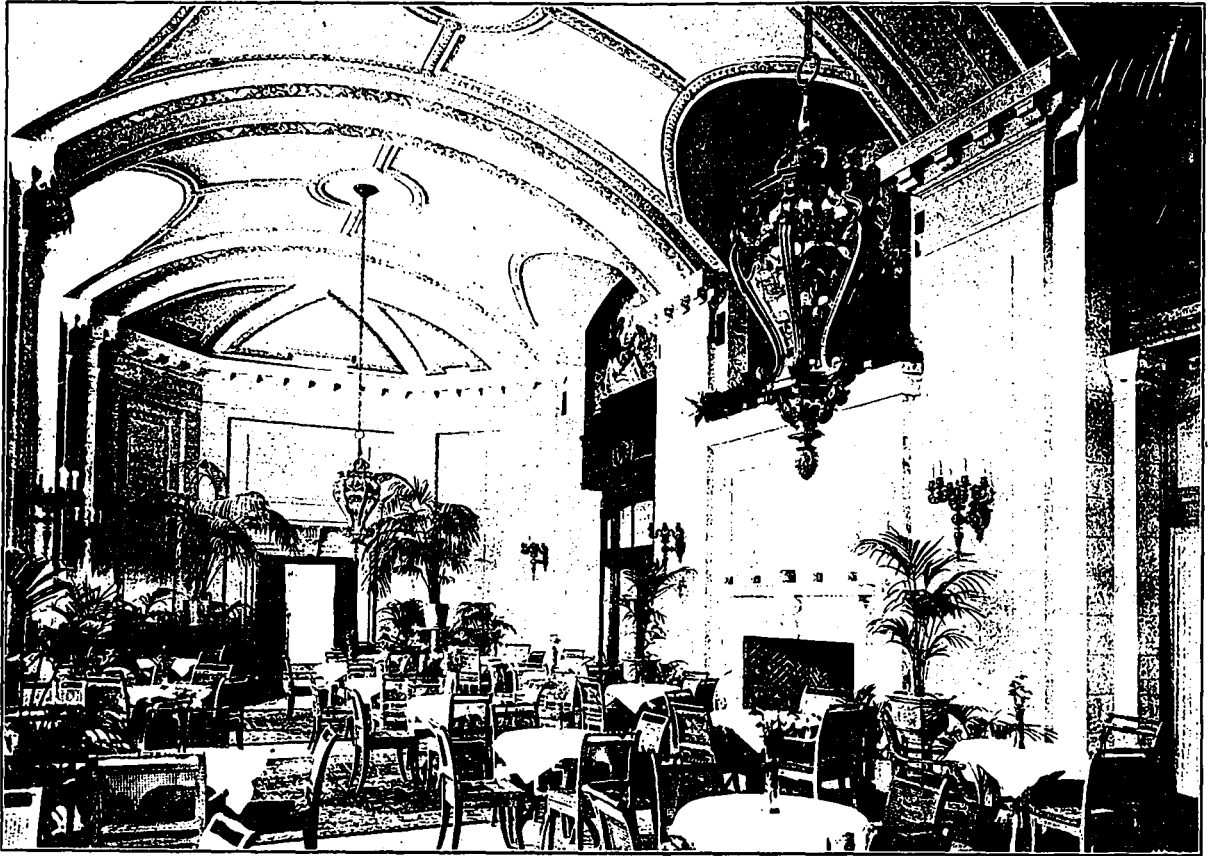
In addition to the banquetting room the architects have also installed a private dining room, 42 feet long by 21 feet wide, providing seating accommodation for about sixty people. The decoration and furniture of this room are Tudor in character, the keynote being set by the Tudor arched stone fireplace at the end of the room. A very pretty effect is secured by the plaster beam ceiling and wainscoting in African walnut. The subdued color of the carpet shows up the streaked graining of this beautiful wood. Sufficient artificial lighting is provided by suspended candelabra. It may be interesting to

note that there are no less than twenty-two thousand lights in the building; all are Tungsten lamps of 25 candle power.

On the mezzanine floor is the ladies' writing corridor, 90 by 16 by 11 feet, with a writing room 60 by 33 feet. Conforming to the happy decision of the architects to treat in a more dainty manner the rooms provided for ladies, this writing corridor is decorated in Louis XVI. style, panelled to the ceiling and finished in French grey enamel. This grey coloring, together with the old rose tones of the hangings and carpet, is very satisfying. Generous use is made of mirrors and the circular gold ceiling lights and gold candle brackets, add to the dainty character of the room. The curtains and wall hangings, together with the Circassian walnut furniture, combined with the general scheme of decoration, give unusual elegance to this long corridor with its ample spaces and magnificent view of the Parliament Buildings afforded by the long range of windows. The corridor terminates in a railed balcony overlooking the main dining room. The railing is of dark oak, and to the right is a dark oak staircase leading to the entrance of the dining room on the floor below. For the convenience of those who wish to proceed direct from their bedrooms to the dining room, avoiding the public rooms, an elevator is provided immediately adjoining the entrance to the dining room.

Returning to the rotunda and passing the hotel office, we enter the corridor which flanks the terrace overlooking the canal. This corridor leads to the several dining rooms, and is exceedingly beautiful. The structural conditions give height and breadth and width, which, combined with the situation on the sunny side of the building overlooking the canal, and the wide spaces surrounding the Parliament Buildings, offered a unique opportunity for decorative treatment. The result is delightful, and the architects may be congratulated on a decorative treatment which could hardly be excelled on this continent. The method of dealing with the decoration is simplicity itself. Carefully proportioned windows, dark oak panelling, above which is decorative plaster work and hanging candelabra in statuary bronze. The secret of this success lies in the very simplicity—the gracefully shaped windows, the skilful spacing of which is emphasized by the sunshine cast upon the floor, and the exact proportions of paneling and plaster to the dimensions of the corridor.

At the end of this corridor is the main dining room, a magnificent apartment 85 by 55 feet by 24 feet in height, providing accommodation for about three hundred people at a sitting. The first glance at the noble proportions of the room and the style of the decoration immediately recalls the character of the exterior of the hotel. The windows are placed on three sides of the room. Dark oak wainscoting is carried up to a height of about 16 feet, and above is a plaster frieze to the ceiling, which is beamed and plastered. Transom lights in all the windows are glazed with Tiffany's leaded glazing and the plaster work on walls and ceilings is decorated in colors to

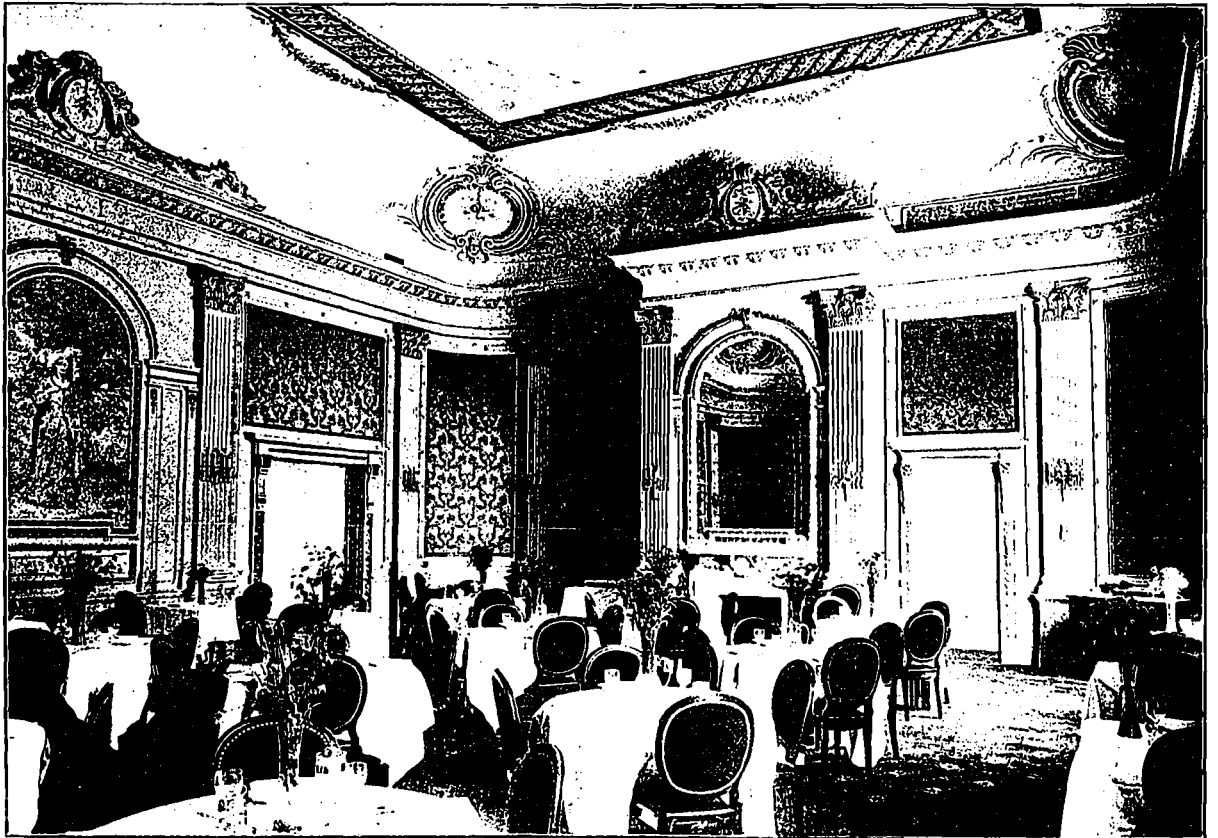


Palm Room, which is Renaissance in Character, with Apsidal Ends and Barrel-vaulted Ceiling. Imitation "Caen" Stone is Used for the Walls with Oak Panels Having Paintings above Doors and Fireplace.

Ross & MacFarlane, Architects.

Plaster Work by McNulty Bros.

Decorations by Tiffany Studios.

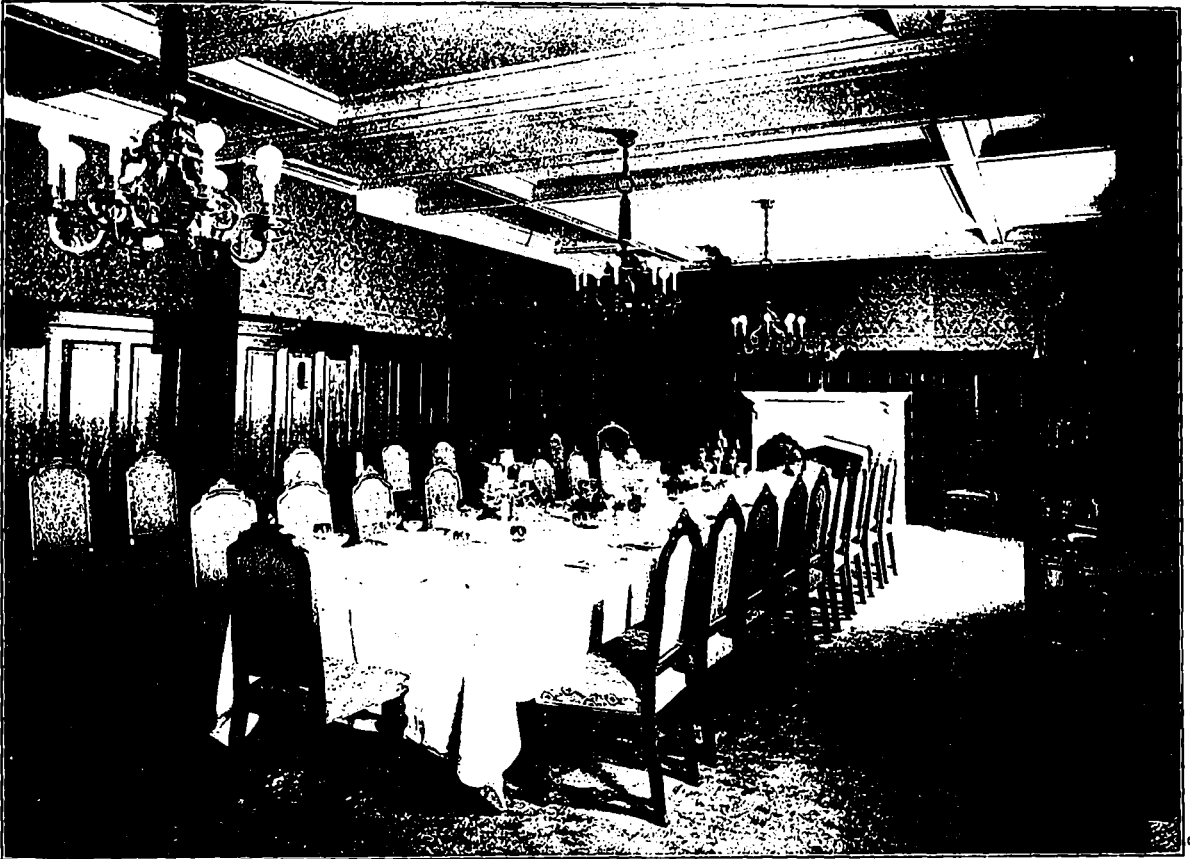


Ladies' Dining Room in Louis XVI. Style, with Wall Panels of Rich Silk Fabric which Harmonize with Café au Lait and Gold Decorations.

Ross & MacFarlane, Architects.

Furnishings by Murray-Kay, Limited.

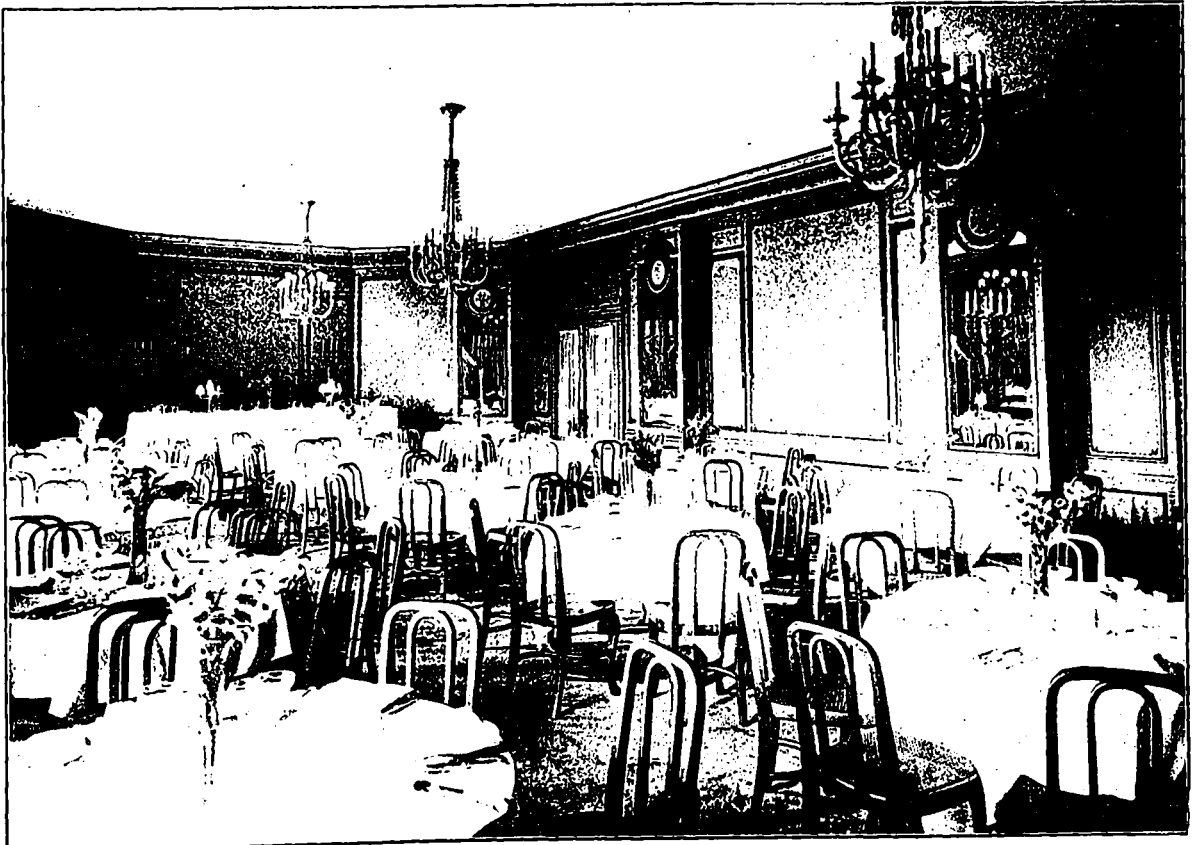
Decorations by Bell's Galleries.



Private Dining Room. Panelled in African Walnut with Decorations and Furniture in Tudor Character, the Keynote being Set by the Fireplace at the End of the Room.

Ross & MacFarlane, Architects.

Decorations by Bell's Galleries.



Banquet Room which adjoins Foyer and Ball Room, in Louis XVI. Style, the Scheme here being in Green and Gold with Handsomely Designed Hanging Candelabras and Wall Brackets Set in Mirror Panels.

Ross & MacFarlane, Architects.

