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MARCH, 1912

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# CONSTRUCTION

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



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Gentlemen:—It is with a great deal of satisfaction that I express my opinion as to the Liquid Cement manufactured by your company, which I used in finishing the outside walls of this hotel. I found it all you represented it to be and I believe it is the best paint on the market for brick or cement walls. Since my first order, I understand that it brought you several other orders from Waco people.

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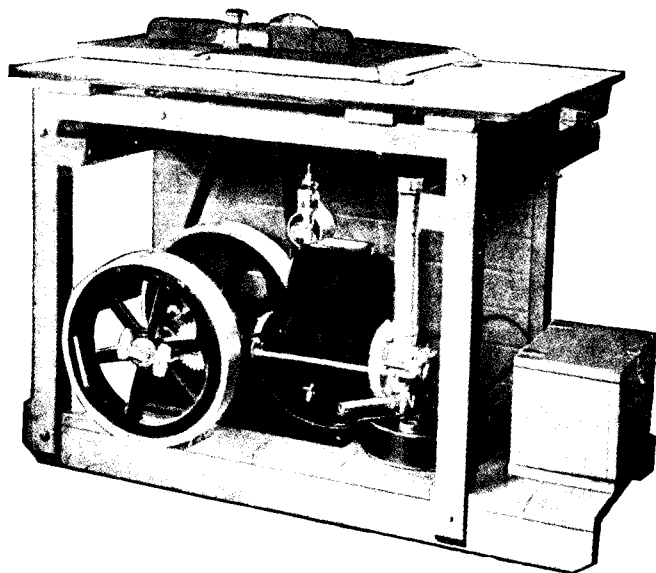
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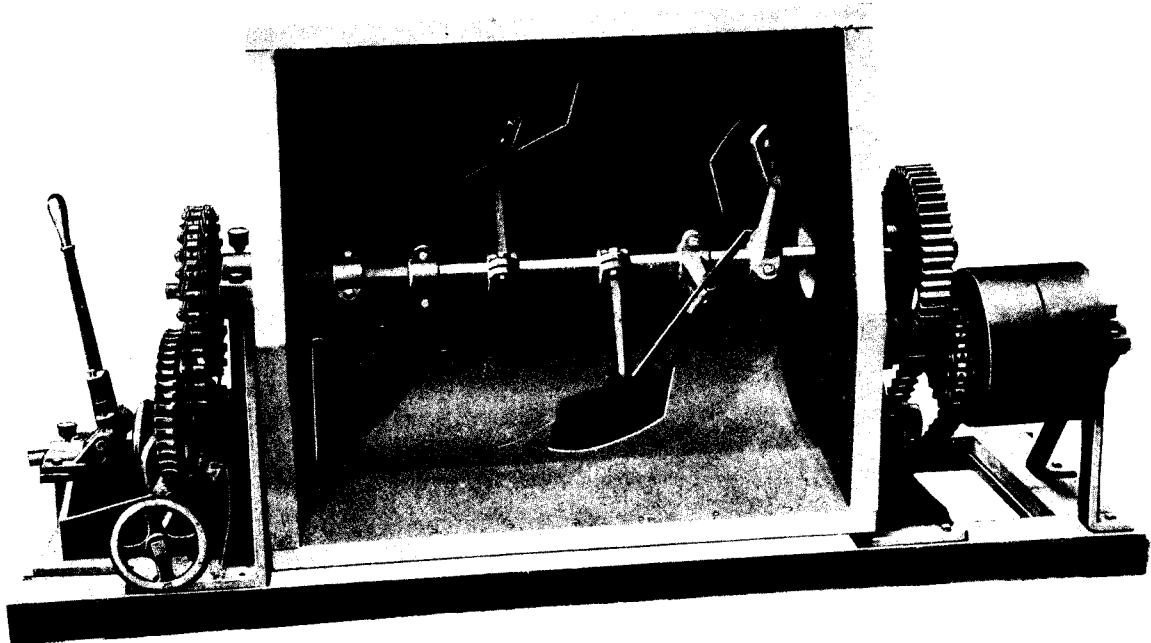
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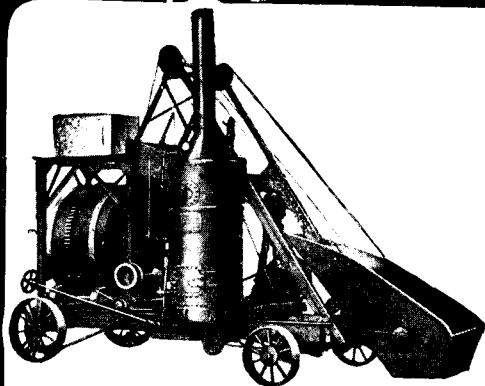
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The following is an illustration of our Ideal Type "B" No. 1 Batch Mixer.



## Ideal Concrete Machinery Co., Limited

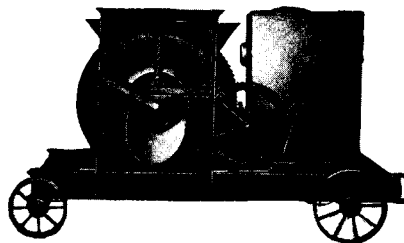
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London Paving Mixer with Front Loader.

# London Concrete Machinery

IS BUILT UP TO A STANDARD



London Standard Batch Mixer with Charging Bin. Gasoline power.

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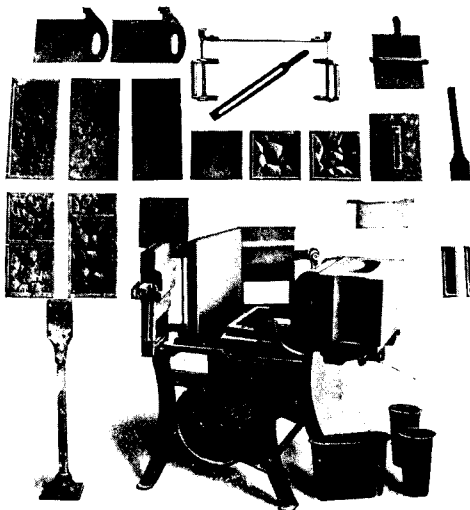
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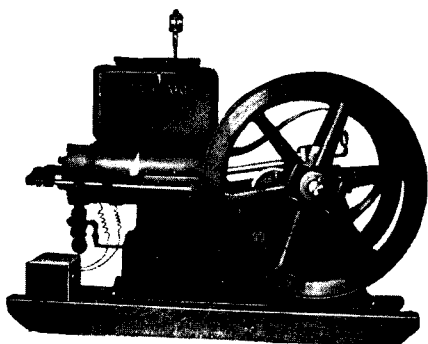
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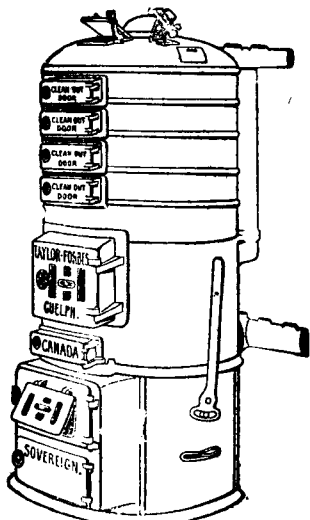


London Automatic Batch Mixer, No. 2.

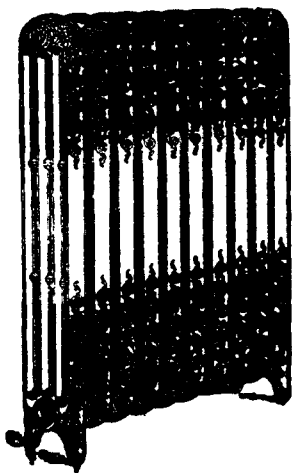
## The London Concrete Machinery Co., Limited

Cabell St. and Kitchener Ave., London, Ont.

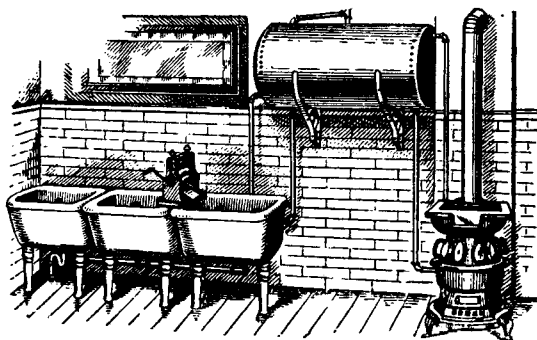
AGENTS—The Foss & Hill Machinery Co., 329 St. James Street, Montreal, Que. G. B. Oland, 28 Bedford Row, Halifax, N.S. B.C. Equipment Co., 606-7 Bank of Ottawa Bldg., Vancouver. London Concrete Machinery Co., W. H. Rosevear, Mgr., 445 Main St., Winnipeg, Man., and Hamilton Machinery Co., Room 501, Leeson & Linehan Block, Calgary, Alta.



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Hot Water Boiler.



"SOVEREIGN"  
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"LITTLE GIANT" HEATER OR BOILER.  
The most economical auxiliary heater, here shown  
installed in the laundry.

## Now it's time to take stock of your home comforts

How have you got along this winter, so far?

Is your house comfortably heated?

Are you burning too much coal?

Now is the seasonable time to take stock of conditions—because, if you overlook the inquiry, when you have the wintry weather to contend with, you will not likely think about house-heating when the weather moderates and artificial heating is no longer necessary to make home comfortable indoors.

A defective heating system may be improved at small expense—particularly when the fault is owing to taxing a small hot water boiler with too much radiation.

If you have a hot air furnace in your house, and you intend to get along with it as best you can, put in an auxiliary hot water heating boiler, a "Little Giant." Radiators may be carried from it to the cold rooms and you may have heating in the cellar or kitchen, and hot water for the bath, kitchen and laundry as well.

A "Little Giant" costs little to begin with, is cheaply maintained, and is good for years of service. It will burn any kind of fuel.

A hot water boiler should not require more fuel than a hot air furnace to keep a house comfortable. Where a furnace, or boiler, is extravagant in coal consumption, there is something wrong either with the furnace or the house. The remedy is—if you have a good boiler, of too small capacity for your size of a house, to put in an auxiliary boiler, a "Little Giant."

If you have a poor furnace, or boiler that fails to give an adequate degree of heat from the coal burned, have it taken out and put in a "Sovereign."

Talk with your friends and get them to tell you how much coal they burn. Those who live in "Sovereign" heated houses will tell you that there is less coal goes into their furnace, and more comfort comes out of it, than may be obtained with any other heating apparatus.

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All plaster that drops between the studs is wasted.

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Diamond mesh lath is only satisfactory on twelve-inch spans.

**HERRINGBONE METAL LATH** (the Ribbed Kind) spans sixteen inches. Leave out all cross-furring. Place it directly on the joists and save nine cents per yard.

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## ACORN QUALITY FIRE-PROOF WINDOWS



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

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

When you want fire-proof windows ask for Acorn Quality, and be sure you take no other. If you get Acorn Quality you get satisfaction, and you get safety from wind and fire.

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

We feel sure of your decision.

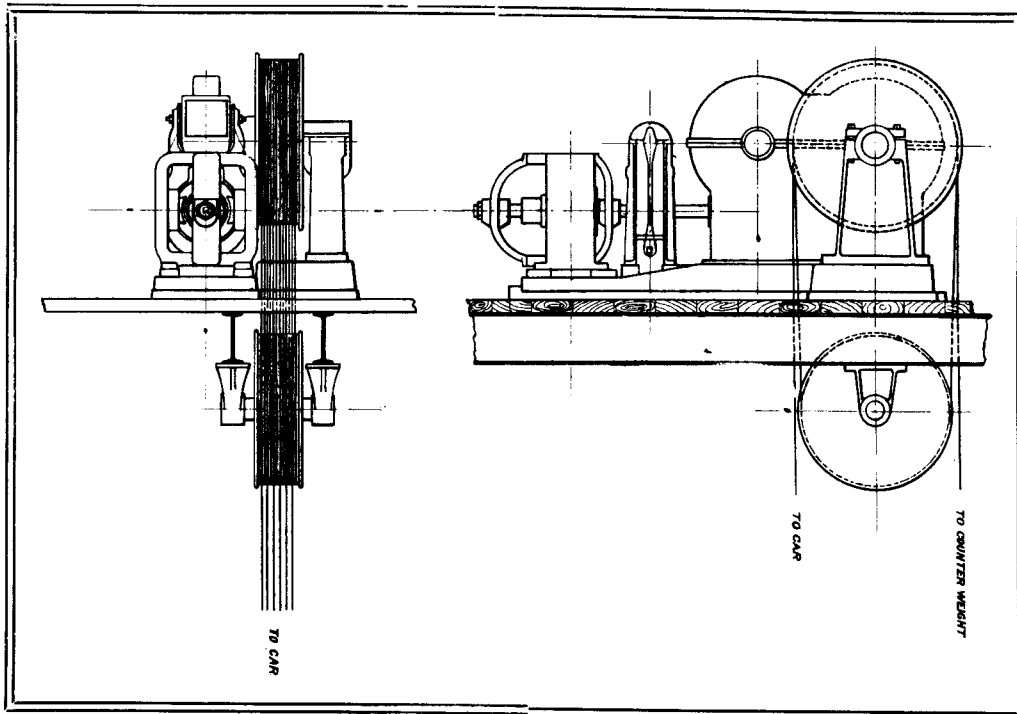
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Limited

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The Turnbull Traction Passenger Elevators are designed to meet the exacting demands of modern high office buildings where speeds up to 400 ft. per min. are required.

The Tandem worm gear machine coupled to motor is located over the hatchway, and the hoisting cables lead directly to the car and counterbalance.

These elevators are completely equipped with controlling and safety devices so as to be absolutely safe and reliable.

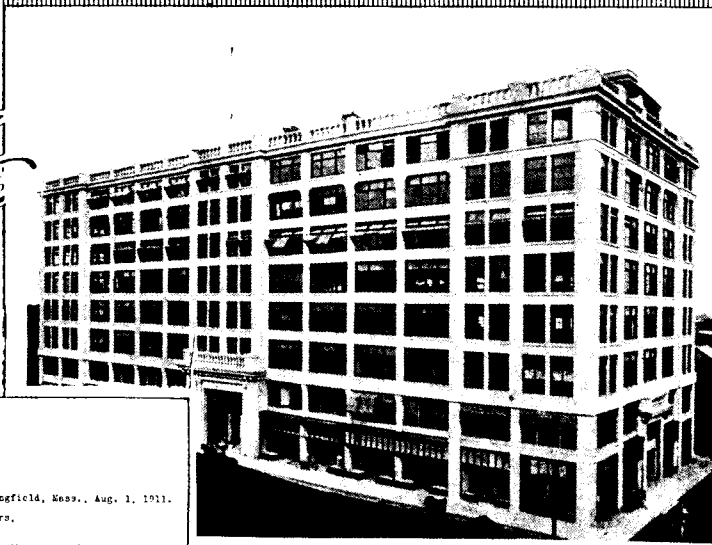
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## The Turnbull Elevator Mfg. Co.

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Branch Offices—Montreal, Winnipeg, Vancouver

*The  
Building  
they built*



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Association of American Portland Cement Manufacturers,  
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Yours very truly,

THE PHELPS PUBLISHING COMPANY.

*J. Frank White*  
Secretary.

*and  
the letter  
they wrote.*

**D**ON'T you need a book containing  
Photographs and fac-simile autographed letters dealing  
with *experience-proven facts* about modern fireproof  
construction;

Statistical information—terse, yet comprehensive—giving cost  
per square foot, per cubic foot, floor loads, window area,  
insurance; information invaluable to the prospective builder,  
architect, contractor or engineer;

A practical discussion of reinforced concrete construction—its  
advantages, its adaptations to various types of buildings;

An authoritative article dealing with mistaken impressions  
concerning reinforced concrete—an article based upon *specific  
experience*, not *theoretical generalities*.

Isn't such a book worth more to you than three minutes of  
your stenographer's time?

(See next page.)

... OF TOMORROW.  
XCVII—NO.

**JNCAN**

**BLABON PLANT FIRE  
PROVES EFFICIENCY  
OF CONCRETE WORK**

Flames Raged for Hours, but  
Building is Not  
Damaged.

NEEDS ONLY CLEANING

Will Be Reoccupied at Once and  
No Insurance Claims  
Made.

A fire due to overheating a comparatively new drying building of the Blabon Oil Cloth Works, at Blabon street and the Reading Railroad tracks, destroyed from \$2,000 to \$3,500 worth of cork linoleum this morning, but officials of the company declare that it proved beyond doubt the fire-proof qualities of the building.

So well did the structure, which is four stories in height without floors, withstand the heat of the flames which raged from top to bottom for several hours that S. Loog, manager of the plant, declared after the fire had been extinguished and he had made an inspection, that no claim would be made on the insurance company for damage to the building.

Even the wireglass skylights on the top were found to be intact following the fire, and Mr. Loog declared that the debris could be shoveled out by a force of workmen and the building immediately put in service again.

The structure is fitted with numerous horizontal iron bars, from which is hung the drying linoleum. It is known as building No. 12 of the plant, and ten minutes after the fire had started, the flames were raging from top to bottom, unobstructed by floors. A total of 91 pieces of the linoleum was hanging in the building at the time, and all of these were consumed by the blaze. Only a coating of ashes on the ground floor and the blackened walls will show that a fire occurred.

The article reproduced above appeared as a news item on the first page of the Philadelphia Evening Telegraph, issue of February 4, 1912. Could there be more striking proof of the value of fireproof construction than this unsolicited newspaper testimonial?

THE clipping herewith reproduced tells a story of a fire that *did not* paralyze anybody's business, that *did not* cause "a total loss, partly covered by insurance"—a story that was remarkable enough to receive first page position in the paper that printed it.

The book,

**"Factories and  
Warehouses of Concrete"**

covers—more fully than any other publication—the modern form of construction that will make such stories the *rule*, not the *exception*.

"CONSTRUCTION," February issue, says:

"The publication (Factories and Warehouses of Concrete) presents to the prospective builder, his architect and engineer, information of great value."

Its scope is suggested on the opposite page.

This book, containing 225 pages, will be sent to any architect, contractor or business man who asks for it on his business letterhead, enclosing 12 cents in stamps for postage. It will be well to dictate a note at once, because the edition is limited.

Address Publicity Manager

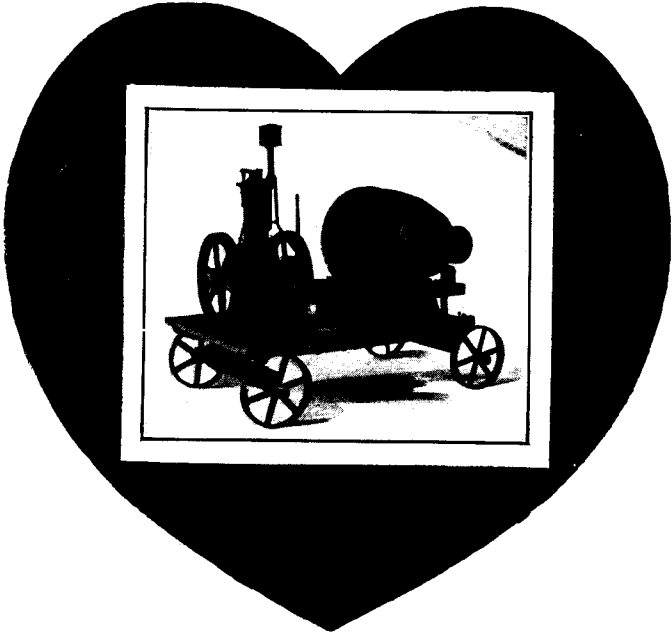
**Canada Cement Company**  
Limited

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# Wettlaufer Improved Heartshape Mixer



Don't Hammer, Scrape or Cut

Save yourself all trouble by buying a

## Wettlaufer Heartshape Mixer

IT WILL GIVE YOU

A Quick and Perfect Mixture.

A Clean Drum when you are through.

The best work with unlimited capacity.

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With our new oiling system all bearings are fed direct from the centre of the bearing. By this means all the grit is forced out of the end of the bearing, thus reducing the wear to a minimum and giving the mixer a 50 per cent. longer life.

Our new Automatic Worm Dump is satisfaction itself.

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(Interior)



**CEMENTSEAL** is a water-proof, dust-proof and weather-proof coating for interior cement and concrete floors, walls, and ceilings.

**CEMENTSEAL** permanently eliminates all dust conditions, and all possible flint action. It securely seals all minute dust particles and produces an ideal working surface—smooth, enamel-like, durable, elastic and sanitary. It will withstand all heavy trucking and looks and wears like tiling.

**CEMENTSEAL** has been used with great success in factory interiors, stores, salesrooms and public buildings.

**CEMENTSEAL** is manufactured in five durable colors—cream white, dust, grey, stone and maroon.

COLOR CARDS  
FREE  
UPON REQUEST

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**NUSURFACE** is a paint made of weather and water-proof gums, that protects and produces a permanent new surface.

**NUSURFACE** is very elastic, expanding and contracting with the surface of all building materials as they heat and cool.

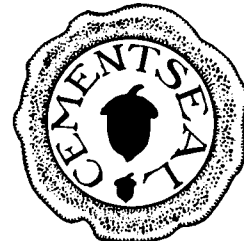
**NUSURFACE** penetrates and seals the pores of all exterior building materials, such as wood, shingles, tin, iron, steel, brick, stone, tile, slate, concrete, plaster, felt, paper and canvas, etc.

**NUSURFACE** is absolutely proof against the action of corrosion and rust due to acids, alkalis, gases, dust, soot and all germs.

**NUSURFACE** is made in the following fadeless colors: Grey, stone, red, green, brown, terra cotta, maroon and black.

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(Exterior)



**CEMENTSEAL** is a weatherproof covering for cement, concrete and plaster surfaces which are exposed to severe weather conditions.

**CEMENTSEAL** seals all pores, prevents absorption of moisture, and stops chipping and peeling.

**CEMENTSEAL** not only protects, but beautifies as well. It is made in a variety of colors, each a soft, rich shade which greatly improves the appearance of any building. For greater service, a dryer and more beautiful building and complete satisfaction, use **CEMENTSEAL** on all exterior surfaces of cement, concrete or plaster.

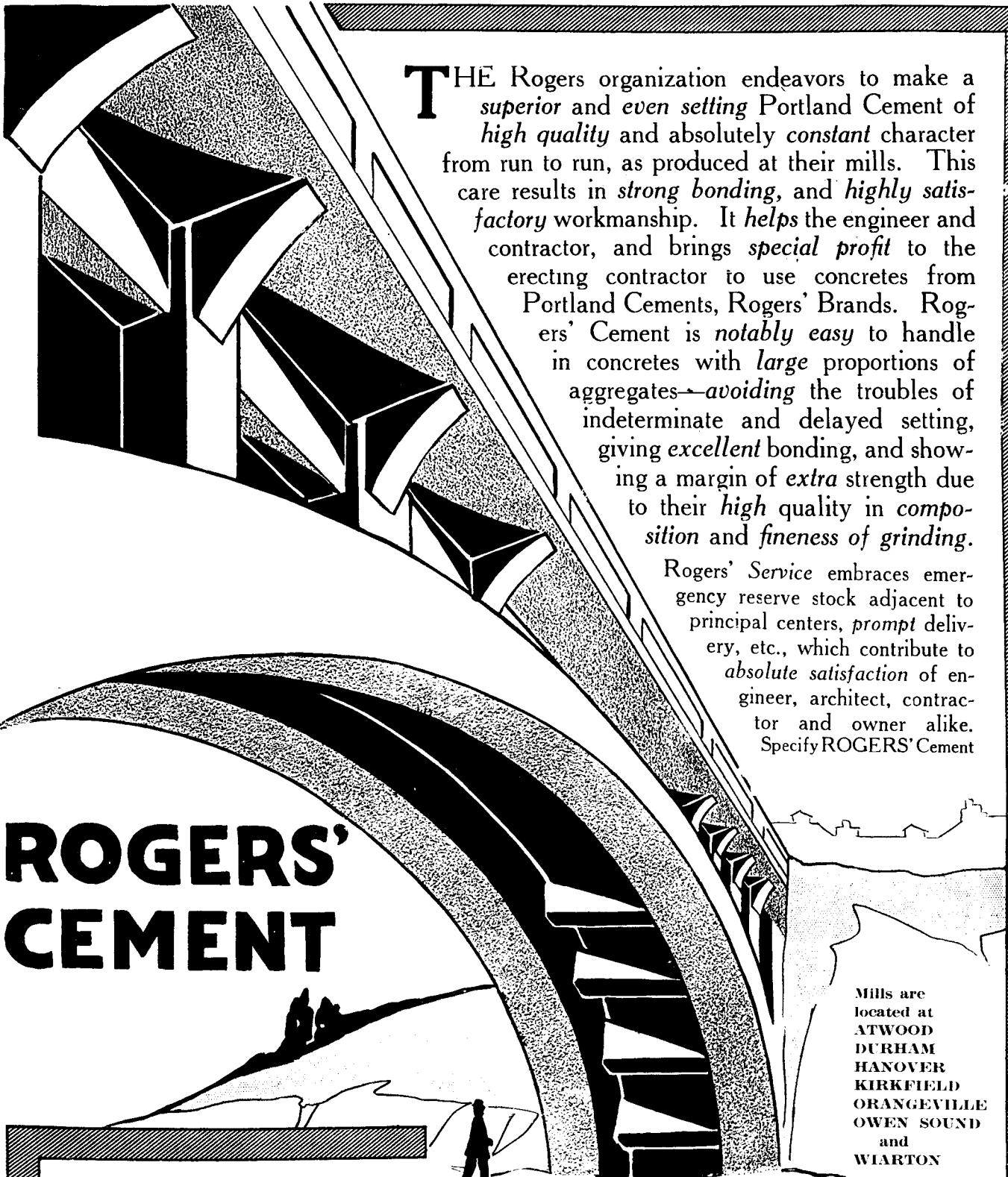
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Rogers' Service embraces emergency reserve stock adjacent to principal centers, *prompt* delivery, etc., which contribute to *absolute satisfaction* of engineer, architect, contractor and owner alike. Specify **ROGERS' Cement**

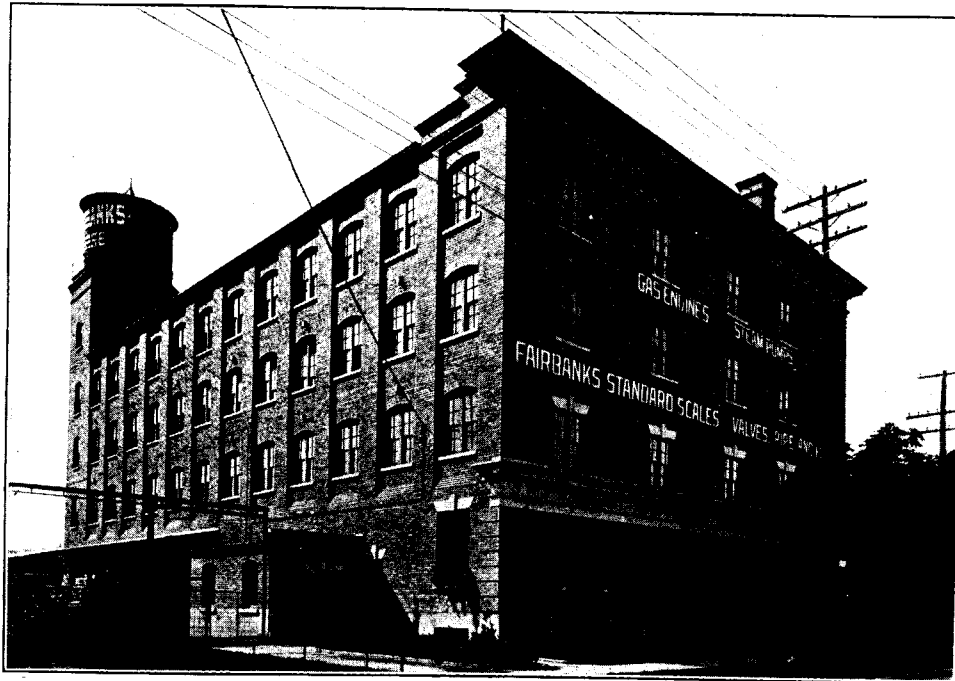
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CEMENT**

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## WIRE CUT AND PRESSED BRICK

Our plant has a capacity to meet any order.

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When an architect specifies **SATINETTE** he desires to enhance and protect the beauty of his design.

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"**SATINETTE**"—the enamel that never turns yellow—is the most perfect and durable white enamel ever made.

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**TORONTO**

Canadian Factory of Standard Varnish Works

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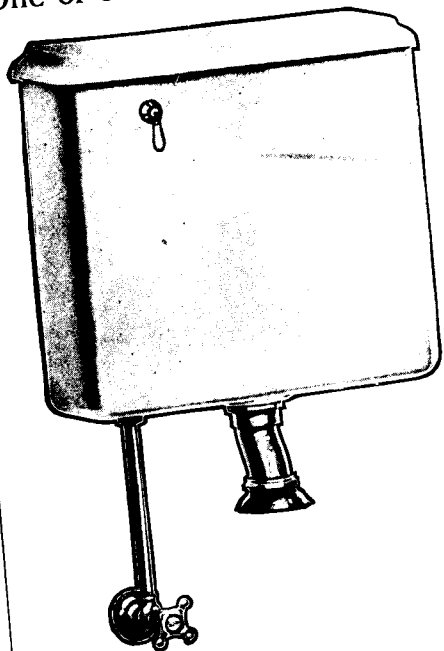
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# Standard Sanitary

## Plumbing Fixtures

One of our late designs:-



### Standard Sanitary

Enamelled Low-down Flush Tank

This tank possesses many attractive features. Occupies little space, is cheapest to install, being simply hung on the wall. Has no joints to open up, or linings to give out. Is made of porcelain iron and enamelled both inside and out. Its first cost is also last cost, because there's nothing about it to ever need repair.

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**Standard Sanitary** enamelled iron bath tubs, lavatories, and sinks are made by an exclusive process that secures a homogeneous bond between the iron body and the enamel coating. The glazed surface is very hard, retaining its original finish throughout years of service.

We were pioneers. We built, in 1875, the first factory for the manufacture of enamelled iron plumbing fixtures. Since that time, we have consistently maintained the superiority of our product, with the result that to-day, it is the standard throughout the world.

Your clients' interests—and consequently your own—will be served best by specifying Plumbing Fixtures that bear the name **Standard Sanitary**

Write us for full particulars concerning our latest lines. They embody the most advanced lines in bathroom design—

Or visit our new show-room.

