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CONSTRUCTION

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



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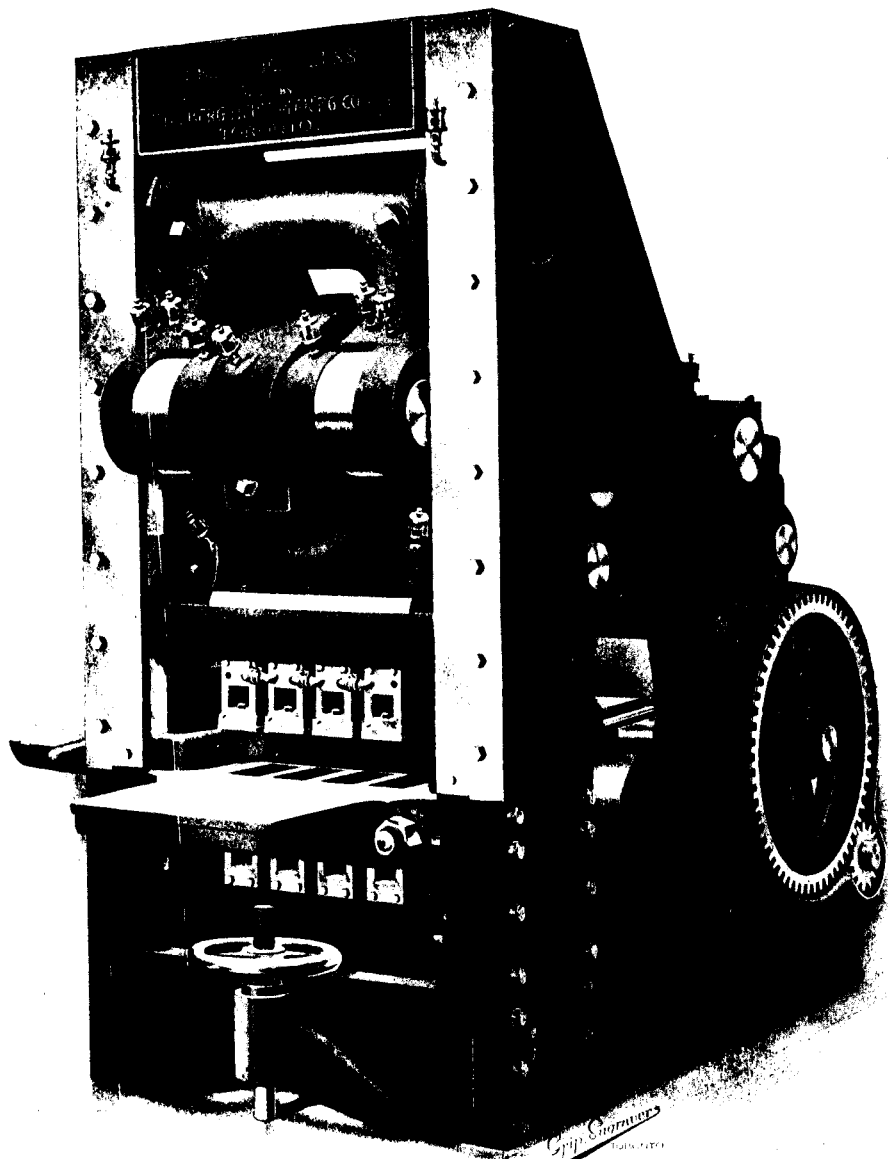
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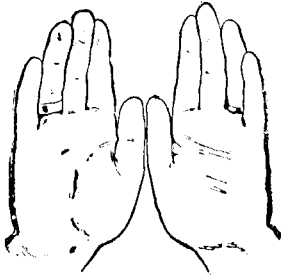
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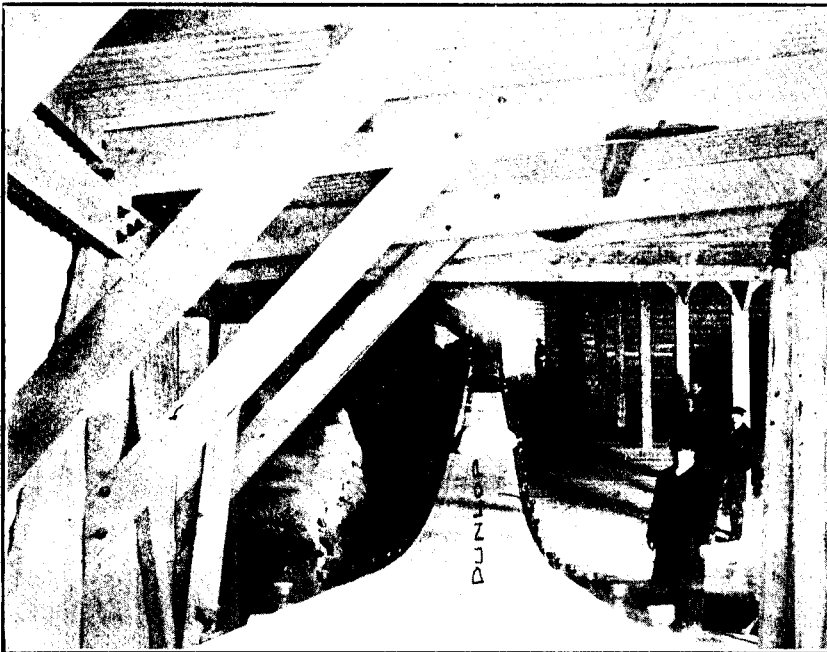
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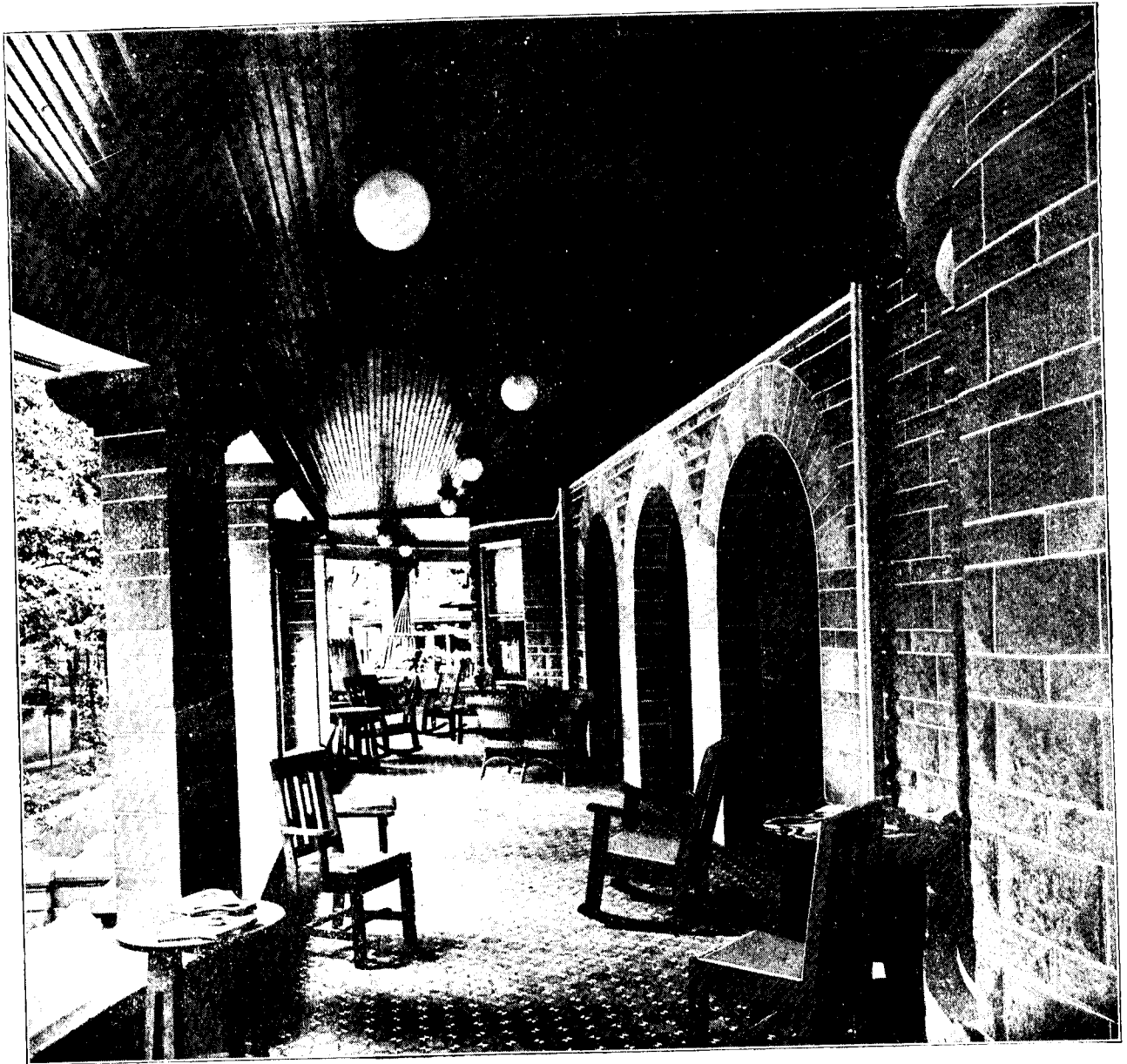
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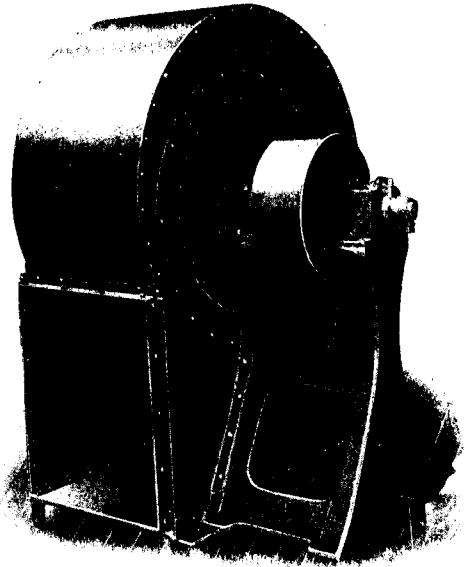
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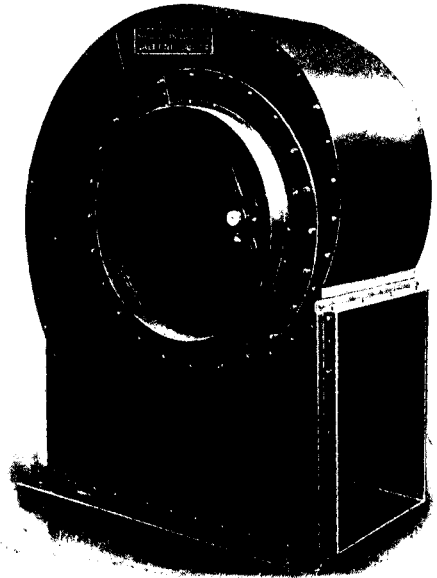
THE ÆOLOS FAN