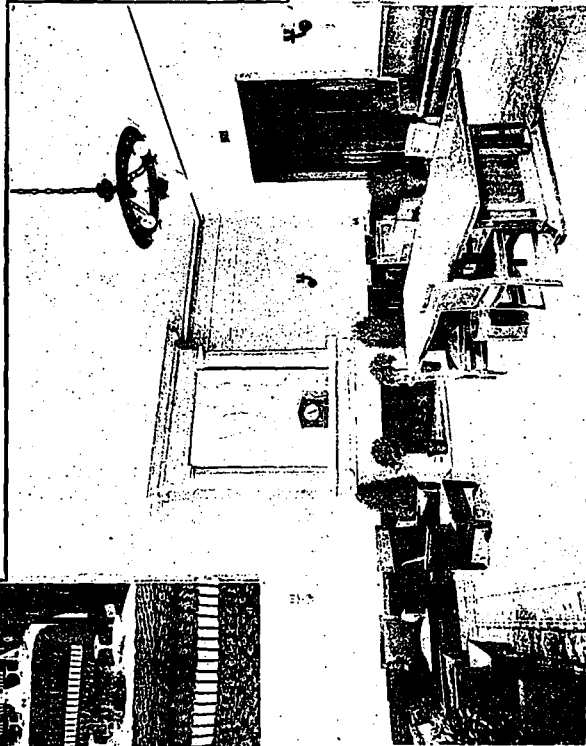
Furniture by Murray-Kay, Limited.

Decorations by Bell's Galleries.

Chateau Laurier Ottawa

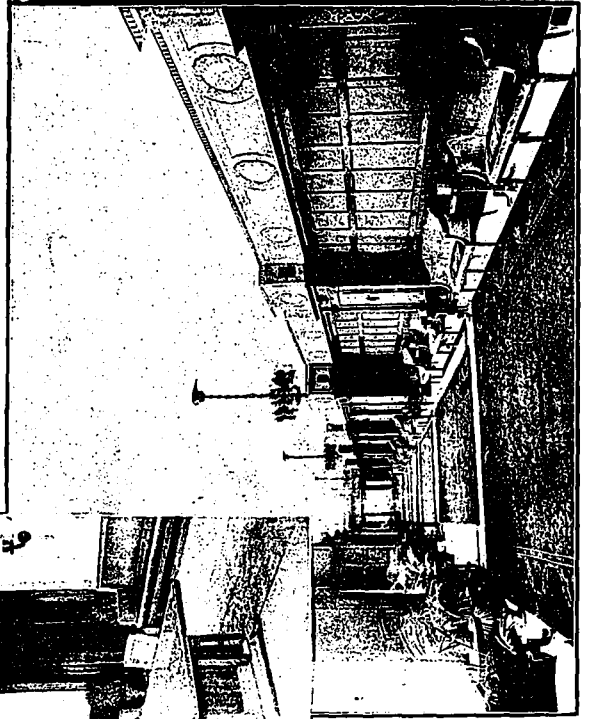


Upper View: Terrace Restaurant, where the guests, seated in comfortable willow chairs, beneath a sheltering awning, can enjoy an outdoor service not unlike that to be obtained at the best patronized continental resorts. The immediate prospect, with its wealth of natural beauty, make this a feature as delightful as it is unique.



Lower View: Main Corridor, which parallels the terrace and affords the same beautiful vista across the canal. This corridor extends from the hotel office to the main dining room. The panelling is in dark oak with plaster work in "old ivory" above, gracefully shaped windows and exact proportions, being principally depended on for a pleasing simple effect.

Central View: Governmental Waiting Room in the Grand Central Station, which is illustrated in connection with this article by an exterior and two additional interior views, and which show the splendid terminal facilities that have been provided by the Grand Trunk Railway as part of the vast project recently brought to completion.



ROSS & MacFARLANE
Architects



Guest Chamber, Showing an Inviting and Restful Effect in Delicate Colors with Chintz Valances and Upholstering.

Ross & MacFarlane, Architects.

Furnishings by Murray-Kay, Limited.

harmonize with the Elizabethan style of the room. Six columns supporting the ceiling beams are built out to include ventilating shafts. While massive in appearance, they are excellently proportioned and emphasize the general character of the dining hall. They are panelled to the same height as the walls, in similar wood, and the head of the panel on each surface of these columns carries shields with armorial bearings. The wall space between the windows is divided into panels and the wainscoting terminates throughout in a deep cornice. Heavy velour curtains and a carpet of brown shade give a feeling of opulent comfort. Use is again made of statuary bronze in the hanging candelabra, of which there are no less than twelve, each with approximately 30 lights; in addition there are 24 wall bracket lights. On the left hand of the fireplace are the service doors leading to the kitchen which, of course, are of dark oak conforming to the wainscot, and which are mirrored. Above the service doorway is the balcony, which serves as a musicians' gallery. On the other side are the entrance doors, which are merely glazed, and above is the balcony at the termination of the ladies' writing corridor, the dark oak balusters of this balustrade silhouetted against the ceiling of this corridor. The marble and oak fireplace in the centre of this wall is very richly treated and presents a fine ex-

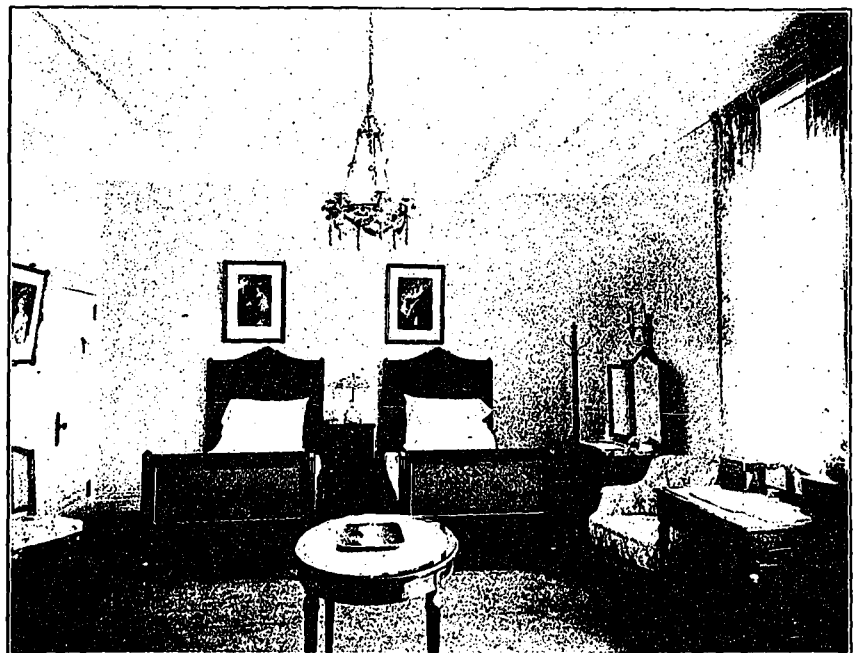
ample of wood carving. The wood panelling is carried above the fireplace and frames an allegorical painting of local and historical interest. The treatment of this dining hall with its vast proportions and the great height of the leaded stained glass windows renders it characteristic of the fine architecture of the building. Returning to the lounge corridor, we enter the ladies' dining room, 42 by 33 by 22 feet, providing seating accommodation for about 90 persons. Decorated in Louis XVI. style, the walls are divided up into panels filled with rich silk fabrics which harmonize with the delicate *cafe au lait* and gold tone of the room. The two end walls contain large mirrors, and the side walls two panels, framing decorative wall paintings of the period, leading up to a grace-

fully painted ceiling.

Adjoining the ladies' entrance is the ladies' reception room, a small room 29 by 18 by 12 feet, finished in the dainty Louis XVI. style, which obtains elsewhere in the ladies' rooms. The walls are finished in French grey enamel with silk hangings in delicate tones.

A children's dining room, suitably decorated, is also provided.

The basement floor is the square grill room, 46 by 46 feet, with seating accommodation for 130



Here the Treatment is Decidedly Quiet and Unpretentious, the Wall Scheme being Extremely Simple, with Furniture and Fixtures in Good Taste.

Ross & MacFarlane, Architects.

Furnishings by Murray-Kay, Limited.

people. It is treated in simple Dutch style, fumed oak wainscot and beamed ceiling. The ceiling panels are picked out in a quaint color effect and the floor of the room is laid with a large red quarry tile.

Adjoining is the bar room, 42 by 46 feet, with seating accommodation for over one hundred, the decoration and character of the room being identical with the grill room.

Space forbids a detailed description of the bedrooms, but mention must be made of the two private suites. Each consists of two bedrooms, two bathrooms and a parlor, the walls being panelled with silk fabric in Louis XVI. style, with furniture of Circassian walnut and gold. The private dining room before described is in connection with either of these suites. In order to obtain an adequate idea of the magnitude of the building, it should be mentioned that 305 bedrooms are provided, detailed as below:

The engineering department of the hotel is very complete and would require an article to itself. For example, there are no chimneys in the building, all the smoke being exhausted; while mechanical equipment, consisting of electric motor-driven fans, is provided for the ventilation of the whole building. This department is also in charge of the vacuum cleaners, which are installed throughout the building, ensuring thorough cleanliness.

A brief reference might be made to the refrigerating plant, which has been installed with a view as far as possible to avoid any stoppage; for which reason the equipment has been installed in duplicate, and so arranged that the two parts can work together or independently, as may be desired. It consists of two double-acting ammonia compressors, each of 20 tons refrigeration capacity. Each compressor is driven by its own automatic valve steam engine, and for the economy of space the compressors are placed tan-

	Floors.							Total No. of rooms.
	1st.	2nd.	3rd.	4th.	5th.	6th.	Attic.	
Bedrooms with outside bathrooms	3	5	5	5	5	1	0	24
Bedrooms with inside bathrooms	17	35	35	35	36	18	0	176
Bedrooms with common inside bathroom for two rooms . .	0	0	0	0	0	2	0	2
Bedrooms with common outside bathroom for two rooms . .	6	6	6	6	6	0	0	30
Bedrooms without bathrooms, but with wash hand basin.	1	5	5	5	2	28	12	58
Reception rooms, four small bedrooms (no baths or basins)	1	3	3	3	3	2	0	15
	<u>28</u>	<u>54</u>	<u>54</u>	<u>54</u>	<u>52</u>	<u>51</u>	<u>12</u>	<u>305</u>

Average size of bedrooms, 15 feet by 12 feet.

In addition to the above, each floor contains the following public toilets:

Ladies' public toilet and bathroom	1	2	2	2	2	2	0	11
Gentlemen's public toilet and bathroom	1	2	2	2	2	2	1	12

23

In planning these sleeping apartments, careful attention has been given to their size and shape, the means of communication with each other, convenient access by elevators and proximity to fire escapes, etc. The corridors on the upper floors are 9 feet in width and can be divided into sections to permit of separation of portions by means of fire-resisting doors of metal and wired glass in case of emergency. At the extreme ends of the main corridors isolated fire escapes constructed of fireproof materials, are provided.

One cannot fail to commend the dignified design of the bronze elevator doors, and of the bronze balustrade of the winding stone staircase, the dark wood windows in which are very striking. The treads and risers of this staircase are of the imported French (Hauteville) stone used in the staircase leading from the lounge.

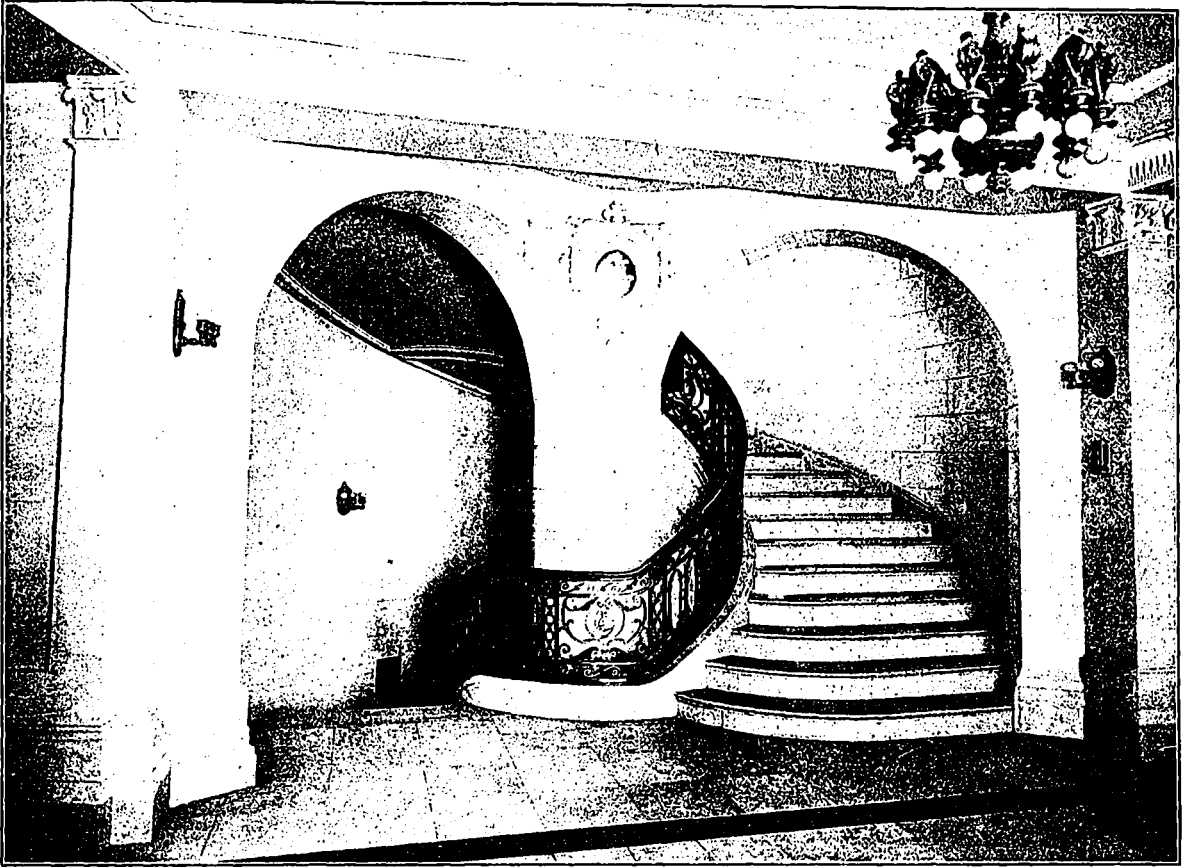
The kitchen has been given a central position in the basement and is very fully equipped. The walls are finished with impervious enamel brick. Space is lacking to describe the kitchens, but an idea of their extent and equipment may be gained by the quantities of some of the materials supplied: 16 tons of glass, 18½ tons of silver, and no less than 24 tons of china being required.

On this floor are also the employees' dining rooms, laundry, baggage rooms, billiard rooms, etc., etc.

demwise behind the steam engines. A special brine refrigerator is installed for supplying the cold brine necessary for the cooling of the various boxes in the hotel and in the station. As a great amount of ice is required for the two buildings, an ice tank of five tons daily capacity is provided; all the ice being made from distilled water. In addition there are two brine pumps for circulating the brine through the various boxes. These pumps are connected to the special brine cooler and to the ice tank, so that they can take cold brine from either part. By this means a continuous supply of cold brine is guaranteed, even if one part should be under repair. Another feature is a special water cooler for supplying cold drinking water to various parts of the hotel and station. The arrangement is such, that the cold water is supplied automatically and continuously as required. As the demand for ice is irregular, a special ice storage room is fitted up, in which ice is stored. This room has been thoroughly insulated with sheet cork and cooled to a temperature of 20° so that the ice is maintained indefinitely in first-class condition.

Very careful attention has been given to the elevator service, which is of the most improved type.

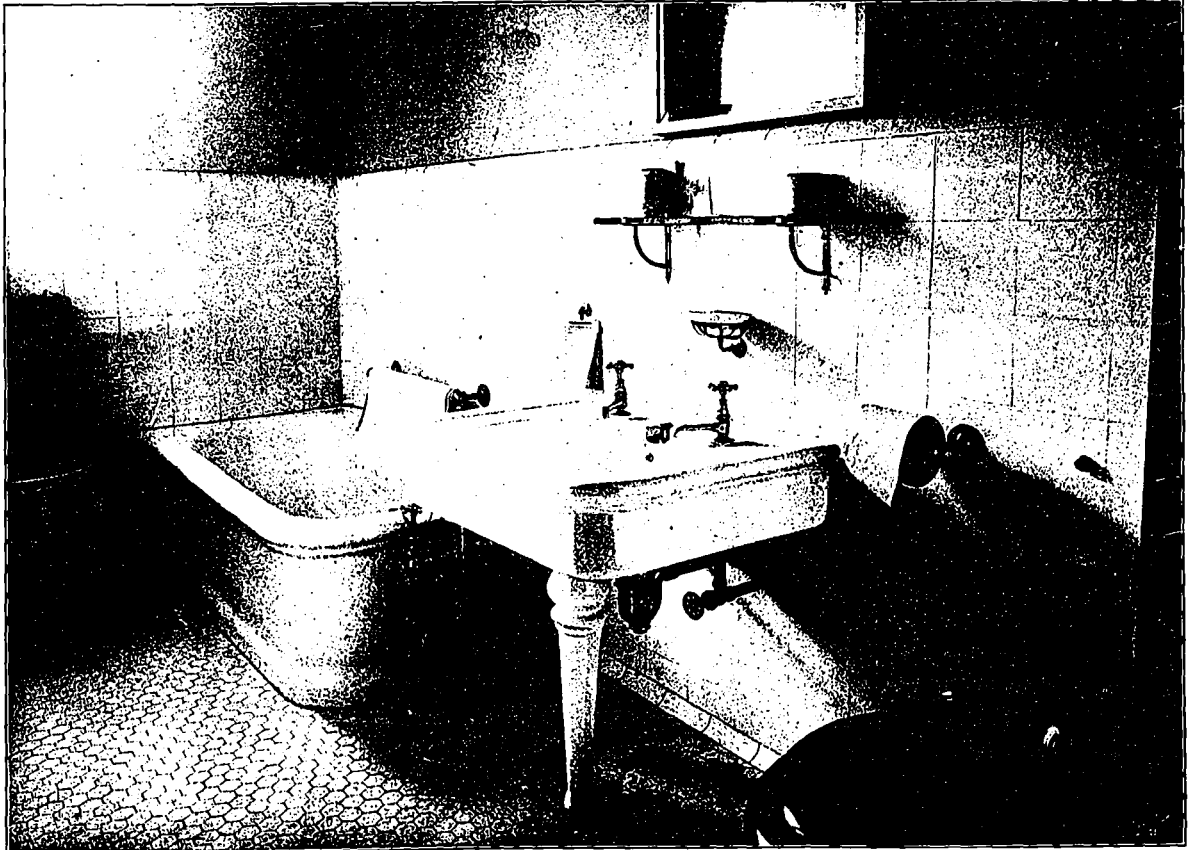
It may be noted that the entrance to the subway of the railway terminals is placed slightly below the



Staircase in Chateau Laurier.