## Standard Sanitary Mfg. Co.

Limited

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# R. I. W. DAMP RESISTING PAINT "TOXEMENT" "CEMENT FILLER" and "CEMENT FLOOR PAINT"

(TOCH BROS.—NEW YORK)  
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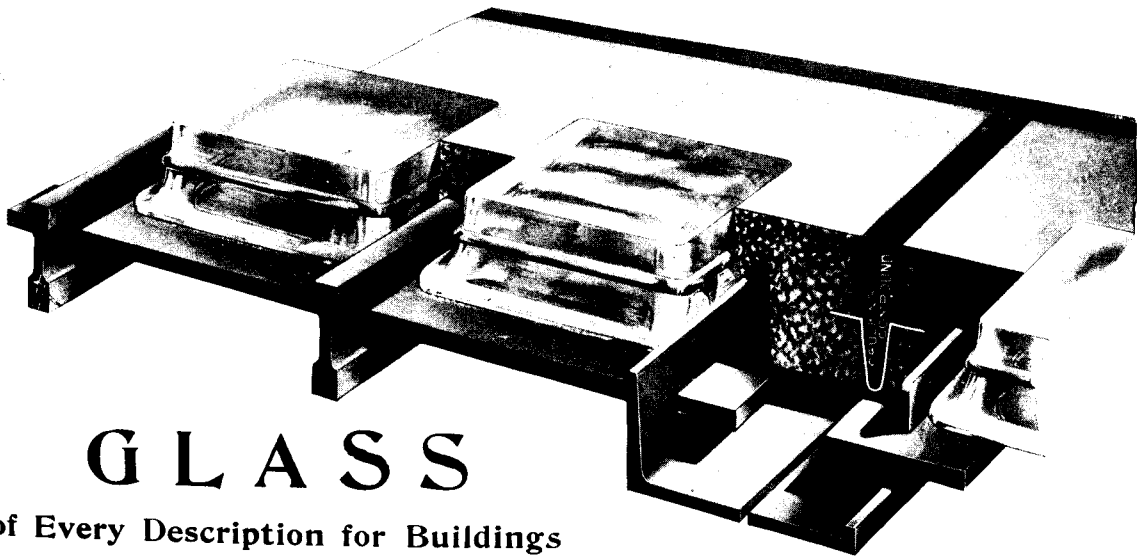
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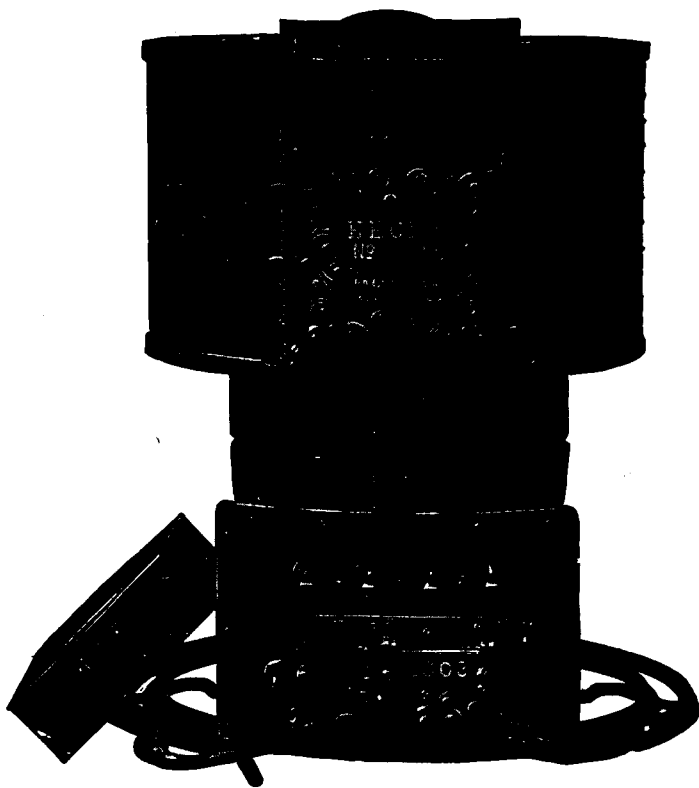
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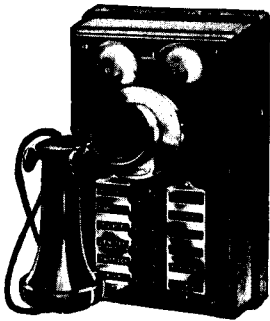
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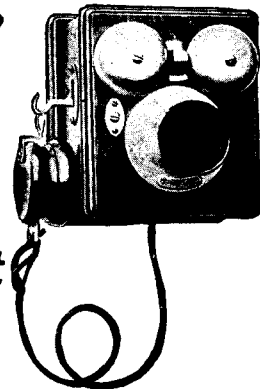
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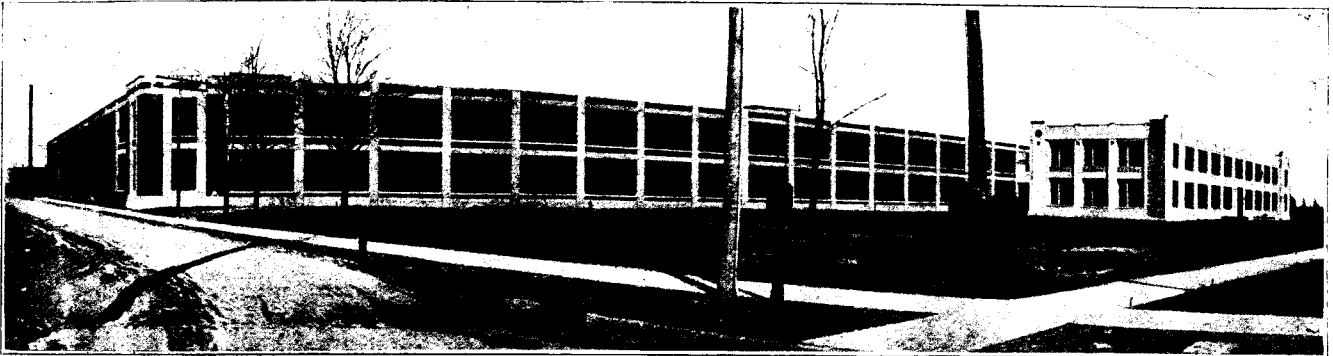
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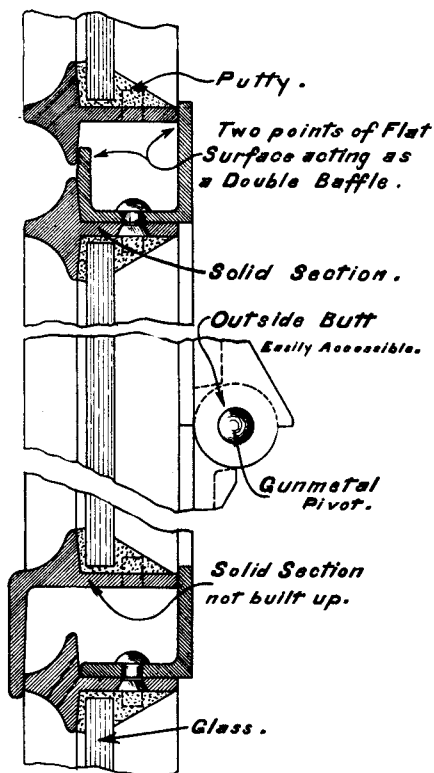
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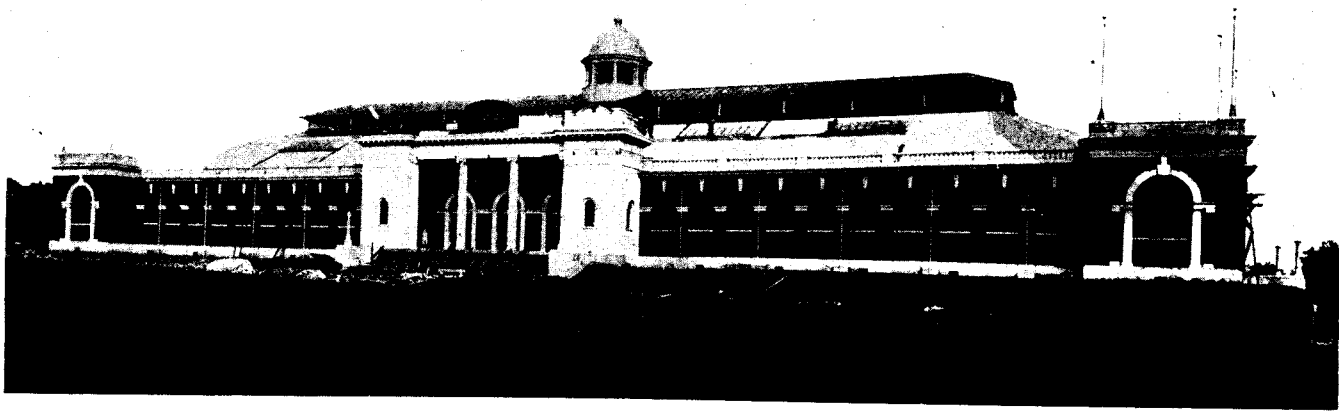
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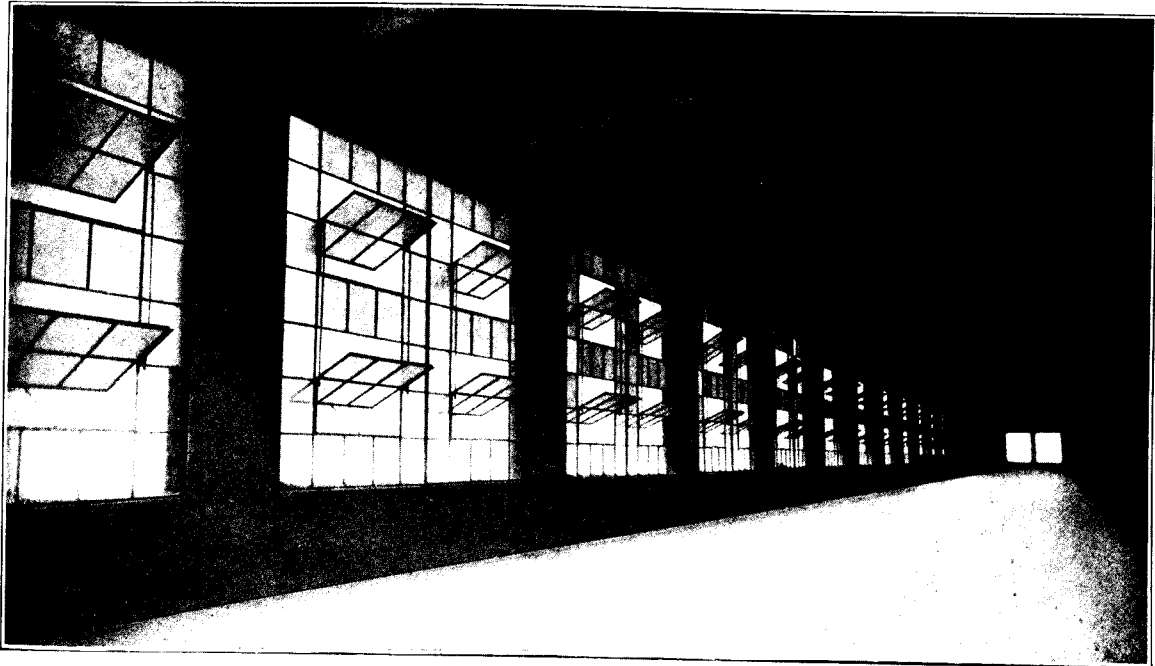
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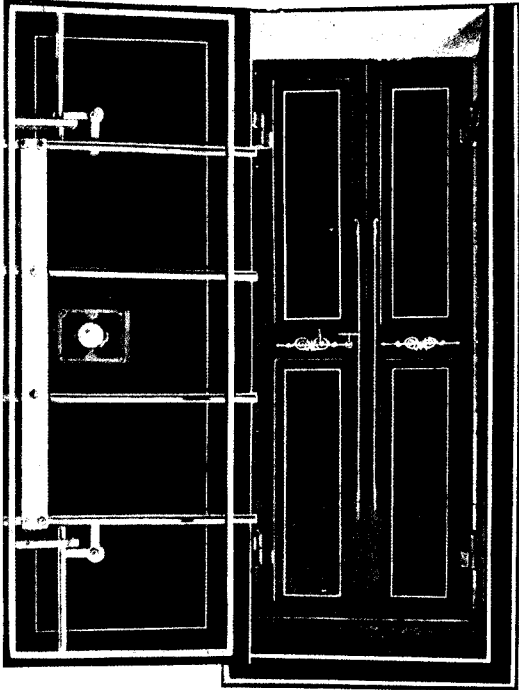
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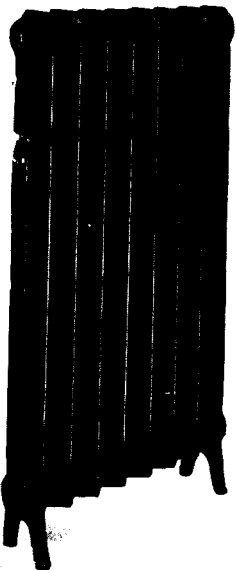
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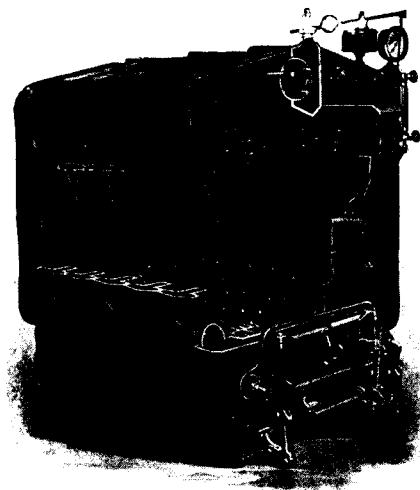
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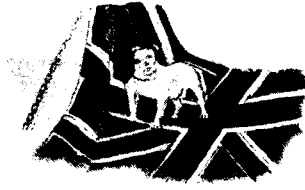
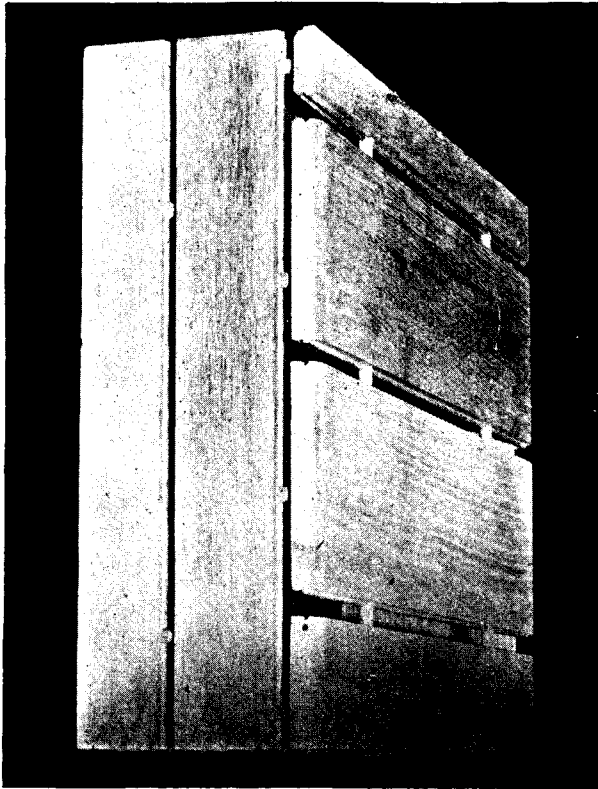
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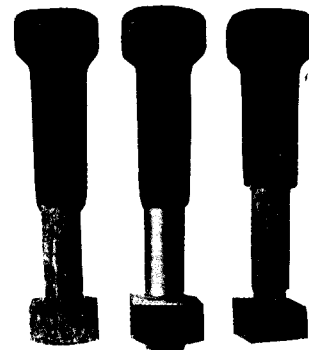
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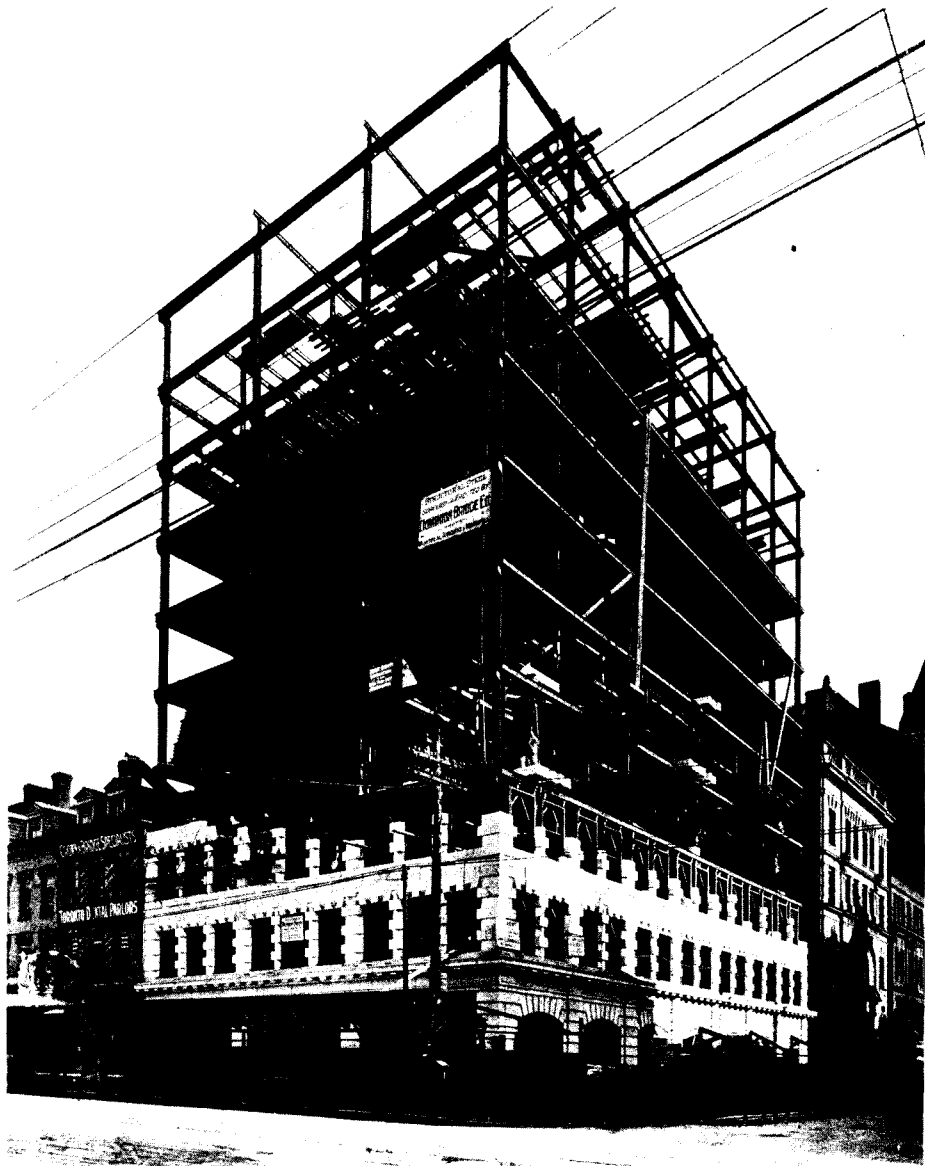
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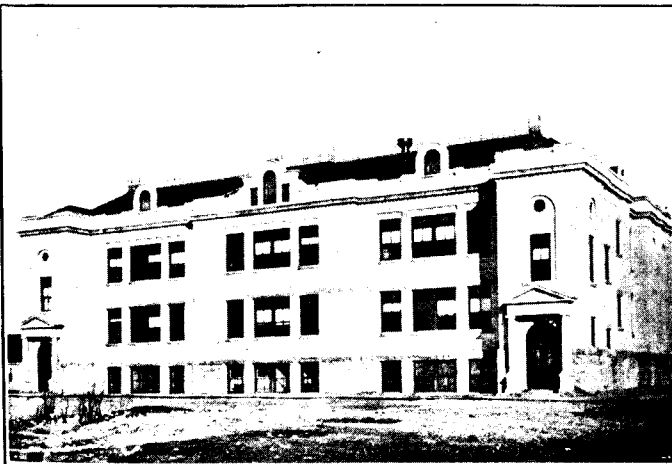
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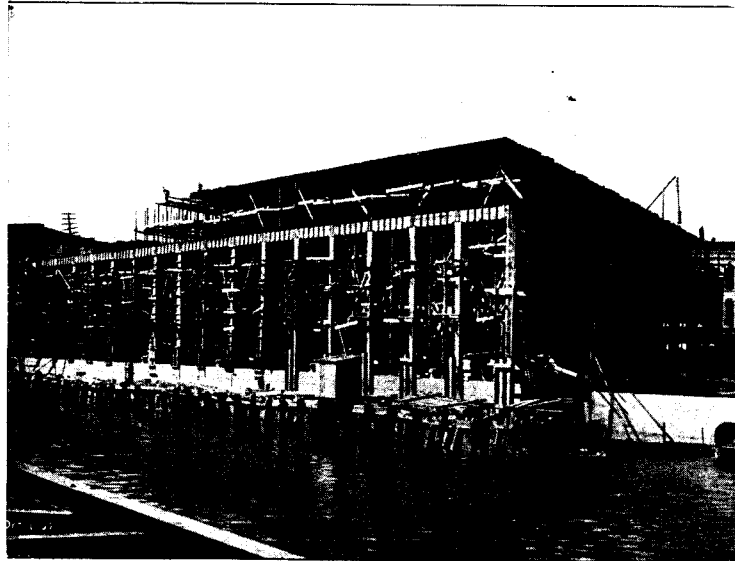
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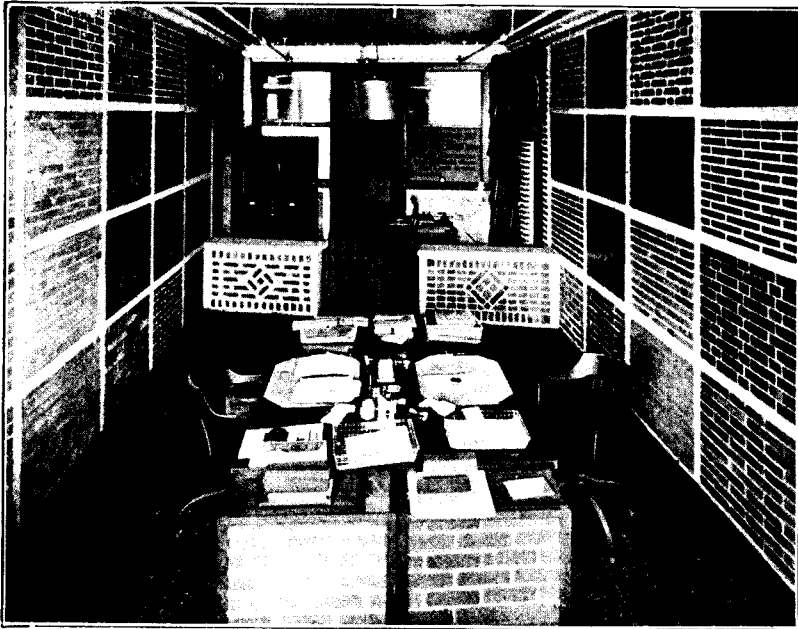
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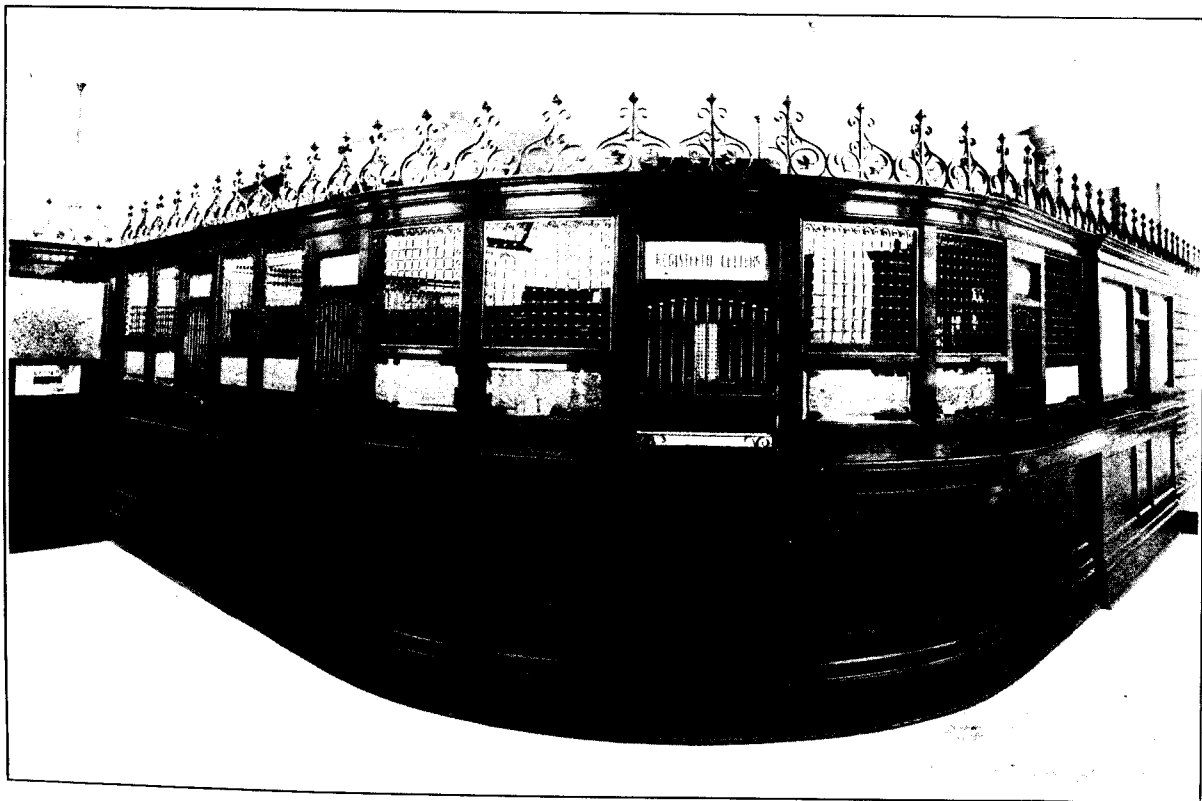


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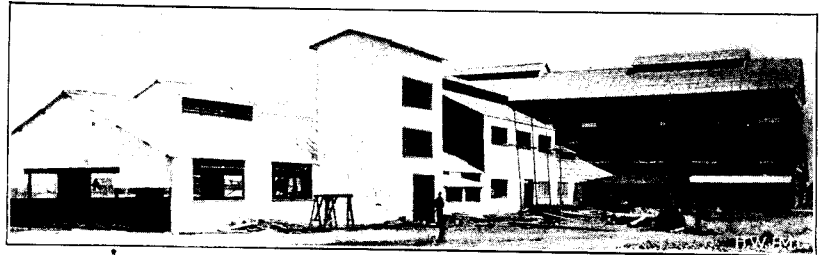
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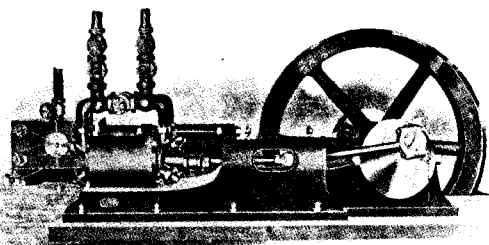
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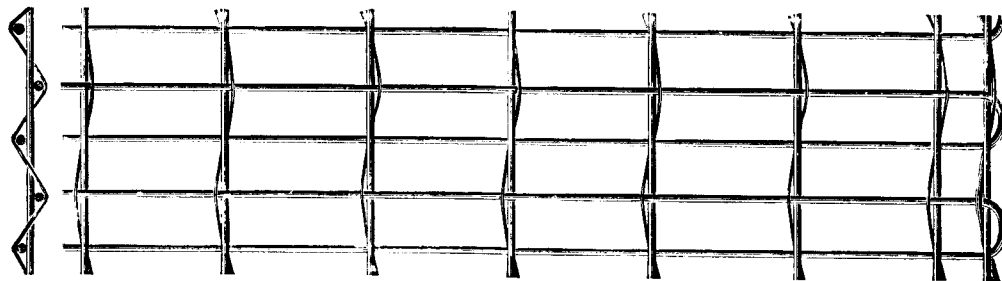
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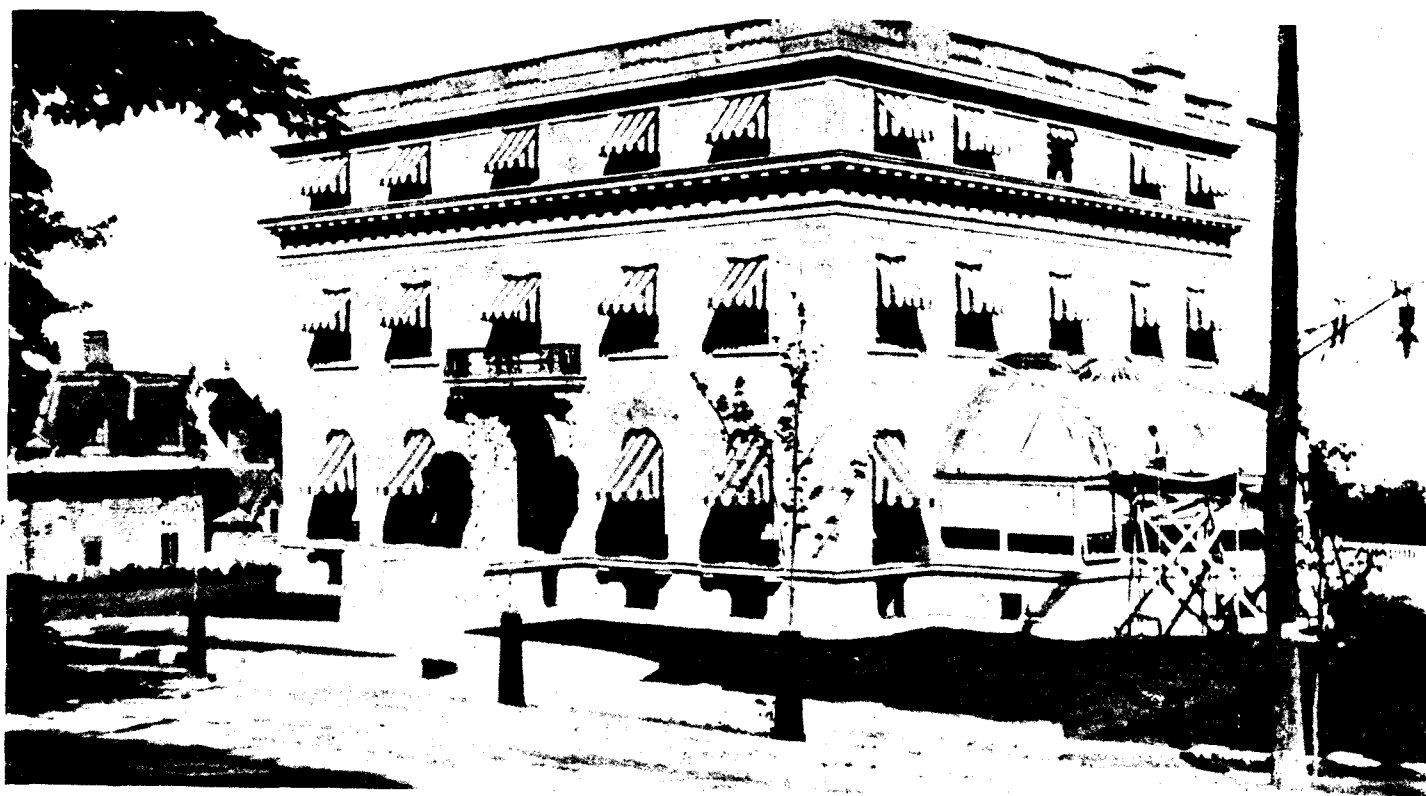
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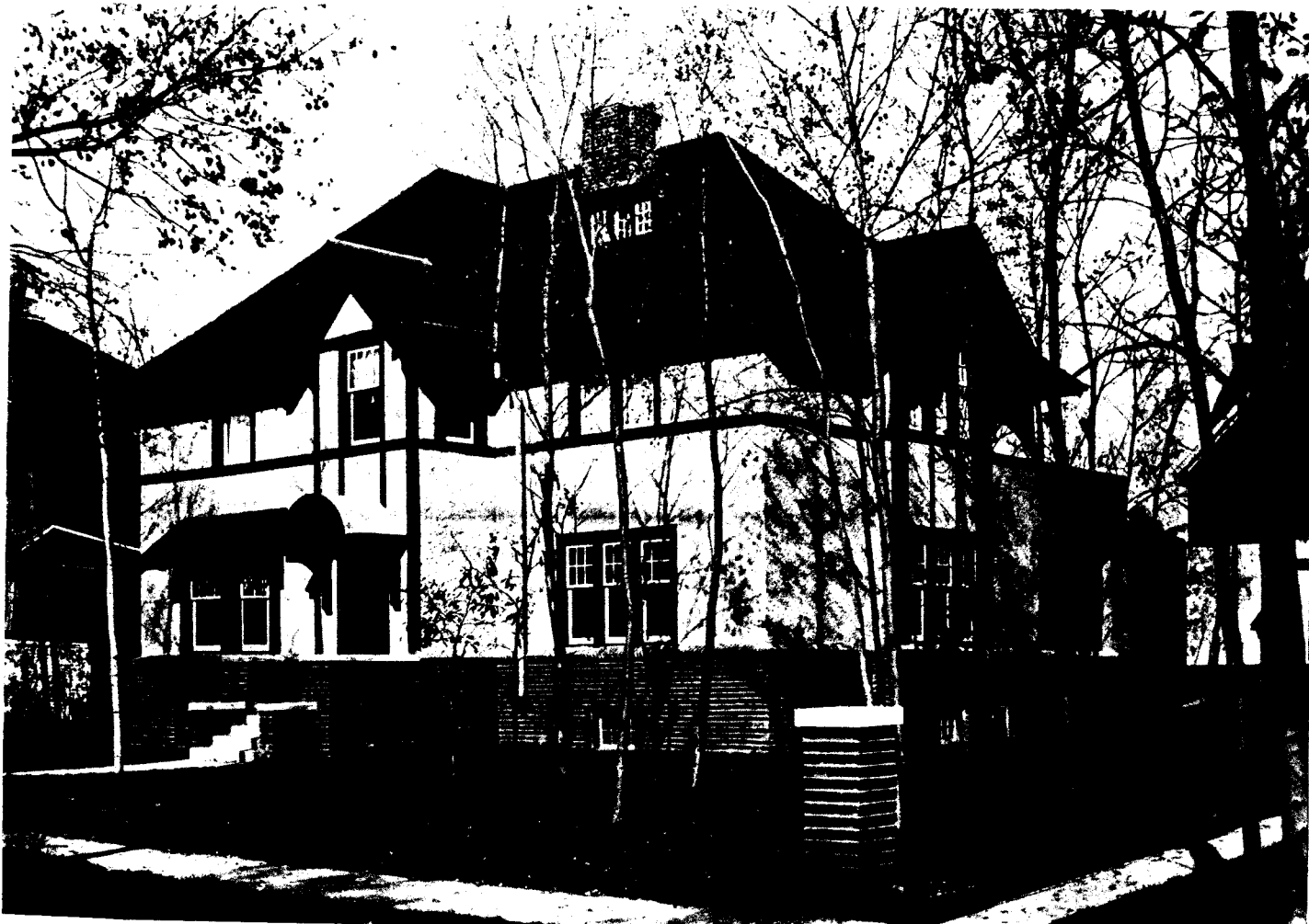
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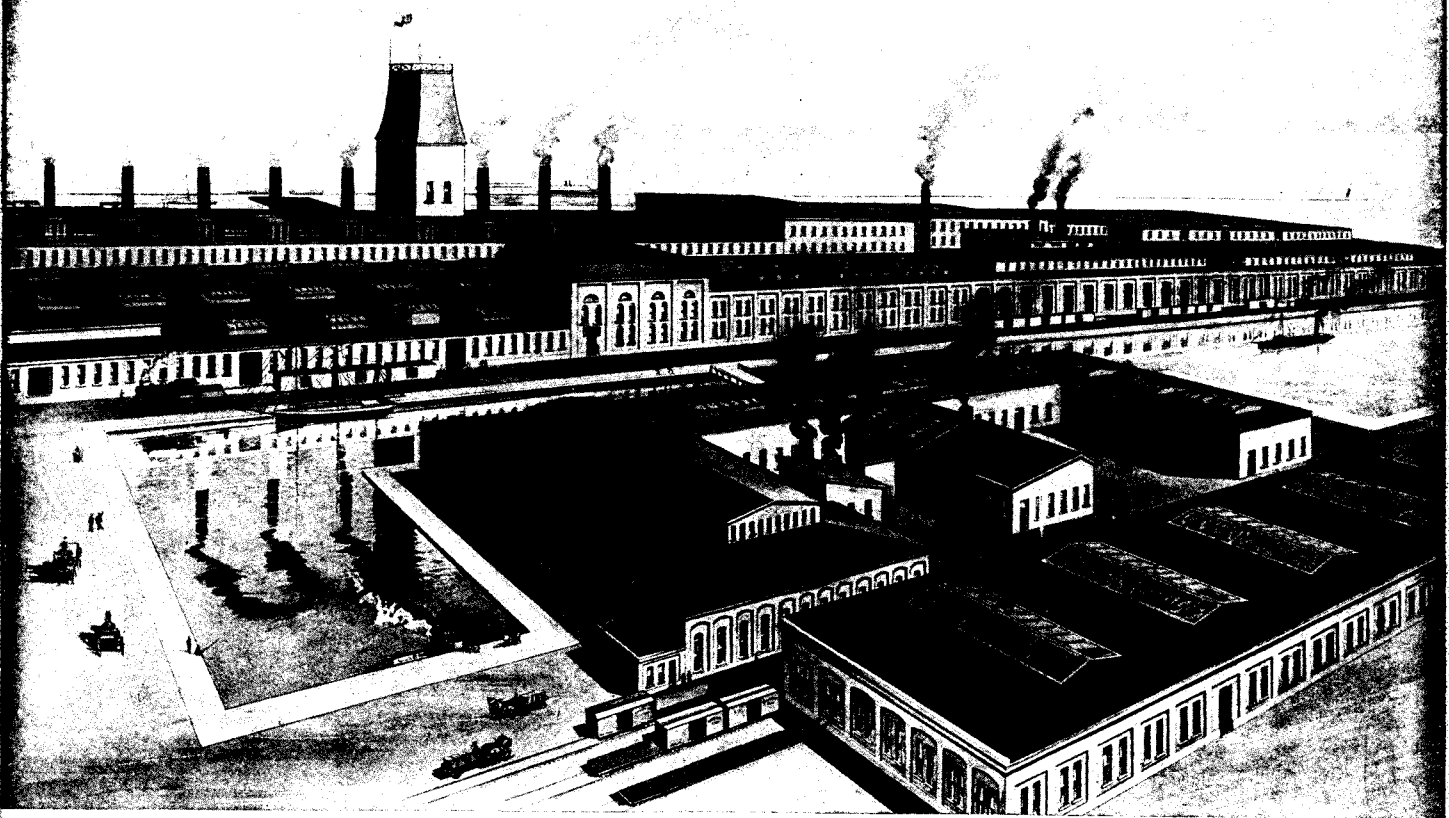
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# CONSTRUCTION