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King
of
The
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ÆOLOS FAN, pulley side, bottom discharge.



ÆOLOS FAN, inlet side, bottom discharge.

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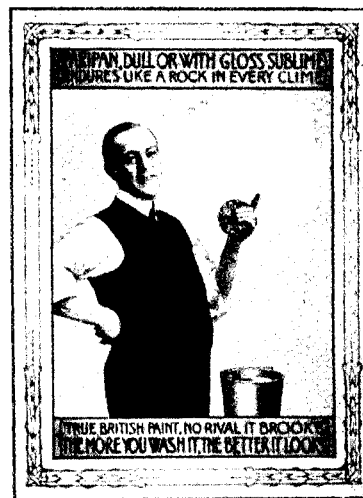
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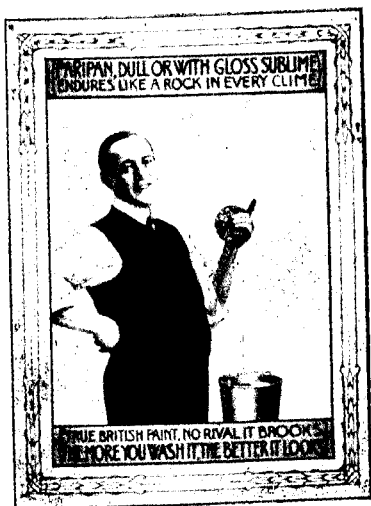
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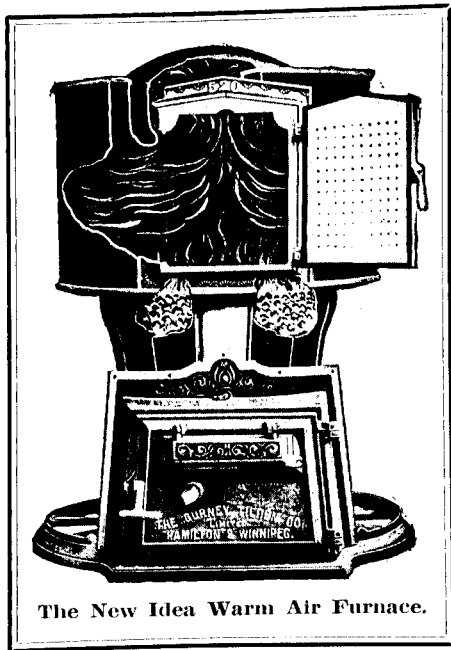
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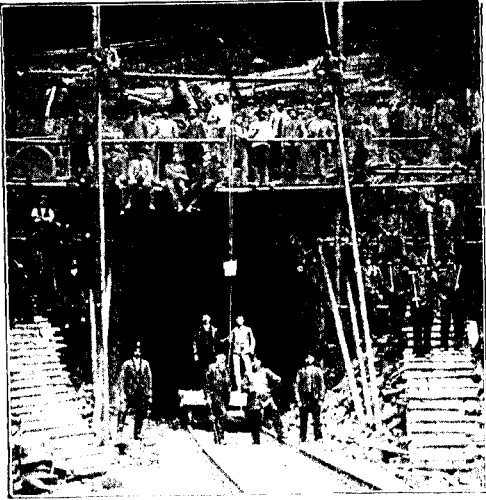
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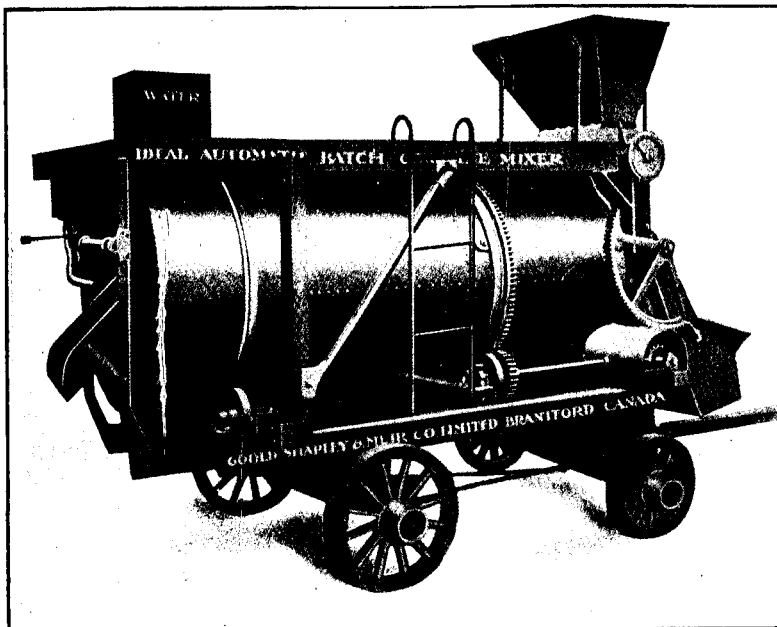
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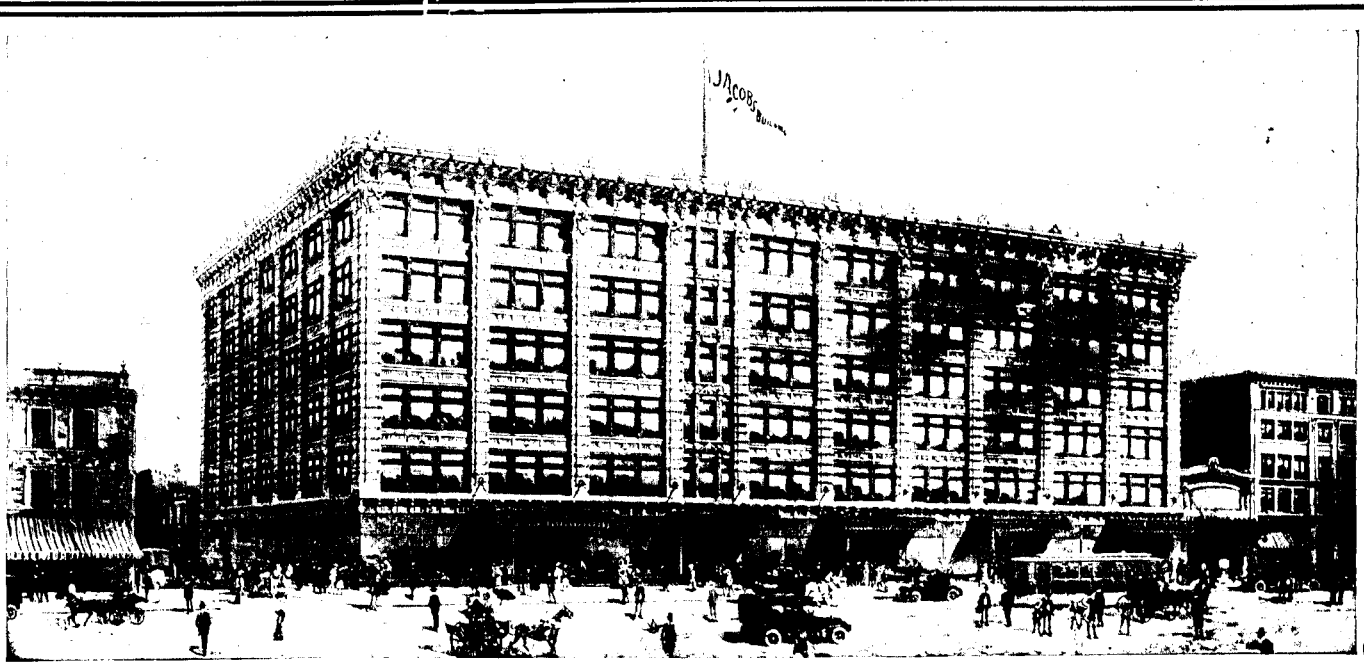
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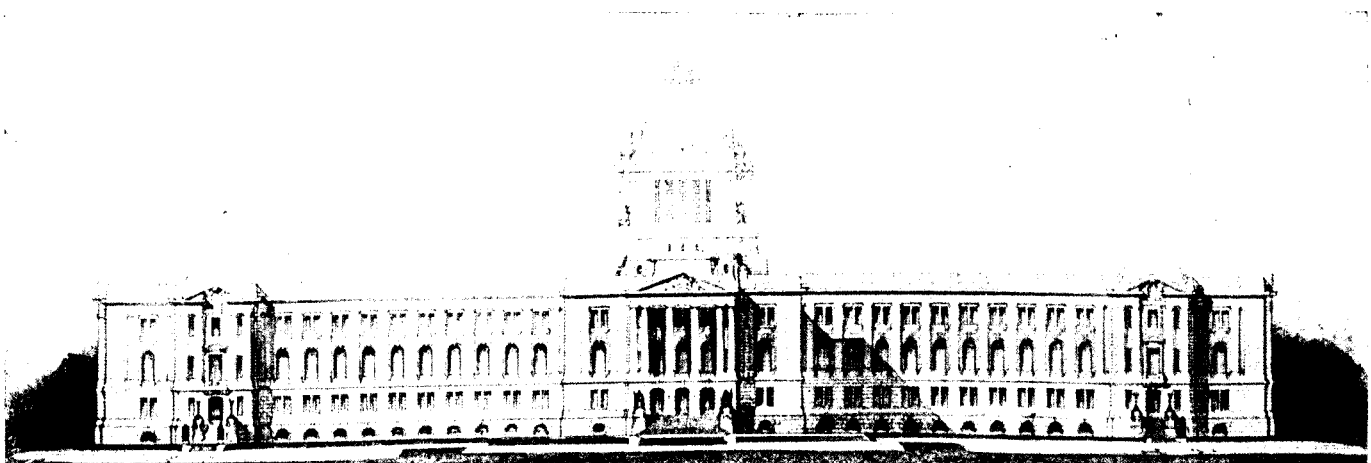
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Saskatchewan Parliament Building, Regina. E. & W. S. Maxwell, Architects. KAHN SYSTEM of Reinforced Concrete used throughout.