Ross & MacFarlane, Architects.

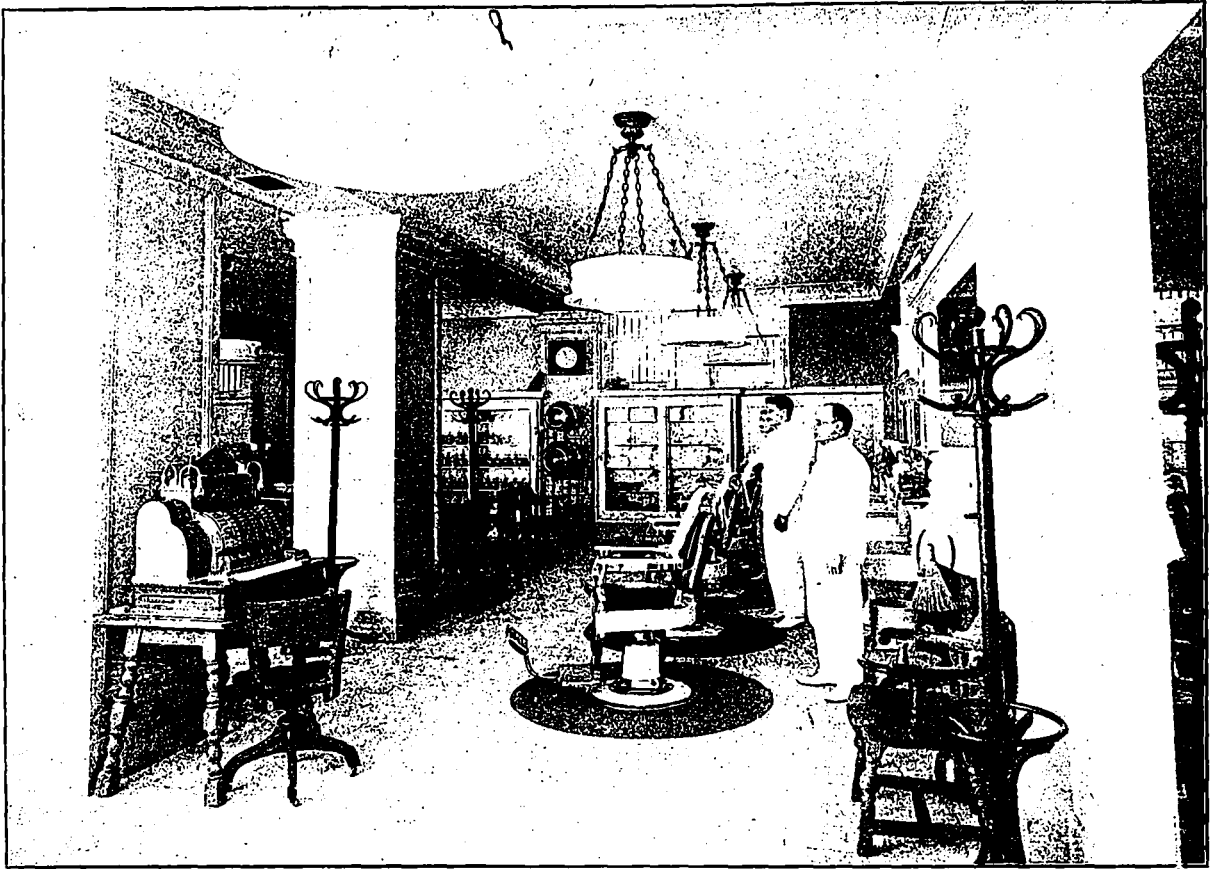
Ornamental Balustrade, Canada Foundry Co.



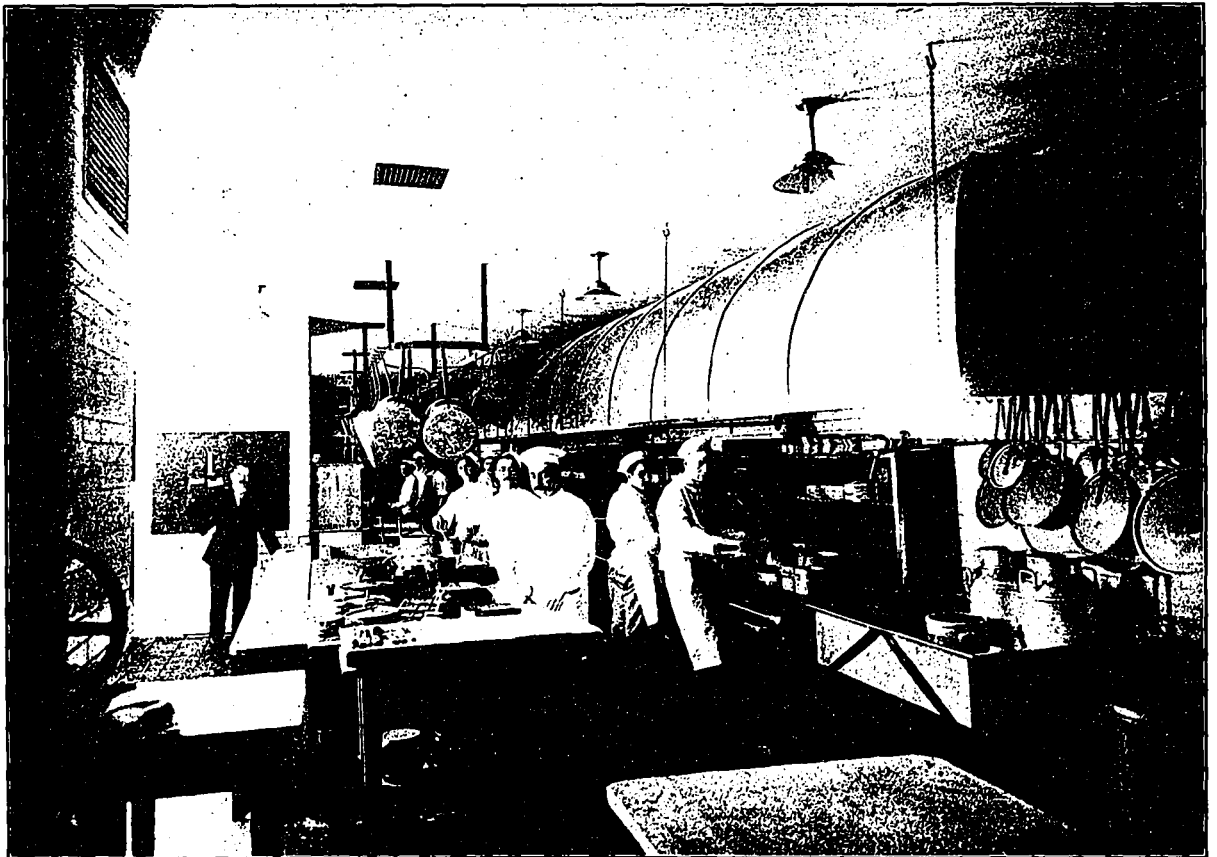
Type of Bath Room Adjoining Guest Chamber.

Ross & MacFarlane, Architects.

Fixtures by Mull Iron Works.



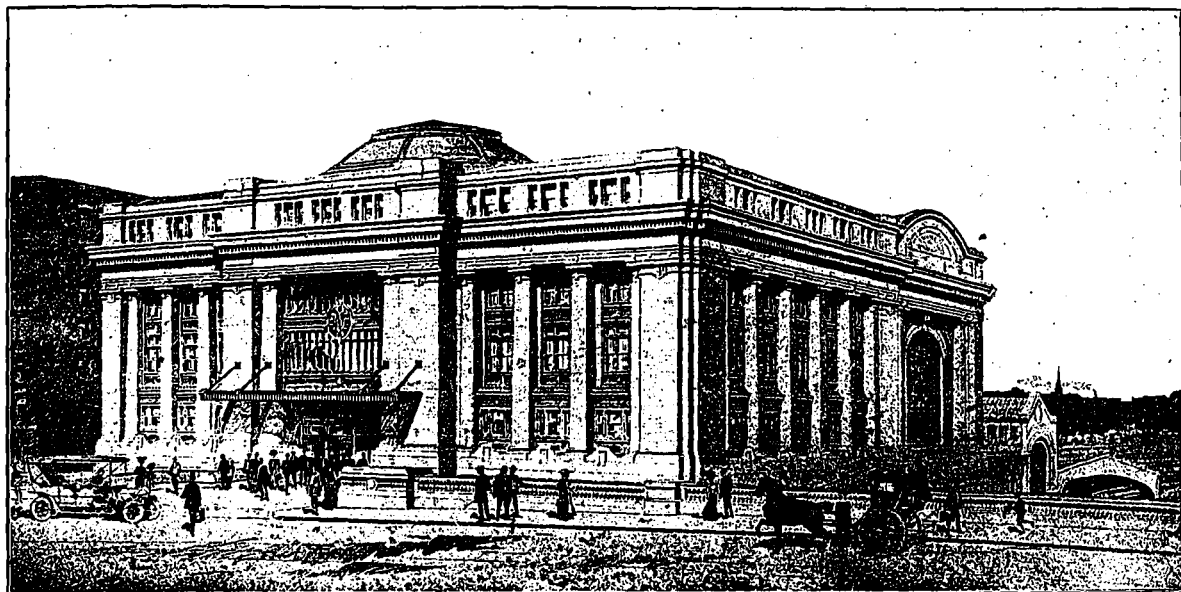
View of Barber Shop. Equipped with Refracting Ceiling Lights from the Architects' Designs, and Revolving Hydraulic Chairs. *Ross & MacFarlane, Architects.* *Fittings by the Garth Company.*



A Section of the Kitchen Range and Tables. In this Department Each Factor of the Equipment Has Been Considered With a View to Both Absolute Sanitation and Efficiency of Service. The Walls are in White Enamel Brick Throughout, the Ventilation Adequate, and the Ranges and Utensils of the Most Approved Type.

Ross & MacFarlane, Architects.

Equipment by the Gurney Foundry Co.



Grand Central Station, Ottawa, which is Connected Directly to the Chateau Laurier by a Concourse under the Bridge, and Form an Important Part of the Grand Trunk Terminal Improvements Recently Brought to Completion.
Ross & MacFarlane, Architects. *Peter Lyall & Sons, General Contractors.*

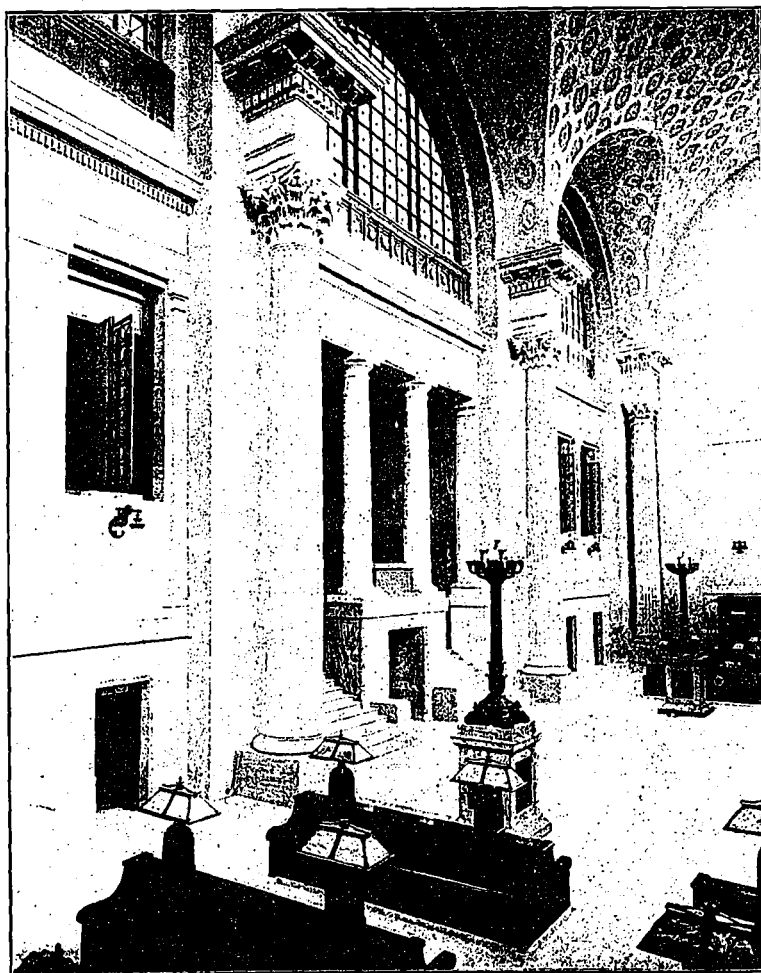
level of the basement floor; a short stairway and elevator service from this entrance leads directly to the rotunda on the ground floor.

Space is also lacking in which to describe the new terminal station, but the illustration shows the dignified exterior, while the interior includes luxurious private reception rooms. In ground dimensions, it might be stated, the station is 147 ft. in width and 180 ft. in depth. Between the building and the tracks is a concourse for the general circulation of the passengers. The main portion of the structure extends to a height of four storeys, and with its massive columns, vaulted ceilings and arched windows presents a dig-

nified and stately appearance. The architectural treatment is such as to express clearly the function

for which it is intended. The exterior is of light Indiana limestone, the internal structure being of steel, concrete and terra cotta, securing absolutely fireproof results.

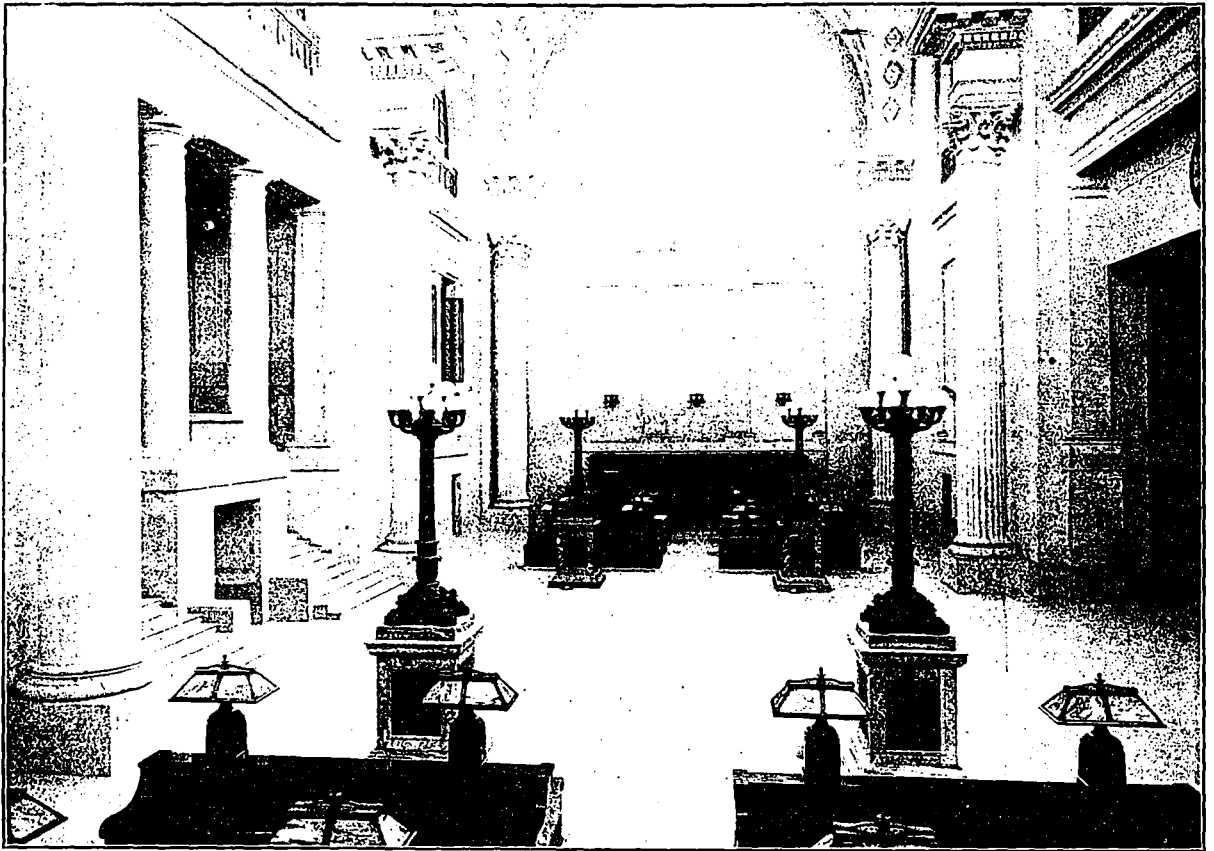
The hotel from Parliament Hill, with the western sun tinting the limestone and warming the color of the copper roof—or again from the east, the bold shadows and the whole picturesque fabric silhouetted against the skyline, presents an exterior which will be readily accepted as one of the finest in the Dominion. Within, the disposition of the public rooms and the ar-



View of Waiting Room, Showing Approach and Dignified Proportions of General Scheme.