VOL. V

No. 4

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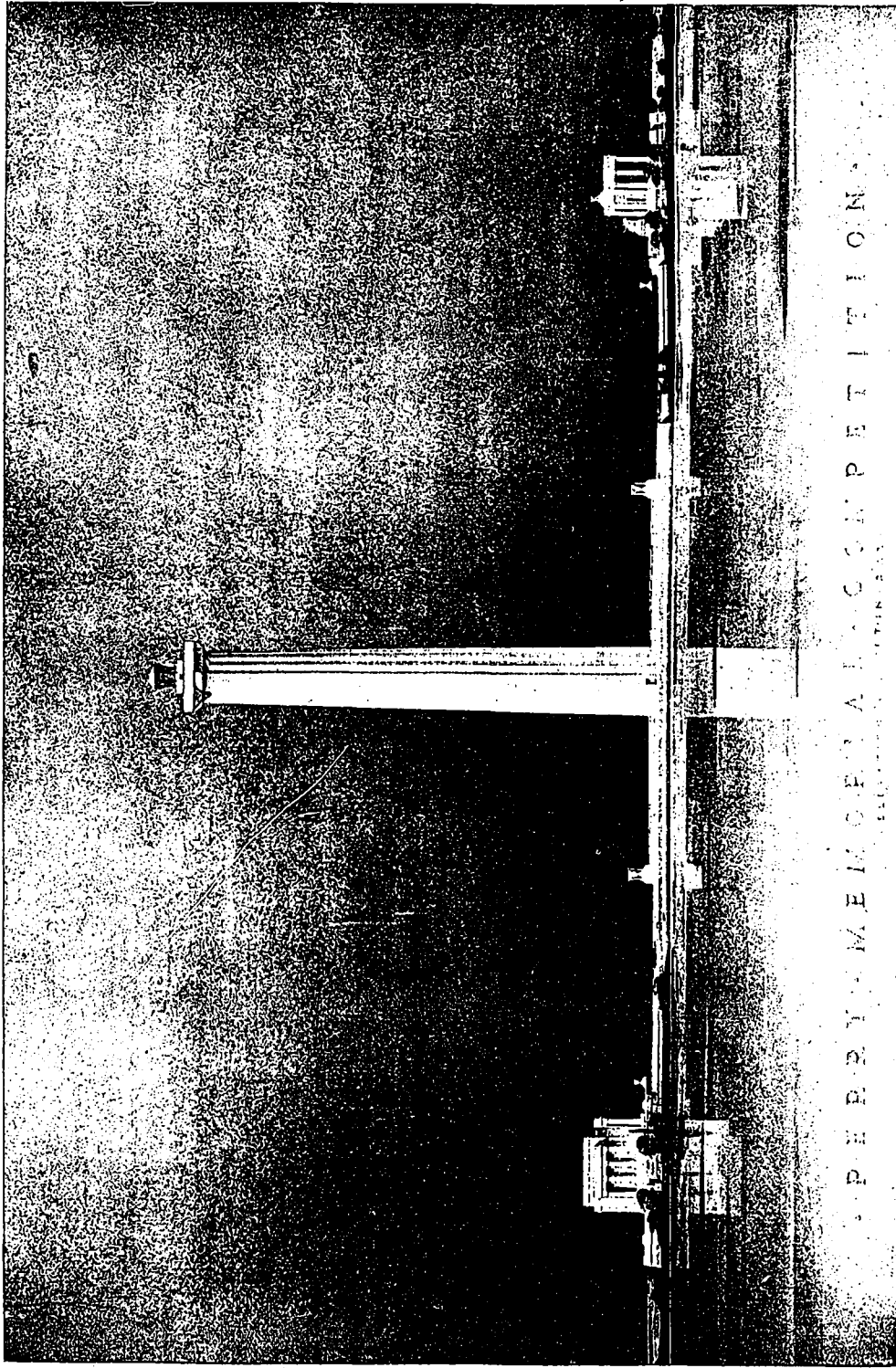
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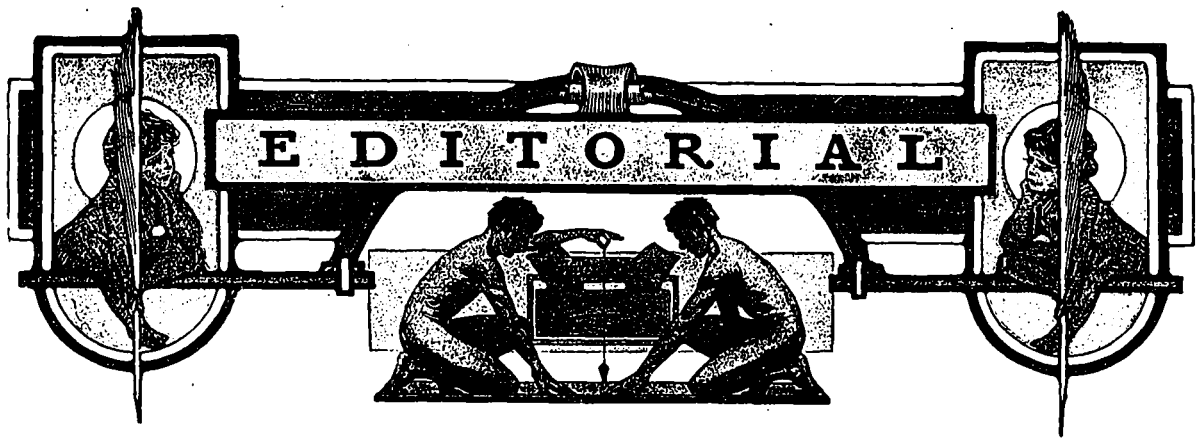
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PERRY MEMORIAL COMPETITION

THE PERRY MEMORIAL

Designed by J. H. Freedlander and A. D. Seymour, New York City. Copyright 1912 by the Perry's Victory Centennial Commission. Estimated Cost of Memorial, \$500,000. Character of Design, a Doric Column. Height, 320 feet; Diameter at Base, 45 feet; at Top, 35 feet; Plaza, 525 feet long, about 100 feet wide. Building at extreme left of Plaza, an Historical Museum, floor space 3,000 square feet. Building at extreme right, commemorative of one hundred years of peace between Great Britain and the United States.



**Q** *The sixth annual convention of the Canadian National Association of Builders, held at Toronto during the past month.*

**N**OTHING indicates more perfectly the position Canada holds in modern commercial and economic advancement in relation to that of the United States, than the present aspect of the building business. Canada is to-day threshing out the same problems that were met and threshed out in the United States a quarter of a century ago. This is the chief significance CONSTRUCTION sees in the discussions which characterized the representative assemblage of the builders of the Dominion at Toronto on February 20-22. These builders, who as a class represent the expenditure in thirty-one cities alone of \$128,765,991, and which probably approximated over one hundred and fifty million dollars as a total in 1911, are unselfishly trying to advance building methods, and secure the future of the Dominion to an extent equalled by no other organization. The work they are now doing the builders of the United States took up when that country was in the same condition of chaotic development, and their success will lie along the same lines. It would sound pessimistic to say they will receive the same lack of appreciation from the public; but the builders of the future will feel the difference in improved methods, equitable legislation, and in the friendly co-operation of their fellow contractors in all parts of the country. The architects will be able to place more reliance upon those who belong to the association because they stand upon an equal plane of probity and reliable execution. The public will receive better service through the stable character of the structures in which it invests its dollars. The move to secure better legislation in the direction of more equitable lien laws; the protection of employers, and logically the employes, in the way of a regulated and automatic accident tax or insurance; and the formulation of a standard form of contract, all attest that the conditions in Canada are the same as those that existed thirty years ago in the United States, and that the builders are of the same calibre of intellect and possess the same unselfish enthusiasm as those on the other side of the line, and their association will become, as it should, a strong factor in the future growth of Canada.

**Q** *A uniform standard contract form for use between architect and contractor moved by the National Association of Builders' Exchanges.*

**A** UNIFORM CONTRACT between architects and contractors in the building trades was probably the most important subject discussed and projected at the sixth annual convention of the Canadian National Association of Builders' Exchanges, which convened at Toronto on February 20, 21, 22. The resolutions regarding the establishment of a more equitable lien law, which would tend to eradicate the irresponsible among contractors; that on trade or industrial departments in technical schools; the incorporation of the association, and other discussed measures, are alike subjects of general importance; but the securing of a uniform, standard, and therefore equitable contract form is worth many years of effort by the association members in the several provinces, if in the end such a document may be secured. Such a contract should cover the entire Dominion, as in the United States, but this is hardly practicable in Canada, because of interference with provincial laws already established. Each province therefore will have to secure the proper enactment for operation within provincial borders. The building laws of Quebec are said by contractors to be simple and equitable; Manitoba has just adopted a contract and it is probable that other provinces will become active at once in securing this document that is alike beneficial to contractor, owner, and architect. It should be formulated by committees appointed by and representing the Architects, Associations on one side and members of Builders' Exchanges representing the contractors on the other. In the United States architects have stated, and legal decisions have sustained, the contention that the architect is the agent of the owner. We do not know his status in this connection in Canada. Probably it has not been established in any definite degree by legal decision, but the relation of the architect to the owner and his dealings with the contractor, must make him an arbitrator between them and a representative of the owner in his dealing with the contractor. That, under these conditions, the architect or owner should prepare his own contract and present it to the contractor who has figured on a contract and whose figure has been accepted, is man-



ifestly unfair in practice no matter what it might be in theory. That the contractor should have a document that is general in its conditions and unchangeable in its form, the imprint of which guarantees that there are no unaccustomed clauses within to cause him trouble later, is certainly promotive of harmony and good practice.

**I**mperative demand that Dominion officials at Ottawa should appoint a Plan Commission to conserve that city's development.

**T**HE ESTABLISHMENT of a commission, advocated by the Royal Architectural Institute of Canada, and urged by CONSTRUCTION, to prepare a comprehensive scheme for planning the future capital city of Ottawa along reconstructive lines, should be taken up immediately by the Government, and on the lines suggested. The dormant condition of Canadian cities generally, from which they have been roused through its present phenomenal advance in growth of population and commerce, should be met with that large comprehension of what this growth means in a national sense. Particularly is this true in regard to the national capital. Those countries with which the Canada of the future aspires to rank, and with which it will stand on equal footing, all have long since commenced to make their capital cities an expression of the dignity and æsthetic advancement of the people. Vienna, Berlin, Buda-Pest, Paris, and other capitals in Europe; Washington in the United States, have all followed well considered reconstructive plans which take in the necessities of the future as well as the exigencies of the present. In Ottawa, as in other capitals, it is not the disposition of the Government buildings alone, but all those conditions of civic requirement that go to perfect the ideal and representative city. The suggestion of the Royal Architectural Institute of Canada is the only one upon which so general a plan can be properly based. This is that the Government appoint an honorary advisory commission, consisting of architects, engineers and sculptors, empowered to prepare a general scheme for the unification of the economic and artistic development of Canada's capital city. Such a commission, composed of the most capable and experienced members of the designing and constructive professions in the Dominion, with latitude to employ the experts of any other nation where advisable, would give to Canada, with the superior natural advantages of site, the most famed capital of any of the nations. This is in line with the work done at Washington, where, through the reverting to the preliminary plat designed by the founder of the city and his French confrere, Major L'Infant, the commission appointed by the Government has established the future building of the city on broad and comprehensive lines of art and civic utility. With such a commission, advisory in character, selected from the best talent in the country, with broad powers to seek the best technical advice irrespective of nationality, the people, not of Ottawa

alone, but of all the Dominion, who are equally interested, will be well served, and the future nation will present to the world an example of the highest civic perfection in its capital city.

**E**lectrical engineers teach Winnipeg that professional men cannot be interfered with by ignorant public officials.

**T**HE INABILITY of municipal boards of control to appreciate the ability and the honor and integrity that goes with it, of anything professional in architectural or engineering service is probably the greatest handicap in the acquirement of economical, practical and efficient municipal utilities in Canadian cities. To begin with, they refuse on "patriotic" grounds to go to the United States, where problems have been worked out to ameliorate similar conditions, and learn from their success or failure something in regard to those that confront the unusual demand of an increasing population. They therefore, in self-sufficiency, attempt to thrash them out without experience, and often without judgment. This is nowhere so apparent as in the disposition of the average board of control, made up of an unsuccessful lawyer, a curb-stone real estate man, and a retired druggist perhaps, to seek to dictate to the engineers in charge of public work. Winnipeg is a case in point, and the example is used because that city is in many ways the most progressive in the Dominion. After progressive citizens have succeeded in convincing the people of the value of a town planning commission, through which utilities may be united and future growth provided for, a board of control steps in and questions its expenditure without the least knowledge of the requirements or the value of the service to be paid for. After organizing an electric system that is but second to that furnished southern Ontario from Niagara under the management of an expert, and a chief engineer whose experience covers years of service in Europe and the United States, and assistants carefully selected for ability, this board of control again steps in and by interference in things it could not have the most remote understanding of, so hampers the work of these experts as to make their success impossible, and they resign in a body, with a result that with the best engineers obtainable and a liberality that was refused their predecessors, it will be only by months of labor and large expenditures of money that the plant can be brought to that point of efficiency that existed before their bumptious interference stopped its operation. Trouble of this character is always caused by the layman's refusal to see that no matter how important his position may be politically, that he knows nothing upon a technical subject, and his disinclination to look at professional work from any point but that of money, and his inability to recognize that money is the smallest factor in the creating of anything that lies along professional lines. Winnipeg will learn its lesson as other cities that are pursuing the same policy will. Meanwhile the squandering of the people's money



will go on through the ignorance of those who pose before the taxpayers as the guardians of public expenditure.

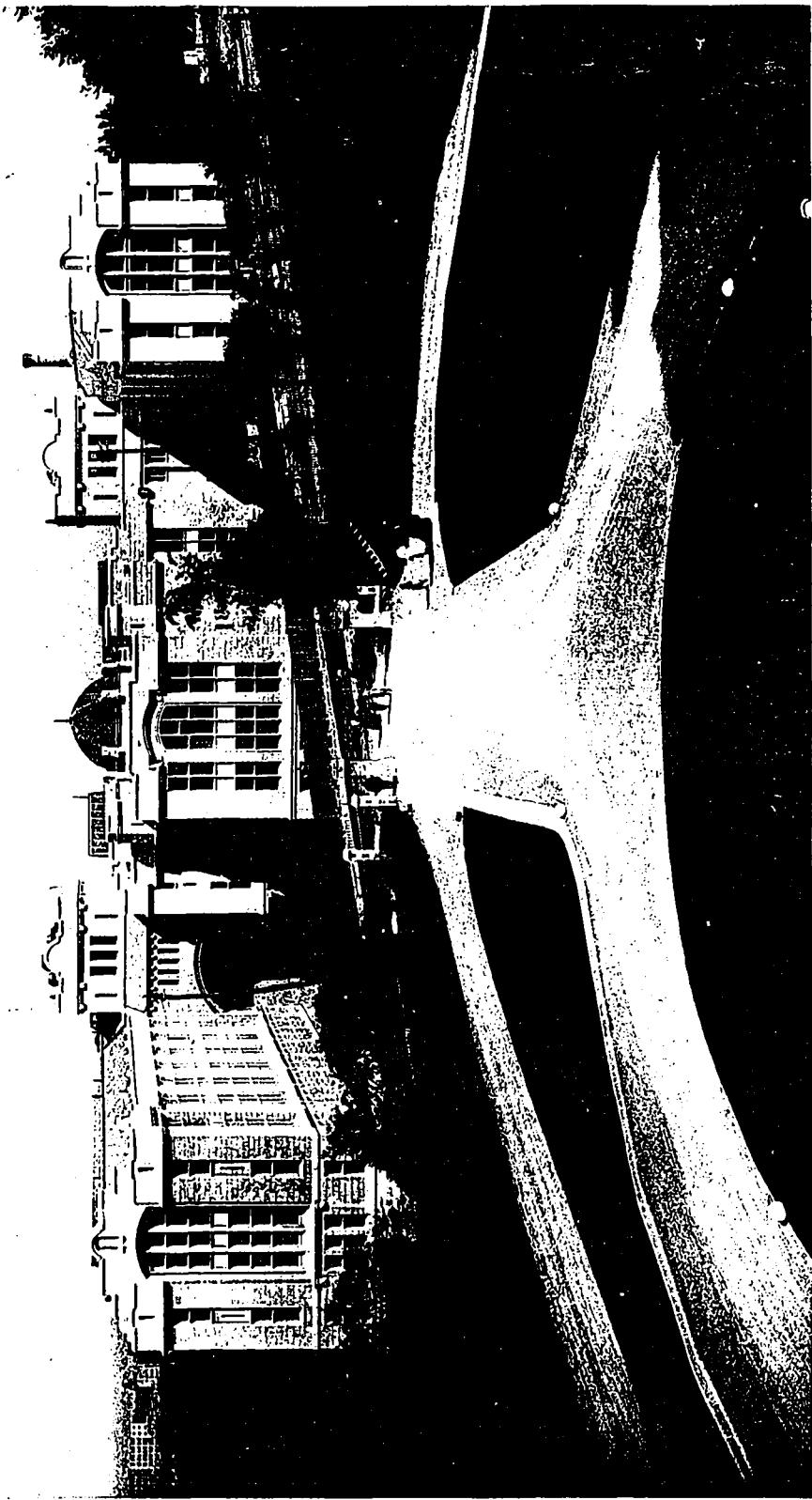
**H**amilton's civic progressiveness and Toronto's inertia prophesies a loss of prestige by the latter to the former city.

**I**T MAY SEEM like pessimism, yet it is simply a logical survey of facts, to predict that if Toronto follows its present course in its mishandling of municipal measures for meeting its enormous growth in population, that Hamilton, its near neighbor, in twenty-five years will have a greater population and a larger share of capital investment. Fortune, rather than location, gave to Toronto the railway terminal facilities she enjoys. And rail and ship terminal facilities mean manufactures, and they in turn spell population. For the past ten years this supremacy in transportation facilities has brought manufacturers to Toronto. The population in consequence has increased fourfold in that time. These manufacturers located at Toronto under the assumption that at least normal living conditions existed and proper additions to utilities would keep pace with growth. The fact is that in that ten years not a single concentrated, planned and carried out system has been more than talked of in Toronto. Hamilton has a well organized and energetic publicity bureau, backed by a progressive and energetic civic spirit that not only is gathering a manufacturing population, but taking measures to take care of the increase. This does not exist in Toronto. Its waterworks system would be a joke in a city of ten thousand people. Its hooppole "protected" "intake" is an affair that might have been the work of ten-year-old boys playing on the beach on a summer holiday. A real city with real brains in its municipal make-up would have a tunnel, or a number of them, running four or five miles into the lake, and bringing the best water on earth to the city without a filtration fake that is largely a deposit for the taxpayers' money. A real city would have streets. Toronto has but one, or at most two, and those not in any sense adequate. The rest, so called, are little more than alleys, commencing and ending nowhere. Its internal transportation facilities are of the same character that seemed hardly adequate when the horse car and Sunday church car was abandoned. Except a few added cars and a few lines, mostly in the centre of the city, no appreciable improvement has been made. Like a merchant whose business has expanded fourfold, who does nothing to meet the increase, Toronto will lose its business and its prestige unless some of her sterling business men who have made the city and the province great commercially, will abandon the seeking for private gain and take hold of the municipal business of the city and by the well considered and business like plan already presented by a capable plan commission, enlarge and rearrange civic utilities on adequate lines. The one bright spot in Toronto's future seems to be the Mayor's scheme for relieving the congestion by promoting the construction of workmen's homes.

This will not solve the problem, but it indicates an atom of gray matter in an otherwise glutencous mass of civic brain composition. This project, and others that should follow, will probably be educational in effect, and form a habit of progress along proper lines. The future greatness of Toronto depends on citizens of brains, business integrity and honesty taking hold and running the city as any business should be run, for the benefit of the stockholders, which are the people. While the street railway service must be extended into undeveloped neighborhoods and the price of lands now in the hands of speculators lowered to relieve congestion in the city, as the Mayor proposes as an immediate measure of relief, the inevitable will happen unless as a preliminary a well digested civic plan is adopted as a basis. The bursting of the real estate bubble, which is sure to come when the loans made on an enormously multiplied valuation are called in, will provide for the lowering of suburban values to the reach of the ordinary citizen. The Mayor's scheme, if carefully managed on practical lines, will serve to partially relieve the present congestion. A company has recently been incorporated with a capitalization of one million dollars, at Calgary, financed by local men, for the purpose of aiding in the construction of houses to overcome the congested condition that exists there. If Calgary can invest one, Toronto should be able to invest ten million in the upbuilding of the city along right lines, even though investments in the United States are more attractive.

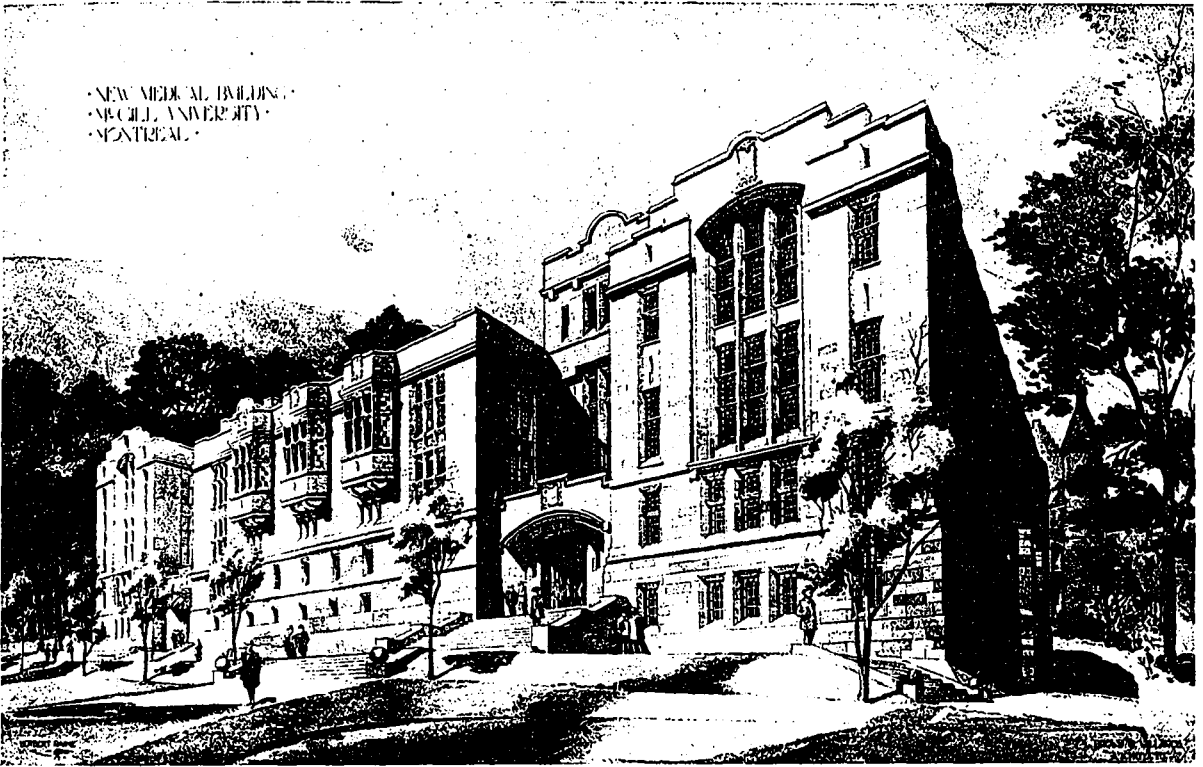
**T**he approaching consolidation of the Society of Architects and the Royal Institute of British Architects

**T**HE CONSOLIDATION of the Society of Architects and the Royal Institute of British Architects which has been for several years in contemplation seems to be coming closer, only charter limitations and a workable basis for its fusion being deterrent factors. It is only singular that this amalgamation has not been effected long ago. It only took about six years for architects in the United States to realize that two national societies were inoperative, or at least superfluous, and each interfered with the growth and work of the other. When the Western Association of Architects was formed at Chicago in 1884 (called together for organization on his own initiative by the present Editor of CONSTRUCTION) the American Institute of Architects was small numerically and proportionately inactive. The new society grew rapidly in membership and was active in its work of regulating professional practice. This activity soon encroached upon the prerogatives of the elder association, and also a double membership was found necessary in many cases. What was done in stimulating the Institute by competition has long ago disappeared. Now consolidation upon an equitable basis of membership is the logical result. Canada has solved the problem in much the same way in its federation of provincial associations

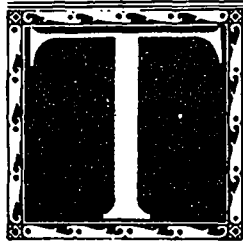


New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects. Photo by Francis Benjamin Johnson and Mattie Edwards Hewitt, New York. View of Entrance from Royal Victoria Hospital.

NEW MEDICAL BUILDING  
 MCGILL UNIVERSITY  
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Reproduction from Architects' Drawing, New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects.