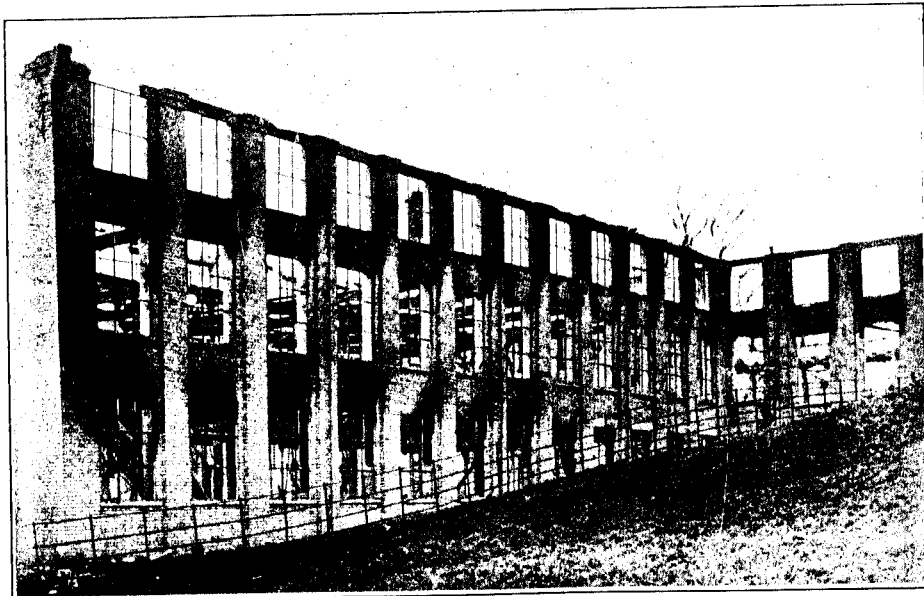
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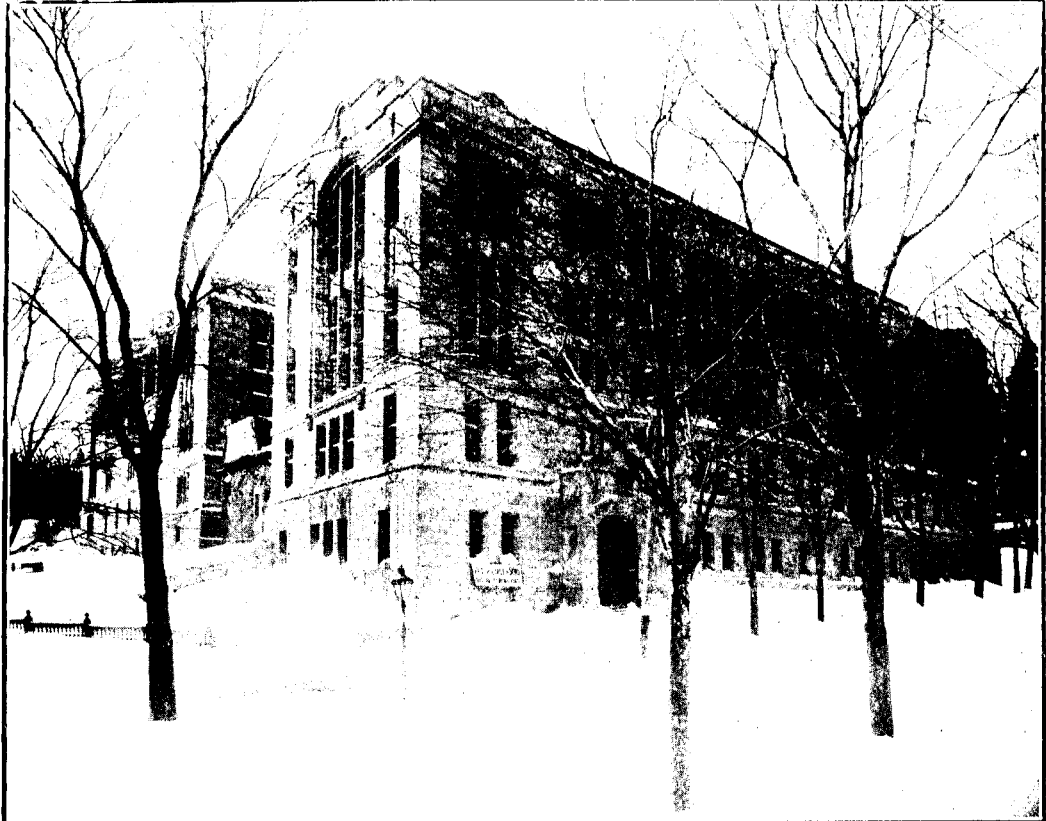
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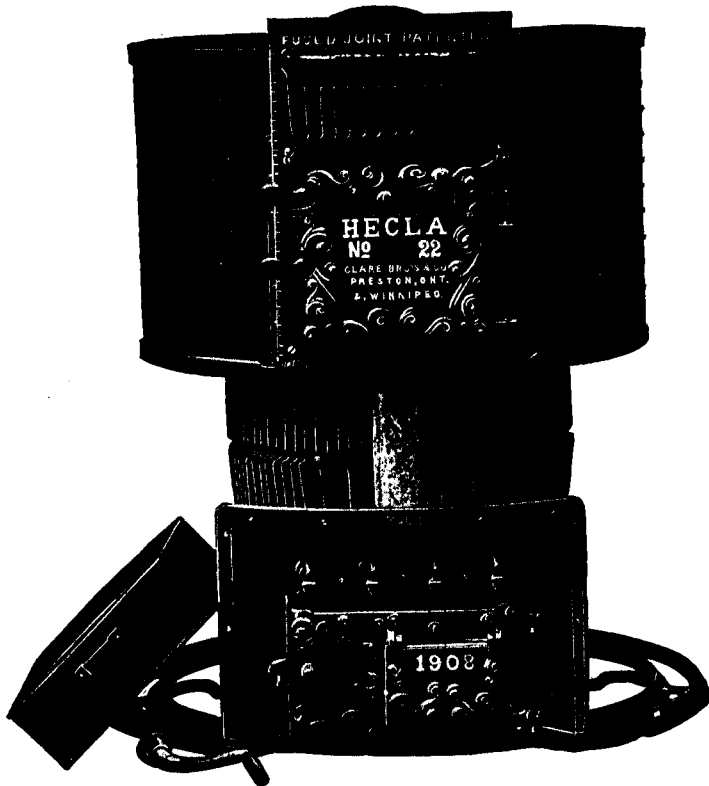
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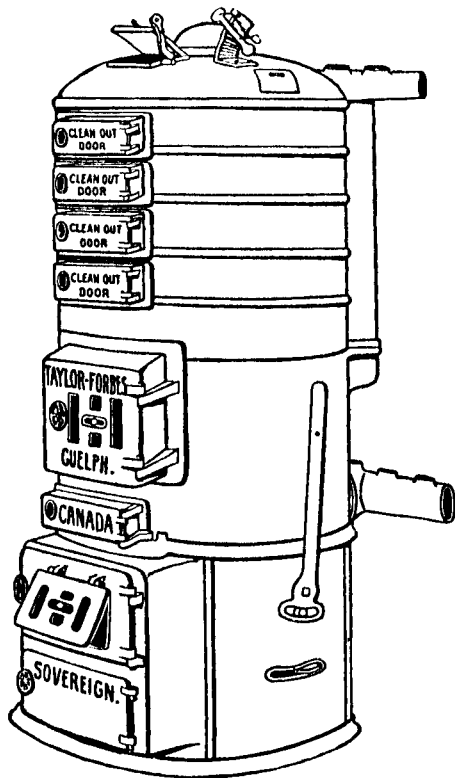
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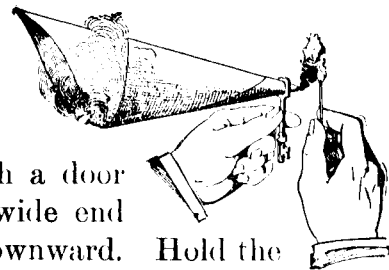
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This experiment proves the importance of the "Combustion Chamber" in saving fuel:

Take a half-sheet of heavy writing paper and twist it into a cornucopia. Tear off the point so as to leave a vent, and pass the small end through a door key. Light the paper at the wide end of the cornucopia and hold it downward. Hold the lighted match in the smoke that will rise through the vent at the small open end. At first this smoke will not ignite, but after the burning cornucopia becomes more aflame it will be found that the escaping smoke will burn freely in a steady jet of flame. The reason the escaping smoke did not at first ignite is because it was not heated to a point high enough to promote perfect combustion. With a low or narrow "Combustion Chamber" a fire will not burn freely, and there will be a heavy loss of combustible material up the chimney.



Read the "Dictionary of Heating." It's free.

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Just the Hinge That Architects and Builders
Need for High-Class Work

No Butt Protruding when Door is Closed.

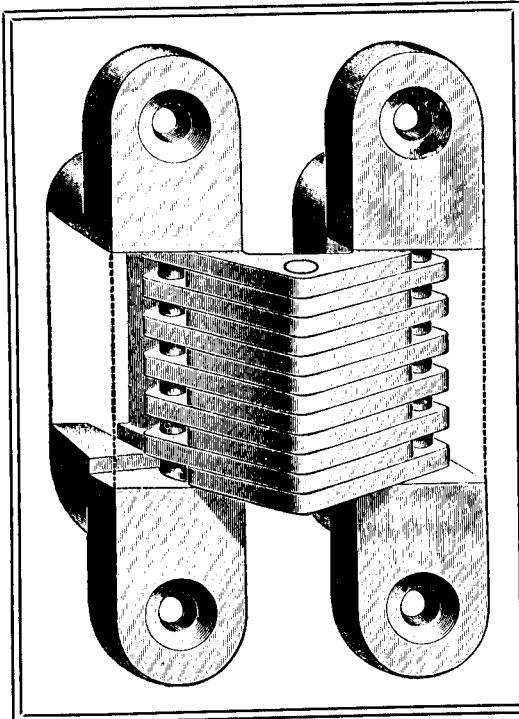
Makes an Absolutely Perfect Joint between Jamb and Door.

An Invisible Hinge, can be seen only when Door is Open.

No Projecting Metal on either side of the Door.