Ross & MacFarlane, Architects.

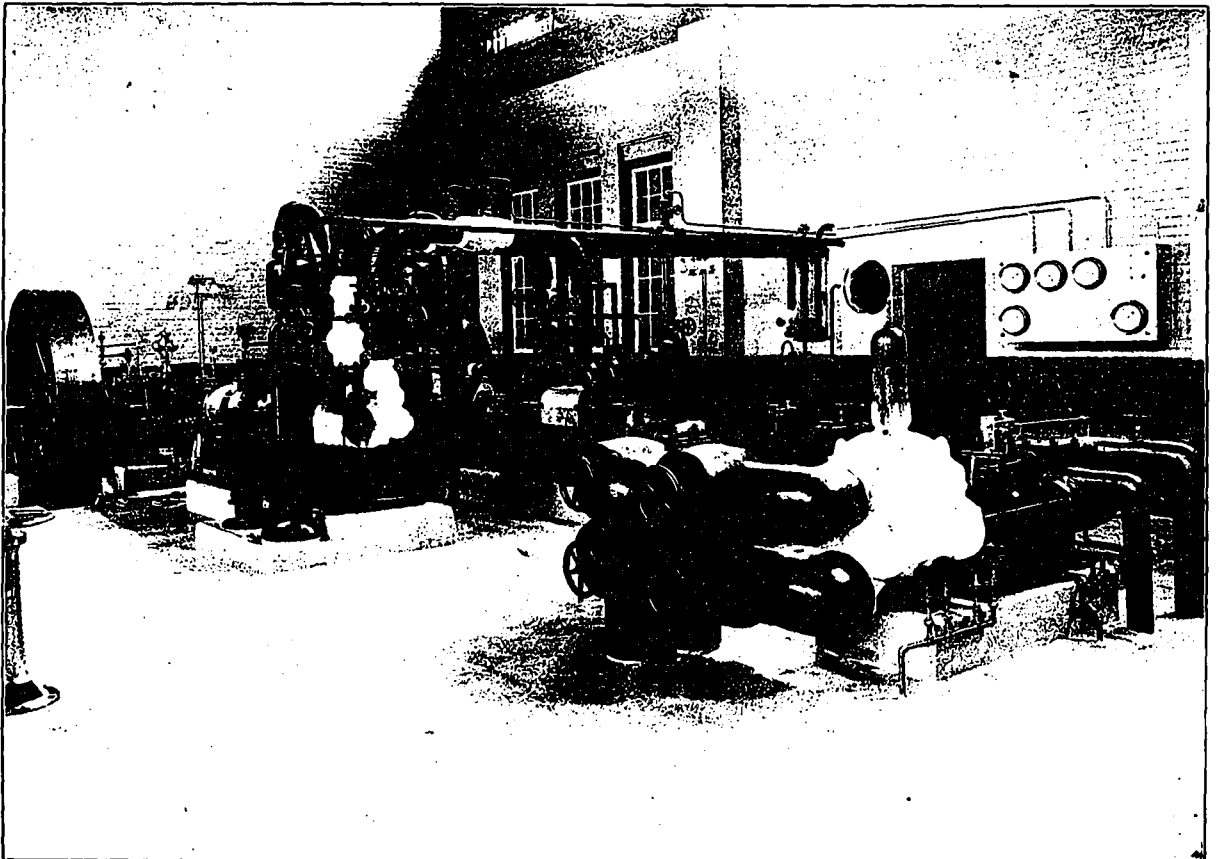
Peter Lyall & Sons, General Contractors.



Main Waiting Room in Central Station.

Ross & MacFarlane, Architects.

Peter Lyall & Sons, General Contractors.



A Section of the Plant Equipment, Showing the Refrigerating Machinery Used in Connection with the Hotel and Central Station.

Ross & MacFarlane, Architects.

Equipment by Linde Canadian Refrigeration Co.

rangement of the whole interior have been made with a view to the purposes for which the Chateau Laurier is intended. In the decorative treatment of the interior the architects have secured beautiful work, of a quality unapproached in this country. The designs throughout, the execution and the care for the smallest detail, betray the hand of the artist. The interior decoration of the Chateau Laurier sets a standard of excellence difficult to surpass.

The firms connected with the various branches of the work were as follows: General contractors, George A. Fuller Co.; structural steel, Dominion Bridge Co.; granite, Stanstead Quarries, Limited; cut stone, E. F. Giberson, Bedford, Indiana; cut stone setting, George Oakley & Sons, Toronto; marble work, Dominion Marble Co., and Smith Marble Construction Co., both of Montreal; interior decorations, Bell's Galleries, Montreal, and Tiffany Studios, New York; carpets and hangings, Murray-Kay Co., (Toronto), Clegharn & Beattie (Ottawa), Bell's Galleries (Montreal), Waring & Gillow, (Montreal), Castle & Son (Montreal); furniture, Murray-Kay, Limited, Toronto; ornamental iron and stairways, Canada Foundry Co.; grille work, Garth Co., Montreal, and McFarlane Douglas, Ottawa; plastering, McNulty Bros.; hardware, P. & F. Corbin, represented by Lariviere Incorporated, Montreal; elevators, Otis-Fensom Co.; architectural paints and varnishes, International Varnish Co.; barber shop fittings, the Garth Co., Montreal; kitchen equipment, Gurney Foundry Co., Toronto; refrigerators, the White Enamel Refrigerator Co.; laundry equipment, American Laundry Machinery Co., Toronto; silverware, Martin, Hall & Co., Montreal; china and glassware, Brodeur Co., Montreal; steam engines, Goldie & McCulloch, Galt, Ont.; refrigerating plant, Linde Canadian Refrigeration Co., Montreal; bath and lavatory equipment, Mott Iron Works, Montreal.

has the power to become. Personality, as to its identity, must be taken for granted; a man can only use his own faculties, but it is in his power to develop them, or to misuse, abuse, or fail to use them. It seems strange that it is only now becoming evident that it is no good, that it may even amount to cruelty, to try to instruct, to build up in a pupil knowledge which he has not the powers to assimilate, to try to train faculties that do not exist.

In the tremendous change that has come over civilization during the last 150 years the old and present methods of education are seen to be inadequate. One result of that change has been that in the far greater subdivision and specialization of work, in the springing up of new occupations, new types of personality have arisen, and others, like the architect's, now require training to a higher pitch of efficiency and comprehensiveness. In the growth of the social organism towards truer co-ordination the need of the right man in the right place becomes more apparent. Correspondingly the individual difficulty of choosing a calling becomes more insistent.

The necessity of getting men of the right mental qualities and constitution in the architectural profession is the more felt now that its education is being brought up to modern requirements. Many, of course, are from an early age sufficiently self-conscious of their own powers and desires to self-determine their own calling. But there are many others—we would say a considerable majority—who are not, and some of these drift into architecture from various indefinite traits, such as a taste for drawing, a tendency to art, and the like.

We are not aware of any statement by any professional or educational body as to type of personality, particular mental constitution, or special aptitudes necessary in those who would become architects. The only qualification asked for as a rule is a good general education, which is vague as a test of fitness, as the usual routine process may mean much to one personality, little or nothing to another. The result is, we fear, that the term general may often be taken in the sense of the Scottish professor, who, when asked what he meant by good "generally," applied to a certain student, said "Not particularly."

The process of selection or weeding-out is left till professional education has advanced a stage or two, and, though more feasible in the better system and opportunities now prevailing, so experimental a method obviously presents serious disadvantages for many students. Earlier selection is desirable, natural selection, if possible, through the student's own knowledge of his possibilities and desires; but at all events some way of testing, at the very outset, whether an aspirant has essential characteristics fitting him for architectural training and practice. We do not think it beyond the scope of general education to make this possible in most cases at school-leaving age. On the contrary, it is just in those early years that care should be taken to give the special individual characteristics, that constitute personality, opportunity to show themselves and develop.

The question is, then, what can be done now to this end, and what more under improved but still possible

THE ELEMENT OF PERSONALITY IN ARCHITECTURE

Temperamental fitness a necessary requisite to the successful training of the student. Reprint from "The Builder," of London, England.

EDUCATION has, like architecture, suffered from the attempt to apply it by rule, too much from without, as a kind of ornament. It is true that architecture is *decori urbium*, but the familiar motto puts before that *usui civium*, and it is through knowledge of the citizens and their ways that we have to embellish the city.

The increasing attention given to education nowadays from many points of view, and in its correspondence with industry, is bringing into clearer light Personality, both as starting point and goal. Primarily it has to lead out the particular attributes and mental constitution of the pupil—what he is, in fact—that it may instruct, develop, and make these efficient to the growth of character—that is, what he

conditions? We hear much of the greater complication and responsibility and the more exacting nature of an architect's calling to-day as compared with earlier periods. But, though this may imply the necessity of a far wider, a more comprehensive and exact education, a more varied efficiency, the broad attributes of personality are the same for the complete architect to-day as in the days of Wren, Brunelleschi, or of Iktinos and Callicrates.

His position is that of leader of a body of co-operating mechanics, craftsmen, artists, and various functionaries whose operations he has to direct, control, and manage to one end. He is the organizer, coordinator, arranger, the planner who must be able to scheme and contrive as constructor. So far he would be a good builder—or other things—and architecture must be good building, but also something better. So that further he must have initiative and invention, the originating and creative impulse and energy of the able designer. He must have the intuitive sense of fitness, keen perception of beauty, imagination free to range over things known and beyond them. He must have the artist's power to communicate and impress his conceptions upon others, his capacity of hand and eye, to make concretely visible the thought his mind can visualize. Again, he must have the judicial power, the intuitive insight and quick decision necessary in the arbitrator, the assessor of "values," and the critic, and something of the evident personality that impresses and carries weight as adviser, supervisor, and leader.

Capacity for art, of course, he must have, but, it is well to remember, the quite kindred capacity for practical science also. He stands, in fact, at the synthesis of art and science. In the old popular division of useful and fine arts he stands midway, and intimately related to both, between those who "make" for practical uses and those whose making is more directly for spiritual ends. His must be the healthful and virile feeling of art for life's sake, the perpetual office of which is to educate in the perception of the beauty which everywhere in the realm of nature and of man is coincident with truth and fitness to some purpose.

In attempting to state broadly the personal attributes essential for the making of the complete architect we must bear in mind both the unity and universality of personality. Though for convenience we enumerate separately the functions or categories of functions, we must realize they do not exist as separate powers of the mind, but as a synthetic unity defying analysis. In their infinite possibilities of combination and interaction, and with other attributes as important but more general, arises the infinite variety of individualities and possibilities of specialization. But architectural education aims at the production, not of the trained specialist, but of the fully instructed and efficient architect; and its growth is showing that such a finished product involves the starting with the right raw material. It is a true application of the principle that "*Poeta nascitur, non fit.*" The poet is essentially the "maker." So is the architect. His buildings, like the poet's verses, must not only, to use Emerson's phrase, "rhyme well," not only be true

in construction and to some purpose, but must express in their own peculiar way some underlying thought of beauty.

We have no ready-made scheme by which these right men are to be discovered. If a board of practicing architects could be formed—men of marked and varied individuality and experience—before whom every aspirant would have to state personally why he proposed to become an architect, and give some evidence of natural qualifications therefor, something more might be done than by any examination testing his standard of general education.

The defects of this proposal are, however, under present conditions, sufficiently obvious. If Registration come, the subject will have to be considered, and possibly some such test as this, already used elsewhere, may be thought out.

But, after all, this only affects one part of the problem. By advice and discouragement it may tend to the elimination of the unfit, but hardly to the discovery and encouragement of the fit. For that we must look to a process of natural selection; how to bring that more freely into action is the real question. We have alluded to the complementary difficulty in choice of occupation. So many youths leave school—some even, be it whispered, the universities—without definite consciousness of their own possibilities, or concrete knowledge of the present actual work of the world. Having passed through a certain routine, they have acquired perhaps the necessary foundation or instruments of learning; they may have attained various, sometimes high, proficiency and culture, classical, mathematical, scientific. It is a sufficient starting point for some, but in a majority personality is yet more or less latent, has not been sufficiently brought into contact with the facts and actualities outside to awaken it to full sense of its particular sympathies and potentialities in relation thereto.

Thought tends to the concrete rather than the abstract, especially in the young. We know that insatiable questioning faculty, beginning almost with speech. In former articles we have made some reference to an incipient educational movement, aiming by more objective teaching to build up that natural practical interest in immediate environment, and lead on, with developing capacity, to all the phenomena of civilization in their complex co-ordination. The tracing of occupations and industry, for instance, from earliest beginnings to the present in their correlation with each other and with activities of local government, teaching, art, and the rest, gives a vital interest to geography and history that appeals to the young mind, tending to rouse and differentiate its sympathies and desires.

We mention this movement again here to point its suggestiveness towards the natural selection we look for; possibly also as the inception of a system that will retain all that is good in the rival classical and modern methods, but in harmony instead of contrast, recognizing that character is only fully developed in the efficiency of the particular faculties of each personality.

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A JOURNAL FOR THE ARCHITECTURAL
ENGINEERING AND CONTRACTING
INTERESTS OF CANADA



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Vol. 5 Toronto, October, 1912 No. 11

CURRENT TOPICS

AN INTERNATIONAL EXHIBITION of architecture and building construction will be held next year at Leipzig under the patronage of the King of Saxony. Special facilities will be granted to foreign exhibitors by the custom house authorities and on the railways in Saxony.

* * *

A BILL HAS BEEN INTRODUCED in the Cuban Senate forbidding the letting of contracts for either national or municipal work except to contractors who are citizens of that country. The bill is the outcome of the recent collection of the claim of an American firm against the Government for \$557,000, representing the final settlement of the Cienfuegos waterworks contract. The bill also provides that in case any foreigners are apparently subcontractors interested in such contracts they shall be compelled to sign an agreement renouncing all right to the protection of the diplomatic representatives of their country.

DURING THE PAST SUMMER the Indians on the Pine Creek Reserve near Battleford, Saskatchewan, built a solid stone church, 140 feet long and 50 feet wide. The work was accomplished without any outside aid, but solely by the efforts of the residents of the reserve, who are chiefly engaged in agriculture. It is estimated that the structure would have cost at least \$75,000 if undertaken by contract.

* * *

BRICKS ARE BEING IMPORTED from Coffeyville, Kansas, a distance of 3,000 miles, for the exterior of the new eight-storey addition to the Empress Hotel, in course of erection at Vancouver. Whether this is due to a great scarcity of brick on the Pacific coast, or the fact that exorbitant freight rates from the east make it necessary to go to the United States for this material, it nevertheless casts little credit on Canadian resources and industrial enterprise that such a condition should exist, when there are good clay deposits in the west still unexploited and from which this commodity could be manufactured in quantities sufficient, under a normal state of development, to meet the needs of the home market.

* * *

CANADIAN CITIES such as Toronto which contemplate establishing civic abattoirs can possibly gather some valuable ideas by investigating the plans and equipment of the municipal plant of this kind now being installed at Lyons, France, and which will not be completed for nearly two years. An idea of the magnitude of this latter undertaking can be gathered from the fact that sixty buildings, large and small, will be embraced in the finished scheme. The planning of each structure has been the subject of minute, painstaking study, and the whole establishment, with its buildings separated after the French system, and structural conveniences for rapid work, will presumably cause it to be for the time the last word in construction of this kind.

* * *

AN EXTENSION OF TIME till February 15th, 1913, is announced for the reception of competitive plans in connection with the proposed new City Hall at Winnipeg. This will give those who intend to participate a better opportunity to study the problem more closely, and should be productive of results such as will be gratifying to the promoters and make possible the selection of a scheme successfully embodying features of designs and plan which will give the city the greatest value for its investment. As with the Manitoba Legislative Buildings, the competition is limited to British architects, and has the approval of the R.A.I.C., and the officers of the Manitoba Association of Architects under whose advice the terms of the competition were drafted. It is understood that a sum approximating \$3,000,000 is available for the structure. Those who desire to compete can obtain full particulars from the secretary of the Winnipeg Board of Control.

ALTHOUGH NOTHING DEFINITE has been announced it seems that in the comprehensive scheme now on foot to give Toronto better harbor facilities, an effort will be made to improve the physical appearance of property along the water front. Just what is contemplated has not been disclosed, other than a system of parks and similar features are to be provided. That the Harbor Commissioners have a definite aim in view in this direction seems evident from the fact that F. L. Olmstead, an eminent landscape architect of Boston, has been brought into consultation. In fact it is understood that tentative plans are ready to be submitted to the Dominion Government, whose aid will be solicited in carrying out the project; and it is to be hoped that Toronto will soon come into the realization of a much needed improvement which has been discussed for many years.