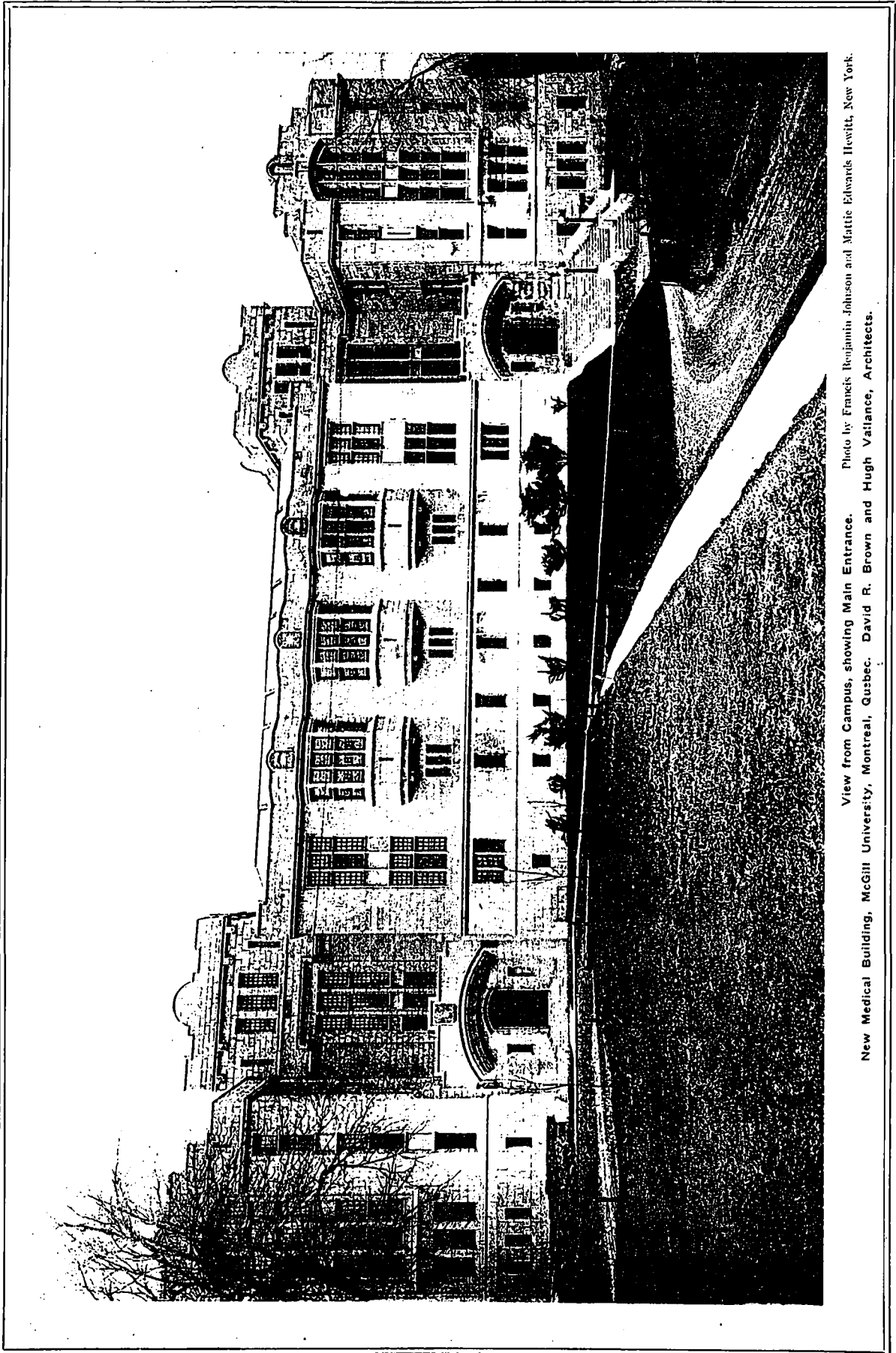


# THE MEDICAL BUILDING, MCGILL UNIVERSITY

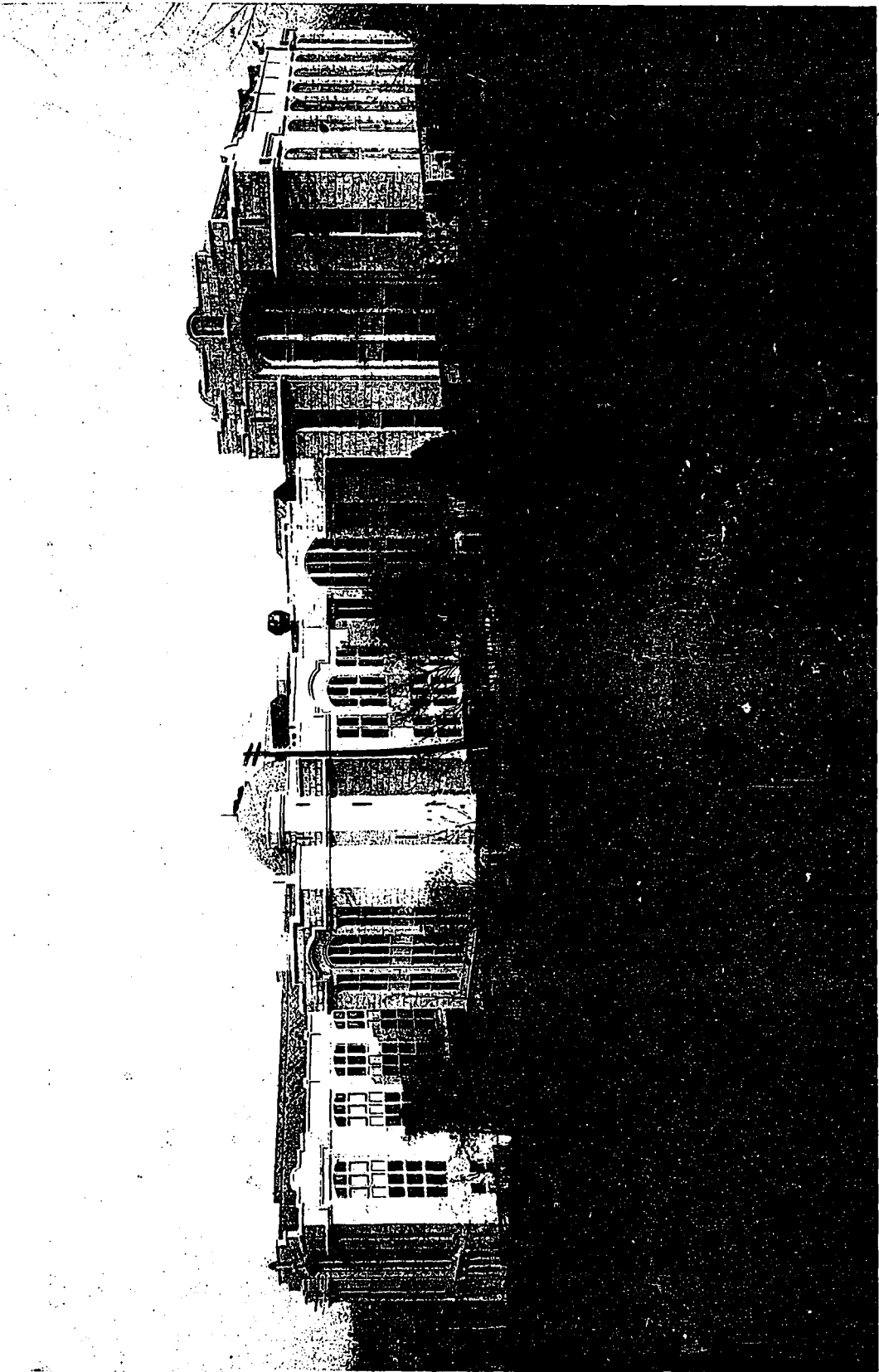
*A Short Description of one of Montreal's finest new buildings, by Philip J. Turner, F.R.I.B.A., of the Department of Architecture, McGill University.*

THE MEDICAL Building, which was only completed in 1910, is without doubt the finest of the many imposing buildings of the university that is named after its founder, the Honorable James McGill, who died in 1813. The situation of this, the latest addition—at the corner of University and Pine avenue—although an excellent one on account of being in such close proximity to the Royal Victoria Hospital (where the medical students attend for practical clinical and surgical experience) is, from the architect's point of view not an ideal one, owing to the sharp rise in the ground, and to the fact that the building is screened by surrounding buildings on the east side. In consequence of this it is very difficult to see more than a portion of the building at any one time. As will be seen by the plans, the general scheme is of the conventional "E" type—the three wings projecting to the north. The south front has two recessed towers; extensions outwards from these form the main entrances to the building. The central portion between the towers contains the library, stack and reading rooms. The latter are placed on the top floor, while the two other floors

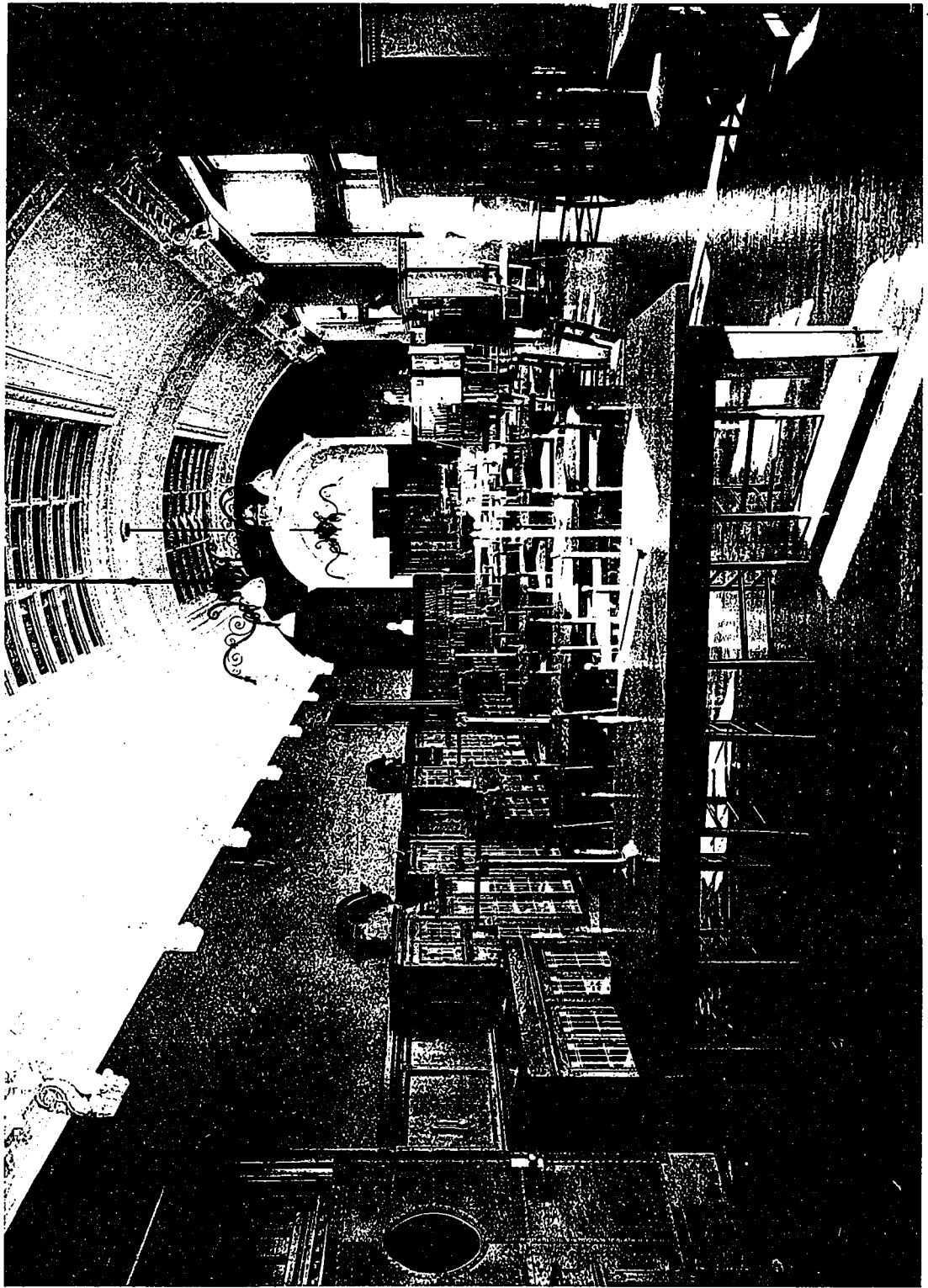
above the basement are given up to administrative purposes and book storage. Large laboratories, the museum and assembly hall occupy the northern wings, and the east and west wings, on the south side of the building, contain the lecture rooms and smaller departmental laboratories. In the disastrous fire of April, 1907, the then existing medical building, which had only been in use in its completed and extended condition for four to five years, was destroyed. Competitive designs were invited the same summer from Montreal architects, and the plans of Messrs. David R. Brown and Hugh Vallance were selected—the present handsome buildings having been erected from their drawings and under their superintendence. Lord Strathcona—the Chancellor of the University—and her greatest benefactor, has, by his munificent donations, rendered it possible for the Governors of McGill University to erect a building in every way worthy of the University and of the work that is carried on here. The structure, too, is on so fine a scale as to render it the best of its kind on the continent, and the McGill Medical Faculty



View from Campus, showing Main Entrance. Photo by Francis Benjamin Johnson and Mattie Edwards Hewitt, New York.  
New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects.



New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects. Photo by Francis Benjamin Johnson and Mattie Edwards Hewitt, New York.



The Students' Library. Photo by Francis Benjamin Johnson and Mattie Edwards Howitt, New York.  
New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects.

have indeed a home that they may well be proud of, fitted as it is with all the equipment necessary for carrying on their work in all its branches, and placing them in the foremost position amongst medical schools.

The funds at the disposal of the Governors after the fire of 1907 being insufficient to carry out the whole scheme from the first, it was decided to build the east wing and central block without the museum. This constituted the first portion of the building that was erected, but in order that the whole scheme might be completed and equipped according to the

4 inches, while the University street wing has a width of 47 feet 2 inches, with a depth of 171 feet, that on Carleton street has a depth of 114 feet.

It is three storeys in height and is entered from each floor of the main building. The open light well in the centre is finished in cream dull glazed "Carrara" ware (see illustration) with portions of the decoration in colors in the same material. This centre well is surmounted by a flat leaded-glass dome, with an outer one of prism glass. The two lower floors are devoted to the work of the pathological department, and the top floor to anatomy. In two of the four

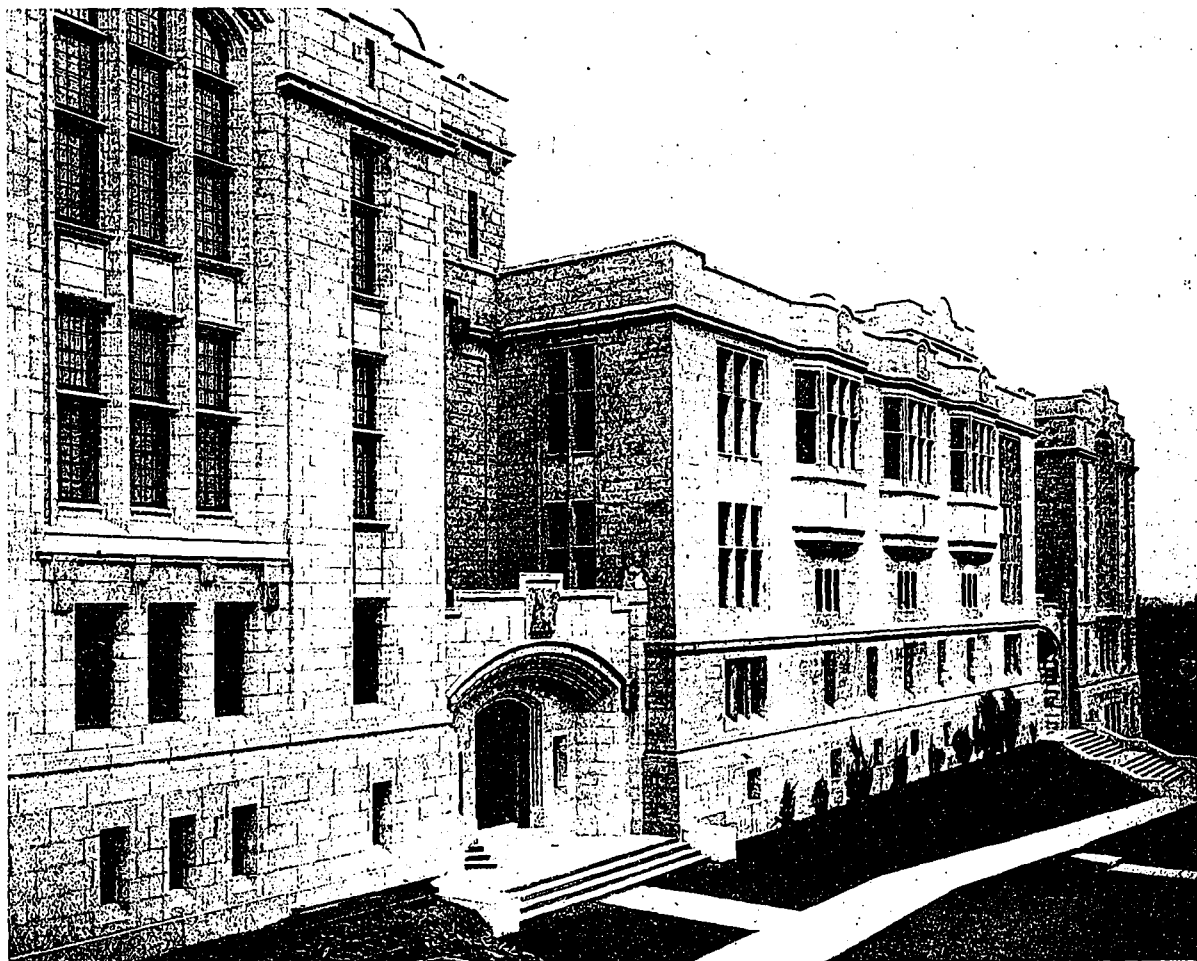


Photo by Francis Benjamin Johnson and Mattie Edwards Hewitt, New York.

Detail of Front.

New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects.

original design, Lord Strathcona (who had previously presented the site for the present building) in 1909, came forward in the hour of need, and gave the University the munificent donation of 450,000 dollars, and later, on the occasion of the opening of the building, presented the Governors with a further sum of 100,000 dollars for its proper equipment.

The museum on plan is in the form of a cross, 74 feet square, and faces Pine avenue.

The building is erected on the southwest corner of Pine avenue and University street, and is the largest of the group of college buildings. Its frontage on Pine avenue and the University campus is 268 feet

small turrets which occupy the interior angles of the museum are placed small communication staircases from the different floors, the two other turrets serve for ventilation purposes. This medical museum is undoubtedly the finest in America, and has been equipped with steel and plate-glass cases of dust-proof construction, made after special designs by the Edward Company, of Syracuse, N.Y., and the Snead Manufacturing Company, of Jersey City, N.Y.

The whole building is of the best type of modern steel fireproof construction, with terra cotta arches and partitions of blocks of similar material. The exterior sloping roofs are covered with green slates

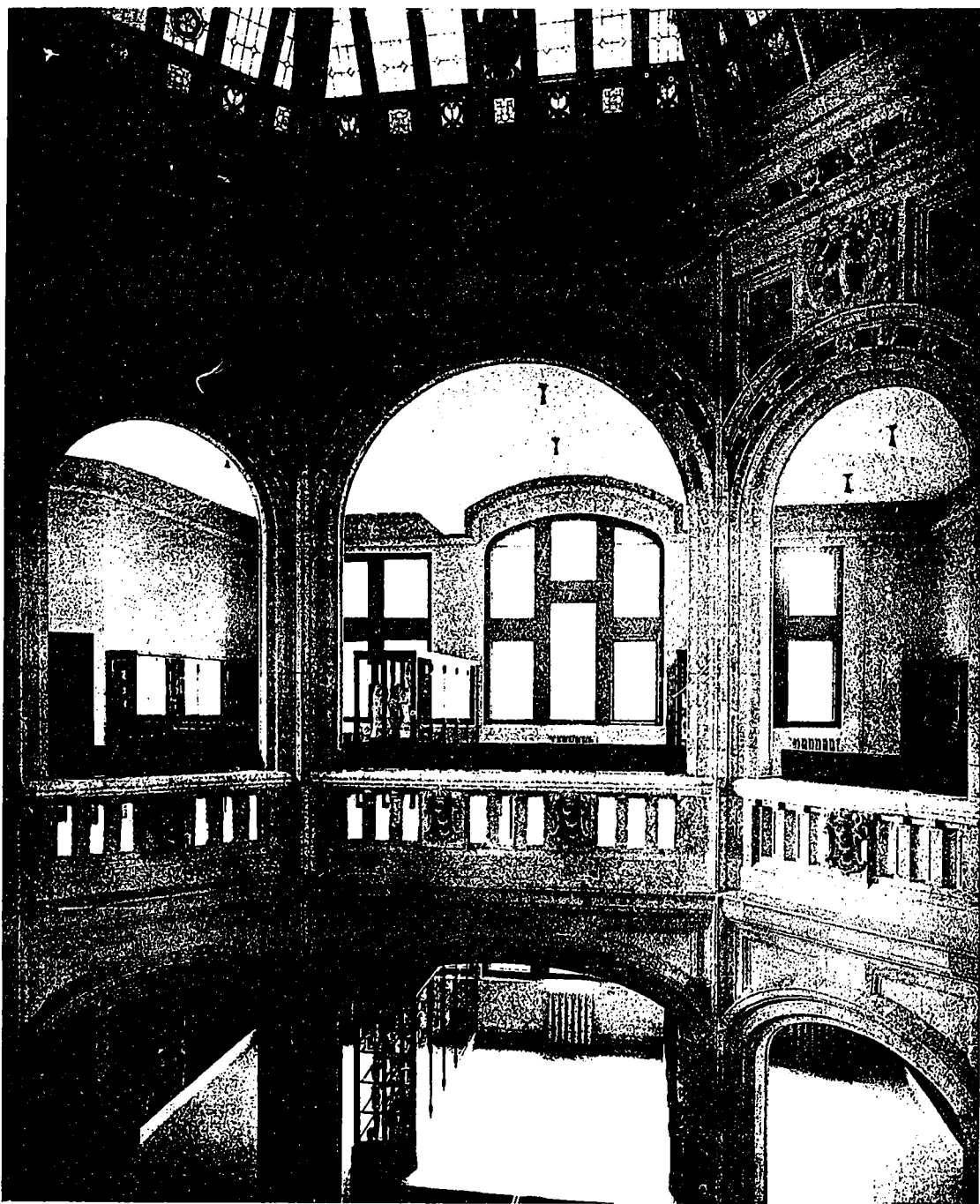


Photo by Francis Benjamin Johnson and Mattie Edwards Hewitt, New York.  
The Museum—Detail of Centre Wall and Rotunda.

New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects.



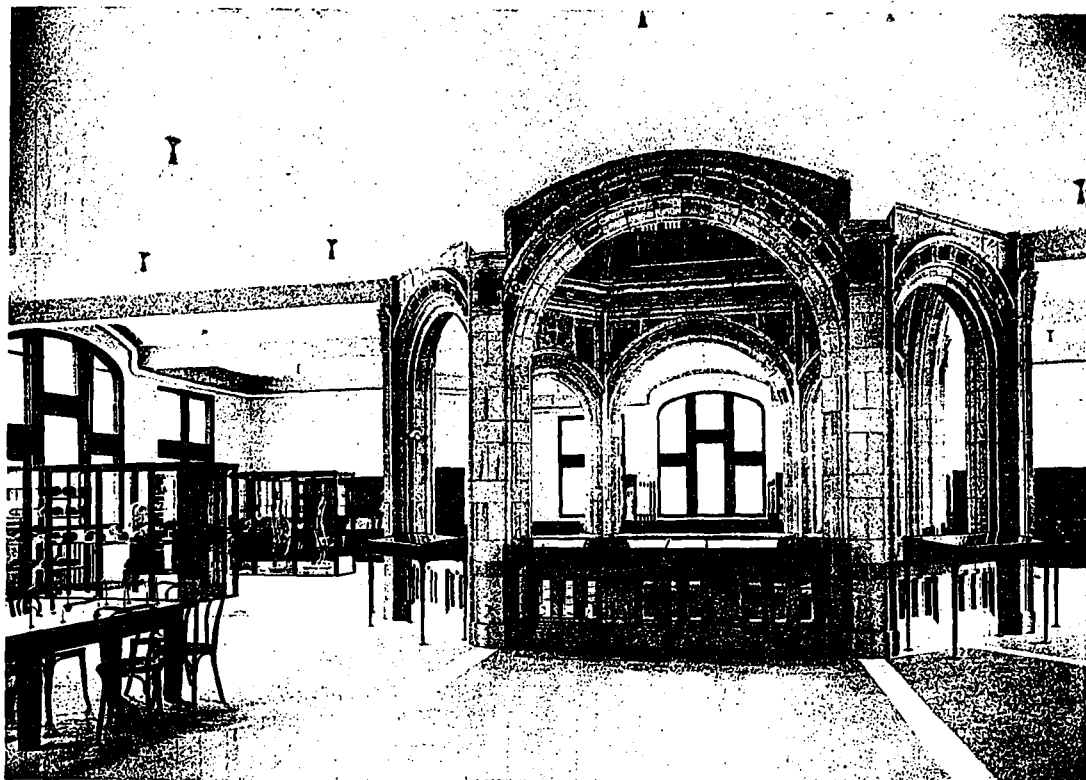


Photo by Francis Benjamin Johnson and Mattie Edwards Hewitt, New York.  
The Museum, Anatomical Department.

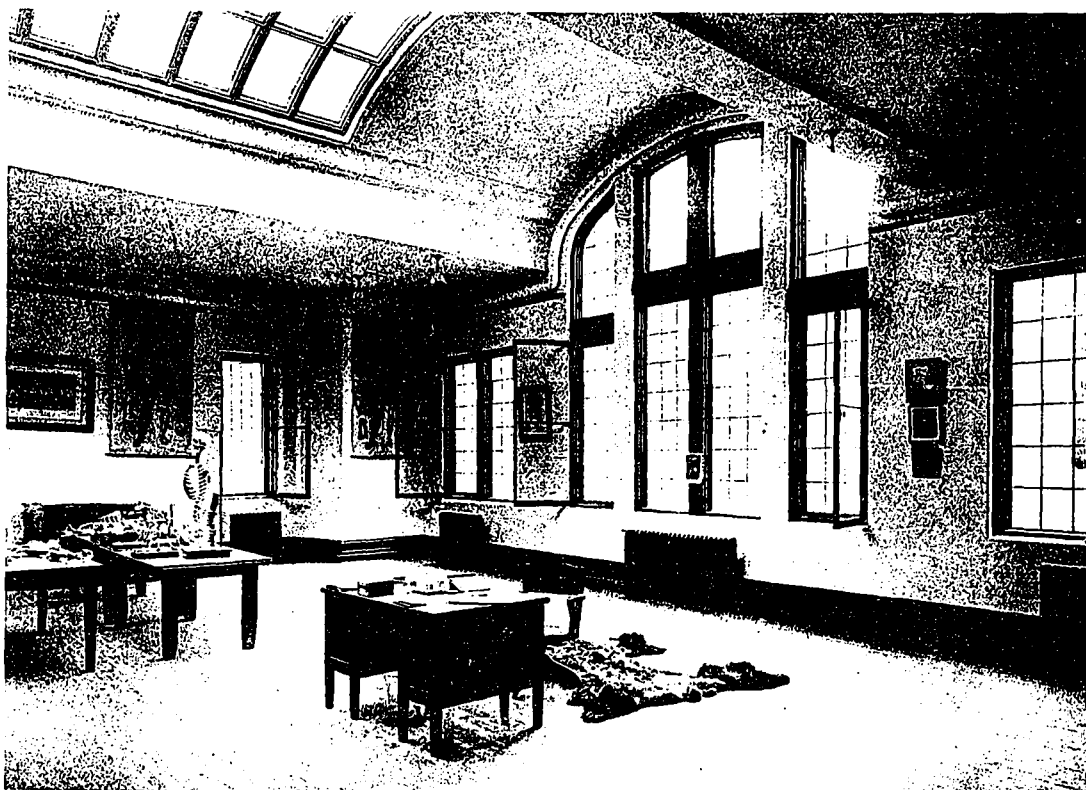
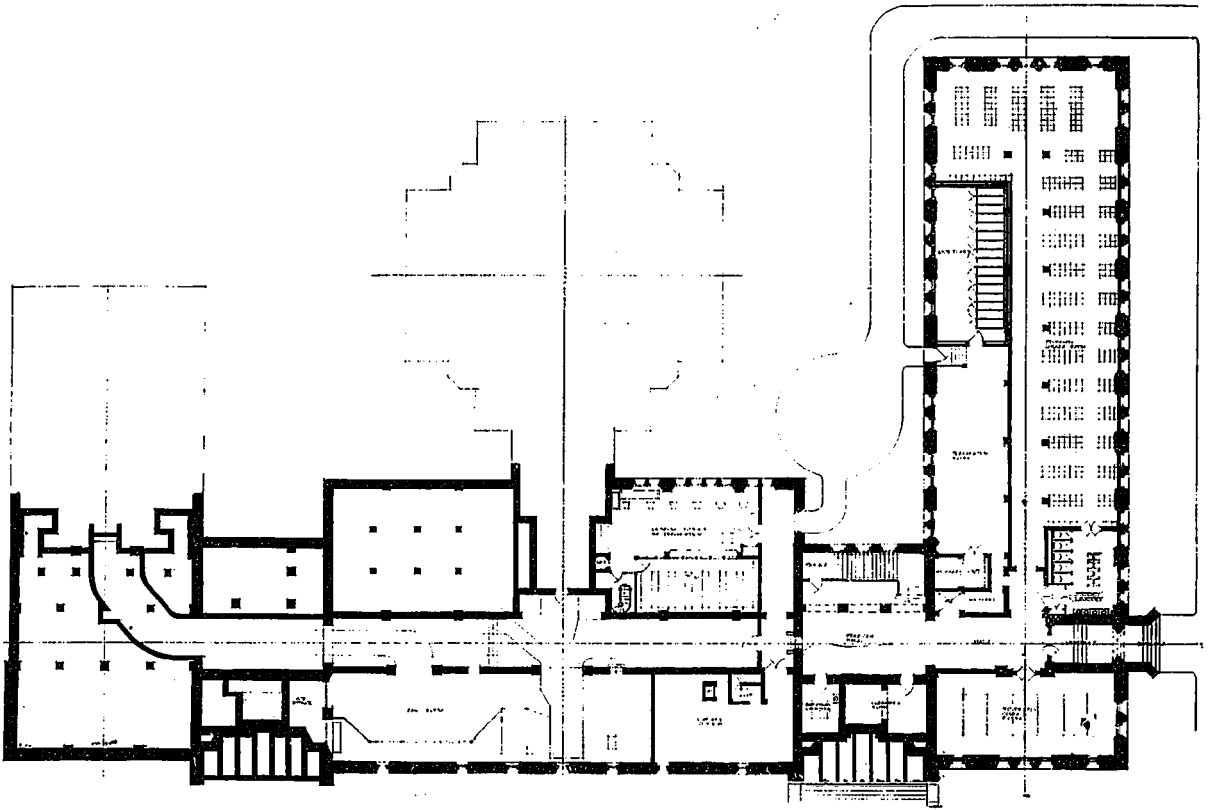
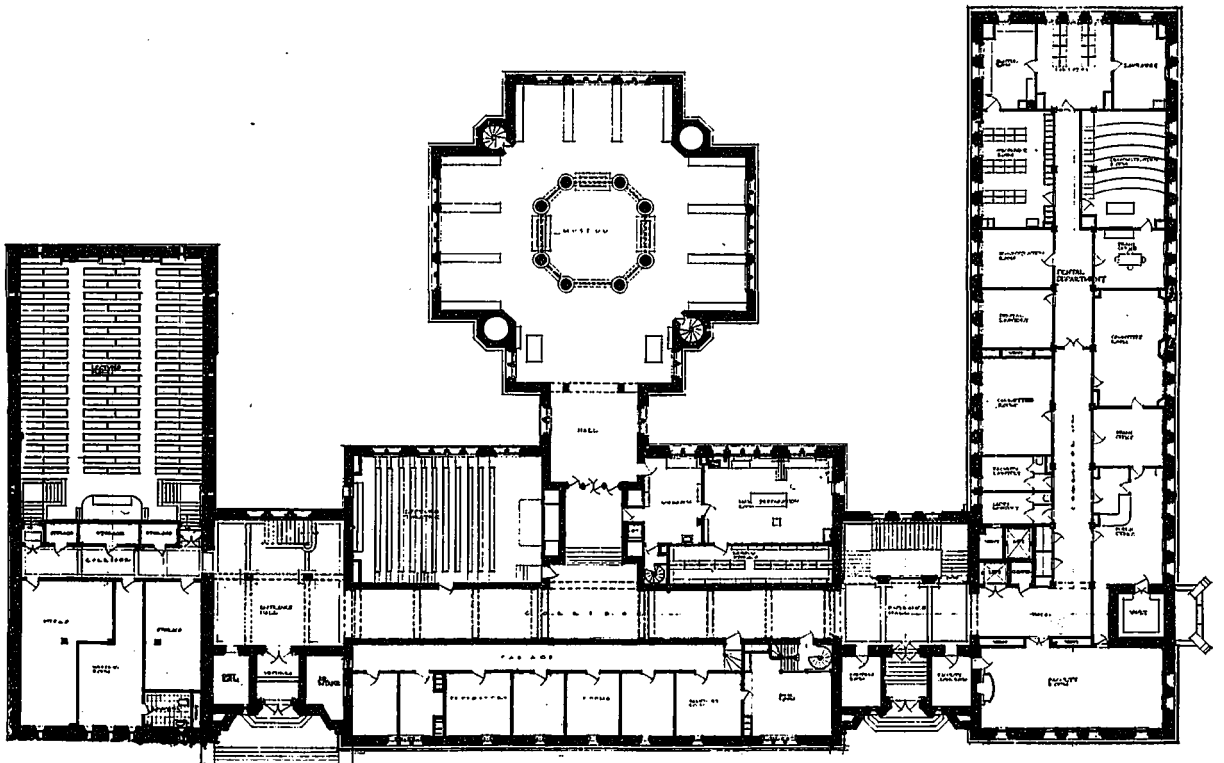


Photo by Francis Benjamin Johnson and Mattie Edwards Hewitt, New York.  
Professor of Anatomy's Private Museum.  
New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects.

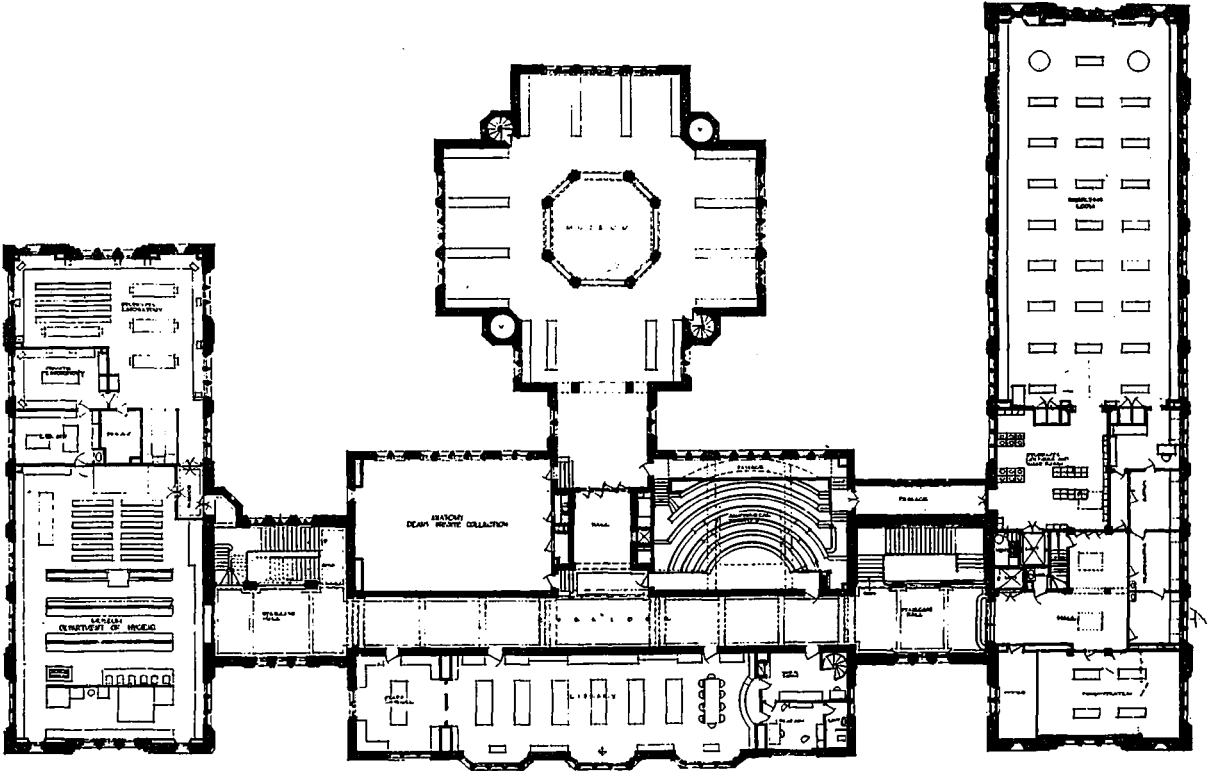


Basement Plan.