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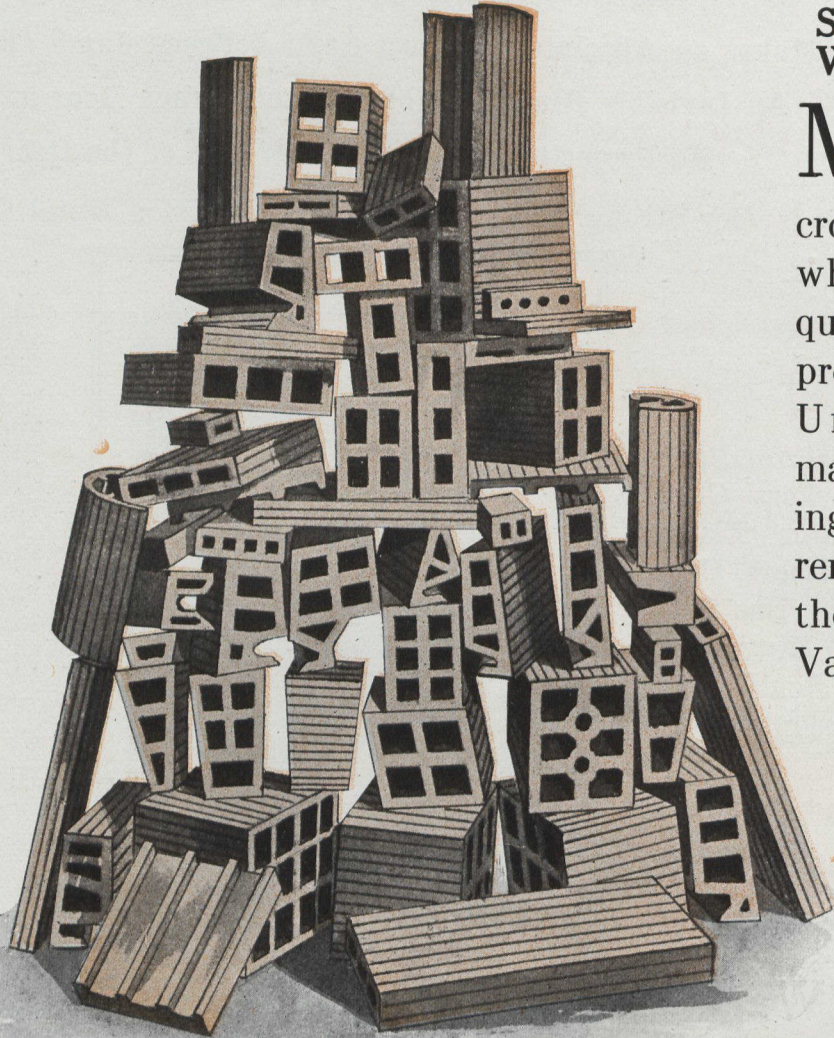
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lumn and girders. It
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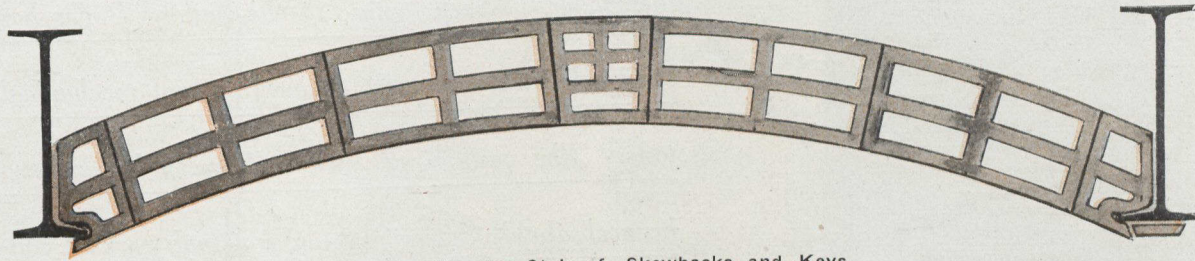
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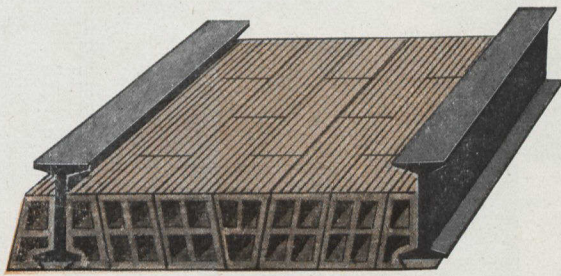
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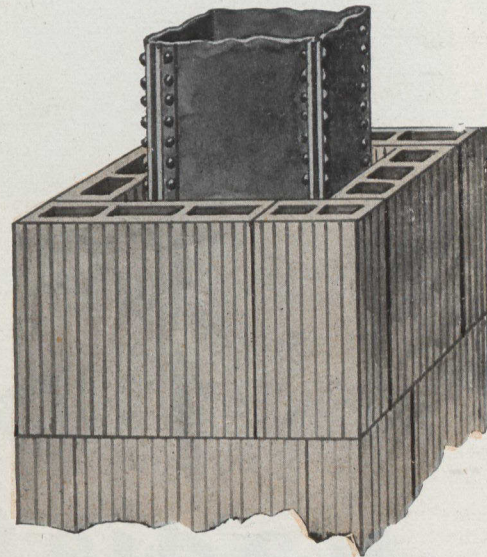
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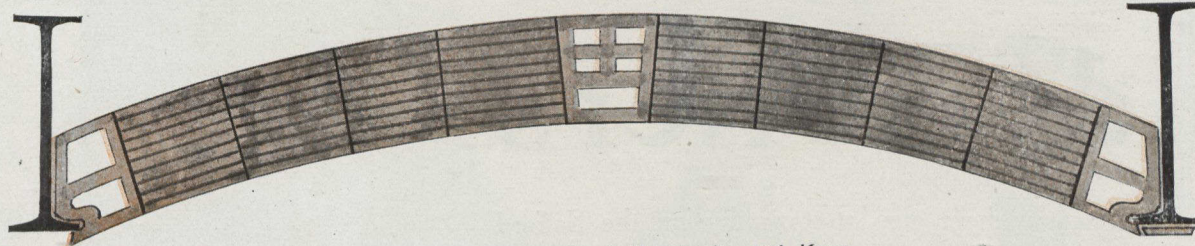
Section Showing Style of Skewbacks and Keys.



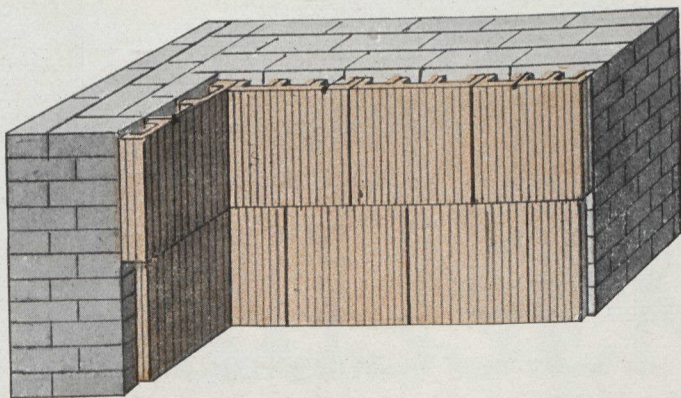
Perspective of Typical Arch.



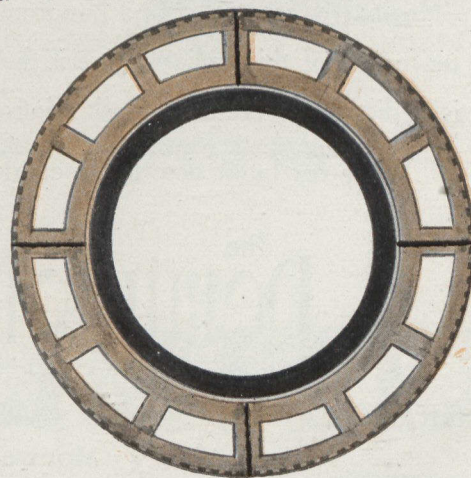
Perspective of Column Fireproofing.



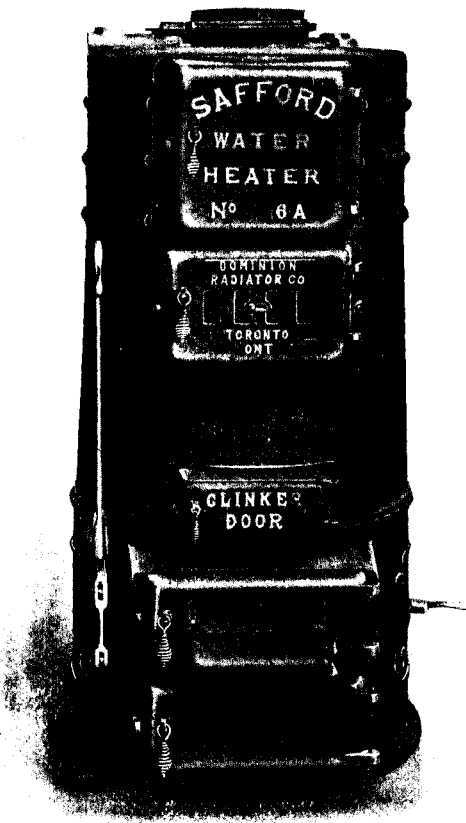
Section Showing Style of Skewbacks and Keys.



$1\frac{1}{2} \times 12 \times 12$, weight per square foot, 8 pounds.
 $2 \times 12 \times 12$, weight per square foot, 9 pounds.



Type of Column Covering.