* * *

THE APPOINTMENT of Charles S. Cobb as teacher of architecture in connection with the Toronto Technical School, indicates that considerable attention is to be given to this branch of study. While Mr. Cobb is a new arrival and still unknown in a general way, the fact that his design was accorded third place in the recent competition for the new building to house the various departments of this institution, coupled with his interest in the civic betterment as shown by the suggested improvements for Toronto incorporated in his recently published plan, would seemingly stamp him as a person who is well qualified for the duties of his new position. Under competent direction the Technical School should provide an excellent preparatory course to the study of architecture in the University.

* * *

A NEW EDITION of the British standard specifications for structural steel for bridges and general building construction which has been issued by the Engineering Standards Committee embodies some amendments to the first issue of the specification which was published in 1906. These include (1) the classification of the material dealt with into two categories, A and B steel, of which the former must not show on analysis more than 0.06 per cent. of phosphorus or sulphur and the latter not more than 0.08 per cent. of phosphorus and 0.06 per cent. of sulphur; (2) the increase of the allowable phosphorus content in B steel from 0.07 to 0.08 per cent.; (3) the increase of the upper limit of tensile strength for plates, sections, and bars (other than rivet bars) from 32 to 33 tons per square inch; (4) the reduction of the lower limit of tensile strength for rivet bars from 26 to 25 tons per square inch; and (5) the insertion of clauses dealing with tests by an independent expert, rejection after delivery, and arbitration. An appendix gives forms of British standard tensile test pieces. The new issue is of importance in view of the London County Council requirement that all rolled steel used in the construction of skeleton framework for buildings shall comply with the terms of the specification.

AN INTERESTING REPORT concerning irrigation by sun power is made by the British consul at Alexandria, who comments on the arrival from Philadelphia of the Shuman sun-heat absorber, which, he says, was tested and found to be satisfactory. The plant is being erected at Meadi, near Cairo, and will be used to pump water from the Nile to irrigate the surrounding land. Several improvements have been added to reduce the cost of working. In Egypt both coal and other kinds of fuel are expensive, says the consul, but plenty of sunshine can be relied upon at all times of the year, so that the experiments with this practical sun-power plant will be of much interest to agricultural enterprise.

* * *

THE CORNER STONE of the new Knox College, Toronto, which was illustrated from the architect's drawing, together with the other competitive designs in the issue of *CONSTRUCTION* of February, 1910, was laid under distinguished patronage on the afternoon of September 26th. His Honor the Lieutenant-Governor, Sir John Gibson, officiated, assisted by Sir Wm. Mortimer Clark, Chairman of the Board, and J. K. Macdonald, Chairman of the Building Committee. Other prominent personages in attendance were: Sir James Whitney, representing the Province; President Falconer for the University of Toronto; Principal Gordon for Queen's University; Principal Gandier for Knox College; Dr. J. A. Macdonald for the Alumni. The building, which is in Gothic style, is being erected from plans by and under the supervision of Messrs. Chapman & McGiffin, of Toronto, and when completed will make a notable addition to the present University group.

* * *

A PERMANENT EXPOSITION showing the latest devices and measures for prevention of accidents and injuries to workmen has been opened in Copenhagen. It has been started by the Danish Association for the Protection of Workmen and has the aid of factories and firms which have furnished machines. The exposition contains exhibits of means and measures for prevention of accidents by power raising, transmission, and working machines; measures for carrying through regulations relative to factories; statistics and literature. A collection of water gauges is exhibited for illustrating measures to be taken in attending steam boilers, and an instructive collection has also been supplied for enlightenment of the worker on dangers that attend handling steam boilers. The protection of workmen consists not only of such arrangements which directly protect them from concealed dangers in the machine, but also all possible arrangements to improve conditions, as, for instance, healthy and clean premises, sufficient ventilation, removing injurious ingredients from working places, etc., insurance against accidents and illness, workmen's houses, etc. For practical reasons, the present exposition can not contain every branch referred to, but it is the intention from time to time to change the exhibits so that they will illustrate all measures for the protection of workmen.



TREE SURGERY AND ITS METHOD OF APPLICATION

Cause of diseased state due to improper trimming—How it is overcome and the trees restored to health—From "Municipal Engineering."

TREE SURGERY is a profession which has grown to considerable importance. In this sick and diseased trees are being restored to health. Briefly, tree surgery consists in cutting out the rotted parts and filling the cavities thus made with some substance which will make the cavity water and air tight. Most of these cavities on city trees are the result of improper trimming. A stub is left where a branch has been amputated. This stub, into which the living sap no longer flows, becomes saturated with moisture, rot spores become active—the stub soon rots off, leaving the beginning of a pocket or cavity which is gradually increased by the action of the rot spores and boring insects. Then the birds and squirrels begin to build their nests in these cavities and help to increase them until almost the entire centre of the tree trunk has been destroyed. Unless this rotting is stopped the strongest and most magnificent tree will be destroyed.

The proper way to proceed is to clean out the entire cavity, using a chisel or gouge to remove all the rotten wood. Then wash the interior of the cavity with a solution of copper sulphate made by dissolving in a wooden vessel, one-fourth of a pound of copper sulphate in ten gallons of water. The solution can be sprayed into the cavity by means of a small hand pump. This solution will kill all the remaining rot spore and the cavity is now ready to be filled with cement. The filling is made by using three parts of clean, sharp sand to one part of cement. Fill the cavity with this mortar and then bring the filling to a smooth water-tight finish, with a mortar made by using one part of sand to one part of cement.

When the cavity is large, iron rods are sometimes used to reinforce the cement. Where defects of this sort are remedied before they have spread to any considerable extent the cure is simple and certain, and gradually the annual growth of the tree will cover the filling and conceal the patch of cement beneath the new bark; but while many trees can be saved in this way, there are an equal number beyond redemption, and the best thing to do is to remove them and plant healthy young trees to take their place.



ST. JOSEPH'S CATHOLIC CHURCH BABYLON, L. I.

A recent example of ecclesiastical work, in which brick is used as a constructive and decorative element to an almost exclusive degree.

THE NEW CHURCH for St. Joseph's Roman Catholic congregation recently completed at Babylon, Long Island, and illustrated by four plates in this issue, is particularly noteworthy as a

recent production in ecclesiastical design, introducing to an almost exclusive degree the use of brick as a constructive and decorative element in both its external and internal scheme.

The design, which is in the so-called Lombard style, prevailing in the twelfth century in Northern Italy, recalls to an extent some of the ecclesiastical edifices in Southern Europe, and without being a copy of any church in particular, suggests the architecture of St. Stephano at Bologne.

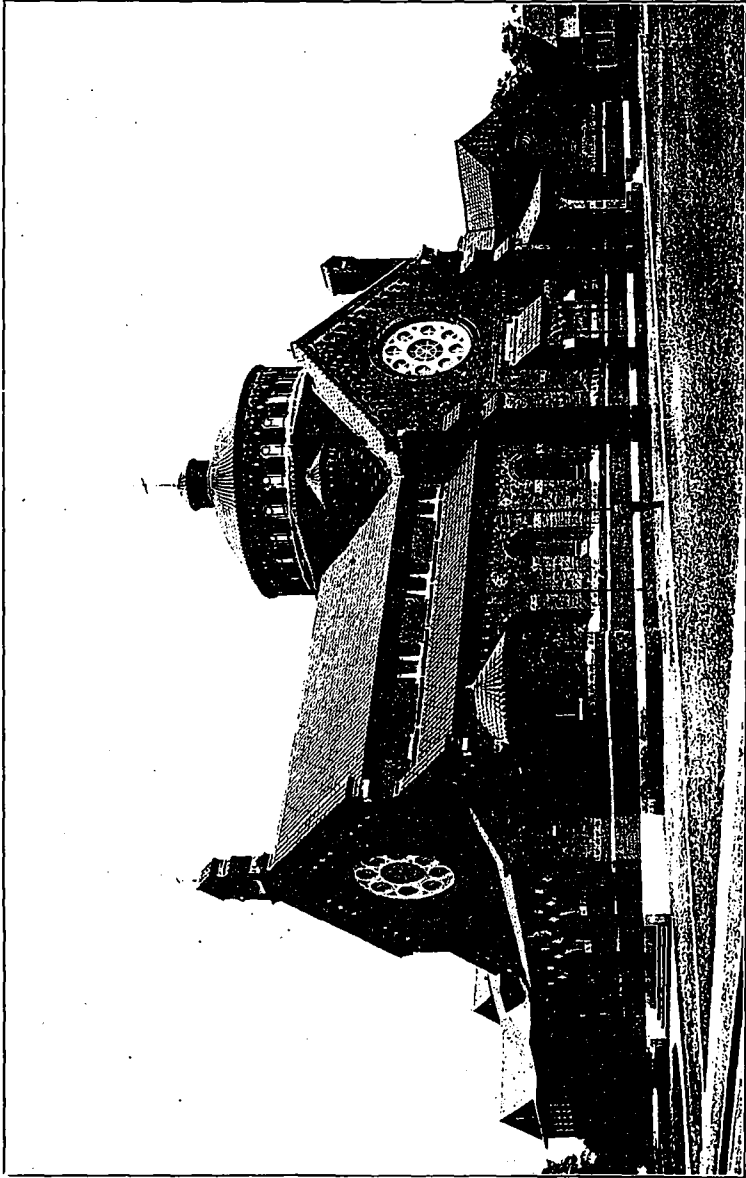
The bricks used in the exterior construction of the building are of a rough hand mould, sand finished variety in various shades from medium reds to rich dark brown, purple and blackish tints, harmoniously blended so as to give the appearance of a rich old wall of Oriental texture. Relieving the mass are decorations, consisting of faience bands, borders and panels of glazed tile in a great variety of colors such as blues, greens, browns, yellows and reds, formed in a kaleidoscopic manner so as to add brilliancy to the entire wall.

It is perhaps one of the most striking effects of brick and tile work to be seen on this continent and is a good example of what can be accomplished by the use of these materials.

The interior of the building is carried out in hard vitrified brick in a soft blend of colors, the whole being toned by the use of faience tile in the form of borders and circles in splendid harmony with the brick work. A decorative feature is the dome, executed in faience tile with a series of encircling windows and a richly designed border enclosing twelve panels representing given figures of the Bible. The feeling of simplicity is so marked in the general scheme as to verge almost on the austere, and yet sufficient color tone exists in the material to give the scheme a pleasing warm effect in addition to the substantial appearance otherwise evident. In fact both the inside and out show a skillful handling of materials and color; the whole resulting in a scheme that is brilliant to a degree, yet pleasing and by no means overdone.

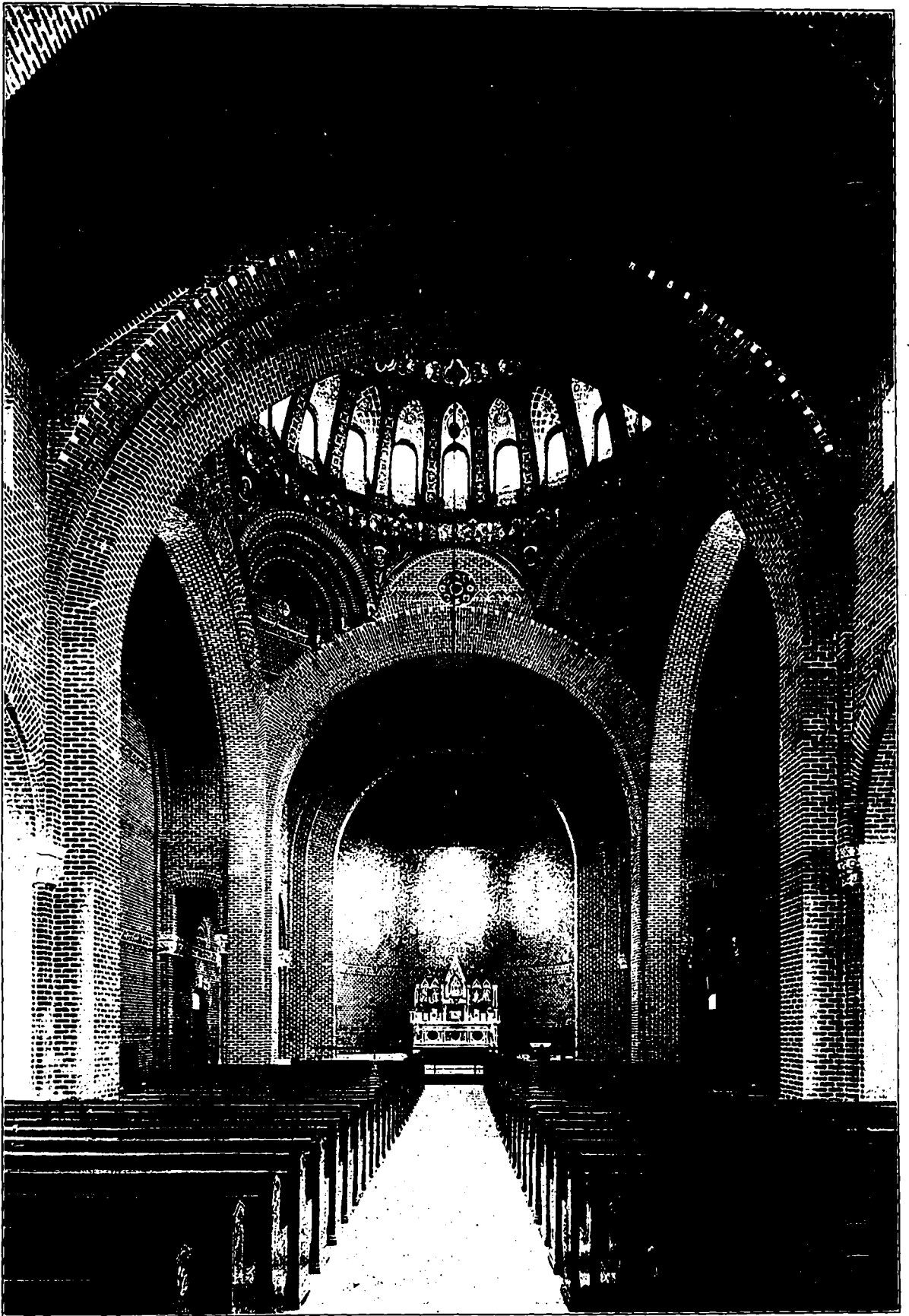
The roof of the building is covered with a bright salmon-colored tile which is in beautiful contrast to the Oriental colors of the brick and faience work of the exterior.

COMMON furniture is imported principally (75 per cent.) from the United States, while 15 per cent. comes from Austria-Hungary and 2 per cent. from Germany; veneered furniture comes from the United States (50 per cent.), France (27 per cent.), and the United Kingdom (nearly 12 per cent.); while choice and fancy furniture, gilt, etc., comes from France (57 per cent.), the United Kingdom (22 per cent.), and the United States (nearly 11 per cent.). There is no reason, except lack of manufacturing enterprise, why all the common and the greater proportion of the "choice and fancy" furniture should not be made in Canada, where power and wood should compete with any other locality and the taste of the people is as high, but cannot pay the prices demanded for the imported article.



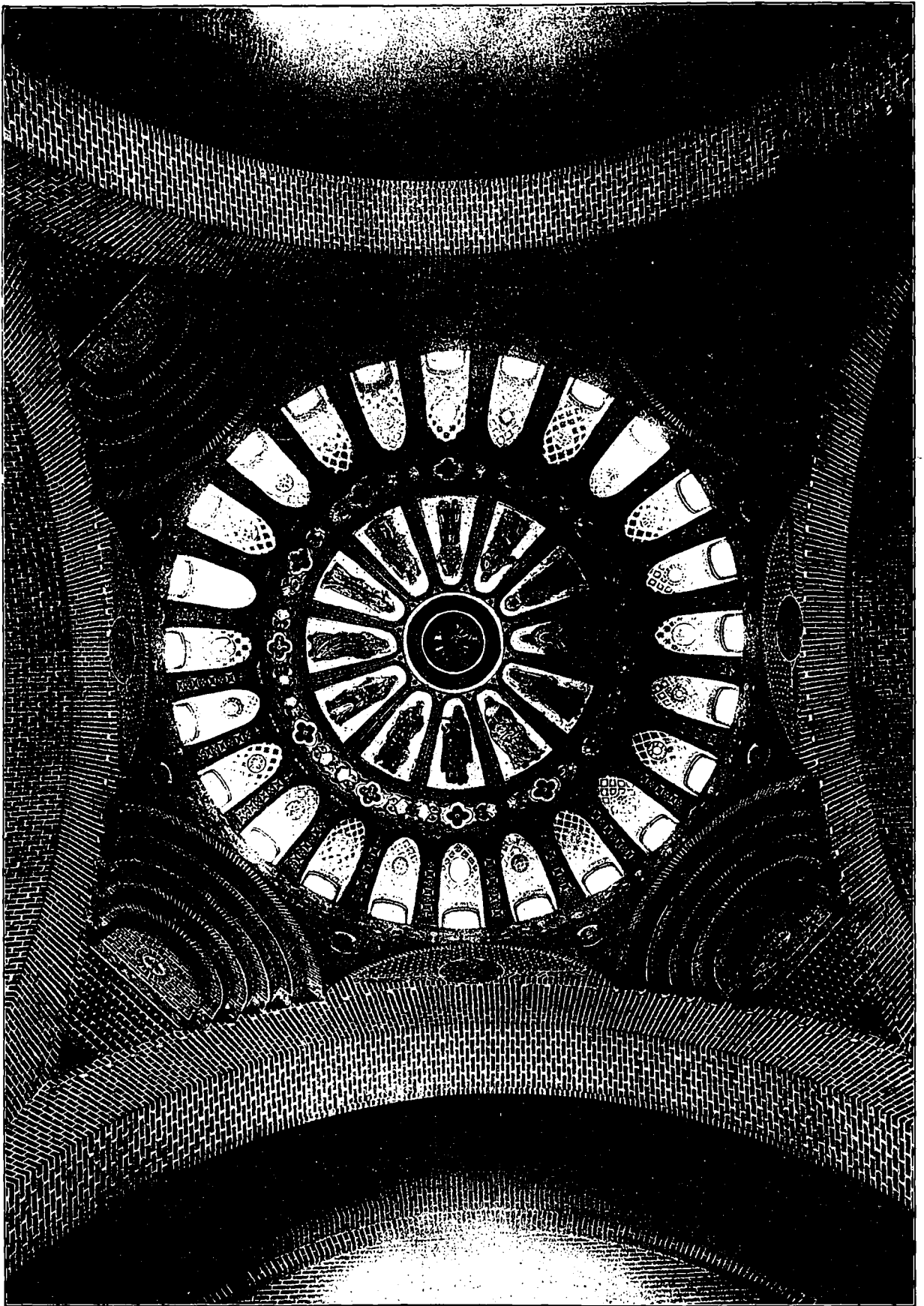
ST. JOSEPH'S ROMAN CATHOLIC CHURCH, BABYLON, LONG ISLAND.