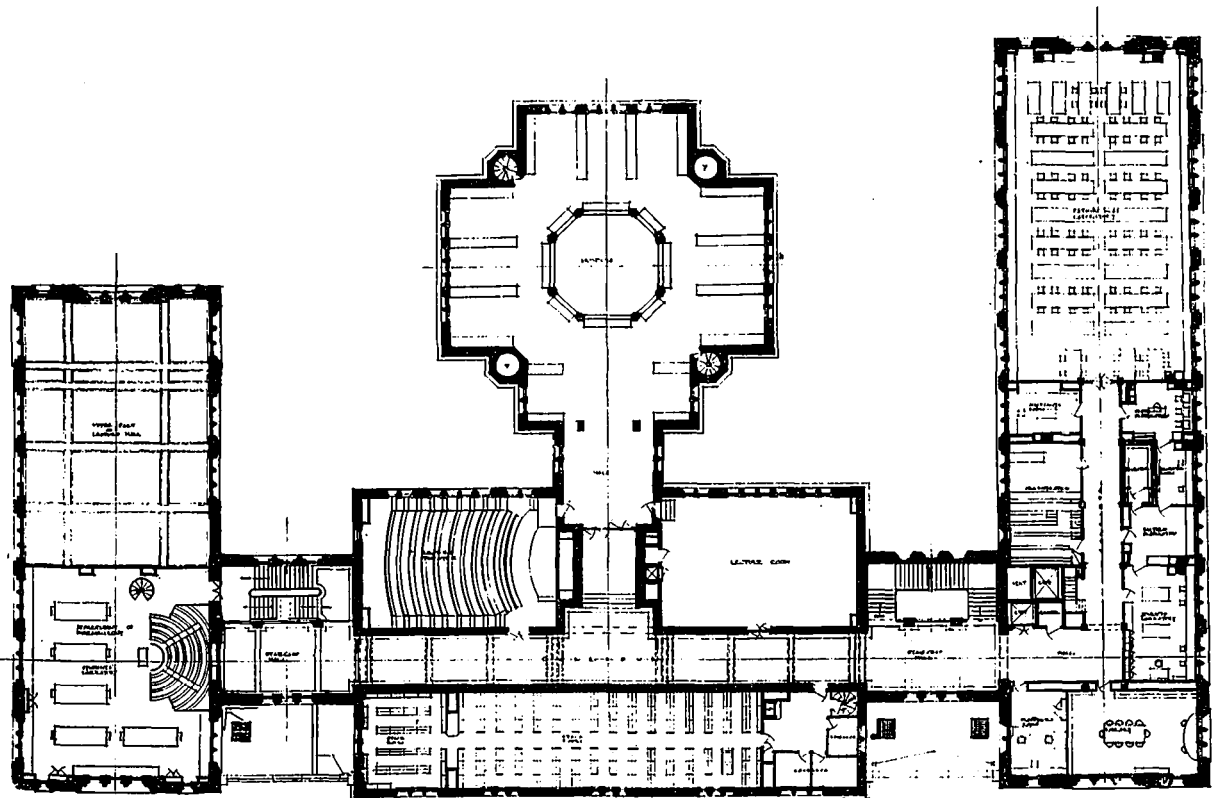


Ground Floor Plan.

New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects.



Second Floor Plan.



First Floor Plan.

New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects.



Reproduction from Architects' Drawing, New Medical Building, McGill University, Montreal, Quebec. David R. Brown and Hugh Vallance, Architects.

and copper flashings. The flat roofs are formed of 6 by 9 inch red quarry tiles. All the windows are fitted with steel frames and sashes.

The interior arrangement of the building is very well expressed in the regulation of the windows and features of the outside. On the south elevation, for example, the three oriel windows on the upper floor denote the position of the library, the stacks below are indicated by slit openings, and the professors' private rooms again by the small windows just above the basement course. The great laboratories and halls in the wings are shown by large and finely proportioned windows, the vertical lines of the mullions running through each floor.

The impression caused as one enters the building is that of spaciousness and light. Nowhere does the building seem cramped; the main corridors are 12 feet wide, widening out to 15 feet at the staircases. These latter face the two main entrances from the campus, and are of marble 7 feet wide. The halls, corridors, staircases and several of the rooms are lined with a dull glazed (Carrara) terra cotta to a height of 8 feet, the dead whiteness of which is relieved by shields, on which are inscribed the names of celebrated men of medicine, in red or gold letters, or colored heraldic devices.

The corridors, halls and museum have terrazzo floors with marble borders and the other floors in the building generally are of hardwood, with the finished joinery of doors, windows, etc., of quartered oak.

Broad flights of granite steps lead up to the two principal entrances on the south side. The vestibules are finished with gray sandstone with vaulted terra cotta ceilings to the staircase halls. The staircases have marble treads and ornamental balustrades of wrought iron. The students' entrance is from University street on the basement floor and is lined with stone. Here also are placed in the same wing on this floor, the students' locker room, containing 500 steel lockers. The walls of this room as well as

the walls of the students' common room on the left of the entrance are lined to a height of 9 feet with pressed brick laid to an ornamental design.

On the ground floor are the various administration offices. Professors' room, dental department in east wing, large lecture hall 62 feet by 42 feet. This room may also be used as an examination hall. Lecture theatre, 43 feet by 30 feet. Pathological museum and faculty room, 42 feet by 19 feet 6 inches. This latter room has an oak panelled dado 8 feet high with fireplace and mantel of sandstone, and ceiling finished in ornamental plaster. The first floor is occupied entirely by the department of pathology and bacteriology, and contains a large students' laboratory 79 feet by 42 feet, with cement walls and vitrified tile floor. This laboratory is splendidly lighted and equipped with all the necessary apparatus for modern laboratory instruction.

The second floor in the east wing is taken up wholly by the department of anatomy and contains, besides private offices and research rooms for the professor and staff, a large dissecting room 88 feet by 40 feet, fully equipped, with light on three sides and large skylight extending the whole length of the room, the walls are lined with white enamelled brick and are floored with vitrified tile. In the west wing are the departments of hygiene and pharmacology, and in the centre block the anatomical theatre and the private museum of the dean of the faculty, which is top lighted (see illustration). The centre part of this floor to the south is occupied by the students' library and reading room, 70 feet by 22 feet 6 inches, having three large oriel window recesses. As shown in the illustration, the walls are panelled in oak with a segmental plastered ceiling and top light. In connection with the library is the stack room on the floor below, containing accommodation for 60,000 volumes.

The contract for the book stacks and shelving of the medical library was given to the Snead Company of Jersey City. Mr. B. Shaw, who had charge of the

construction of the library of Congress in Washington, was the one who originally designed these splendid modern stacks, which are now being used in all the best libraries.

Between the first and second floors of the east wing is a mezzanine floor devoted to the department of parasitology. The upper parts of the towers are adapted and planned for the animals used in the surgery, all the kennels being finished in cement.

The electric current for lighting, ventilation and power is generated at the recently erected power house of the University, which is about 500 yards away from the Medical Building. The heating is also obtained from the same source, the pipes running to the building in an underground conduit.

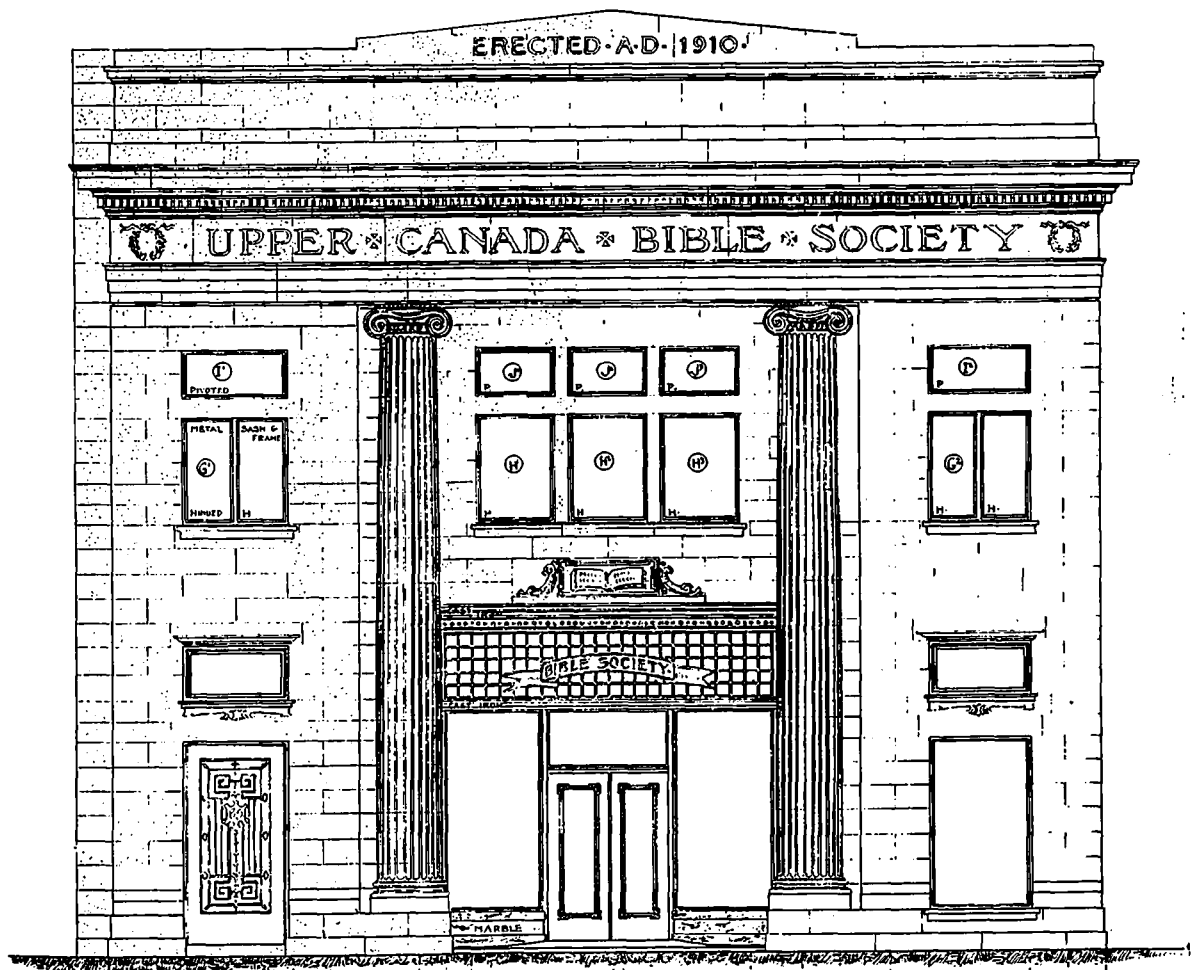
The cold air is brought in from the outside and drawn over steam coils in the basement, and washed before being blown to the different rooms by fans in the basement of the centre block. The temperature is automatically regulated by thermostats.

An electric passenger elevator is provided in the University street wing, as well as a special lift from the preparation to the dissecting room. Electric lifts are also installed for bringing books and subjects from the unpacking rooms in the basement to the reading room and museum.

The erection of the building was carried out under three separate contracts, as follows: (1) East wing and centre block, (2) museum, (3) west wing and tower. The general contractors for the first and second were Messrs. Peter Lyall & Sons, the third contract was carried out by Mr. E. G. M. Cape, both of Montreal.

The total cost of the building, exclusive of special fittings and equipment, has been approximately \$650,000. The sub-contractors (all of Montreal except where otherwise mentioned) that were engaged on the work of the buildings comprised the following. Joinery, including the desks, laboratory, tables, etc., Geo. Roberts; plumbing and heating, Jas. Ballantyne; electric wiring, Collyer & Brock; elevators, Otis Elevator Co.; steel work, Dominion Bridge Co. The Carrara terra cotta used for lining the walls of corridors, halls, museum, etc., was made and supplied by Messrs. Doulton & Company of London, England. The steel metal casements by Messrs. Henry Hope & Sons of Birmingham.

The artistic photographs illustrating this article are the work of Francis Benjamin Johnston and Mattie Edwards Hewitt, expert architectural photographers of 628 Fifth avenue, New York.



Elevation.

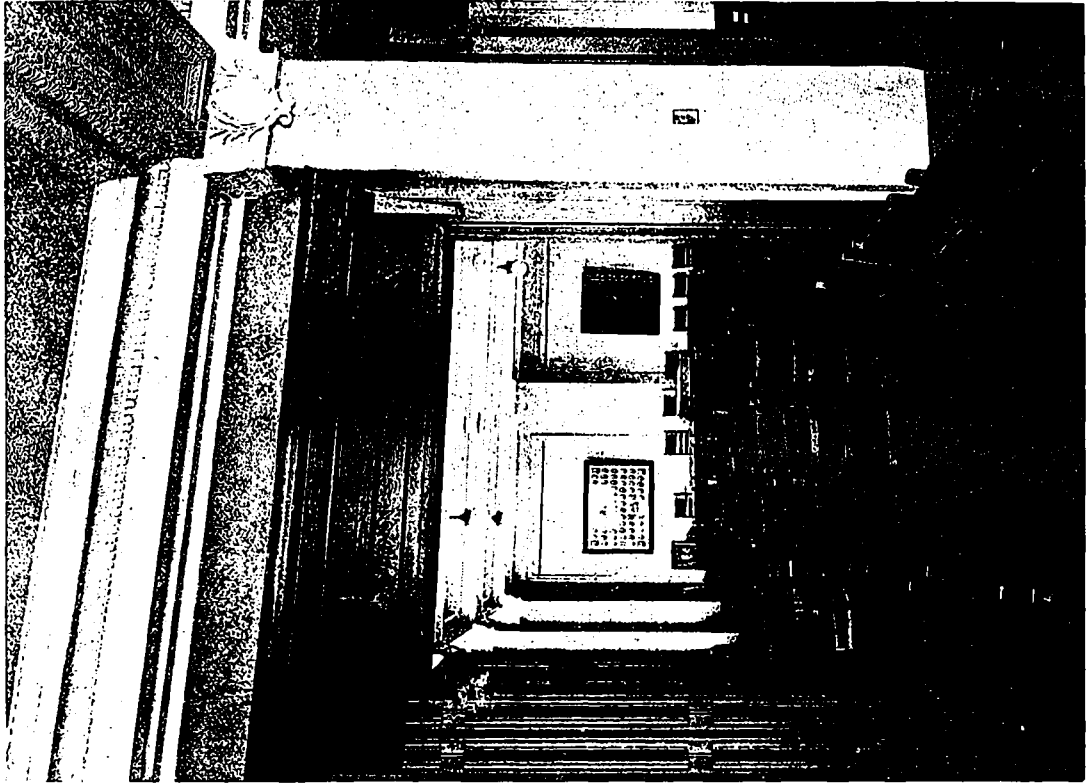
Upper Canada Bible Society Building, Toronto, Ontario. Gordon & Hellwell, Architects.



Biblical Museum.



Upper Canada Bible Society Building, Toronto, Ontario. Gordon & Helliwell, Architects.



Detail of Board Room.  
Upper Canada Bible Society Building, Toronto, Ontario. Gordon & Hellliwell, Architects.



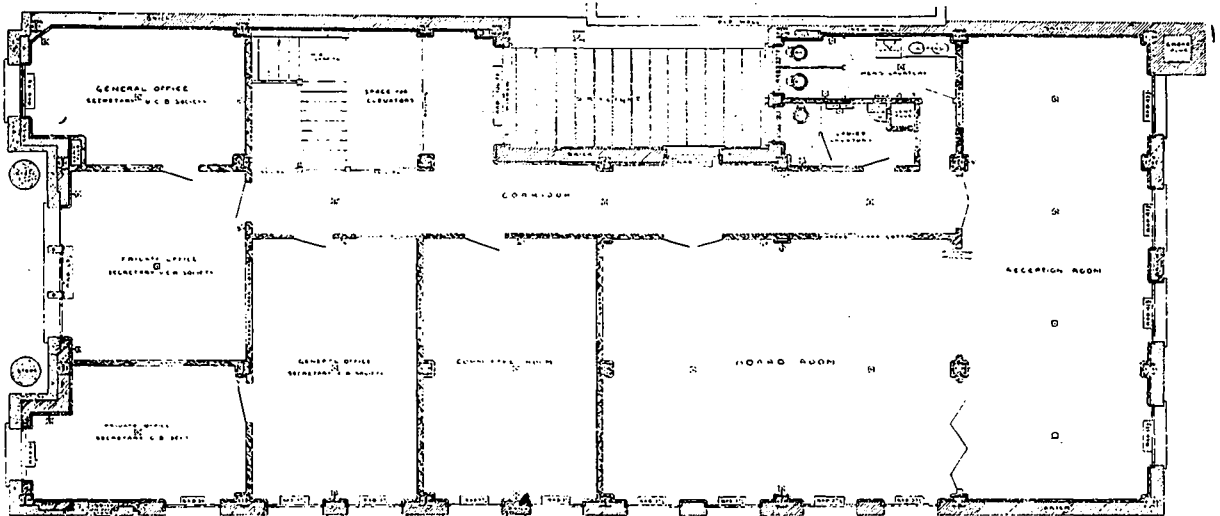
Hall and Stairway.  
Upper Canada Bible Society Building, Toronto, Ontario. Gordon & Hellliwell, Architects.

BIBLE SOCIETY BUILDING.

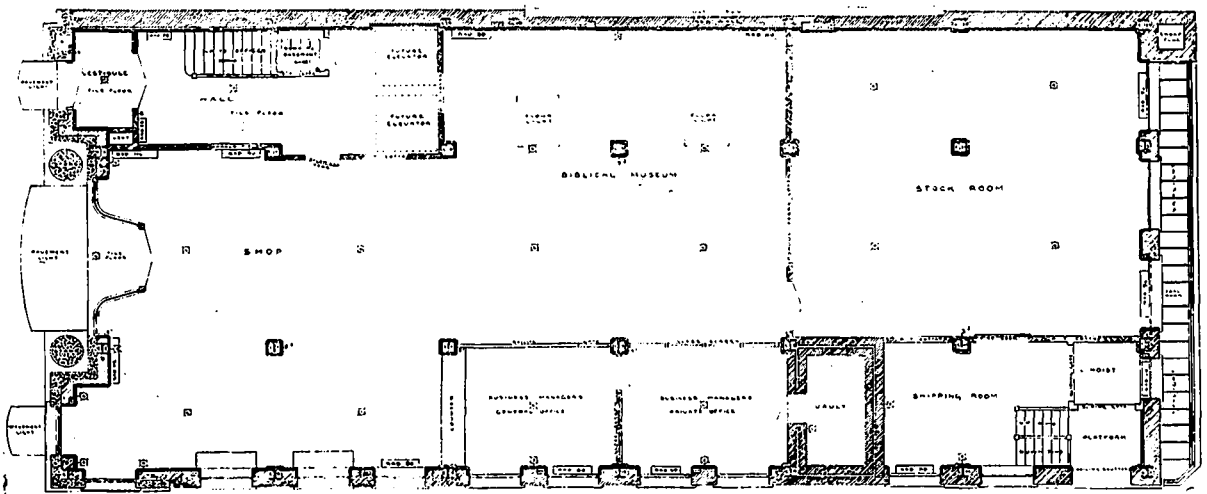
**T**HE BUILDING erected at 14-16 College street, Toronto, for the Upper Canada Bible Society, and known as the "Bible House," is intended solely for the use of that society and its sister organization, the Canadian Bible Society. It is as the illustrations show, but two stories in height, with full deep basement, but with a view to the future enhancement of land values, the building has been designed and constructed for an upward extension of six additional stories. The construction is fireproof, with steel frame, thoroughly protected, and heavy walls, concrete in basement and brick above, with cut stone front. The floors are of porous terra cotta tile arching, with cinder concrete top, in which are bedded the wood strips to receive the oak flooring. All interior partitions are of terra cotta tile. Windows are of English manufacture with steel frames and casements, glazed with wired glass. The principal divisions of the building are separated by fireproof doors. Interior woodwork has, as far as possible, been eliminated, but for the necessary wood trim and fittings, ma-

hogany on the ground floor and white oak on the second floor has been employed. The main floor contains the store with its office and vault, the stock and shipping rooms and entrance hall and stairs to upper floor, on which are located the general offices of the societies, the committee room, board room, reception room and toilet rooms. In the basement, the walls of which have been water-proofed, are the boiler and fuel rooms, toilets and large storage rooms for surplus stock. The heating is by steam radiators, which, on the second floor, are of the indirect type for the purpose of introducing fresh air, and as a further means of ensuring good ventilation, large ducts are provided for extracting the foul air, a current being maintained by an electric fan augmented by steam coils in the ducts.

In designing the exterior, the architects have endeavored to give the building an appearance of stability and dignity befitting its purpose. Classic forms and detail have been employed, with large Ionic columns flanking the slightly recessed central feature of the store entrance and windows.



Second Floor Plan.



First Floor Plan.



# CONSTRUCTION

A JOURNAL FOR THE ARCHITECTURAL  
ENGINEERING AND CONTRACTING  
INTERESTS OF CANADA



ROBERT CRAIK McLEAN, Editor.

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**Vol. 5 Toronto, March, 1912 No. 5**

## CURRENT TOPICS

**THE OFFICERS** elected for the ensuing year at the sixth annual convention of the Canadian National Association of Builders' Exchanges held at Toronto on February 20-22 are: President, J. W. Morley, of Winnipeg; secretary, J. Herbert Laurer, of Montreal; provincial vice-presidents—Alberta, Mr. C. R. Frost, Edmonton; Saskatchewan, Mr. Robert Leckay, Regina; Manitoba, Mr. W. J. Davidson, Winnipeg; Ontario, Mr. George Gould, London; Quebec, Mr. John Quinlan, Quebec. Exchange directors—Edmonton, Mr. C. C. Batson; Calgary, Mr. W. Silvester; Lethbridge, Mr. C. E. Leader; Regina, Mr. W. A. Wilson; Winnipeg, Mr. Robert Watson; London, Mr. William Nutkins; St. Thomas, Mr. R. Sanders; Toronto, Mr. John Aldridge; Ottawa, Mr. A. G. Marshall; Montreal, Mr. James Ballantyne; Quebec, Mr. J. L. Lachance. The next convention will be held at Calgary.

\* \* \*

**CLAY PRODUCTS** will be displayed as never before in history at the Clay Products Exposition which will be held at the Coliseum in Chicago, March 7-12. The exhibit, which will be on an

immense scale, will range from porcelain art ware through the varieties of hollow tile fireproofing, to brick and vitrified sewer pipe. A complete sewer, a sample brick house, a terra cotta arch twenty-seven feet high, etc., all displayed in the most practical and artistic manner in the immense clear arched space covered by the Coliseum. Conventions will be held, and papers on various subjects, by the most noted experts will be part of the programme.

\* \* \*

**THE CANADIAN** Government is taking active steps to assist vessels in distress on the perilous west coast of Vancouver Island, which each winter is the scene of so many wrecks. The Dominion steamer Newington has been ordered equipped with wireless telegraph equipment. It will cruise during the winter between Victoria and Estevan, acting as a parent vessel to lifeboats. If any vessel is reported in distress, the Newington, which will always be in communication with shore stations, will at once go to the scene, take up the nearest lifeboat crew, to render assistance. It is a twelve-knot vessel, able to go through heavy seas. Work has also commenced on the building of shelter stations, some of five rooms each, at intervals of four miles along the west coast, between Carmanah and Banfield Creek. The shelter stations at Taushiat and Seven Mile Creek have been placed in commission, and Lysle guns and other life-saving apparatus placed in these stations. Coast guards, with bases at these two stations, make daily patrols. This service is to be extended, so that the coast line will be thoroughly patrolled daily, and if any vessel meets with accident, the mishap will be quickly reported and assistance rendered promptly.

\* \* \*

**THE ANNUAL** meeting of the Montreal Builders' Exchange, held on January 22, was largely devoted to consideration of the city's lack of an adequate building department. It was pointed out during the discussion that the annexed suburbs came in without a change in the building laws, and no matter how perfect those of the old city might be, that these newer portions could not be brought under its provisions without legislative enactment. The inadequacy of the building laws of the city, which needed thorough revision, and the lack of inspectors was also shown. While Montreal hesitated to appoint ten inspectors, Baltimore, a city of about the same size, had forty-eight. It was not called to the attention of the builders, however, that Baltimore had experienced a great fire, and it always takes a general conflagration to stir cities to a realizing sense of the need of building restrictions and inspection. The officers elected for the ensuing year were: President (re-elected), James Ballantyne; Vice-president (re-elected), Joseph Brunet; Second Vice-president, Thomas Gilday; Directors—Carpenters, contractors, Frank Pauze; concrete contractors, K. D. Church; electrical contractors, E. W. Sayer; general and mason contractors, John Allan; cut stone and brick contractors, John Quinlan; master

painters, W. E. Potter; master plumbers, J. R. Meadowcroft; master roofers, F. H. Barwick; lumber and millwork, Wm. Rutherford; brick, contractors and quarry supplies, T. A. Morrison; cement and builders' supplies, Alex. Bremner.

\* \* \*

*THE MONTREAL* Builders' Exchange at its annual banquet exhibited in no uncertain light the part construction occupies in civic affairs. The guests included a past and a present Postmaster General, the Speaker of the House of Commons, several members of Parliament, the Mayor of the city, and other officials upon whom the work of improvement in national and civic affairs falls. The toasts included many subjects that seem to have little to do with brick and mortar, but upon which the building industry depends and in which its votaries are deeply interested. From the relations of capital and labor to vessel insurance rates, there is a wide selection of subjects, but the gap was bridged in good builders' style by discussions on the aggregate annual building investment of the country, railroads and mines and such local features as the proper clearing out of slums and the creation of municipal housing, parks and boulevards for the benefit of the people, and, of course, the Harbor Board and its work was not forgotten. It is such gatherings as these that give dignity and strength to the builders' organizations and the hard-headed wisdom that comes from the carrying out of contracts finds its reflex in the wise advice that is seen to emanate from such a gathering as that which marked the annual banquet of the Montreal Builders' Exchange.

\* \* \*

*EDMONTON* and Strathcona, in their amalgamation, are planning a city upon broad lines. The ratepayers of the former city have voted a total of one million eight hundred thousand for civic improvements for the current year. This, aside from miscellaneous purposes, provides for street railway extensions, six hundred thousand; telephone extensions, two hundred and seventy-five thousand; and power plant, paving and fair ground improvements, five hundred and seventy-five thousand dollars. Strathcona has provided a million dollars to be spent on civic improvements this year.

\* \* \*

*SIX MONTHS* having elapsed since the Legislature of the Province of Saskatchewan passed the Architects' Registration Act, and the Saskatchewan Association of Architects organized under its provisions, it is now in force in that province under the following provisions: "After the expiration of six months it shall be unlawful for any person not holding a certificate of registration in Saskatchewan under the provisions of the above Act to advertise or put out any sign, card or other device for the purpose of or a view to indicating to the public that he is entitled to practice as an architect." This means that after March 23, 1912, all persons wishing to practice architecture in Saskatchewan will have to pass the different examinations as called for by the Act, but any person who was practising in Saskatchewan on March 23, 1911, may be registered under

the Act within six months by paying the registration fee. The first council has been appointed by the Lieutenant-Governor-in-Council as follows: President, F. Chapman, Cledesha, Regina; first vice-president, W. W. LaChance, Saskatoon; second vice-president, R. G. Bunyard, Moose Jaw; secretary-treasurer, W. G. Van Egmond, Regina; committee—Professor A. R. Greig, Saskatoon, Sask.; W. R. Reilly, Regina, Sask.; Norman L. Thompson, Saskatoon, Sask. A meeting of the council as above constituted was held in Regina on September 11, 1911, and by-laws, code of ethics and competition regulations were drawn up and adopted. The by-laws of the association were approved by an order-in-council passed under date 15th January, 1912.

\* \* \*

*VICTORIA* architects at the annual meeting of the local association on January 25, gave considerable attention to the subject of registration, and as the subject has already been discussed by the British Columbia Association, which favors legislation for their purpose, it is probable that the province will soon have a Registration Act passed. The discussion of the same subject at the annual banquet of Alberta architects at Calgary, recently, would indicate that Alberta would also move for the passage of a Registration Act. The working out of architects' registration in Manitoba would indicate that it is beneficial to profession and public, and this should have a strong bearing with registrations in the Western provinces when the Act is presented for passage.

\* \* \*

*HAMILTON* architects met socially on January 18 and thus inaugurated what should be a beneficial movement not only in Hamilton, but in every other city in the Dominion, a spirit of professional intercourse and sociability. The programme was so diverse as to include a luncheon and a bowling match. The principal feature was an illustrated account by W. P. Witton of a recent trip through Southern Europe, his experiences, remarks on architectural styles, gathered by an appreciative traveller and told in an interesting manner, and their examples shown by exceptionally well presented photographs, was particularly enjoyable to the assembly of architects. This fraternizing of the profession is one of the most neglected, yet one of the most valuable features that can be introduced and practised by the profession in any city.

\* \* \*

*THERE SEEMS* to be a good deal of sense in the position taken by the people of Owen Sound in regard to the construction of the Georgian Bay Canal and the enlargement to the Welland. Of course the Georgian Bay Canal project is a joke. As an enterprise it would cost as much or more than the Panama Canal, and even if its necessity was as great as that built by the United States across the isthmus, it is folly for a country with less population and revenue than some of the States of the Union to think of the project seriously. Canadian engin-

ers could build it, just as Canadian architects could erect an office building an hundred stories high in Montreal, Toronto, or Winnipeg, but no one dreams of making the investment. The widening of the Welland Canal is another matter and a practical necessity, though even that enterprise will tax the resources of the Dominion. But there is an immediate necessity in the construction of elevators and railway-boat connections in the Georgian Bay for the quick transport of grain across the continent. The Welland Canal, even if enlarged at once, could not carry the bulk of the grain and the railway-boat route is at present, and will long remain, the practical method of reaching the seaboard with the produce of the Western Provinces.

\* \* \*

*ALBERTA* architects at the sixth annual meeting of the association at Calgary, on January 29, decided to urge upon the council of the new university the necessity for the establishment of a chair of architecture. As at present there is no architectural school in Western Canada, the action of the Alberta architects is timely and important. The officers elected for the year are as follows: President, G. M. Lang, re-elected; first vice-president, R. W. Lines, of Edmonton; second vice-president, W. S. Bates, of Calgary; honorary secretary, L. M. Gotch, of Calgary; hon. treasurer, D. S. McIlroy, of Calgary; hon. librarian, R. W. Lines; and auditors, C. G. Civine, of Calgary, and J. B. Richards, of Calgary.

\* \* \*

*IF THE PLAN* of local capitalists to finance and construct a wide boulevard through the centre of Montreal is carried out, it will not only prove a material benefit to that city, but potentially to every city in the Dominion. Not that we approve of private ownership of highways or even their financing by any other than the municipality, but because of one point that we contend for, which is that the widening or cutting through of streets in a city does not cost money, but, on the other hand, is financially profitable aside from the public benefit that is derived. This company of business men in Montreal not only see a ten per cent. profit, but a percentage over that in the transaction. An object lesson should not be necessary, for it is the history of all similar improvements in cities in Europe and the United States. A demonstration of the fact in a Canadian city may show that underlying principles are the same, the difference being the narrow or broad viewpoint of the individual or people.

\* \* \*

*THE PERGOLA* in America is both sinned against and sinning, and the chiefest of its misfortunes is due to the lack of what in another sphere would be called social tact on the part of its author, says Francis Duncan in *Country Life in America* for February 15th; wherefore we constantly see pergolas, excellent in themselves, brought into close association with buildings of a type with which they should not have had even a bowing acquaintance. A pergola almost classic in its severity of design must suffer sorely when set down beside a careless

rambling house of the bungalow order and a garden which is quite as informal and even more coquetish than the house. Precisely as out of place and uncomfortable is a rustic pergola, obtruded into the decorous shadow of an old Colonial house. The architect in either case may be serenely unconscious of having done anything amiss; yet the primary impulse which deters a man from completing with an evening coat a costume of tennis flannels or golf trousers, should have restrained him. These things ought not so to be; yet unfortunately they are; and they are of such frequent occurrence that a pergola that is in perfect harmony with the house is rarer than one that isn't.