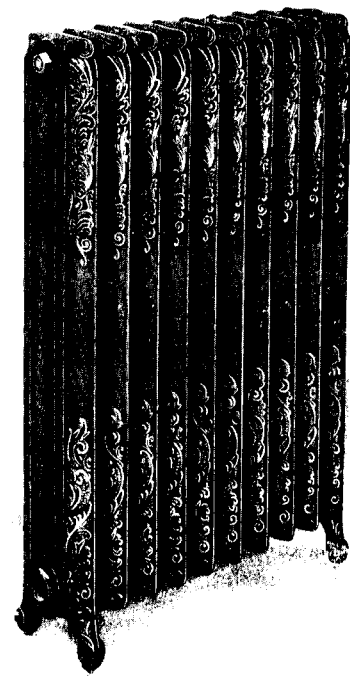
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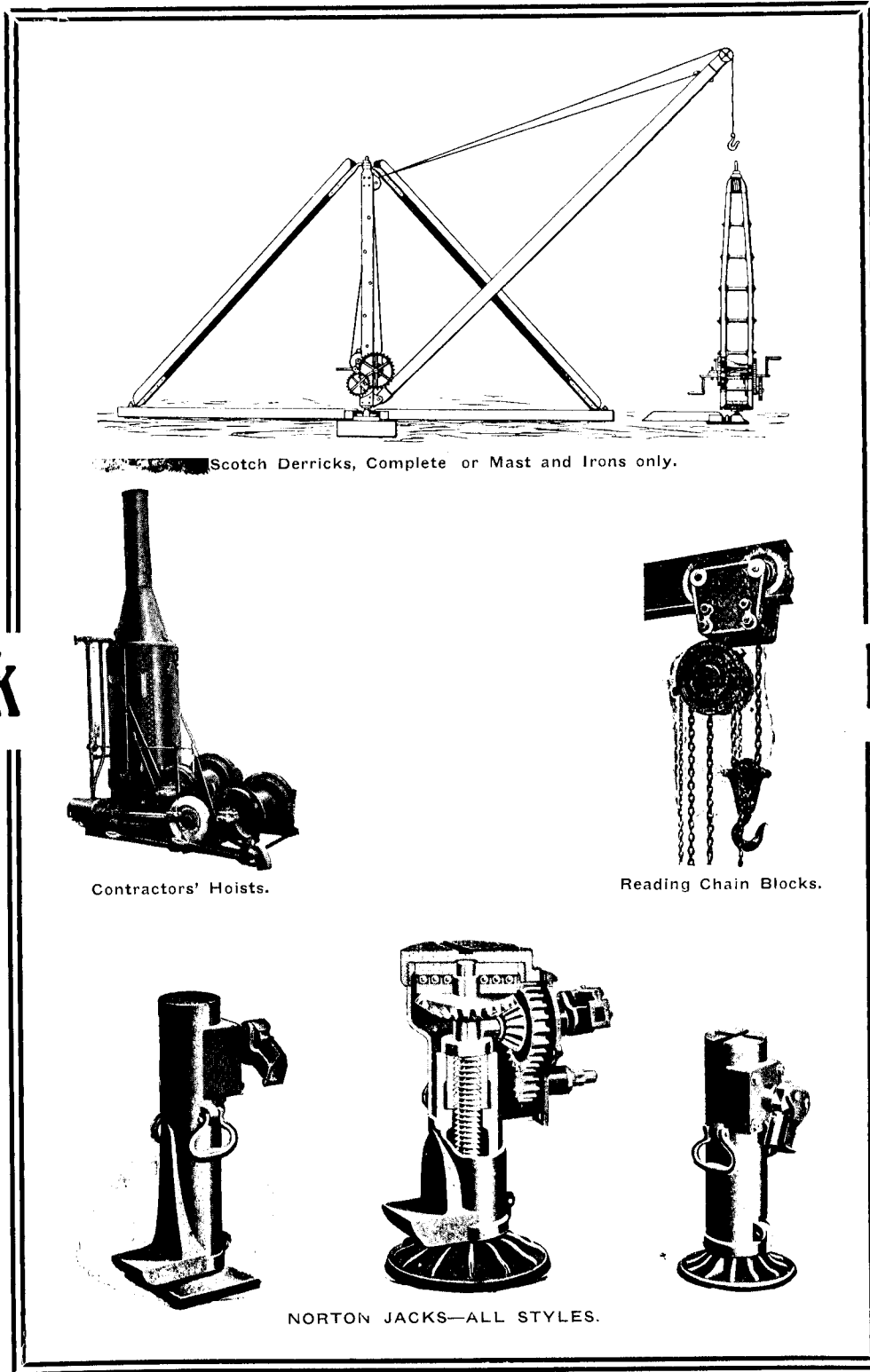
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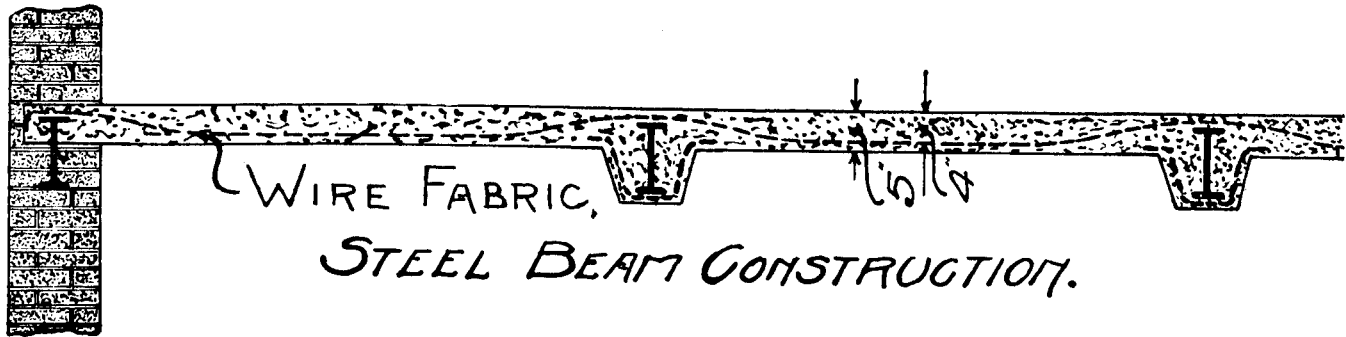
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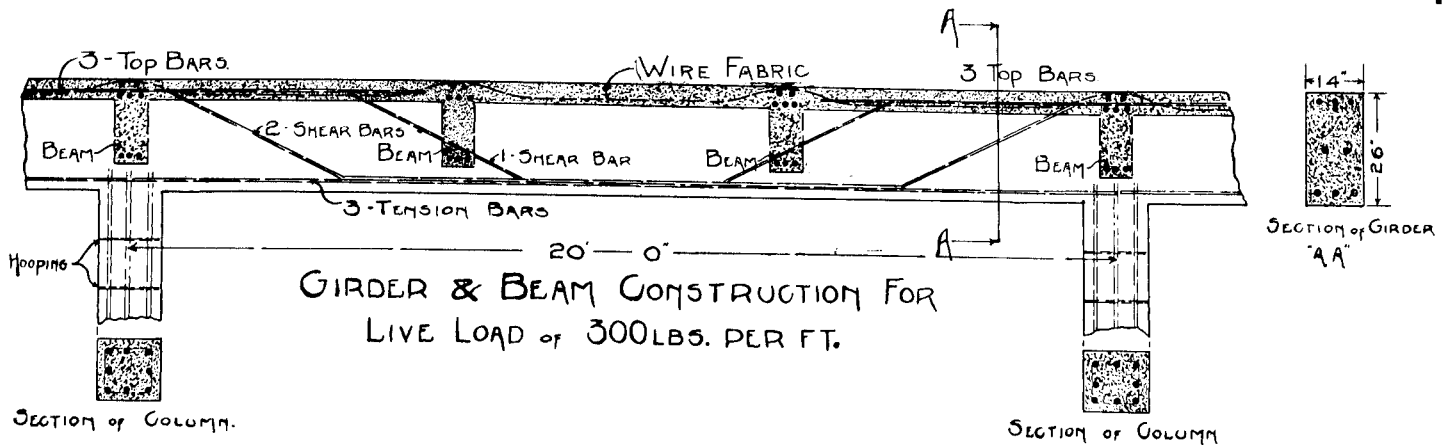
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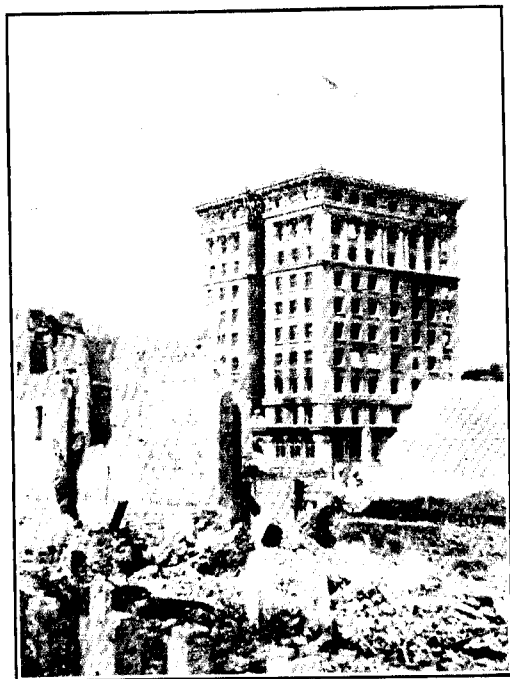
ENGINEERS AND MANUFACTURERS

TORONTO, ONT.

The Construction That Defied The San Francisco Fire

is illustrated in our CATALOGUE "D-1," which is sent upon request to Architects, Builders and Engineers.

Read what the American Artisan of May 12th, 1906, had to say of the "Prong-Lock Wireless Fire-Proofing System" as used in the Hayward Building illustrated herewith.



HAYWARD OR KOHL BUILDING, San Francisco, Cal., AFTER THE FIRE.