A Recent Example of the Use of Brick in Ecclesiastical Work. The Structure is Designed in the So-called Lombard Style, Prevailing in the Twelfth Century in Northern Italy, and Suggests the Architecture of St. Stephen's at Bologna. Heley & Steinback, Architects.



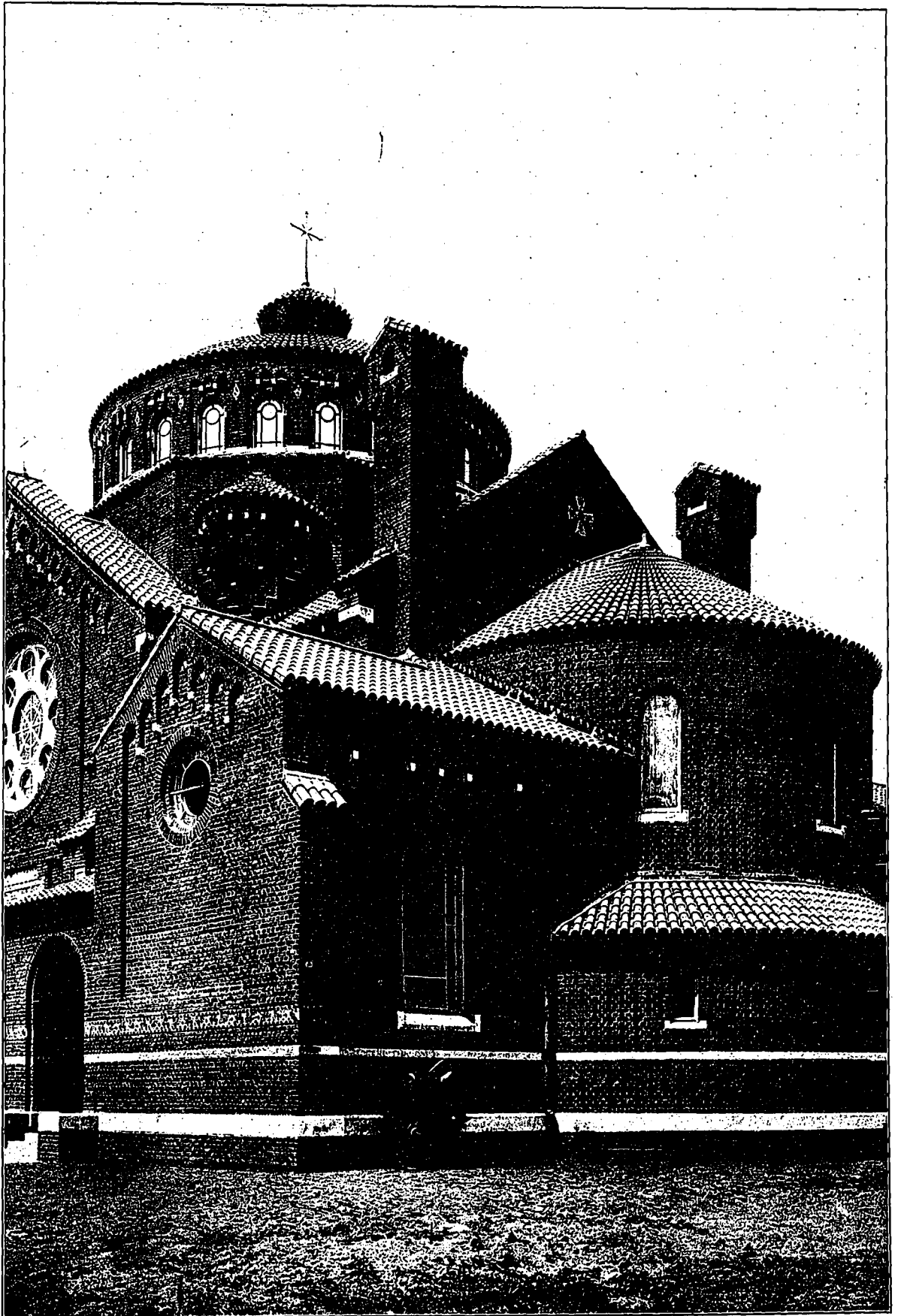
ST. JOSEPH'S ROMAN CATHOLIC CHURCH, BABYLON, LONG ISLAND.

A Rather Remarkable Interior which Employs Brick Almost Entirely Throughout its General Scheme. The Brick is of a Hard Vitrified Red in Soft Blends of Color, Marked Off with Faience Tile forming Borders and Circles which Harmonize with the Tone of the Brick. Reiley & Steinback, Architects.



ST. JOSEPH'S ROMAN CATHOLIC CHURCH, BABYLON, LONG ISLAND.

View Showing Detail of Dome Executed in Faience with a Series of Encircling Windows and Richly Designed Border Enclosing Twelve Panels Representing Figures of the Bible. Reiley & Steinback, Architects.



ST. JOSEPH'S ROMAN CATHOLIC CHURCH, BABYLON, LONG ISLAND.

This illustration gives a good idea of the texture of the exterior brick, which is of a rough hard mould, sand finished variety in various shades from medium reds to rich dark brown, purple and blackish tints. Reiley & Steinback, Architects.



SOME CURIOUS BRIDGES

Examples of existing structures that vastly differ in physical form to the more modern type.

WITHOUT ENTERING into the methods of construction employed, the physical difference between old and modern types of bridge construction is pointed out in an article dealing with the above subject, which appears in a recent issue of the *Illustrated Carpenter and Builder* (London, Eng.). Briefly referring to the change that has been brought about, our contemporary states that the great modern masonry examples, sometimes of engineering skill, sometimes of architecture, stand in singular contrast to their predecessors. Their great characteristic is massive simplicity, to which must be added grandeur of scale. But the commerce of the world, it adds, was once carried on in small, crowded cities, and here and there we find examples of great ingenuity in bridge construction among them. The most remarkable structure of such a kind in the world perished in Old London Bridge, with its overhanging houses, some very large, of timber; its roadway carried through their basements, and its many narrow pointed arches below, through which the tide rushed with irresistible force. Remains of fortified bridges—that is, with towers at either end rising over a gateway, and sometimes of a single tower in the middle—are found all over Europe, but they are constantly being removed.

Of older bridges the best preserved is the Rialto at Venice. It spans the Grand Canal at a point where it narrows a little, and consists of a single arch of marble; like most old bridges, it is not level, the bridge rising rather steeply to the middle; what is most curious is that it should be lined with little shops on each side. It is exactly adapted to the requirements of a city without wheeled vehicles.

The "Goldsmith's Bridge" in Florence is curious rather than beautiful; the same idea of utilizing space for commercial purposes with shops prevails in it.

The Bridge of Sighs, so called, is one of the smallest bridges even in Venice, where there are many so small that they can be crossed in a few steps; it consists of two parallel covered passages of marble, enclosed under one roof, and acts as a communication between the upper floors of the palace and the prison; it spans a diminutive side canal at a considerable height; contrary to the belief long entertained, it has no tragic associations whatever.

Among the bridges of the Renaissance, that of St. Angelo in Rome is the work of Bernini, a man celebrated for vast designs; yet, in spite of the very small width of the river, a dignified result has been obtained by decorating the parapets of the bridge with large winged figures in the bold style of the seventeenth century.

Bridges on any considerable scale are so associated with masses of masonry or iron that we find it increasingly difficult to remember the immense part

once played by timber. Nor should we expect to find timber used for a railway bridge; yet this is what was done by Brunel in the curious and interesting structures that until quite recently carried the railway lines through Cornwall over a number of deep but narrow valleys; the piers only are of stone, from which a network of timber is spread out to support the permanent way.

Among timber-built bridges, that which spans the River Reuss at the point where it enters the Lake of Lucerne is remarkable for strength, lightness of construction, and quaintness. A pointed timber roof rises over its entire length; supported on timber uprights overhead are paintings on panels; the wall rises no higher than an ordinary parapet on either side, leaving what is practically a continuous open window, giving upon the river and the lake.

Bridges partly built of timber may still be found on the rivers in England; sometimes they have stone or brick piers; they often bear the appearance of makeshifts, but on examination are found to be sound and strong, good examples of the work of old local and provincial builders; the old bridge at Sonning may be cited as an example.

Some very remarkable examples of bridge designing are to be seen at Cambridge, where the little river from which the place is named winds through meadows and trees at the back of the College buildings.

They are of different periods, Gothic, Jacobean, and Palladian. One connects two portions of St. John's College; it dates from the Gothic revival, and is the work of Wilkins—a covered bridge, Gothic, in stone. Another, designed by Sir Isaac Newton, is behind Trinity College; it is entirely in straight lines, so combined as to appear curved; but perhaps the most graceful of these structures—all of which, though on a small scale, have a certain air of dignity—is the bridge at Clare College, in simple Palladian, with its parapet surmounted at intervals by balls of white stone.

Of all bridges in the Old Country, the most singular is one that spans no river, but rises over the meeting of three cross-roads at Croyland, in Lincolnshire. It is called the Triangular Bridge; though the name is somewhat misleading, for it consists of six half-arches of stone, rising sharply to a small central platform; local tradition insists that three small rivulets once met beneath it. Upon one of the arches is a seated figure in stone, much mutilated, and holding a stone object no longer distinguishable in its hands. It was probably the central figure over the western end of the neighboring church, once the abbey; at present it is used as a "hiring" place for servants and laborers.

WORD HAS BEEN RECEIVED that W. W. LaChance, one of the pioneer architects of the Province of Saskatchewan, is about to retire from active practice. Mr. LaChance maintains, in addition to his Saskatoon office, two branch offices, one in Yorkton and the other in North Battleford, and has a large number of buildings in all three places to his credit. His withdrawal offers an excellent opportunity for anyone desirous of succeeding to an established practice in the West.



RESIDENCE OF J. J. SHALLCROSS, VICTORIA, B.C.

A Picturesque Pacific Coast Bungalow which Shows an Interesting Use of Materials, Intimately Relating the Structure to its Site. S. Maclure, Architect.

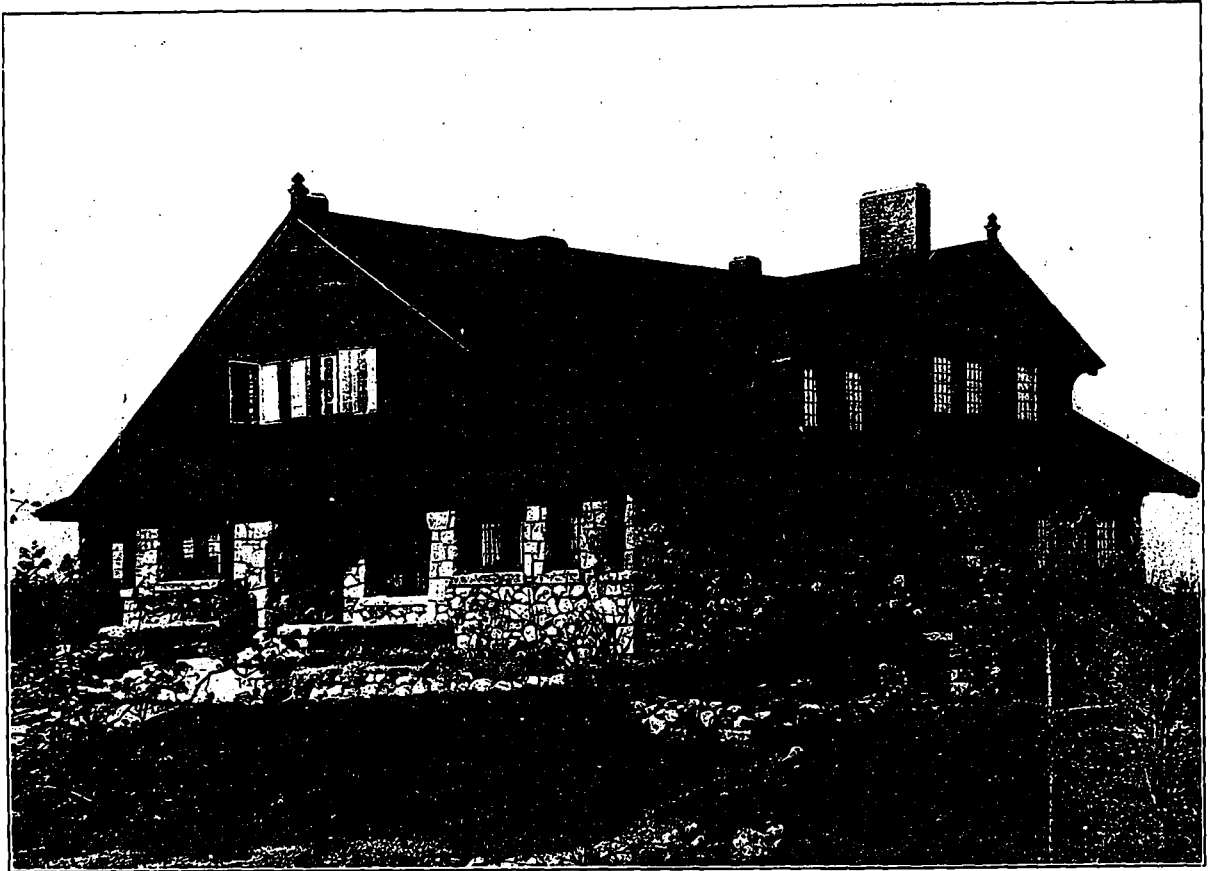


THE FACTOR OF ENVIRONMENT IN DOMESTIC DESIGN

Consideration of external features necessary to attain results that will co-ordinately relate structure to its site. A picturesque Western Bungalow.

THE EXTENT to which consideration of site enters as a composite requirement in giving architectural finality to structures of residential design, is well exemplified in the picturesque subject illustrated in the accompanying views. Too often, it might be said, where the factor of environment is not intelligently taken into account, a house which may be otherwise carefully produced and attractive in design, fails æsthetically to make other than a negative impression. Unfortunately in a large number of cases, the unsatisfying result is due to the fact that the structure itself often represents a borrowed idea, which has been appropriated by the owner regardless as to whether the finished building will fit in with a site that may be totally different in size and physical characteristics to the one that influenced the original design. Compared with better examples of domestic work, such results only serve to emphatically point out the necessity and importance of a client, apart from suggesting necessary household requirements, entrusting the work solely to the care of a

competent architect whose knowledge, derived from experience with similar projects, enables him to better understand the nature of the problem with a view to effecting a solution that will bring the exterior design in full sympathy with its surroundings. As an instance of what is possible under capable architectural direction, the residence under consideration stands out as a conspicuously creditable production which, both in line and material, is so composed as to intimately relate to its rustic and somewhat unusual setting. Here the architect had an opportunity of which he has taken full advantage, even to a nice use of materials which consists of rough-sawn fir and field stone native to the district in which the house stands. Situated on slightly elevated grounds, with its deeply recessed entrance and broad elevated roof conforming in line to the gentle slope of the site, the building has a distinctive character and domestic charm that is gratifying to a most positive degree. Yet it is evident that much of the success of the scheme depends on the physical features of the property which have been so interestedly utilized and from which the house appears as a consistent outgrowth. The stone-curbed drives, the trees and shrubs, the unpaved paths winding with picturesque irregularity through the uneven and apparently uncultivated grounds, together with the rugged material of the structure, all show the skillful handling of a residential undertaking, which results in a composite scheme in which the house co-ordinately relates to its surroundings.