\* \* \*

*BY SPECIAL* arrangement with the A. C. Horn Company of New York, the waterproofing engineers and manufacturers of structural waterproofing compounds, Pinchin, Johnson & Co., Limited, of Toronto, have become the exclusive manufacturers of the A. C. Horn Company compounds in Canada. In connection with the waterproofing department an engineering branch has been established which is devoted to the interests of the architects, engineers and contractors of Canada.

\* \* \*

*PROBABLY* the largest construction deal ever put through in Canada is that recently concluded through the organization of J. P. Lyall & Sons Construction Company, Limited, with a capital of \$4,300,000. The new company is the successor of the well-known contracting firm of P. Lyall & Sons, which for the past thirty years have been an integral part of the conservative and reliable contracting interests of the Dominion. The board of directors, in addition to Messrs. Peter Lyall, Wm. Lyall and Trail O. Lyall, will include J. N. Greenshields, K.C., director of Banque Internationale du Canada; Hon. Robert Mackay, director of Bank of Montreal; and H. Wyndham Beauclerk, director of National Bridge Co. The company will do a general contracting business throughout Canada, the work in Montreal, Winnipeg and a number of other cities which the new corporation will carry out this season, already approximating \$5,000,000, and including the Transportation Building, Montreal; Dominion Express building, Montreal; Grand Trunk station, Ottawa; Saskatchewan Government buildings, Regina; harbor sheds, Montreal; new Technical Institute at Montreal, and Grey Nuns' Hospital at Regina.

\* \* \*

*THE DISCOVERY* of what's said to be the largest deposit of iron ore on the Pacific coast on Love's Island, of the Charlotte group, will in itself give to the growth of Vancouver, Victoria, and Prince Rupert a permanent industry in manufacture beyond the export of the agricultural and mining products of the mainland. With five million tons of ore immediately available and the possibility of a continuous development, the greatest iron works in the Dominion may yet be located on the Pacific coast just where they can be operated and shipped at the least cost.



Bank of Hamilton, Head Office, Hamilton, Ontario. Charles Mills, Architect.

Photo by Cumingham.



# RECONSTRUCTION OF HEAD OFFICE BANK OF HAMILTON

*An interesting problem in reconstruction of a comparatively modern bank building to meet the demand for additional light and facilities.*

RECONSTRUCTION is often as intricate a problem as the experience of the observer and the architect has proved it to be expensive. Usually, to save money, sometimes from sentiment, a residence is reconstructed, and the completed structure is found to have cost more, with a large deficiency in plan, than if the original building had been razed and an entirely new structure planned and erected in its place. The same rule applies, though not in the same measure, to business structures, and when such a reconstruction is accomplished with an actual saving in material and labor, to say nothing of appearance, then the owner is to be congratulated and the architect credited with an exceptionally skilful execution. The reconstruction of the head office, Bank of Hamilton, at Hamilton, Ont., by Charles Mills, architect, under whose design and control the entire work was accomplished, is illustrated and described as a typical problem in reconstruction successfully solved, its many intricate parts showing work done in a most ingenious manner.

The problem consisted of adding nine stories to an old building that never was intended to have additions made to it. The old building was 60 by 82 feet and had a 20-foot addition put on to one side, in addition to raising of the entire area to a nine-story affair, and at the same time keep the banking business in full swing, as other accommodation was not available during alterations. The first thing was to protect the banking room and public by constructing a temporary roof or ceiling over the entire room, which was carried by two large wooden trusses, and this was double floored with air spaces, so as to protect the people below in case of anything falling from above. This done, the entire third story of the old building was taken off and lowered to the ground as shown by the photo of the dismantled building. The next procedure was to secure a solid footing for the upper structure. Test holes were put down, and the result was that nearly the entire surface of the ground upon which the building stood was found to be underlaid with water that withstood all pumping out as it flowed in as fast as it was emptied.

Excavation was made under the footings, which were seven feet wide and to a depth of two feet below, and by running in a concrete mixture of 4 to 2 to 1, and increasing the bearing surface on the soil to the extent of 13 feet 6 inches, and placing

on the concrete 10-inch I beam 25 lbs. at 15-inch centres (see cut), which brought the top of the beam to within 6 inches of the lower side of the original footing, and on top of each I beam were placed two specially made iron screw jacks, which were screwed up tight against the old footing, thus depressing the I beam to a rigid bearing on the concrete and then grouting in between the jacks, thus making an entire new footing under the old building. This was pursued in sections of 4 feet at a time, and the entire underpinning of the old part covered an area of 200 feet in length when finished. Four hundred and twenty-five screw jacks were inserted.

Many difficult obstacles were encountered during the operation in the way of getting in I beams. For instance, at the corners of the building these I's were run in fan shape. The chimney foundation was another problem, as the I's were 24 feet in length. Beams of these lengths were not very easily handled in a cellar away down below the grade. So successful was the operation that not the slightest settlement of any kind has shown itself in the finished building now up five years, not even a hair crack where the new extension was added at the side.

The outer walls carry only themselves, while the floors and interior were carried on steel columns run up alongside each masonry pier. The two steel trusses over the banking room, which is 50 feet square, carry each a load of 1,000 tons, so that the entire banking room should have no columns in it. The building was made entirely fireproof from top to bottom. The floors were of the Roebing design, and all steel columns and girders were encased in concrete. The two large trusses of steel were doubly fireproofed with air spaces between each fireproofing, which was expanded metal coated with cement.

The exterior of the building is brown stone, terra cotta and hydraulic red pressed brick. The cornice is of copper.

Two large elevators supply transportation to the top of the building, in addition to the iron and marble stairs.

The cost of the underpinning of the building was between \$7,000 and \$8,000 dollars, which was not considered excessive under the circumstances.

The front elevation of the building shows to what extent the old building was pulled down and the



The Old Building.



Preserved Portion of Walls of Old Building.  
Bank of Hamilton, Head Office, Hamilton, Ontario. Charles Mills, Architect.



View from Entrance.



View toward Entrance.

Bank of Hamilton, Head Office, Hamilton, Ontario. Charles Mills, Architect.

additions made thereto. The large photo does not show this as the work is well matched in appearance. It could be traced by comparing the finished with the original building.

The chimney is 140 feet in height and of reinforced concrete, 8 inches thick for a height of 45 feet, and the balance 6 inches thick, the lower 25 feet being lined up with firebrick.

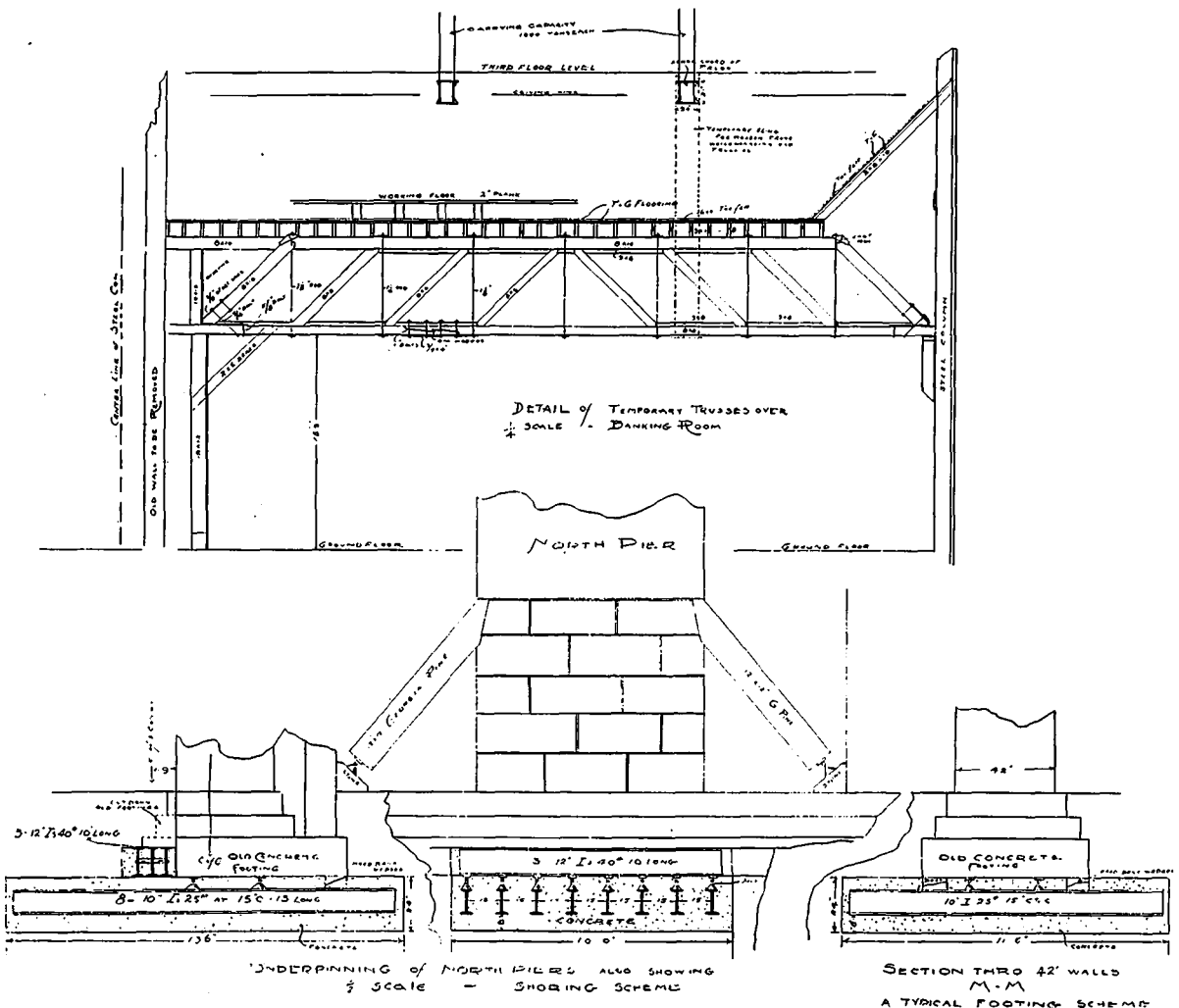
Three 70-h.p. boilers supply the heating for the building, which is done very economically as to coal consumption.

The electric end is carried out by two motor gener-

the convenience of the tenants. Steel fire-escape with stand pipes to the top of the building for fire purposes go to complete an already up-to-date building.

The elevator machinery is all located on the roof, there being no room in the basement. The building is 120 feet in height above the sidewalk line, and is the highest in the city of Hamilton. The offices are all finished in quartered cut oak, while the banking room is of mahogany and marble. The ceiling of this room is 30 feet in height.

The two lower floors are occupied by the bank and



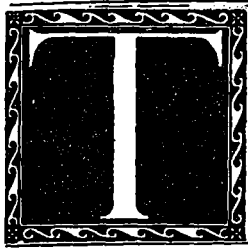
Construction Details of Bank of Hamilton, Hamilton, Ontario. Charles Mills, Architect.

ators of 75-h.p. capacity, one for cataract and the other for hydro-electric current, with a storage battery in addition thereto. A splendid air-cleaning vacuum appliance cleans the building thoroughly and is run by a 12-h.p. motor.

The large safety deposit vault of the Mercantile Trust Co. in the basement is the securest of its type in Canada, and the treasury vaults of the bank are the most up-to-date affairs that can be imagined. A magnificent mail chute of bronze is installed for

one-third of the ninth floor by the kitchen and lunch-room for the bank's employees, and are very complete in all appointments. The balance of the building is devoted to offices to rent, the demand for which has exceeded the expectations of the owners so much so that a long waiting-list is constantly on hand for offices. The reconstruction was carried out by the William Grace Co., of Chicago, and was done on the percentage basis with satisfaction to both owner and contractor.





# THE EFFECT OF COMPARISON UPON DESIGN

*Paper read by J. Milton Dyer, F.A.I.A., of Cleveland, Ohio, before the forty-fifth annual convention of the American Institute of Architects. Revised by the author for "Construction."*

**I**N ATTEMPTING to deal with this subject, it has been extremely difficult to confine myself to the actual effect of competition upon design, rather than to revert to a discussion as to the propriety of competition in itself, and more or less to a discussion of the ethics governing competitions. For the purposes of the paper I shall assume that by the term "competition," is meant—Competition undertaken under the most ideal conditions, guided by rules laid down and approved, in so far as they have been approved, by the American Institute of Architects, that is:—1st, Competition limited to a certain number of architects; 2nd, Open to all architects; 3rd, Mixed; certain architects being invited, but other architects being at liberty to take part.

The Institute, by recommending that except in cases in which competition is unavoidable, an architect be employed upon the sole basis of his fitness for the work, tacitly, at least, takes the stand that the effect of competition upon the practice of architecture and upon architecture itself, is not for the best.

The New York Chapter, however, admits that for public and semi-public buildings, competitions may be desirable; other chapters name the minimum amount a building should cost in order to warrant a competition.

Now, as a matter of fact, notwithstanding the view of the Institute as a whole and the individual views of the several chapters, possibly every man in this body has participated, to a greater or less extent, in competitions, and each one has been guilty very closely in the ratio to his prominence in the profession, in spite of the great economic loss to the profession, and of its being a "game of chance."

To properly describe the effect of competition upon architecture would require an analytical comparison of the works of representative architects, won in competition, with other of their works executed after direct selection, and taking all the attendant conditions into account.

Much has been said upon the ethics of the competition, but very little upon the actual influence of competition upon architecture, and I have to admit that it is a very broad subject and that perhaps, in the future, an adequate paper on this subject may be written.

Upon receiving an invitation to enter a competition, and upon receipt of the programme and requirements, one realizes that he is taking up a new and

strange problem, and is dealing with an unknown owner, or committee; the personnel of the jury may or may not be known to him.

In either case, the economical idea of the plan may often be worked out independently, that is, the disposition of space and relation of departments the one with the other, circulation, etc., may be determined irrespective of any supposed idiosyncrasy on the part of the jury, but even in the case of the plan this independence is only too often influenced by a vague mistrust as to the personal likes or dislikes of the jury, concerning some particular arrangement, thus preventing an individual and heartfelt expression of the solution.

After the plan has been developed to an advanced stage, one may surround it with four walls punctured with holes, or attempt to give these walls architectural expression, and a character which denotes the intended uses of the building. Here again one's thoughts turn to the approval of the owner and his expert advisers, rather than to a courageous, independent, impulsive study of the problem. You are afraid to be impulsive, to play with the motives, to do the thing you, yourself, feel; you may not win; you may not have the favored "parti."

While it is true that the most important element which is lacking in a competition and which must therefore affect the final result, is the inability to get in touch with one's client, and thus develop a solution, nevertheless the viewpoint of the expert adviser and jury itself, affecting design, is greatly responsible for the prevailing desire to sell one's soul to win; and it is possible that we should have a code for the conduct of jurors, as well as for the conduct of competitions and competitors. Must we, in competitions, be eternally condemned to the use of an order? Is there no value in wall space?

The late John M. Carrere has said that one argument advanced in favor of competition has been the desire to discover new talent, and added, "If a man has talent, his day will come, and it should not come until he is prepared to make use of it.

"A man who has genius to express original ideas on paper is, nevertheless, not to be entrusted with the execution of the work until he has acquired the requisite experience, for when it comes to the serious work of actual building, he requires not only the experience of the practical side of things, but the practical artistic experience; the experience that knows that a thing that looks well on paper repre-

sents a thing that is going to look well in execution; and *that* refers to every detail of the work, the very texture of the material. It requires experience which cannot be acquired by any man, no matter what his genius may be, without practice."

Now I believe that the safe, dignified, substantial way in which to obtain recognition in the profession is to gain your clientele through the excellence of your executed work, the importance and volume of which will grow as rapidly as it deserves; nevertheless it has been my experience that the presence of a serious competition in the office does develop the men, from the head to the office boy, improving draftsmanship, knowledge of the principles of design, and the faculty of quickly expressing one's thoughts on paper. An esprit de corps is created in the office, for here is a real competition, something more than a school problem, and naturally all take a keener interest in the result. Great good is accomplished in the ateliers of our larger cities and the competitions instituted by the Beaux-Arts Society, and by several magazines, but the efforts of all in collaboration, working in an office upon a serious competition, develop not only draftsmanship, but a real conception of architecture in its higher meaning, such as many months of routine work may not accomplish.

A great number of competitions, even in some of our best known offices, have been won by clever young designers, developed under these conditions of training.

While this should not necessarily warrant these men being selected as architects, it nevertheless demonstrates that the system of conducting competitions does stand for training in design. It is equally true that a number of these young men have, through the medium of competitions, developed into some of the prominent architects of the country, and have shown, by their subsequent work, that they were prepared to make use of their talents.

The Tarsney Act, approved February 20th, 1893, authorizing the Secretary of the Treasury to obtain plans and specifications for public buildings, paved the way for a better architecture in our federal buildings, and, in turn, has, since its adoption, reacted upon the work of this Department of the Secretary of the Treasury, until as Mr. Glenn Brown, in his review of 1906, states:—

"Under the Tarsney Act it must be conceded that the work is immeasurably superior to any building done by the Government from 1860 to 1896, and it, together with the merit system which now rules in the office, has been a very material factor in uplifting the character of work done by the corps in the supervising architect's office during the past six years."

Since 1897, under the direction and with the advice and assistance of the officers of the Institute, programmes have been drawn by the supervising architect for scores of important Government buildings throughout the country, and the result has been public buildings of an excellence of design and execution heretofore unknown in the United States.

These competitions, however, have affected design to an enormous extent. The type of architecture in our Government buildings, as well as other municipal and semi-public buildings, has for the most part become circumscribed. Before the drawings are sent in, it is almost possible to foretell, within small limitations, the general character of design of the contestants. It is always the base story with a superimposed order, enclosing two or more stories, with perhaps an attic, or the order will extend from the ground through all the stories. In any case it is almost sure to be an order, and, as before stated, the value of plain wall space in design seems to have been overlooked.

This use of the order as the main feature of a building, with several stories enclosed in its height, is seldom successful, and probably never when more than two stories are included.

Why does competition insist upon a Government type requiring our architects to crowd these many stories within the order, thus making corridors of the rooms within, by reason of the usual depths, or rooms too large for an economical arrangement of space, when the logical expression of an economical plan demands that the window openings be made subservient to this plan? In other words, while the character of architecture should proclaim the dignity and purpose of the building why should the arrangement and lighting of the interior be sacrificed to the everlasting order?

Does the fact of the order in competitive design spring from the belief that this form of architecture is really the established form for public buildings in the United States, or is it to be laid to the door of our system of conducting competitions?

If the latter be true, I again affirm that the cause lies in that inborn desire to win, and the competitor, in order to do so, gives the jury that official type he believes the jury wants, to the absolute prostitution of personal expression, and the results of practically all competition judgments prove that he is correct. The jury does demand the recognized official type.

It therefore appears to me that, in competitions, the jury and expert advisers exert fully as much influence upon design as the competitor himself.

The official type of public buildings, whether for the Government or a municipality, is the offspring of the competition as at present conducted, and, in turn, influences and very often determines the type for many buildings forming part of a grouping plan, such as is being developed in many of our larger cities, thus condemning the whole group to a type which most surely will not be the last word in the architectural expressing of public buildings.

Much that has been herein stated may also be said concerning competitions for buildings of a commercial character.

With a possible exception, as in the case of those problems of great monuments which are purely artistic in their character, and which may require the collaboration of the sculptor or decorator, taking into consideration the present status of the competi-

tion, I believe the best method of securing an artistic as well as a practical result is by the direct selection of an architect. But the fact that competitions have been conducted in Europe, and especially in France, for many years with undoubted success, exerting a marked and beneficial influence upon architecture; also the willingness on the part of most of our ablest architects to enter competitions with, as a result, hundreds of successful monuments attesting their skill, and the fact that perhaps more time of the Institute conventions is devoted to the consideration of the problems pertaining to competition than to any other subject, indicate that, while the perfect code for the conduct of competitions, competitors, jurors and clients has not yet been developed, nevertheless, we may be through a slow but progressive process of education, evolving a system which may eventually enable competition to exert a beneficial effect upon design in architecture.



## ARCHITECTURAL DRAWING IN PEN AND INK

The revival of one of the oldest arts necessary to true designing development with architect and draftsman. Commencement of a series of illustrative line drawings by pen and pencil delineators of architectural subjects.

**A** RCHITECTURAL drawing in pen and in pencil has reached the dark ages of innocuous desuetude among draftsmen in Canada and the United States. The requirements of their practice do not call for line perspectives and the craft is too busy, apparently, to give much attention to work in which there seems to be no practical utility. As the architect has ceased to require his draftsmen to be skilled in rendering in pencil, ink, or charcoal, from casts, so he has abandoned those mediums of expression in design for the more attractive and easier method of presenting perspective drawings by water-color sketches. The draftsman does not require to go back to Piranesi, Palladio, Bramante, or other sixteenth century masters of the line in architectural draftsmanship. Twenty years ago there was in England, the United States, and probably in Canada draftsmen who, in the precision, beauty and expressive rendering of their drawings, bid fair to rival the draftsmen whose work finds a place among the rare collections of museums. Harvey Ellis, Lautrup, Dean, Gregg, in the United States, Davidson and others, in England, showed that rare talent for line drawing that, through disuse rather than lack of votories, has well-nigh disappeared from our architectural practice.

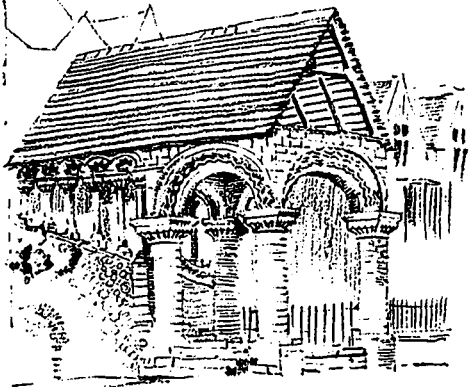
This is particularly true in regard to perspective sketches, but its results are apparent in the drawing of elevation details, and even the rendering of plans. In the first of a course of lectures upon architectural drawing before the Royal Academy, Professor R. T. Blomfield, A.R.A., in endeavoring to disen-

tangle the ideas to be aimed at in such drawing, and the viewpoint from which it should be approached, said:

Were our line-and-wash drawings up to the standard of Girtin? Was there any living draftsman who could use his pen and his blot as Piranesi did in his lightning improvisations? One could safely say there were no such draftsmen now. But if one shifted the standard, if one compared modern drawing or modern architecture with what was accepted as such in England fifty years ago, he did not doubt that there was a marked improvement. The architecture, and with it the draftsmanship, of the middle of the nineteenth century was founded on no solid basis of inheritance; it sprang out of nothing in history, and it had ended in nothing, except that, as a reaction against this unprofitable emptiness, artists had gone back to earlier traditions. In recent years they had attached themselves more particularly to the French tradition of draftsmanship, which in the last twenty years had overrun this country and America. Fine as that tradition was, it was by no means the complete and only standard of architectural draftsmanship. Far from it; it was itself only a very dexterous convention which attained its perfection by eliminating half the problem. We must go much further afield than this if we were to understand the whole gamut of notes on which a really great architectural draftsman can play. There were two essential conditions of geometrical drawings: they should be perfectly accurate and they should be perfectly clear. The ultimate intention of these geometrical drawings is their translation into stone, bricks, and mortar by a builder who, except for the drawings and the specification, was ignorant of what was in the designer's mind. One could not help wondering what must be the inner thoughts of experienced builders when they came face to face with some of the drawings with which they had to deal.

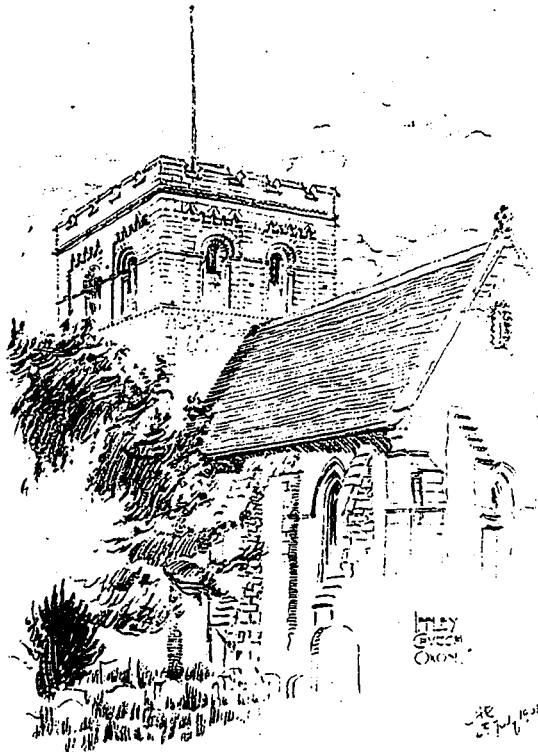
As to drawings being perfectly clear, he regretted to say that certain vicious tendencies in architectural drawings had appeared in recent years, notably the use of a very thick line and the use of a very thick line in connection with a thinner line. The use of the thick line was due, he believed, to the mediæval proclivities of William Burges, a fine draftsman spoiled by his fondness for mummery and posing. Burges deliberately copied the methods of mediæval draftsmen, with the result that what should have been studies of fact became mere exercises in style.

The second, and possibly even more injurious, use of the thick line and the thin line had originated in competitions. In a room full of drawings by different designers competitors had feared that their drawings would be overlooked unless some strong insistent line shouted its existence at the spectator. With variations of line not only were all the refinements and subtleties of architecture lost, but the breadth of effect goes too. Nor did he believe that it made any but an unfavorable impression on an assessor who knew his business, and who, of course, read the elevation by the plan and section.



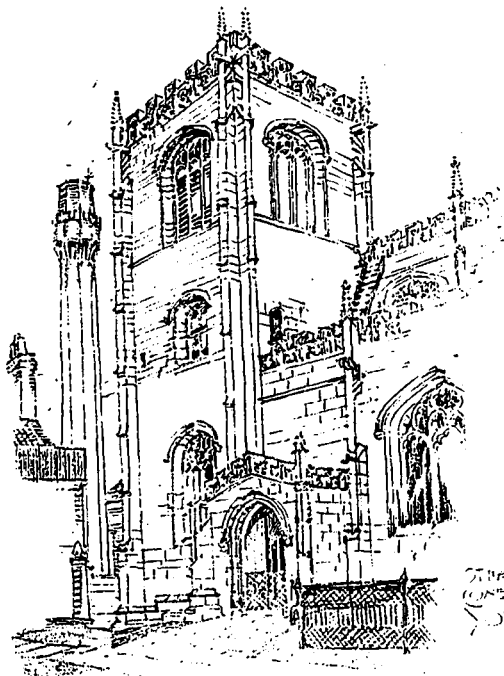
NORMAN STAIRCASE  
IN THE CLOSE.  
CANTERBURY.

R.C. 16 June 06.



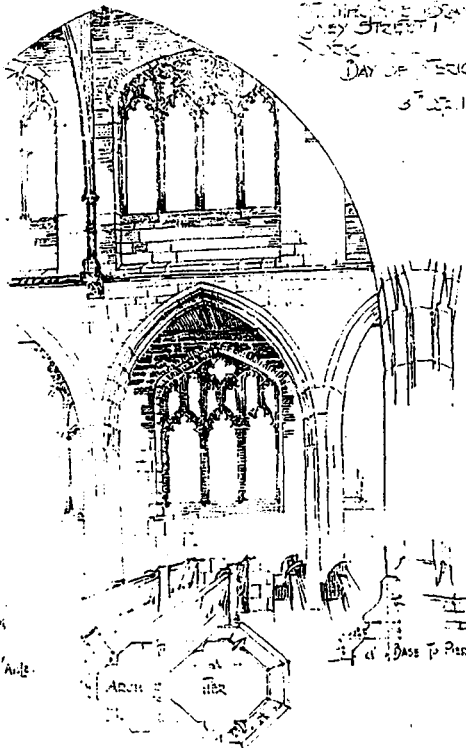
WILEY  
GUYTON  
OXON.

R.C. 16 July 1901



ST. MARTIN'S CHURCH  
MONEY STREET  
LONDON

17th July 1901

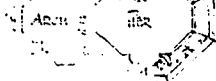


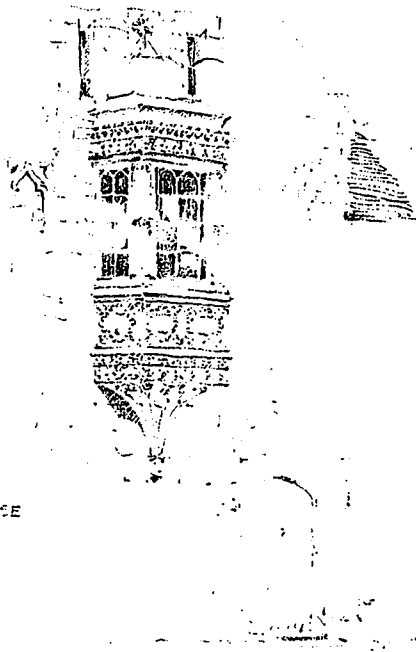
THE GREAT WEST  
WINDOW

DAY OF TERCE

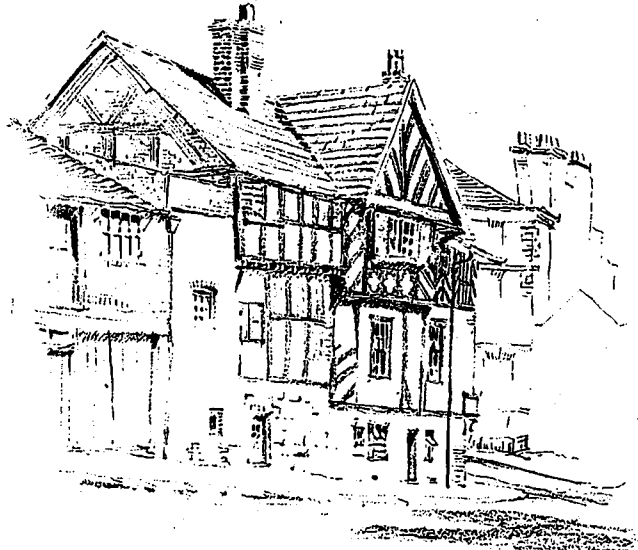
3rd July 1901

View of the  
Great West  
Window  
from the  
Nave  
N.B. Photo taken  
over House Arch.

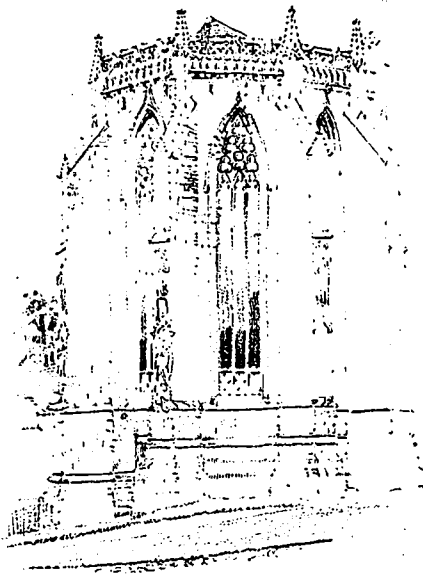




VICARS CHURCH  
WELLS.  
1895  
1910.



CASTLE STREET  
CHESTER.  
1868  
1910.



WILTON  
CATHEDRAL.  
EAST END.



DRYBROUGH  
CHAPEL  
1829 to 1840.



## TOWN PLANNING FROM AN ARCHITECT'S POINT OF VIEW

Presented by Colborne P. Meredith, of Ottawa, before the Canadian Public Health Association at Montreal, December, 1911.

**I**N APPROACHING the subject of town planning from an architect's point of view you will permit me, I am sure, to say that town planning is essentially an architectural problem. Granted that the co-operation of the sanitarian, the engineer and the sociologist is absolutely essential to the evolution of any scheme for the betterment of our towns and cities, I submit that once such co-operation is obtained and the vast array of facts and figures arising therefrom is available, it devolves upon the architect, by reason of his technical and artistic ability, to marshal these facts and figures into a workmanlike solution. On this point may I here quote the excellent suggestions for town planning promoters issued by the Royal Institute of British Architects:—

*Suggestions to Town Planners.*—"The working out of the exact form in which the requirements can be satisfied so as to produce a fine city is a function of the creative imagination, and it can only be properly performed by one who has had the architectural training necessary to enable him to adjust the proportions of the many parts, so as to place the different buildings, and group them upon the ground in relation to each other, that when erected they may compose properly. For the design of the town plan the architecturally trained mind is as essential as for the design of a single building, for the work consists in an applying upon a wider field, and with greater scope, the same principles which govern the designing of individual buildings. The appreciation of the relation of masses and voids, the apprehension of the right points for emphasis, and the power to combine into one creation many different parts by bringing them into harmonious proportion, are equally required in the field of town planning if there is to be produced that rhythm in the plan, and that spacious breadth of ordered elevation in the groups of buildings, which so largely constitute the beauty and the grandeur of the cities."