A SEVERE TEST

"The eyes of the building world are fastened upon San Francisco, and as investigations bring to light the degree of resistance offered by different methods of construction, much valuable information is being gained. The Hayward Building, an eleven-storey edifice of steel construction, is interesting the building crafts at the present time on account of its having passed unscathed through both the earthquake and fire which followed. It is estimated that it can be restored to its original condition for the trifling sum of from \$5,000 to \$8,000, although all its neighbors were shaken or burned to the ground. The Prong-Lock Wireless Fire-Proofing System was used in the Hayward Building. It is being specified by many of our leading architects and engineers."—*The American Artisan*, May 12th, 1906.

Copy of Architect's letter to the American manufacturers of Prong-Lock Wireless System:

SAN FRANCISCO, May 25, 1906.

Gentlemen,—I am in receipt of your communication of May 17, in which you ask for some trustworthy information concerning the results of the fire here in San Francisco, and more particularly in regard to the Kohl Building, or, as it was formerly called, the Hayward Building, of which I was the Architect.

I would state in this connection that the Kohl Building is furnished with double partitions of Prong-Lock Studs and Expanded Metal Lath on the lines of the corridors, while the dividing partitions between offices were 2 1/4" thick with Prong Studs and Expanded Metal Lathing. The interior finish of the building consists of metal-covered doors, and all casings, jambs, base, chair rails and picture moulds are finished with similar material. The floors of the building are of concrete over which we laid battleship linoleum.

From this you will see that there is very little woodwork beyond office furniture to burn in the offices. The fire did not travel from floor to floor and room to room as readily as it did in wood finished buildings, with the result that there are rooms in the burnt floors that are wholly untouched, with the exception that the partitions of one that was gutted were destroyed for further use, and the communicating door badly warped and twisted. One room was completely destroyed, the tenant losing all his furniture and belongings, while the room adjoining, separated from the first by 2 1/4" partitions on your studding, with one of the metal covered doors between the two, was wholly untouched, a straw hat hanging in the locker next to the wall being not even scorched.

In my judgment the metal studs and lath partition is the only partition for the so-called fireproof building. The tile partitions, as far as I have noted them, have failed utterly to resist the earthquake and subsequent fire.

Yours very truly,

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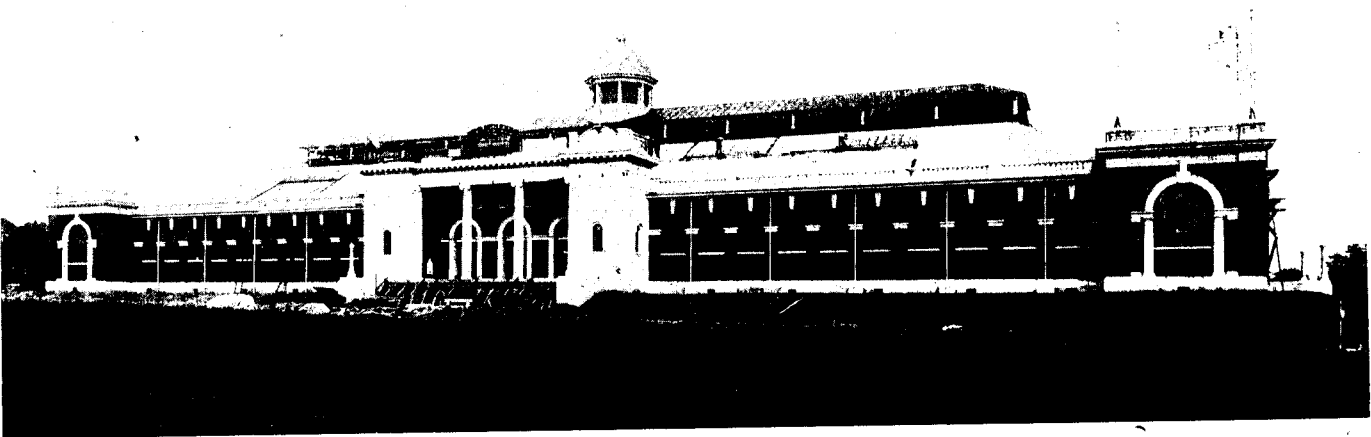
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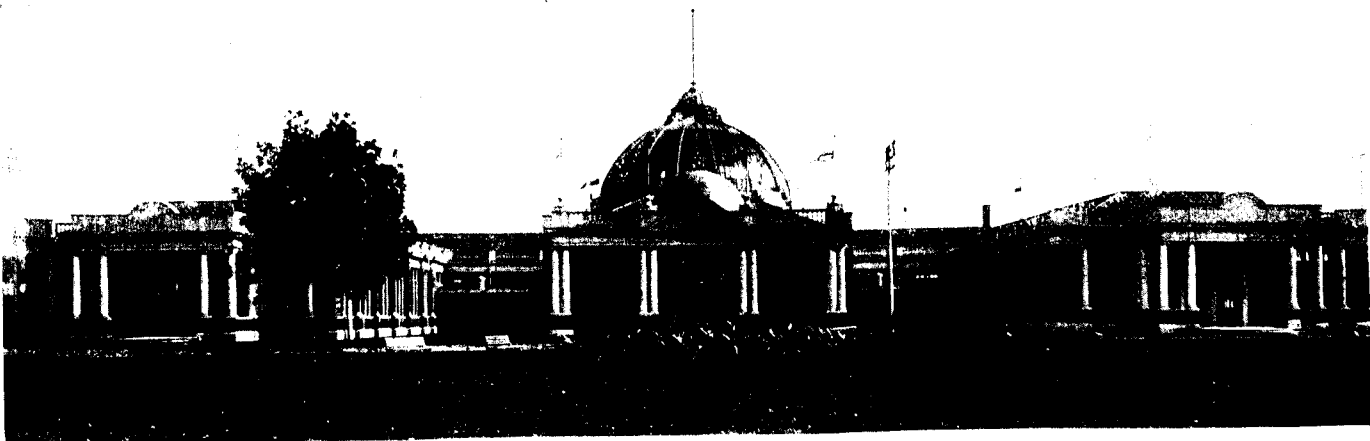
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Transportation Building, Canadian National Exhibition. Geo. W. Gouinlock, Architect. Erected in 1909.

Remember! The Reason for the superior condition of the **ROMAN STONE** in these Structures is because "it's the stone with no facing material" — "the stone of the same quality throughout."



Horticultural Building, Canadian National Exhibition. George W. Gouinlock, Architect. Erected in 1907.

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for the modern day building, invariably include provision for specifying brands of paints and finishes best suited to carry out the design of the Architect. It is in this manner that the Architect is permitted to carry into realization his decorative schemes.