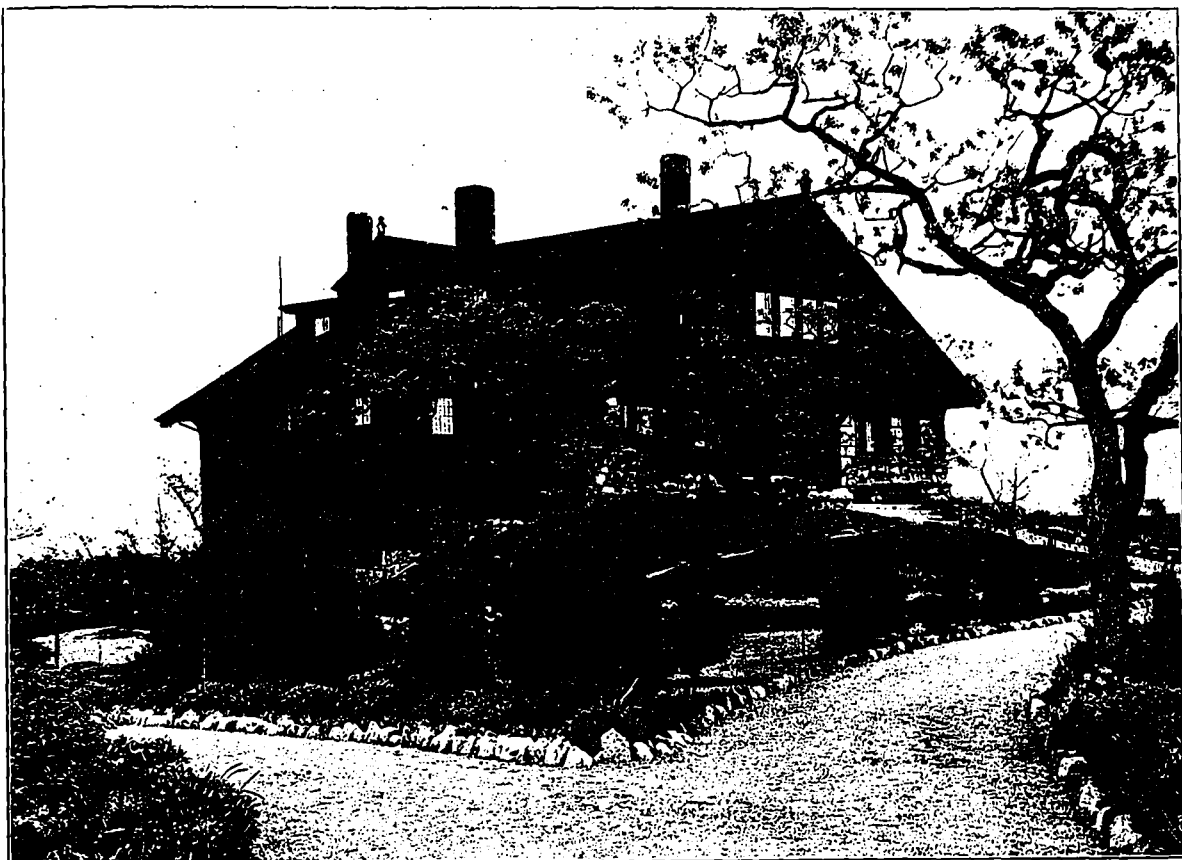


The House and Grounds from an Intersecting Point.



Living Room, looking toward Hall.

RESIDENCE OF J. J. SHALLCROSS, VICTORIA, B.C.



View from Approaching Drive.



Fireplace in Living Room.

RESIDENCE OF J. J. SHALLCROSS, VICTORIA, B.C.



THE VENTILATING AND WARMING OF CHURCHES

Defects which produce unhealthy conditions, and requirements for wholesome and sanitary results. Summary of paper presented before one of the British institutes.

THERE ARE MANY CHURCHES which, owing to defective heating and ventilation, are so unsatisfactory from a hygienic point of view as to very seriously impair their efficiency as places of worship. The conditions which tend to make these structures unhealthy, and the requirements for wholesome and sanitary results, are points to be considered in the designing of new buildings.

Experience abundantly proves that neglect of warming and ventilation in churches endangers health. The cathedrals and larger churches have ample cubic space, and by judicious warming and occasional opening of doors and windows, especially after services, the interior air in such buildings can be maintained reasonably pure. In smaller buildings containing less cubic space per person, which are usually crowded, the need for effective ventilation and ample warming becomes imperative.

The chief reasons which tend to make churches unhealthy are:

1. Large open timbered roof spaces, clerestory windows or lofty ground-floor windows which chill the air and produce down-draughts. These may be moderated by frequent use of the building and continuous warming.

In too many churches service is conducted on Sundays only, and fires are not lighted until a few hours beforehand.

2. No provision made for fresh, warmed air to enter near, or below, the breathing line; e.g., at back of radiators.

3. No openings to allow of cross ventilation just above the breathing line as in windows of all modern, well-equipped schools, but rarely found in churches. The absence of these openings causes the air to be stagnant, disagreeable, impure, and dangerous to health.

4. Damp floors and walls, which are apt to cause chills and colds in persons sitting near them. These are chiefly to be found in ancient buildings.

5. Hot-water pipes in channels sunk in the floor and covered by gratings. These channels, being usually in gangways, are receptacles for dust and dirt, and when the floor is washed, dampness is added to the heated dust in the channel and upon the pipes. Thus conditions antagonistic to health are set up, to say nothing of the added danger when consumptives occupy end seats near the channels.

6. Pits below the floor containing many gas jets for warming purposes.

7. Hot-air ducts, which are never, or hardly ever, cleaned out.

8. Boarded floors with open joints. It is not always borne in mind that there may be a mile or two of

joints filled with dust in a church where boarded floors are used. Sometimes near each row of seats there are two or more holes in the flooring, about one inch in diameter, for ventilating the space under, which in course of time becomes a large dustbin only four or five feet below the breathing line.

These insanitary and unhealthy conditions prevail to-day, more or less, in most modern churches and other places of worship. Some of the older churches have worse health conditions even than those just described. We all know churches where less than a moiety of window space can be opened, sometimes very much less. I recall one where the *only* portion of any window which opens is not much larger than the palm of one's hand. Yet the cult of the open window is no new thing. Nearly five centuries ago, in his books upon architecture, the renowned Leon Battista Alberti (1404-1472)—described by Evelyn as "the most knowing in the Art of Building"—again and again emphasizes the value of pure air, sunny aspect and the open window.

The requirements necessary to make the interior of churches healthy for use and occupation may be briefly stated thus:

1. Ample means of cross ventilation from openings in opposite sides of the building below or near the breathing line, in order to get rid of foul air at the very spot where it is generated. Cross ventilation is also desirable high up near the flat ceilings, or in the sloping roof spaces, the openings being arranged to check or divert downward currents.

2. The inlets for fresh air to be as short as possible, capable of being readily cleaned, well distributed, and allowing at least one foot super of clear opening to about ten people.

3. Adequate means for warming incoming air, so that it may be not only warm, but also pure and fresh as possible at the breathing line during services. High temperatures should be avoided, and provision should be made for supplying additional vapor to the internal air when required.

4. Warmth just below open roofs, clerestories and tall windows to prevent down-draughts.

5. Jointless solid floors, which can be readily kept clean.

6. Seats and fittings which do not obstruct the passage of light and air, or hinder the cleaning of floors.

7. Means for preventing the deposit and movement of dust.

In cold weather, warmth, genial, all-pervading warmth is desirable inside churches during occupation; the cold, bracing, breezy air which is so enjoyable when one is moving about is not welcome inside where persons are sitting. Provision, therefore, must be made for:

1. Warming *incoming air during the services* as well as the *inside air* before occupation;

2. Preventing the inrush of cold wind currents from windows by fixing hopper lights to direct currents upwards, and from entrances by double doors opening outwards and closed by checksprings, and by placing radiators or stoves near the entrances;

3. Preventing down-draughts by fixing hot-water

pipes in roof spaces and below clerestory and other windows;

4. Generous warming apparatus, well distributed, without excessive temperatures either in pipes or warm air flues.

Methods of Warming.

1. Large close stoves near inlets for fresh air are very useful.

2. Underground stoves: the heat ascending through grating at floor level, are effective, but the air is often too dry and polluted by dust.

3. Warm air apparatus, by which cold air is admitted either from the church or from outside to a furnace room or battery of large pipes, and discharged into the church through vertical or horizontal gratings.

4. Low-pressure hot-water apparatus with radiators having fresh air inlets. This is effective and generally satisfactory when inlets are accessible for cleaning, and radiators are in suitable positions.

5. Low-pressure hot-water apparatus with pipes in channel. For reasons previously stated this is an insanitary method. It is also ineffective, as the heat given off is generally reduced by the non-conducting matter accumulating on the pipes.

6. Medium-pressure apparatus with small bore pipes next outer walls or in channels, in coils, or round skirting of raised wood floor on which are the seats. A useful and economical method for distributing warmth *when pipes are kept above the floors.*

By all these methods fresh air can be admitted to be warmed before entering the building, but in many cases this has not been done.

Hot-water radiators to which fresh air can be admitted by short, smooth, cleanable ducts above the floor, are cleanly and cheap; effective boilers are also reasonable in price. There is now, therefore, no good reason for placing pipes in underground cellars or channels, or for allowing the bracing air to be contaminated by passing through long dusty flues. Hot-water pipes or radiators can readily be fixed above the floor and under upper windows and roofs.

In churches with boarded floors, sunk trenches, fixed benches, and roofs having exposed timbers, there are places where dust is deposited and rarely, if ever, removed. The accumulated debris from the boots and garments of generations of highly respectable, but not always healthy, persons is left behind; part is periodically disturbed by sweeping, dusting, and warming, ready to be inhaled by the incoming congregation; the rest, out of reach under floors and on lofty projections, gradually accumulates and constitutes a potential nuisance.

The dust nuisance can be palliated by (1) liberal use of mats at entrances, (2) jointless floors, (3) polished floors, (4) smooth wall surfaces, (5) avoiding unnecessary projections.

The commercial "Dust Allayers" are useful in numerous buildings, but unsuitable for churches by reason of difficulty of application under benches, and liability to injure ladies' dresses which touch the floor.

Windows are often kept closed to keep out dust from the street or roadway; there can be no objection to this provided they are opened during occupation.

When designing new churches, provision for ventilating and warming need not add seriously to the cost, and its importance is such that it should not on any account be included in those interesting items left to be done later when money is available.

Much may be done to make church interiors healthy by giving attention to a few negatives:

Don't have air brought in at floor level from beneath gratings.

Don't put hot-water pipes in channels under gratings in the floors.

Don't cover doorways with curtains.

Don't close all windows or ventilators at the same time; if a southwest gale prevails, those on the north side might be open without discomfort, and vice versa.

Don't try to save fuel by closing all the inlets and outlets for air when the church is occupied; it is false economy. They may be closed when the building is empty.

Don't fail to warm sufficiently a large proportion of the incoming air in cold weather.

Don't suffer down-draughts to exist; they are most dangerous to health, and can be prevented by judicious warming.

Don't fail to warm the triangular spaces in roofs which are open up to the ridge.

Don't have many supports beneath the seats, so that floors can be readily kept clean.

Don't fail to concentrate warming near entrances.

Don't encourage the use of blinds, curtains, matting, wicker seats, or anything which harbors dust.

In too many cases the members of the congregation are ignorant of the risks to health incurred by meeting under such conditions, and they either refuse to subscribe, or contribute unwillingly, the funds required to give them healthier buildings.

THE NORTH RAILWAY, which is making active preparations to build a line from Montreal to James Bay, the project being liberally subsidized by the Federal and Province of Quebec Governments, will have surveys sufficiently advanced by January 1, 1913, to give out at least a part of the construction contracts. F. H. Clergue, chief promoter, further says that the system will extend from the mouth of the Nottawa, first to the Bell River, on the Transcontinental, 240 miles (to which location surveys will be finished by the first of the year), and then to Montreal, a distance of 260 miles, or 500 miles in all. Construction can also be carried on north and south from the Grand Trunk Pacific, from the proposed terminus at the mouth of the Nottawa, as well as from this end of the line, and rails can be landed at the James Bay port by sea, as well as at Bell River. Mr. Clergue says the North Railway will tap a magnificent lake system composed of Lakes Mattagimi and Gull, over which steam navigation is practicable for 60 miles east and west and 30 miles north and south.

Concrete in Cold Weather

IN THE INTEREST of safe construction, the Trussed Concrete Steel Company has issued the following instructive circular relative to the placing of concrete during the fall and winter months:

At this season of the year the greatest care must be exercised in using reinforced concrete. Cool weather, with its attending atmospheric conditions, even though not freezing, has a bad effect on concrete. The following points are worthy of special consideration:

1. During cool weather, even though not freezing, the setting of cement is delayed. Sometimes two weeks or more after placing, it is possible to drive a nail into concrete, which indicates how serious is this delay in the setting. The only sure way of knowing when the cement is fully set and the concrete properly hardened, is to actually test it with a hammer for hardness. To do this, it is necessary to remove small portions of the form work in each section of the structure to be certain that there are no soft spots. Bear in mind, this delay and indefiniteness in the setting of cement is not due to freezing, but merely to medium cold weather and attending atmospheric conditions.

2. Be careful to avoid freezing of the concrete. While the days may not be particularly cold, the nights are often below freezing temperature. Therefore, protect all freshly laid concrete by covering it with some material that will prevent freezing. Be especially careful to protect this concrete during the nights. It is said, and may be true, that frozen concrete will re-set under certain conditions, but it is not advisable to depend upon such an uncertainty. The safest plan is to entirely avoid freezing. If absolutely necessary to place concrete during freezing weather, the materials such as sand, stone and water, should be heated and the placing of concrete so protected as to keep its temperature above freezing.

3. Workmen are apt to become careless during cold weather. They have a tendency to shirk their duty, especially when it exposes them to the cold. Therefore, particular care should be used by the superintendent in charge, to see that the forms are properly braced, that the bottom of beam and column boxes are clean before pouring concrete, that the steel is accurately placed, concrete thoroughly mixed and the workmanship in general, the best possible. Special vigilance is required of the superintendent at this season of the year.

4. The most important point, and one whose importance cannot be over-estimated, is caution in the removal of the form work. Don't remove any forms until absolutely certain that the concrete is thoroughly hardened and that no portion is either soft or frozen. Even after you are certain that the concrete is hard, then remove the forms very carefully and without shock to the structure. Always leave in place a few intermediate posts so as not to place the entire dead weight too suddenly on the beams and columns.

We cannot emphasize too strongly the importance of special care at this season of the year to be certain that the concrete is thoroughly set and hard-

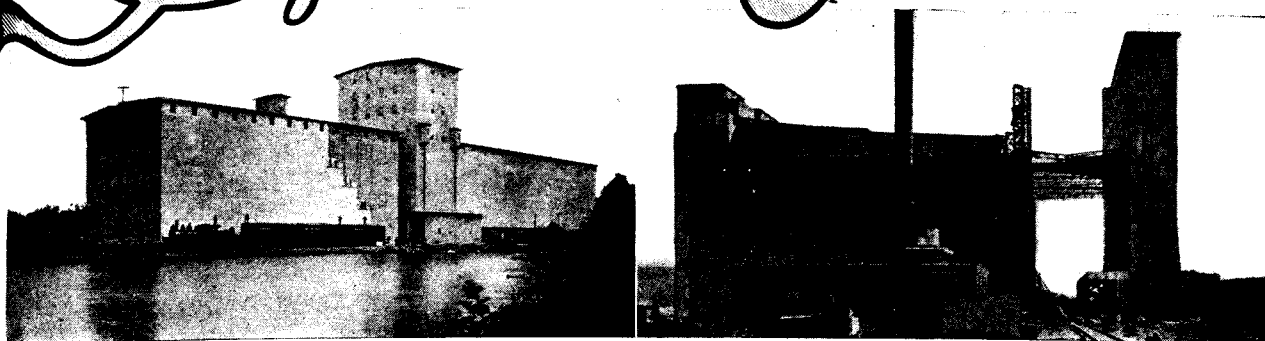
ened before the removal of the form work and to guard against the treacherousness of the fall and winter weather in its effect on concrete work.

THE IMPORTANCE attached to that branch of engineering which deals with the waterproofing of building construction has become so great as to justify one of the largest manufacturers in this line—the H. W. Johns-Manville Co.—to establish and devote a special department to it. It is expected that this new department will be of great assistance and value to architects, engineers and others directly or indirectly interested in the matter, but who do not possess that intimate knowledge of the subject necessary to secure the best results either for themselves or their clients. Mr. W. H. Lawrence, a recognized expert in waterproof engineering, will be in charge. He has had a long, practical experience and is thus able to intelligently consult with architects and engineers as to the best method of applying waterproofing and mastic materials for all purposes. The company maintain branch offices in all the principal cities of the United States and Canada, and are in position to promptly supply materials anywhere for waterproofing residences, business structures, bridges, abutments, etc., as well as mastic for floors in breweries, abattoirs, factories, reservoirs, etc. The organization of the new department is such that contracts may be taken for the application of these materials and for the satisfactory completion of any waterproofing problem irrespective of its nature.