*The Architectural Point of View.*—In order for me to deal with my subject from the point of view expressed in the title of this paper, it will be well to ask—what is an architect?—for the key to what a man thinks is what a man is. An architect is firstly an artist, secondly he is a constructional authority, and thirdly he is a business man. I will briefly endeavor to show how I think town planning appeals to the many sided activities of my much berated profession. In doing so, I will reverse the order in which I have endeavored to enumerate the professional functions, and will treat of the business man first.

*From the Business Standpoint.*—From the business side town planning appeals to an architect because

of its basic principle of economic efficiency. Any arrangement which tends to the conservation of human thought, time, energy or life is good. This statement cannot be refuted. Town planning does all of these things. It therefore must also be good. *Town Planning Saves Money.*—Town planning saves money. This statement is so obvious that it hardly needs illustration or proof, but if the latter were needed it can be very easily supplied by the complementary statement that lack of town planning costs money. We all know that vast sums of public money are now being spent in an endeavor to rectify the errors which lack of foresight has handed down to us. And with this appreciation of the waste of public funds, must there not also come a realization of the woeful waste of human life which has attended this most unholy heritage. Land overcrowding, with its attendant slum evils, is the result of economic conditions which would never arise if a proper system of grading and planning districts obtained. The insane idea for a super-concentration of population is often but the outcome of a lack of transit facilities.

*Garden Suburbs.*—Town planning must consider all these points. It does not of necessity imply building in the grand manner. This, the most democratic of modern arts, embraces all grades of habitation from the palace to the house. If you require tangible evidence of its broad utilities I would direct your attention to the town and garden suburbs which are being evolved in the Old Country as a reply to the insistent demands for something better in regard to housing conditions. Here you have a rational communistic spirit developed to its full. The hitherto unalienable right of every man to do as he pleases with his own is no longer allowed to go unchallenged, and thus we have the spectacle of restrictive legislation voluntarily imposed, and voluntarily accepted, with a result which challenges criticism. True, that in some instances the movement has been accompanied by certain weird essays in ethics and diet, but in the main, we see that at the bottom it is a great uplift towards better conditions.

*From the Constructional Standpoint.*—The town planning movement appeals to the architect in his constructional faculty by reason of its simplification of the problems of construction. Such problems in crowded areas often entirely divorce the art of architecture and the science of building, in fact, I would even go so far as to say that the great part of so-called city architecture to-day is merely building. The problem of erecting monstrous structures on inadequate bases is brought about entirely by our irrational system of land overcrowding. Therefore a town plan which makes better architecture possible appeals directly to that constructional faculty which is a part of an architect's nature.

*From the Artistic Standpoint.*—Thirdly, town planning appeals to an architect from its artistic side and probably this appeal is stronger than either of the others.

*Haphazard Growth.*—The horrible examples of haphazard growth which occur in so many of our

Canadian cities need not be brought before your notice. They are so self-evident that every thinking man must at some time or other have been distracted by them. But here I may insist that in Canada we have the very conditions favorable to the production of town and city plans which shall directly comply with our social and physical needs. Unhampered by historical associations, we have in the newest towns and the smaller cities a free hand. *Our Opportunity.*—Our Canadian towns are spread before us like a gigantic piece of scenic canvas. On that canvas we are to paint the story of our life and of our age, expressed in materials that will endure. Are we to go down to posterity as a sordid generation of mammon seekers, or shall we write large upon the annals of history that spirit of communal well-being from which only a great nation can arise? It is ours to answer.

*Rapid Growth.*—The past decade has been remarkable by reason of the extraordinary and rapid growth of our cities and towns. We can all remember the green fields of our childhood, now gathered into the maw of the real estate and property speculator. How much of this development has taken place under adequate technical supervision? I venture to say that nine-tenths of the areas which have been developed during the past ten years have been laid out with no further idea than the desire to obtain the greatest number of building lots on a limited area. This is not planning for the future. It is not even doing the best for the present.

*Legal Authority Needed.*—What we need in Canada is some measure which will give legal authority to municipalities to efficiently control the development of land beyond their borders. Sooner or later the smaller municipalities are absorbed in the larger, and then the latter have, at enormous expense, to commence remodelling roads in order to fit in with a satisfactory general scheme; all for lack of control in the first place.

*The English Town Planning Act.*—In England the splendid Town Planning Act which has recently passed into law gives the municipal authorities full control over the development of the districts surrounding towns and cities. If such a measure can be passed in England, with tradition and fixity as its natural enemies, why cannot we in Canada go as far, or even further? Here we have no remains of a dim antiquity to rear their heads at every step on the march of progress. Our lands are practically in the virgin state. We have the additional opportunities of the observation of the mistakes of others. We go forward with our eyes open. Whither are we leading?

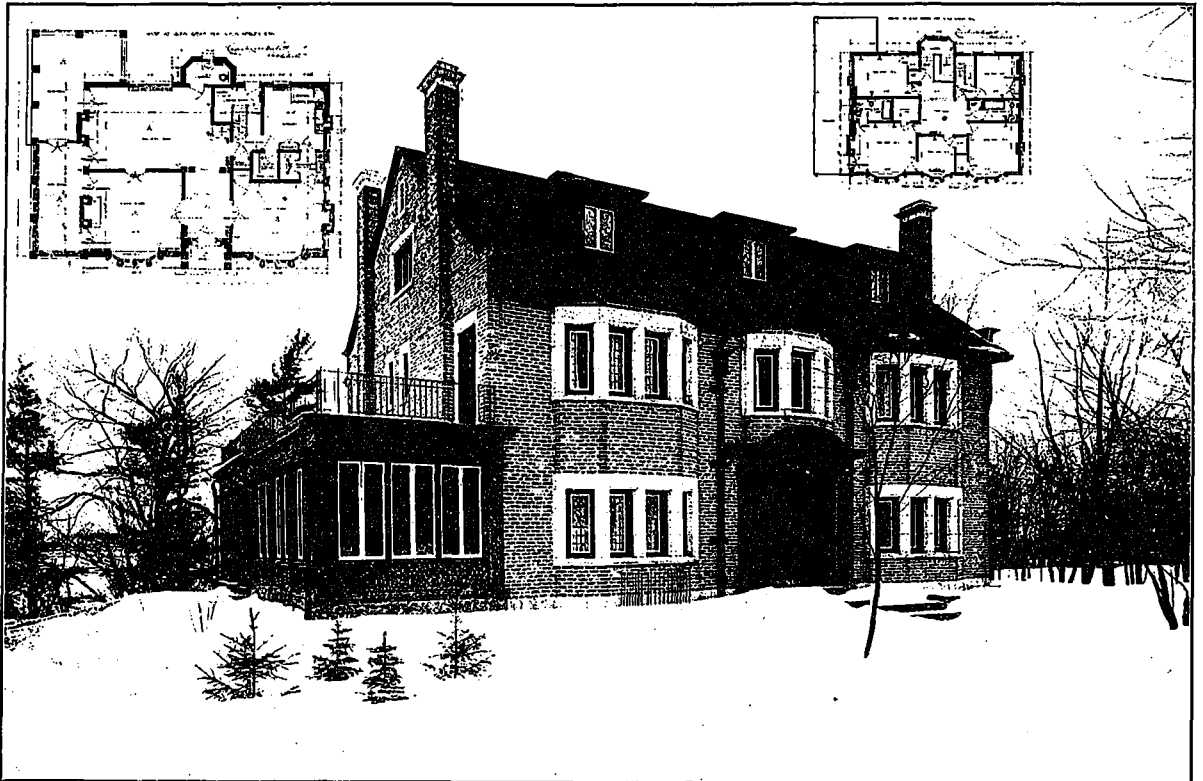
*Town Planning an Expression of Life.*—A town or city is the expression of the life of its inhabitants. Its public buildings should be grouped to give due prominence to the dominant note of administration and government. Its transit terminals should likewise be expressed in an adequate manner. In these particulars alone how far do we find Canadian cities have considered the relative importance of the patchwork versus the whole cloth methods of designing cities. The idea of the grouping of public

buildings, or to use the newly coined term, the formation of a civic centre, is so manifestly an economical solution of the problems of administration that one would think it would appeal and suggest itself instinctively to the great body of the public at large. But how many instances can we find in Canada where such a system has been adopted? And quite apart from the economic advantages of such an arrangement, think of the added architectural dignity and emphasis which is possible by reason of the massing of such buildings. Even where the buildings are quite small an effect of dignity can be secured by grouping that would be impossible if such buildings were detached and isolated.

*Railway Stations.*—Then in regard to our railway stations. Are they not generally in the meanest and most impossible situations? The railroad is a big factor in the life of any city, and its entrance should be the subject of grave consideration. The railway station of to-day corresponds with the city portal of the old cities. Should we not endeavor to make it and its surroundings a thing of beauty and meaning rather than a conglomeration of shacks and sheds? *Our Duty Clear.*—Rays of hope are already dawning, and the awakening interest which is evident in this matter is one of the most encouraging signs of the times. When we consider that small towns are coming into existence in the West almost at the rate of one a day, there should come a feeling that we as a nation are neglecting our duties if we do not make some effort to guide their plans in the right direction. With practically unlimited ground on which to develop our scheme we have also practically unlimited opportunities. In the case of our older cities and towns, the problems of reconstruction are naturally more difficult, but any neglect to set right such mistakes now will surely only further complicate and enhance the gravity of the situation in the future.

*Individuality.*—It may be said that it is impossible to lay out a plan having individual interest in the early stages of town making, but all townsites have a local character of their own, differing somewhat from all the others, and it should be the aim of the town planner to retain and blend in with his scheme all the natural features and beauties which exist, accepting contours and seeking to solve the problem of their best development, instead of working on the unpractical, rule of thumb, gridiron system.

Gentlemen, I have endeavored to briefly summarize some of the problems of this subject as they present themselves to-day. I do not claim to have more than touched upon the fringe of this vast matter, that would be impossible within the limits of a short paper. My last word will be to ask you, as men of science, to remember that true greatness in town planning will not spring from merely scientific solutions of the problem, any more than it can properly arise from a mere artistic solution. The facts of the scientist and the romance of the artist must blend into a great harmonious whole. Such harmony coupled with an awakening public interest will ensure the success of this movement and the gratitude of posterity.



Residence of A. M. N. Ansley, Glen Grove, Toronto, Ontario. Chadwick & Beckett, Architects.

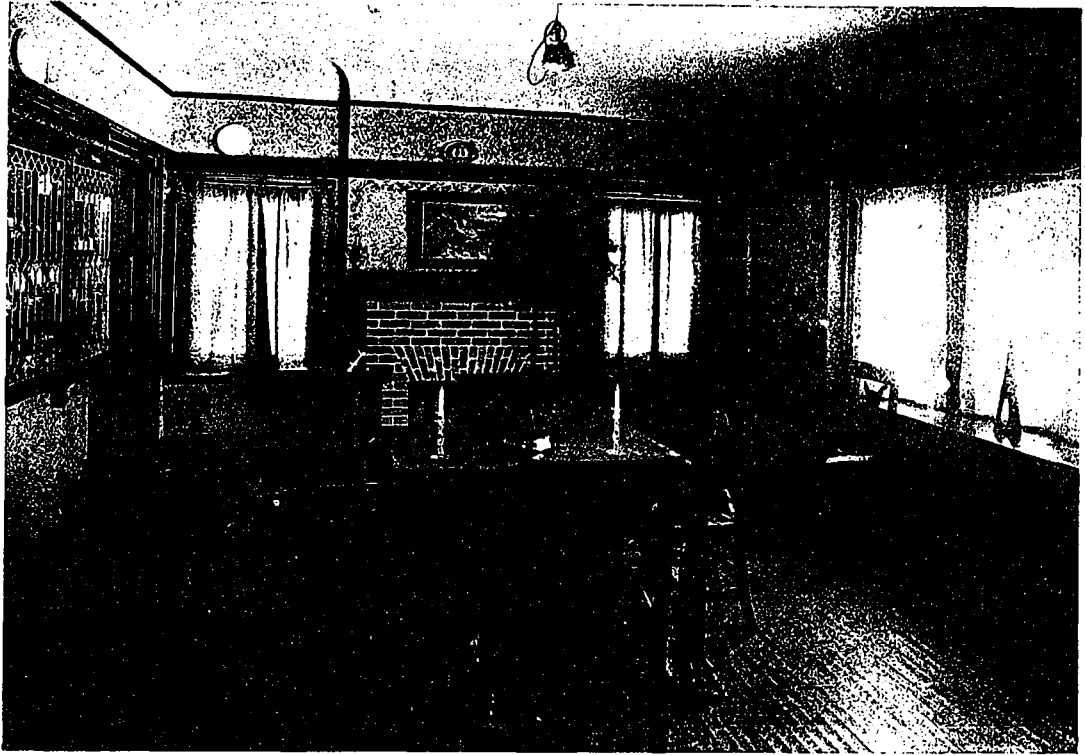
## TWO INTERESTING SUBURBAN RESIDENCES

*Brick a favorite building material aesthetically for suburban sites because its color contrasts with the surrounding green in summer, and gives a warmth to the landscape in winter.*

**T**ORONTO SUBURBS present many sites for homes typical of the best suburban conditions in regard to space and picturesque surroundings. Two such houses are here illustrated, their exteriors showing a winter aspect, the snow-clad hills only relieved by the pine trees upon the ravine's sides. But even in winter such sites have their advantages, and in design the houses meet these in the absence of porches, which let in the sunshine to every exposed room. From the interior the high position overlooking undulating country, pine-clad hills and ravines and the distant city, giving a sense of companionship and variety of scene that is delightful to those shut indoors by the weather's inclemency. Broad glass-enclosed porches on the southern sides of these houses give sun-rooms in winter that are the most cheerful apartments in the houses, and in summer the removal of the glass protection provides broad verandas exposed to every breeze. In this solution of the difficult problem of designing houses for a climate that at times reaches a hundred degrees of heat in the summer

and twenty below zero in the winter, the architects have approached as near perfection as it is possible under the conditions. There is no distinctive type in the designs presented in this solution, but on the contrary there is an evident meeting of conditions and the design has grown out of the plan. It is probable that the struggle architects have made to design in some particular recognized style, that probably grew out of social conditions and those of climate in other countries and other centuries, and to fit to that design an interior plan made to conform to the modern manner of living, has done much to retard the development of a style that is an outgrowth of modern conditions and expressive of the more enlightened and more luxurious life of the present. In these houses the apparent study of location and relation to the landscape surroundings is as well as the requirements for comfortable and healthful occupancy is an apparent and attractive feature. The residence of A. M. N. Ansley, Chadwick & Beckett, architects, Toronto, is situated in Glen Grove Park, Toronto, with the best outlook towards the





Dining Room.



General Interior View.  
Residence of A. M. N. Ansley, Glen Grove, Toronto, Ontario. Chadwick & Beckett, Architects.



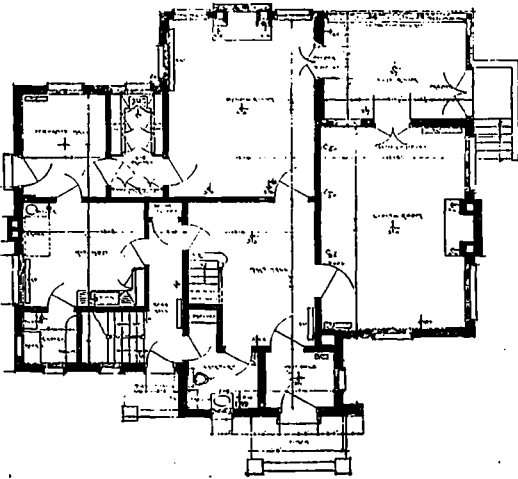
Residence of Lt.-Col. D. M. Robertson and A. E. Osler, Summerhill Gardens, Toronto, Ontario.  
Chadwick & Beckett, Architects.

north and west. The house is built of mottled buff brick and grey stone. The roof is covered with brown stained shingles, and the exterior woodwork is light brown, but this in the photograph comes out much darker than it really is, as the color of the house, with all the different shades of brown, cannot be shown in a photograph.

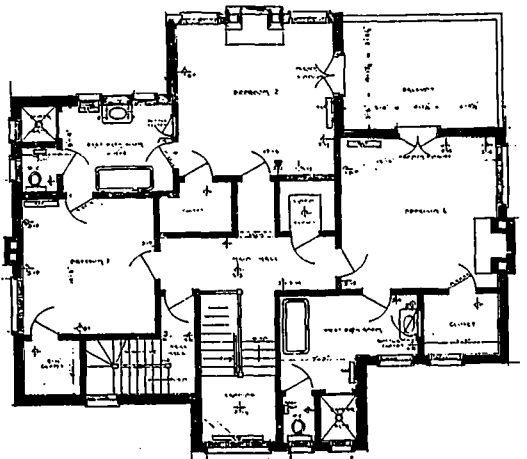
The main feature of the ground floor is a large combined hall and billiard room, which is panelled in ash, as illustrated, and stained dull brown, with dull brown tapestry paper above it. The living room and dining room are also finished in ash. The living room is papered in dull green and the dining room in a dull blue. The sun-room or conserva-

tory is paved with red tile and has a sunk basin in Blanc cement, and a fountain.

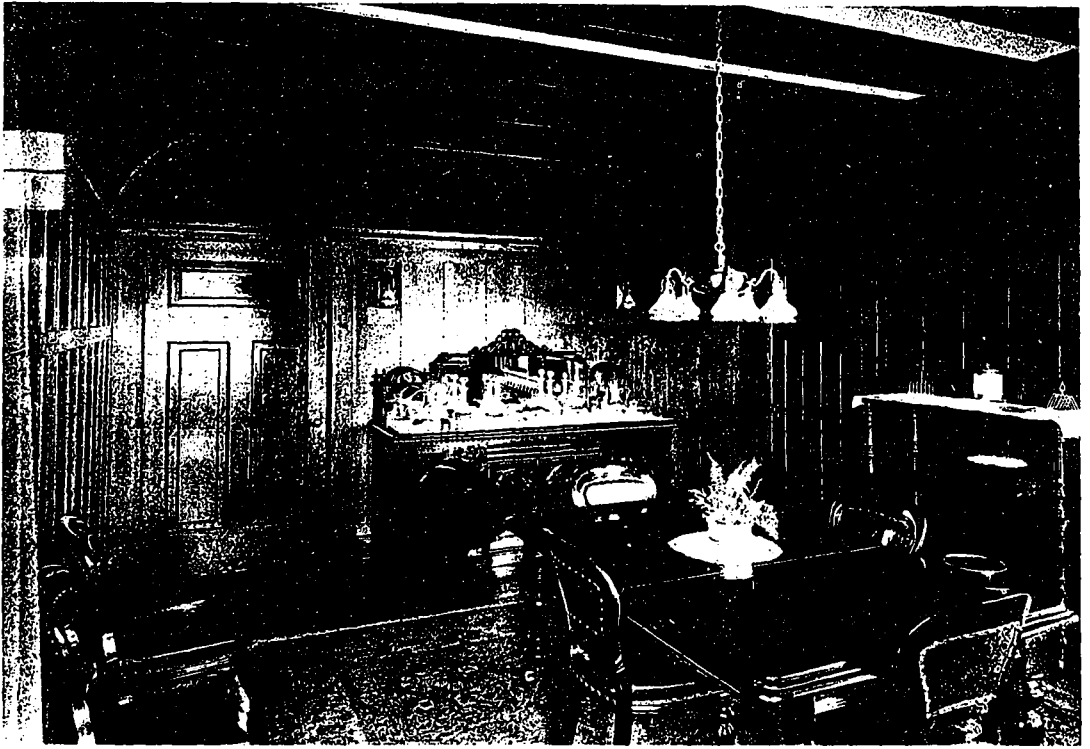
The house for A. E. Osler, Esq., and Lt.-Col. Robertson, Chadwick & Beckett, architects, is situated in the northeast corner of Summerhill Gardens, Toronto, on the brink of the ravine, also with an outlook into Reservoir Park. The house is of dull red brick and grey stone, and is planned for two bachelors, each having bedrooms and bathrooms en suite. The interior woodwork is of cypress stained dull brown. The dining-room and hall are wainscotted, as shown in the illustration, and the walls of both rooms are done in dull red. The living room is decorated with dull brown paper with panelled border.



Ground Floor Plan.



First Floor Plan.



Dining Room.



Library.

Residence of Lt.-Col. D. M. Robertson and A. E. Osler, Summerhill Gardens, Toronto, Ontario.  
Chadwick & Beckett, Architects.

## LEANING TOWERS AND A SENSE OF BEAUTY

An interesting paper upon the scientific aspect of leaning towers by Robert Williams, F.R.I.B.A., reprinted from "The Architect."

TO AN ARCHITECT, even more than to the ordinary beholder, a leaning tower cannot be an object of beauty. The design of the tower may be architecturally beautiful and the original execution artistic, but if the tower is "out-of-plumb," or has lost its perpendicularity, it has become, to look at, a thing betokening danger. There is no beauty in danger. If it had been once beautiful it is now no longer so, and this change has been brought about by negligence—the neglect, in the very initial stage, of making a sure foundation. It is also, of course, possible that a tower may be thrust out of the perpendicular by an earthquake, but this makes no difference to the proposition, that a leaning tower, however well designed and wrought, is not beautiful.

Having suggested such a proposition we are immediately confronted with the recurrent question—what is beauty? Now, if it be held that by reason of their considerable deviation from the perpendicular these leaning towers have lost their beauty, then it might also be advanced that the source of beauty (in cases like these) lies in the plum-rule.

Here let us leave this question for a moment. It is not my intention to enter into a discourse on beauty, even if I were able to embark on a voyage so perilous. Let me say, however, that the thoughts engendered by the consideration of these leaning towers carry me back to the idea, expressed more than once in the years that are passed, that a digger may dig a trench, or a hedger make a turf hedge, or a bricklayer lay his bricks in an artistic fashion, and, by consequence, such work has a beauty of its own—is beautiful.

Such thoughts as these came uppermost in my mind as I sat in Crosby Hall the other night and listened to a pleasant discourse on "Beauty in Civic Life," by Mr. Edward Carpenter, who dwelt eloquently on the "sense of beauty," "the germ of beauty," and "beauty in expression." There was "beauty in ploughing," he said, and for this let us remind ourselves, no drawings, beautiful or otherwise, were required. The ploughman ploughed to the proper depth and turned over a neat and straight series of furrows. These and the horses, the plough and the ploughman, with the crows and gulls hovering about, and the landscape around, made a beautiful picture. "Yes," I thought, and provided the ploughman had his full share in the result of his ploughing, a good cottage to live in, and time to enjoy the amenities, including the beauty of life, all would be well, and the world would go like a marriage bell.

Now, has the ploughman a sense of beauty? I

think so, the very straightness of his furrow affirms it. In this connection Mr. Carpenter's thought carried mine to an incident in my country life of forty-five years ago. It was in the holidays; two boys had called on a third to come to join in a game, but the third could not come until he had completed a task of furrowing a patch of his father's garden. We said we would help, so that he might come quickly. We got some hoes and set to work, which, when finished, the father of our friend, a village workman, was called to inspect. He came, I remember well, in his apron with his sleeves tucked up, one behind his back. We boys stood in a row, expectant. The old man looked at our work with a peculiar, quizzical expression, and with one scornful, sarcastic utterance condemned it *in toto*. Looking at his son he said one word only—"Beautiful!"



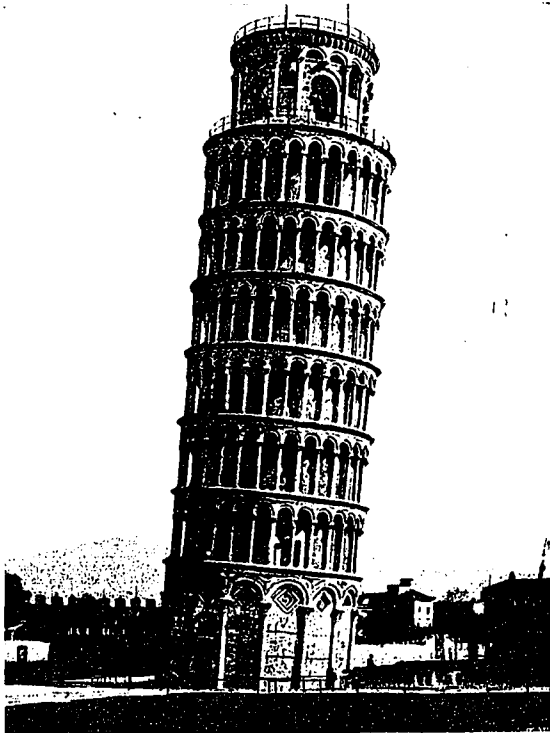
Leaning Tower of Caerphilly Castle.

The tone of it withered us. After a pause, bringing the hand from behind his back and displaying a cane, he said with emphasis: "Level the ground and dig the furrows over again—yourself." As a matter of fact, we two boys were the culprits who had scamped the work. Now had that old shoemaker a "sense of beauty?" I think so. Had the furrows been straight his intuition of beauty would have been satisfied.

Now to our towers. As we saw in my article on the tower of St. Mark's, Venice, in *The Architect* some weeks ago, the tower must tell its tale. It must justify its use as an adjective. It must *tower* in its strength, in its nobility, in its height, and in the unmitakeableness of its meaning over all other buildings in its neighborhood. Its expression must be unflinching. Rigid, even stern, its aspect may be, stand-

ing four square to the winds, storms and sun, the embodiment of beauty in its very strength. This a leaning tower is not.

The idea of the departed beauty in a leaning tower became vividly clear to my mind as a few weeks ago the little steamer on which I was a passenger made



Leaning Tower of Pisa.

its way to Burano, a small island in the lagoon about six miles from Venice. Having rounded the corner of the island cemetery, we came suddenly in view of the fishing and lace-making island village. I had been looking in another direction, but turning towards the island I saw a tower, as it were, in the act of falling, the movement of the steamer seemingly conveying itself to the tower. Being wholly unprepared to see a leaning tower in this quarter, I thought it looked dangerous, and its pedimented head looked certainly top-heavy, so I asked a sailor:

"What is the name of that island?"

"Burano."

"Is the tower falling?"

"No, it is always like that."

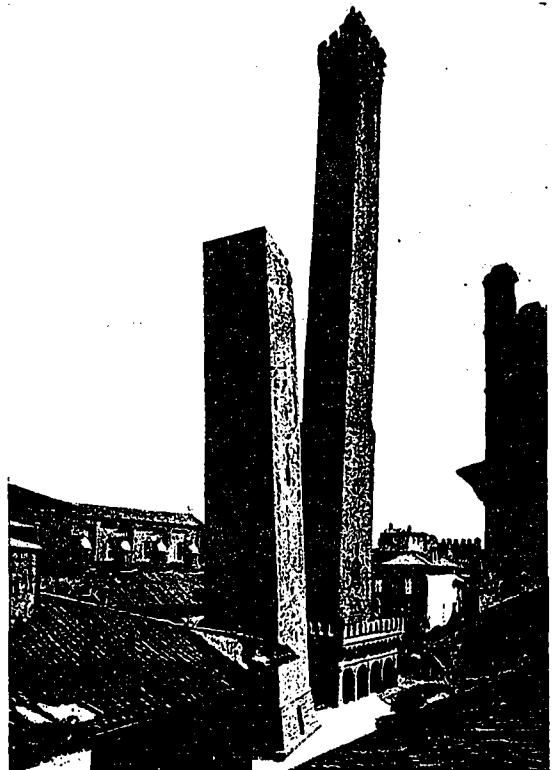
We steamed to Torcello—a veritable art book in stone. Afterwards I got a boatman to row me as near as possible to the leaning tower. I was wondering how it stood. My time was short, as the last steamer would soon call. I walked half around the tower at a distance. The inclination was towards the open sea, and the ground on that side was unbuilt on, uncultivated, and deserted. It seemed as if an order had been given that the ground on which, at any time, the tower might fall was not to be frequented. I saw no shoring to the tower, though it might have had some internal strengthening. Quickly walking round to the place which showed the incline, I made a rough sketch, and seeing an old

lady knitting outside of her door near by, I borrowed a piece of string, found a stone, and "plumbed" the tower with the result shown by the dotted plumb-line on the sketch.

How long the tower had been leaning I could not learn. Its style is poor Renaissance, and even when upright was uncouth in a country of so many beautiful towers as Italy. No plumb-rule could make it really beautiful, because it carried on its surface a form of ornament which completely overlaid its beauty of size and proportion. It had sadly departed from the Italian canon of art in towers.

Italy is great in towers. Samuel Rogers in his notes to his poem "Italy" says of Pisa, "If time has levelled her ten thousand towers . . . she has still her cathedral and her baptistery, her belfry." Ten thousand towers seems to be a large estimate, in a sober note, too. However much we may doubt the poet's poetical estimate, Pisa has her famous leaning tower known to tourists the world over.

The leaning campanile of Pisa, said by some architects to be one of the most beautiful in Italy (that is before it began to lean, of course), was begun in the twelfth century. In a height of 179 feet it is



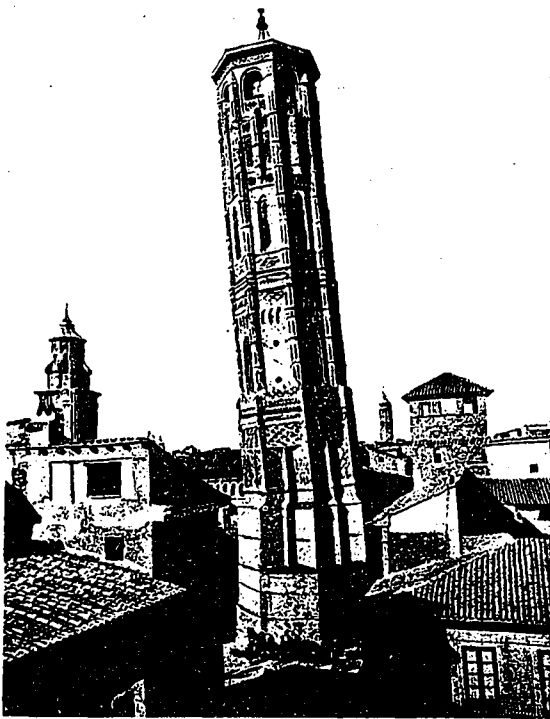
The Leaning Towers of Bologna.

14 feet out of the perpendicular. In design it resembles a galleries observatory rather than a tower proper. The superposed tiers of arcades do not denote a tower-like strength. The architects of the far-off days of its beginning—Bonanus of Pisa and William of Innsbruck—had certainly original and ingenious ideas, but one would not like to believe that their ingenuity was so eccentric as to devise a *new* leaning tower, as some critics have been wont to hold.

Yet the top storey is nearer to the perpendicular than any other part, and this seems to prove that it had begun to lean before it was finished. But with all its beauty of design and workmanship I cannot say that it is pleasant to look at.

No architect looks at the tower without feeling sad. There is a kindred feeling with the spirits of the old designers and workmen. To the heedless tourists it is a source of momentary wonder—they have seen the "leaning tower of Pisa." To the artist it brings a sense of uneasiness. Its many arches and its columns seem to be ever on the move, like the shadows of the intradoses and the shafts upon its drum, as, day after day, they travel round with the sun.

If Italy is well supplied with beautiful towers, she also has a goodly supply of leaning ones. At



Leaning Tower of Saragossa.

Bologna there are two standing near to one another. They are of plain brick, 320 feet and 156 feet high respectively; the shorter tower has evidently not been finished, while the other is too tall, too much like a great factory chimney. The tall tower is only four feet out of the perpendicular, but the other leans eight feet in 156 feet. These towers, neither of which are beautiful in design, are pleasantly known by the names of their architects; thus the taller is called the Torre Asinelli, and the shorter one the Torre Garisenda. Both were begun some 700 years ago. Baedeker, from whom I have taken some of these dimensions, says that these are the most singular structures in Bologna. They are doubly "singular," and one wonders why they were built so close together, seeing that the tower which is most out of the perpendicular was begun a year after the other.

Italy cannot, however, claim all the leaning towers.

There is a fine one in Saragossa in Spain, called the new leaning tower. It is octagonal, and somewhat pleasingly overlaid with diaper work, mouldings, and angular projections. The base of the tower to the height of about thirty feet has been cased with strong new masonry. The lantern, though emphasized, is not happily finished. Here again is a case of beautiful design and workmanship, producing an inharmonious, uncomfortable feeling, due to nothing but the want of perpendicularity.