A NEW UNIT is shortly to be added to the growing list of Canadian industries as the result of the decision of the well known firm of English engineers, Herbert Morris, Limited, to manufacture in Toronto, where it has recently opened a branch office and warehouse at 79-81 Peter street. For many years this company has specialized in the manufacture of electric and hand-operated cranes and chain blocks and their products are known and used throughout the world. We understand that this important step was taken after the visit to Canada, some months since, of Mr. Arthur Atherton, who is chief engineer to the company, and who also has a seat on the board of directors. The Canadian affairs of the company will be under the management of Mr. Malcolm, who is an engineer of wide experience in the manufacture of lifting machinery and who is already well acquainted with Canadian business men and the conditions of the Canadian market. As the intention of the company is to manufacture in Toronto, thus utilizing Canadian labor and material, their coming will be entirely welcome.

THE FIRM of Dartnell, Limited, 8 Beaver Hall Square, Montreal, reports an active season and a large number of important contracts for materials, including an order for "Caledonia" grey mat brick to be used for facing the new ten-storey Herald building, now in course of erection at Calgary, Alta. The fact that this concern's materials are in demand at a point so far west as Calgary speaks well of its aggressive business policy and the merits of its products.

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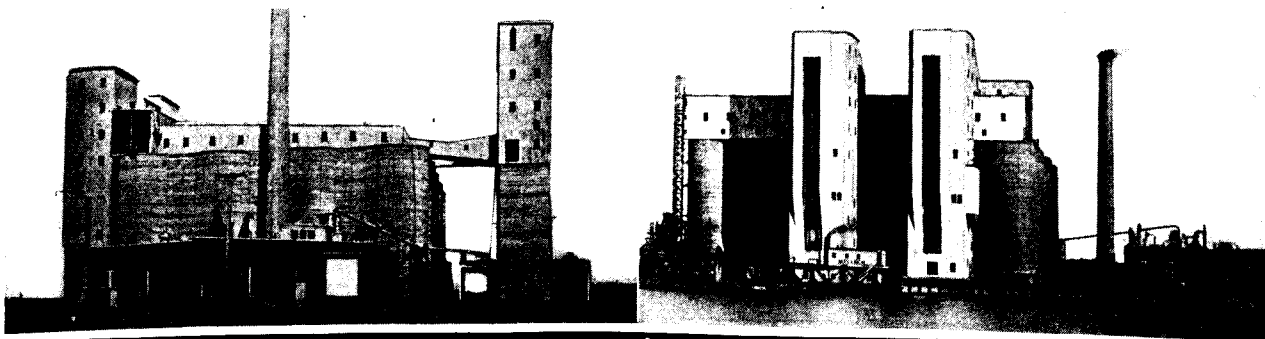
Copy of The Barrett Specification with tracings ready for incorporation into building plans free on request. Address nearest office.

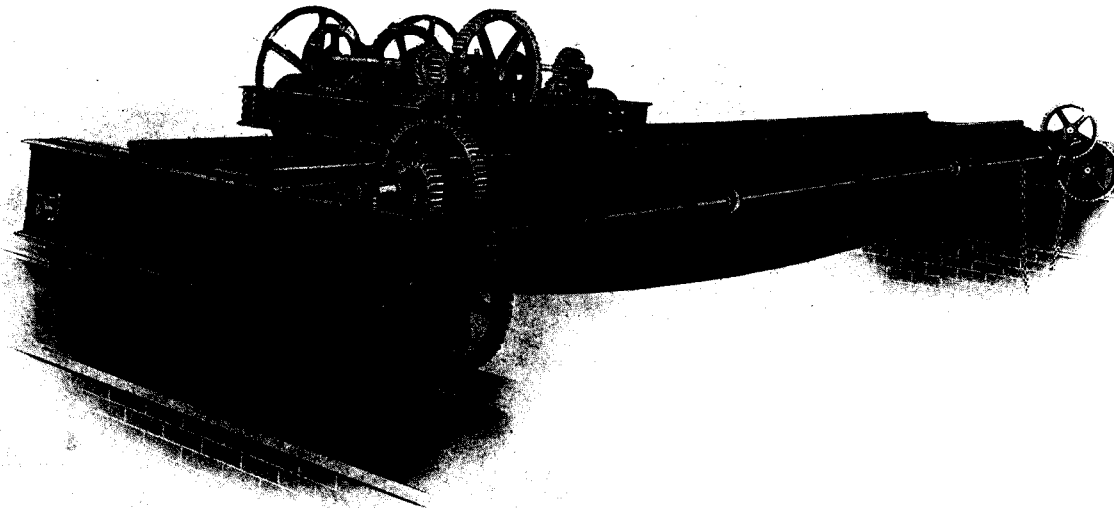
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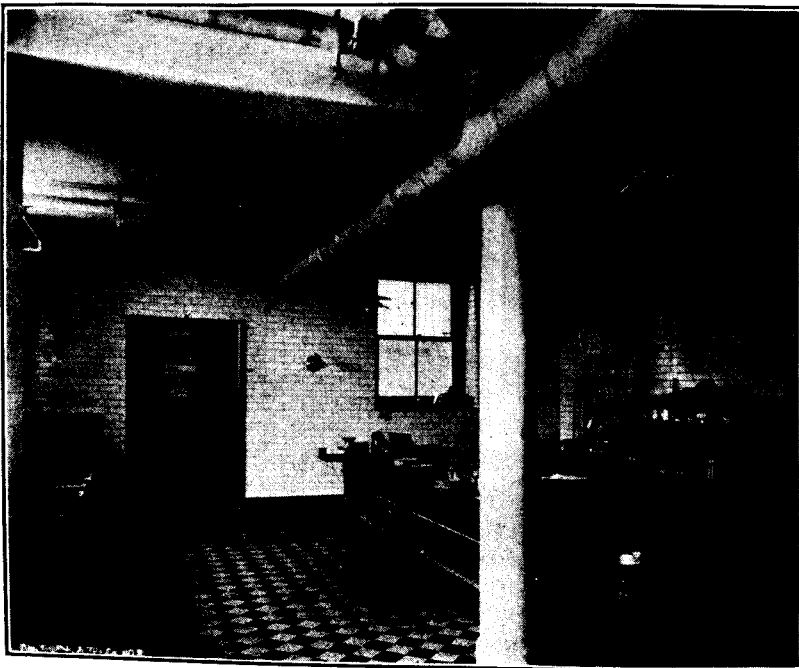
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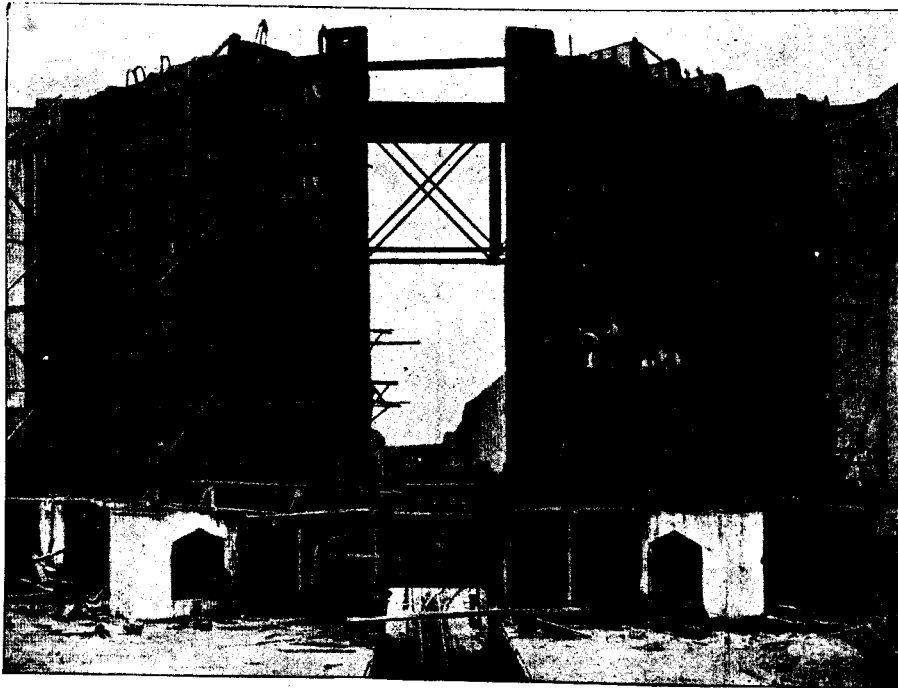
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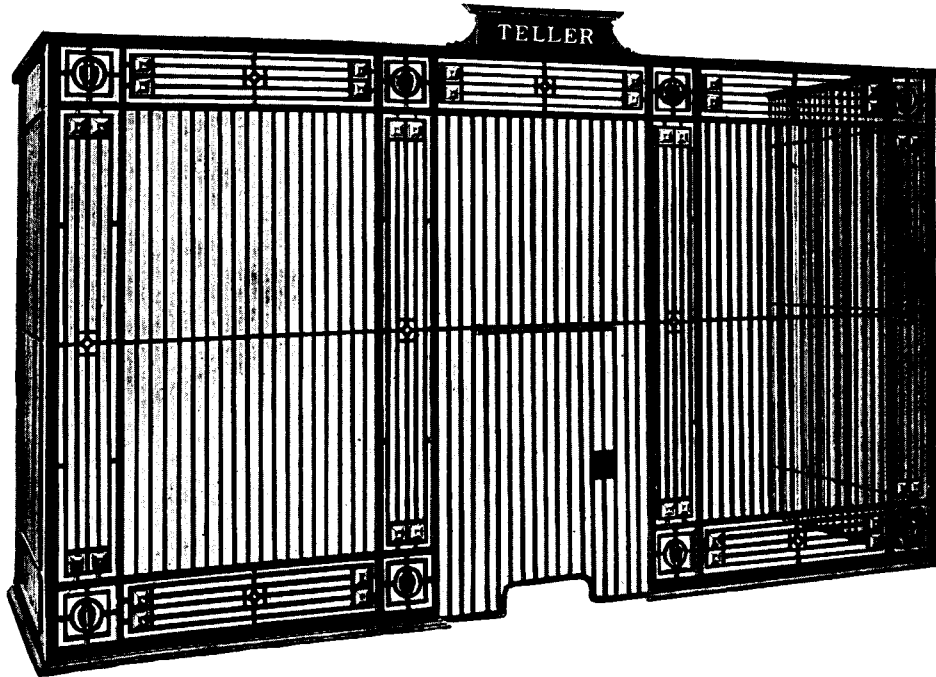
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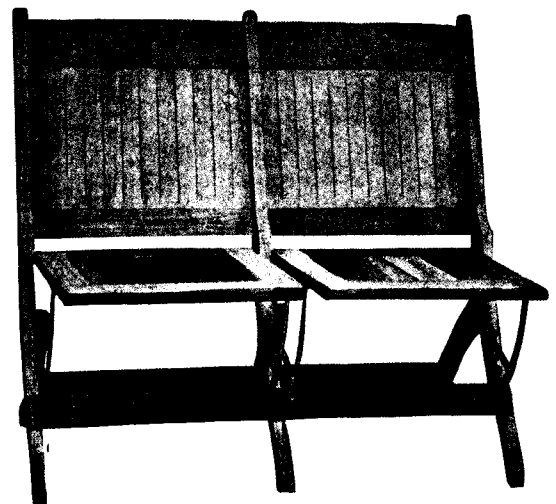
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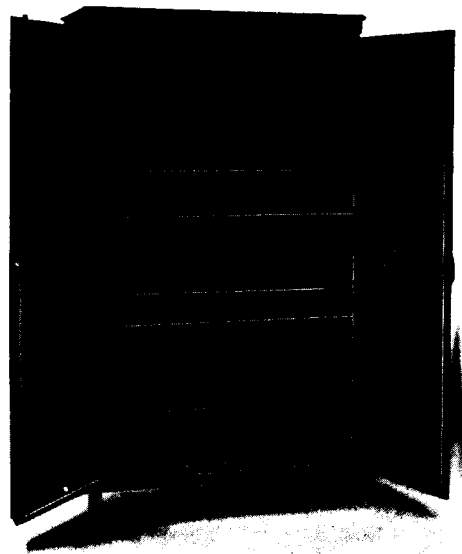
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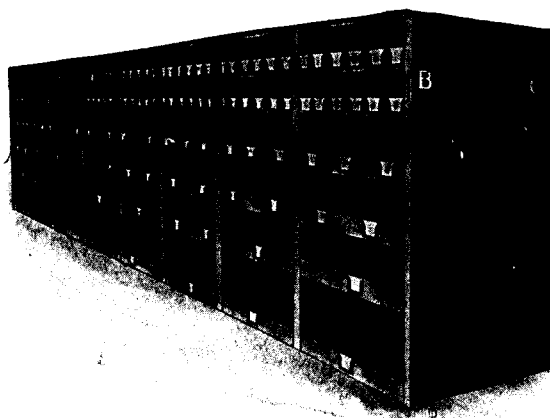
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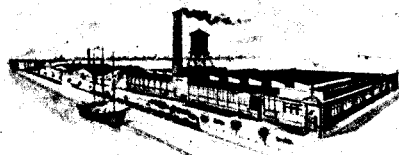
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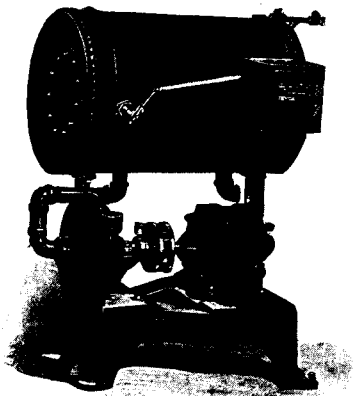
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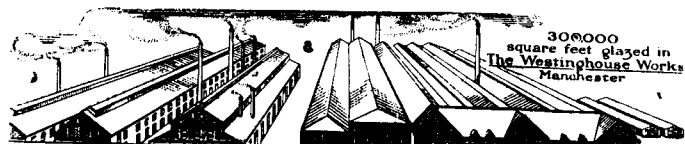
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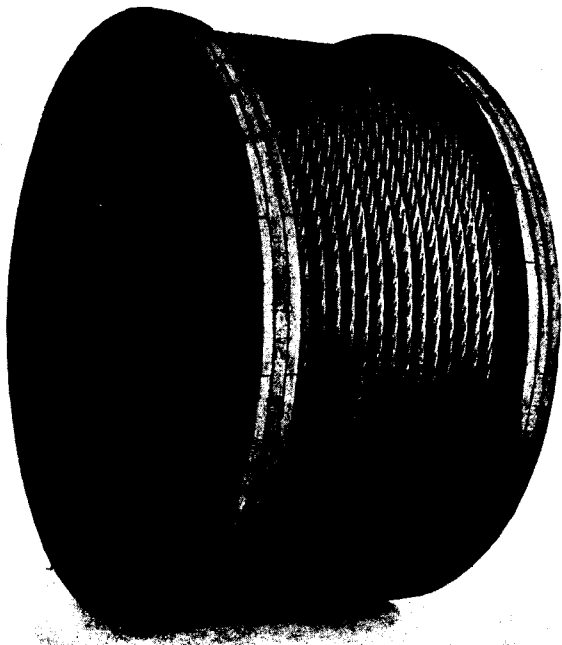
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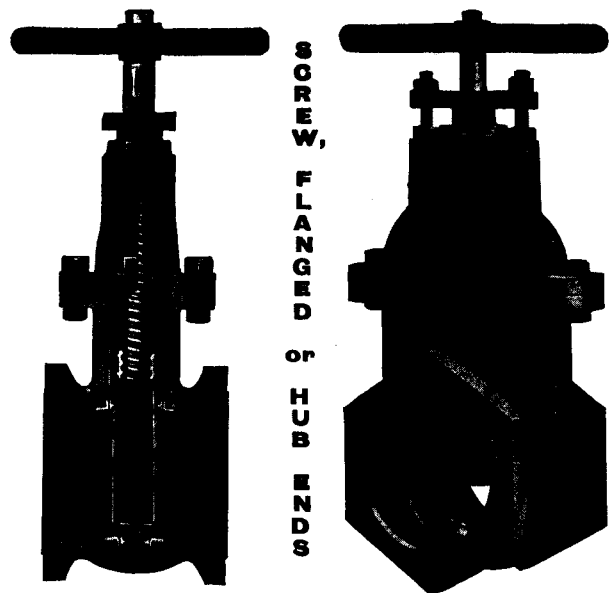
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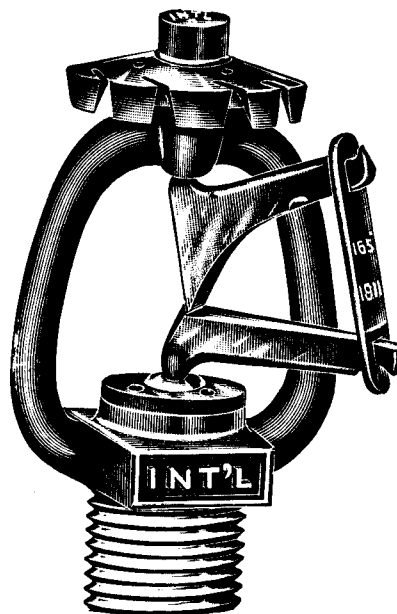
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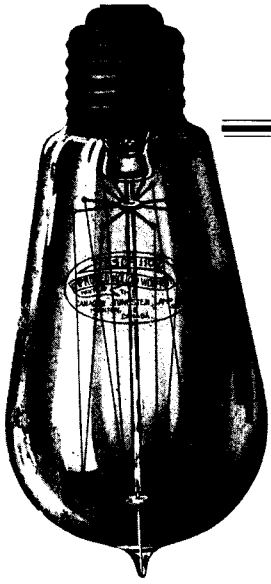
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