There is yet another leaning tower, nearer home, less known probably than those on the Continent. The ruins of the great castle-fortress of Caerphilly, near Cardiff, have a history more ancient than any of the buildings already mentioned. Originally a British castle, it was captured, and enlarged and strengthened by the Normans. After many vicissitudes it fell, in the fifteenth century, as the historian Malkin has it, to be "a place where its rapacious lords, the Spencers, amassed everything they could, by plundering their vassals or tenants, and the inhabitants in general." Hence the Welsh proverb, "It is gone to Caerphilly," signifying the destination of anything lost. A proverb singularly like the Egyptian one, "The Sphinx has taken it," with precisely the same meaning.

The leaning tower of Caerphilly Castle is about 80 feet high, and leans out of the perpendicular about eleven feet. Its walls were massive, built in roughly squared stone set in mortar of Aberthaw or similar hydraulic lime. Most of the histories and guide books advance some theory as to the cause of the leaning. Some say the tower was injured by an explosion of molten metal, there having been, adjacent to it, "two furnaces for melting metal," and which on occasion "dealt out dreadful vengeance on besiegers," says Malkin. One day water, poured on to the molten metal, resulted in an explosion and the partial destruction of the tower. Another author holds that the damage was done by the explosion of a mine possibly during the civil war. All historians speak of the strength of the "cement," a good testimonial to the local hydraulic lime, if any were needed.

"A watched kettle never boils," is an old saying, and judging from the tenacious life of these bent towers we might well say, "A leaning tower is long in falling."

No lover of beautiful work can pass by these towers without paying tribute to the actual workers, the masons, the bricklayers and the laborers whose hands fashioned the stones and the bricks, and set them, stone by stone, and brick by brick, in enduring mortar. That these towers stand is due to the translators of design into material form. The bonding and the setting was good. Whatever was the cause of the settlement, whether a bad foundation, or an explosion, or an earthquake, the body of the work was good, and as in most cases in the far-off days, the designer was probably a master craftsman or mason, and worked with his men, the whole composition was a piece of harmonious, co-operative work.

In concluding these notes, I fain would add that I have wondered why attempts are not made to rectify, at least, those leaning towers that are otherwise intact. More especially as nowadays no bodily removal of wall or building is deemed an impossible task.

Nor was it so in Italy in former days. In Bologna itself, as far back as the fifteenth century, the astonishing feat of the removal of a building was carried out. In his life of an architect, known variously as Alberti and Fioraventi, Milizia tells us that this architect removed a bell tower, with its bells, "to a place thirty-five feet distant." Moreover, the same architect, "at Cento . . . set the bell-tower upright, which inclined five feet and a half." These feats, in these days, were veritable triumphs of mechanical skill, carried out by men of courage and resource.

There are men of equal skill in our days who, with the more accurate and stronger machine now obtainable, could work a greater wonder than the leaning tower of Pisa, namely, its restoration to perpendicularity and therefore beauty.

*Note*—The photographs from Bologna and Pisa are by Allinari, of Florence; that from Saragossa was bought with the others at Mr. Spooner's, in the Strand, and that from Caerphilly was taken specially for the author by Mr. J. O. Long, of Cardiff.



## TYPICAL

## SPECIFICATIONS

## FOR STUCCO

A composite of the best practice in the United States incorporated in specifications for stucco on metal lath. Compiled by the Associated Metal Lath Manufacturers.

**T**HE MERITS of the stucco house are now so well recognized that arguments in its favor seem to be trite. It is assumed that the prospective builder and his architect want a stucco exterior and realizing that when built, the house will look as substantial as stone, brick or solid concrete, they want a structure that will age slowly and gracefully through decades—not fail perceptibly from year to year.

This specification is offered with this realization promised, but it must be borne in mind that poor work is dear at any price. A faithful observance of every detail will give results gratifying to the architect and satisfactory to the owner.

Metal lath is recommended because wood lath absorbs moisture required by the mortar. Wood lath dries out and shrinks away from the plaster, following which the alternate shrinkage and swelling resulting from moisture causes unsightly cracks and finally failure. Wood lath, also, increases the fire risk and it will harbor vermin.

Metal lath in combination with cement plaster is "reinforced concrete" and will insure an unbroken surface—to be assured of which is at least an uncertainty when the plaster is applied direct to a wall

set up in block form. The air space afforded by metal lath construction is the most efficient insulation.

A careful following of this specification will absolutely give a construction economical and enduring. *Framing and General Construction*—Flimsy construction in framing is false economy. The best will prove cheapest. The studs spaced at 12 inches between centres wherever possible, should be run entirely from foundation to the rafters without any intervening horizontal grain in the wood. These studs shall be tied together just below the second story joists by a 6 inch board which shall be let into the joists on their inner side, so as to be flush and securely nailed to them. This board will also act as a sill for the second story joists, which in addition will be securely spiked to the sides of the studs. At two points between the foundation and the eaves, brace between the studding with 2x3 inch bridging placed horizontally but with the faces of the bridging inclined in alternate directions in adjacent spaces.

All roof gutters should be fixed and down-spouts put up before the plastering is done; the down-spouts should be temporarily placed about a foot from the wall so there will be no break in the plastering where they are to be finally fixed.

Wood copings or rails for tops of parapets, balustrades, etc., are not so good as cement, for they may curl up, warp, check, crack, and in various ways fail to do what they should—keep water from getting behind the plaster. This also applies to brick chimneys which when plastered should have wide and tight caps of concrete or stone to prevent water running behind the plaster.

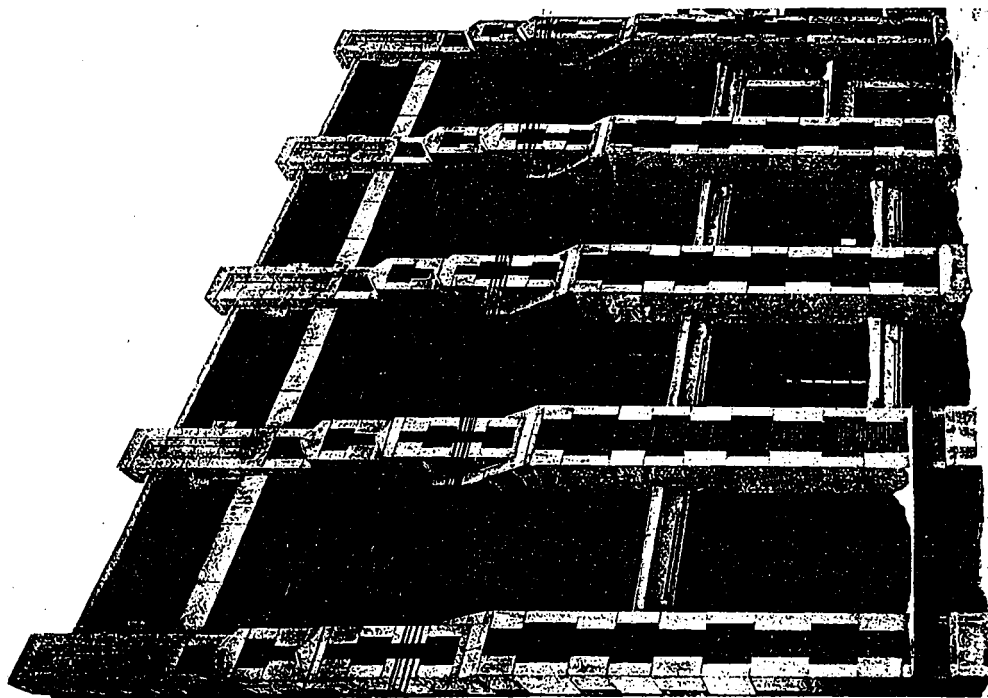
If only wood sills are used, they should project well from the face of the plaster and should have a good drip; either by being placed with a downward slant or by a groove rebated in the under side of the sill near enough to its edge that it will not be covered by plaster. The drip is an essential of good stucco construction that cannot be slighted. It must be used to prevent water getting behind the plaster.

Lath and plaster should not be carried all the way down to the ground; this same restriction applies to brick or stone.

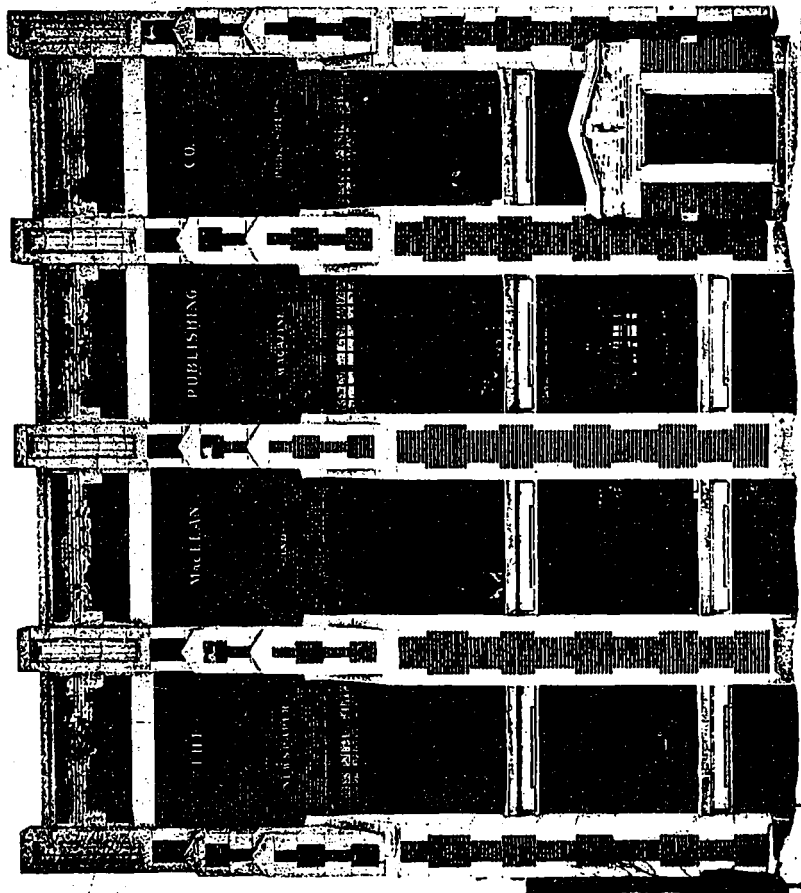
Care should be taken that all trim be placed the proper distance from the studding or furring to show its right projection after the plaster is on. It is a common mistake to allow too little for the lath and plaster, with the result that mouldings which should project from the face of the wall are back from it or partly buried under the plaster, thus missing the effect desired. About an inch and a half should be allowed for the lath and plaster, making sure that the projection of the moulding to show when finished is not measured in as part of this thickness.

*Furring*.—Use painted or galvanized steel rods or painted or galvanized crimped furring. One-quarter inch is best and it should not be over one-half inch at the most. This furring is to be applied along the face of the studding with galvanized staples.

*Insulation*.—After the lath on the outside has been



Rear View.



Front View.

The MacLean Publishing Company, Toronto, Ontario. Sproatt and Rolph, Architects.





The W. R. Brock Warehouse, Calgary, Alberta. A. R. Denison and Stephenson, Toronto, and Hodgson, Bates & Butler, Calgary, Architects.



Zam-Buk Warehouse, Toronto, Ontario. Wickson & Gregg, Architects.

back-plastered the air space may be divided by applying heavy building paper, quilting, felt or some suitable insulating material between the studs, fastening it by nailing wood strips over folded ends of the material. This insulation should be so fastened as to clear the 2-inch bridging, leaving the preponderance of the air-space on the outside. Care must be taken to keep the insulating material clear of the outside plaster and to make tight joints against the wood framing at the top and bottom of the spaces and against the bridging where the 3-inch face intercepts.

*Corner Bead.*—If corner bead is not used, there should be 6-inch strips of metal lath bent around the corners and stapled over the lathing unless the sheets of metal lath as applied are folded around the corners. Even though corner bead is used, it is a good precaution to bind the corners in this way and apply the corner bead over the strips of lath.

*Lathing.*—The lath shall be painted to protect it until it can be applied and covered with Portland cement plaster. Care should be taken not to expose the lath to the weather while it is lying about the building.

Use metal lath weighing not less than 3 lbs. per sq. yard, spaced at 12 inch centres and fastened horizontally over the furring strips with galvanized staples  $1\frac{1}{4}$  x No. 14 gauge. The sheets between furring are to be tied with No. 18 gauge galvanized wire.

*Plastering.*—Portland cement will protect metal from corrosion absolutely by reason of its moisture-resisting qualities. Calcined gypsum should not be used in combination with Portland cement; the gypsum will destroy the protective quality in the cement and neither should it be used as a substitute for Portland cement. A gypsum plaster may repel moisture for a time, but Portland cement actually thrives on it.

It is not theory only that Portland cement will preserve iron or steel indefinitely; it has been well demonstrated that Portland cement stucco will endure in any habitable climate. The first and second coats should be of good thickness and the finishing coat should have with it a mixture of waterproofing. A total thickness of plaster of about  $1\frac{1}{2}$  inches is good practice.

It is aimed for the first and second coats to get a Portland cement mortar with as little lime in it as will make it work properly. Clean long winter cattle hair should be used.

For first and second coats and back-plastering, mix in the following proportions:

*Lime Mortar*—2 barrels of hydrated lime,  
1 yard of clean sharp sand free from loam,  
4 bushels cattle hair.  
Make up at least 3 days before using.

*Cement Mortar*—2 parts of clean sharp sand free from loam,  
1 part Portland cement.  
Mix fresh in small batches as used.

The lime mortar and cement mortar should be mixed and tempered separately, measured carefully, equal parts of each, and mixed well together.

In plastering over the face of the stud, the plaster should be forced well through the lath in order to fill entirely the space between the lath and the stud. The back-plastering should be a heavy coat well troweled so that the lath is entirely enveloped. The finish coat may be done in a way to get any one of the many surfaces which give stucco its charm; this coat should contain no lime as it makes the wall more porous and if a lighter color is wanted than can be gotten with ordinary cement, a white Portland cement should be used.

The waterproofing acceptable to the architect should be mixed with the last coat of the exterior according to directions given by the waterproofing manufacturer. The lathing and plastering on the inner side of the wall need not differ from ordinary practice.

The exterior plaster must not be allowed to set rapidly; if necessary, hang a curtain in front of the wall of burlap or other material that can be kept moist for a couple of days. Stucco should never be applied when the temperature is below freezing.

*Stucco on Brick.*—In applying stucco over brick chimneys a half-inch painted or galvanized steel furring strip not lighter than 22 gauge should be fastened to the brick at 12 inch centres with galvanized staples 2 inches x No. 9 gauge driven into the mortar joints. The lath is fastened to the furring with No. 18 gauge galvanized wire, run through under the furring, and the same material used for lacing the ends of the sheets together between furring strips.

The same mixture for plaster is recommended for this work as on the metal lath on studding. Before plastering, the brick should be well wetted to prevent its absorbing the moisture from the plaster, and the first coat should be forced through thoroughly so that the entire space back of the lath is filled with the Portland cement plaster and the lath enveloped.

**THE FORMATION** of the Union Steel Corporation of South Africa, Ltd., marks an interesting stage in the industrial progress of South Africa. It is proposed to establish iron and steel works and rolling mills at Vereeniging in the Transvaal, and the company is already assured of influential support. The Government of the Union of South Africa has entered into an agreement with a director of the company (which is transferred to the company) whereby the corporation acquires the preferential right to purchase iron and steel scrap from the Government railways and shops for 16 years, at £1 (\$4.86) per ton, for the whole of the Transvaal, and a large district south of it, and at satisfactory prices for the remainder of South Africa. The Government has also agreed during the same period to increase the railway rates on exported scrap, and to grant the corporation a reduced rate for transport of their scrap to the corporation's works, and also to place their orders for such iron and steel goods as the corporation produces with the corporation. The agreement provides that the company shall erect and install the necessary works and take delivery of the scrap within the times provided by the agreement.

# Barrett Specification Roofs



"Colnade" Apartments, Kansas City, Mo. Sellers & Marquis, Roofers. J. W. McKecknie, Architect

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It's always the same story—when ultimate costs and satisfactory service are carefully considered, Barrett Specification Roofs are selected.

Further information about Barrett Specification Roofs will be supplied free on request.

### Special Note

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

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

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

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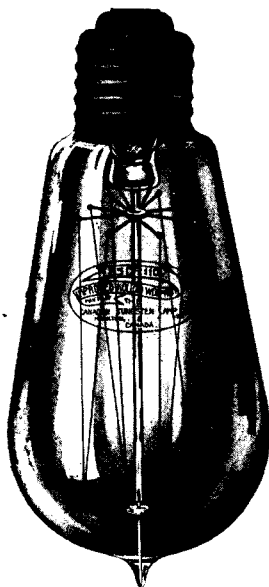
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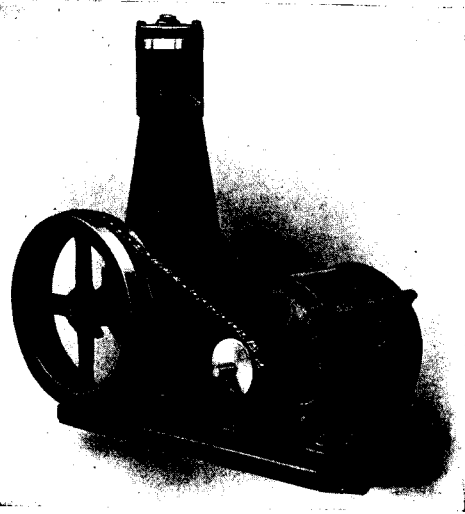
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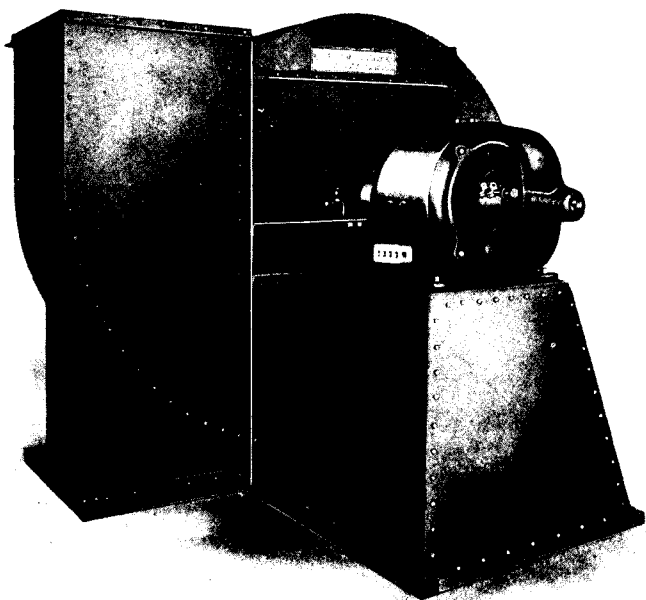
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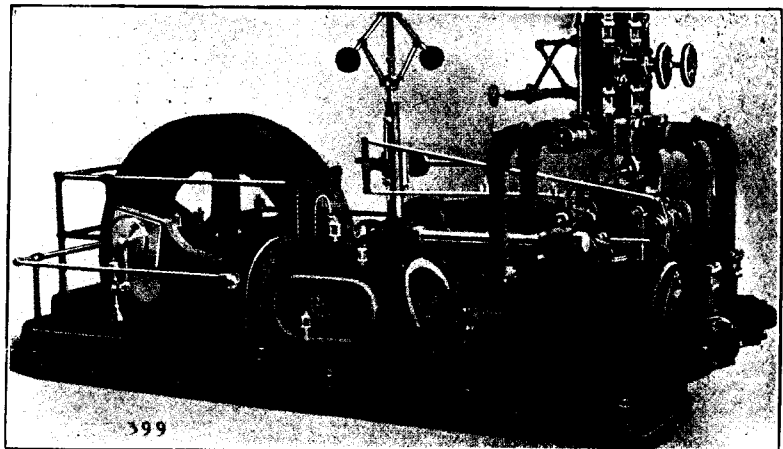
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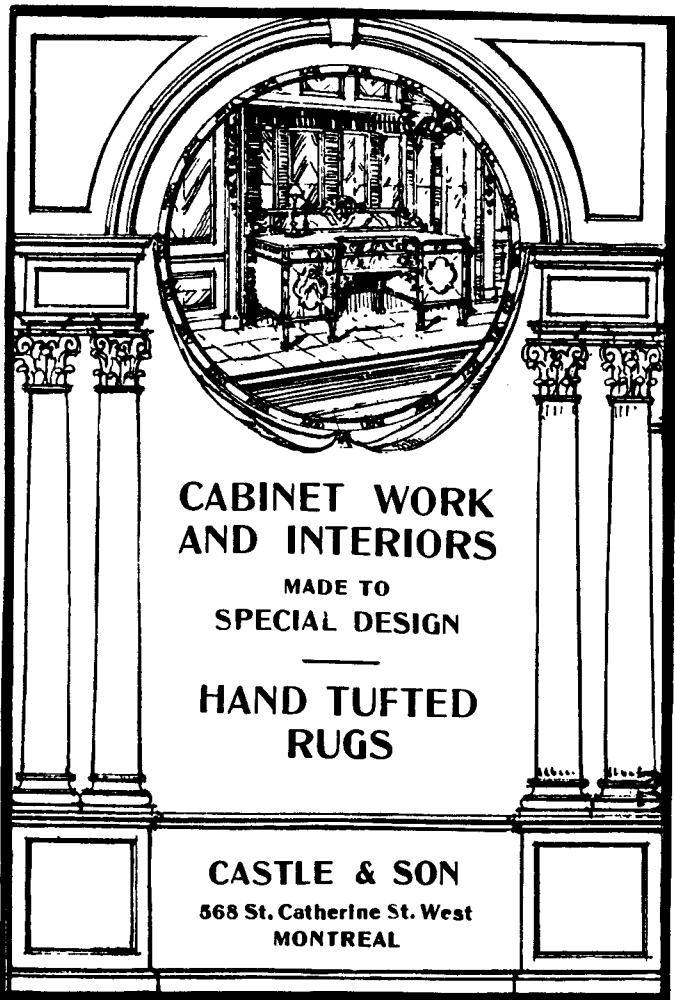
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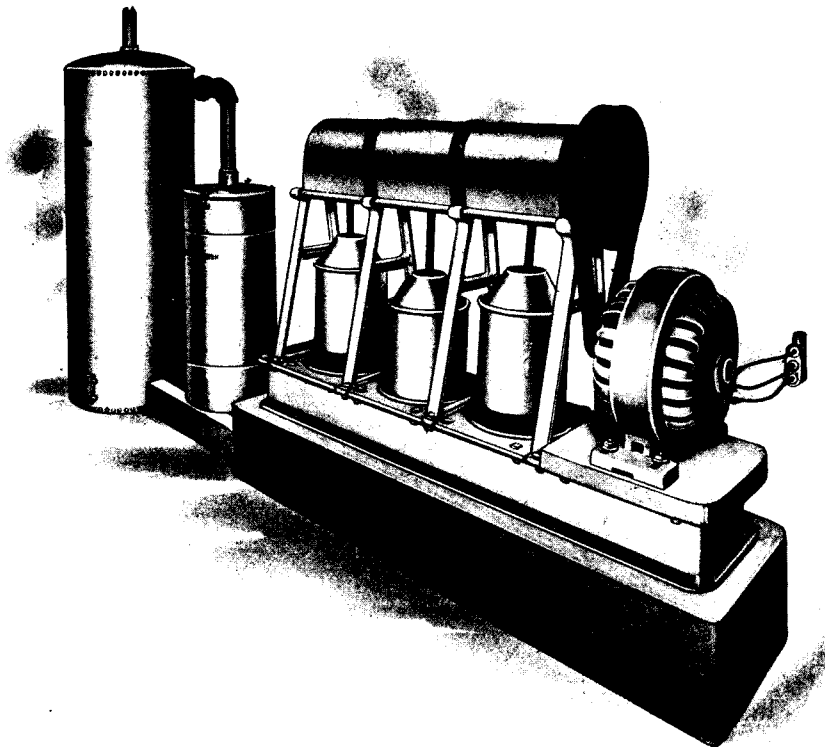
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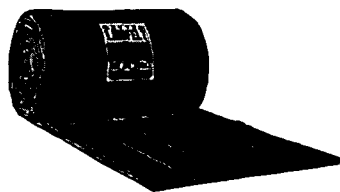
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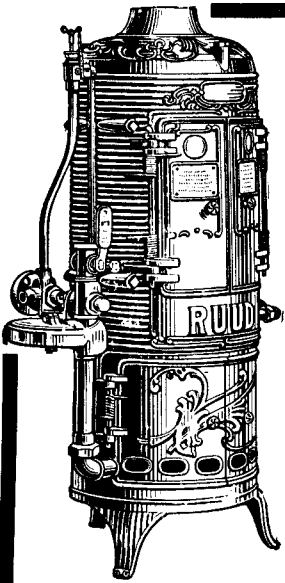
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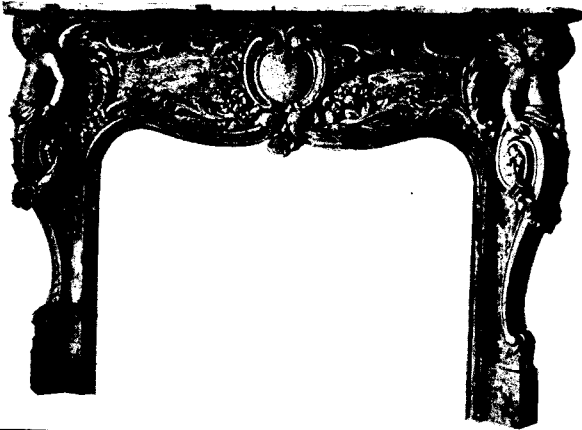
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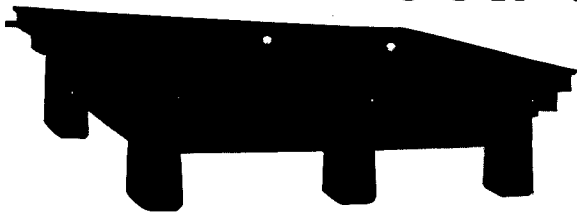
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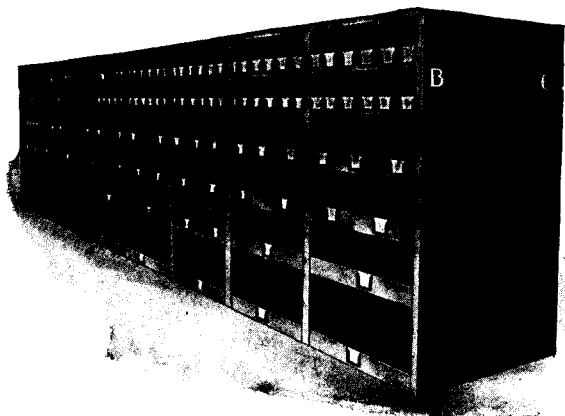
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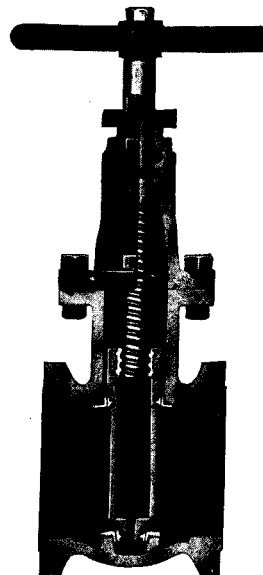
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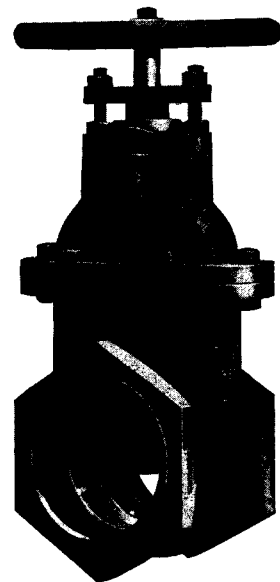
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THEY will sell you Quarry Blocks, Sawn Marble, Marble completely finished for either interior or exterior purposes, and, if necessary, they will contract to set it in place.

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Capacity 18,000 Tons Annually

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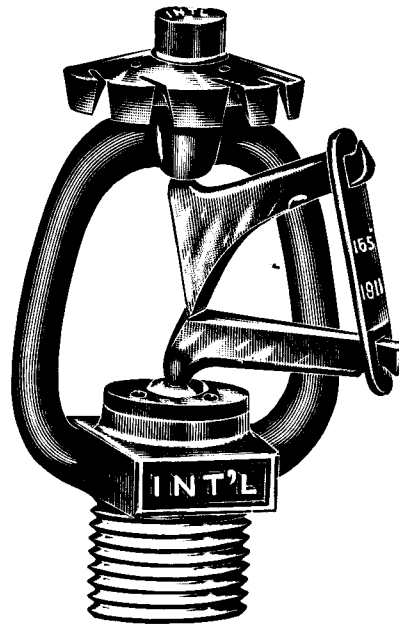
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Why are other brands called  
"EQUAL TO" or "THE SAME AS"

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Because "QUEEN'S HEAD" is the  
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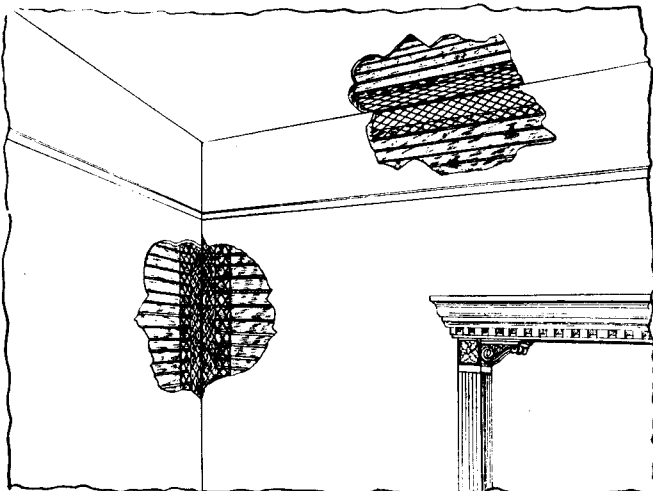
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## "GALT" Expanded Metal Angle Lath

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The sheets are 15 ins.  
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There is a flat space of  
 $\frac{1}{8}$  in. in the centre.

The mesh reverses  
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gives a strip  $7\frac{1}{2}$  ins. on  
either side with meshes  
turning in towards cor-  
ner.



A perfect, elastic bond  
is provided that allows  
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walls, and prevents the  
plaster from cracking.

Applied after the wood  
lath is in place.

Price, per lineal ft., 4c.;  
Trade Discount to con-  
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Send for sample.

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Canadian Fairbanks Co., Ltd.  
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Metal Shingle & Siding Co.
- Cars (Factory and Dump).**  
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H. W. Johns-Manville Co.  
Rogers, Alfred.  
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Mussens, Ltd.
- Cement Brick Machinery.**  
Ideal Concrete Machinery Co.  
London Concrete Machinery Co.  
Mussens, Ltd.
- Cement Machinery.**  
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London Concrete Machinery Co.
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Linde British Refrigerator Co.  
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Phillip Carey Co.
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Metal Shingle & Siding Co.
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Ideal Concrete Machinery Co.  
London Concrete Machinery Co.  
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Canadian Fairbanks Co., Ltd.
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Clarence W. Noble.  
Dennis Wire and Iron Co.  
Steel & Radiation, Ltd.  
The Pedlar People.  
Trussed Concrete Steel Co.  
Canadian Fairbanks Co., Ltd.  
Metal Shingle & Siding Co.
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Conduits Co., Ltd.  
The Pedlar People.
- Contractors' Machinery.**  
Mussens, Ltd.  
Canadian Fairbanks Co., Ltd.
- Contractors' Supplies.**  
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Eadie-Douglas Co.  
E. F. Dartnell.  
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Mussens, Ltd.  
Stinson Reeb Builders' Supply Co., Ltd.  
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Kent Company, Ltd.  
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Phillip Carey Co.
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Steel & Radiation, L.  
The Pedlar People.  
Metal Shingle & Siding Co.
- Cranes.**  
Dominion Bridge Co., Ltd.  
Mussens, Ltd.  
Canadian Fairbanks Co., Ltd.  
International Marine Signal Co., Ltd.
- Crushed Stone.**  
Stinson-Reeb Builders' Supply Co.
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Glidden Varnish Co.  
Machen and Hebron.  
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Sheldons, Limited.  
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Duckworth Boyer Co.
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Sheldons, Limited.  
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Mussens, Ltd.  
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Sheldons, Limited.
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Bishop Construction Co.
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E. F. Dartnell.  
Eadie-Douglas Co.  
Johns-Manville Co., H. W.  
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The Pedlar People.  
Trussal Concrete Steel Co.
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Mussens, Ltd.  
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The Pedlar People.  
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Metal Shingle & Siding Co.
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Hobbs Mfg. Co.  
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Sheldons, Limited.  
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Hobbs Mfg. Co.  
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Paterson Mfg. Co.  
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A. B. Ormsby, Limited.
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Sheldons, Ltd.  
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