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J. A. Mackenzie, Architect

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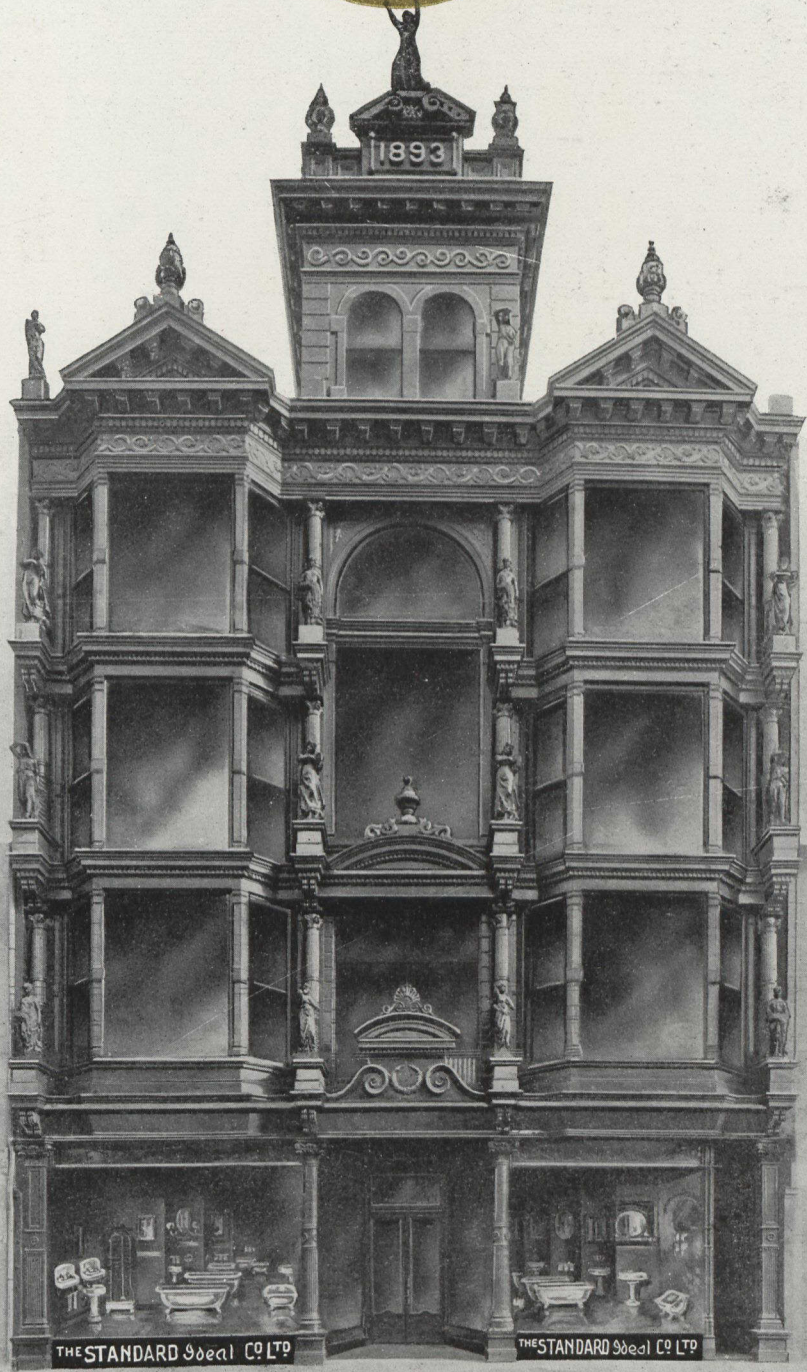
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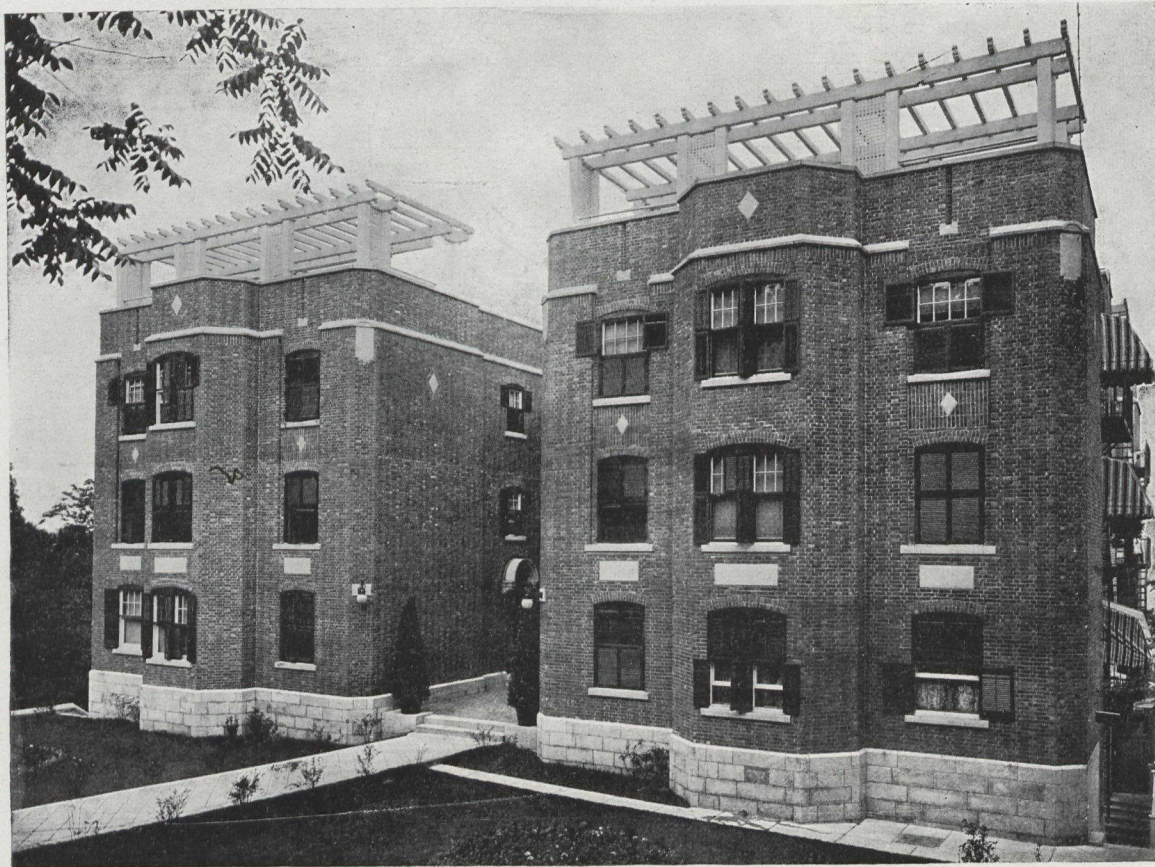
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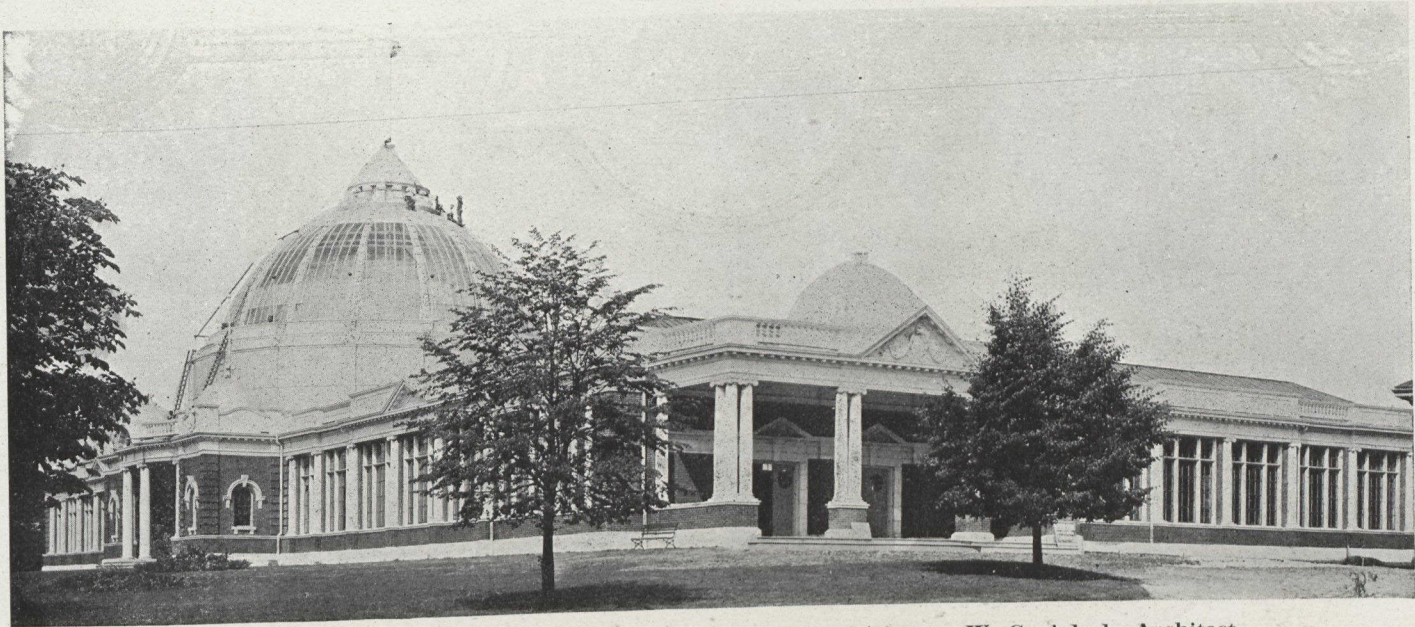
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New Horticultural Building, Canadian National Exhibition. George W. Gouinlock, Architect.

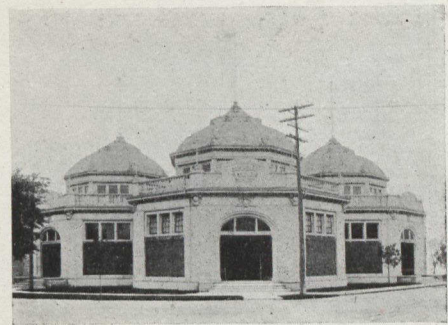


Process Building, Canadian National Exhibition. George W. Gouinlock, Architect.

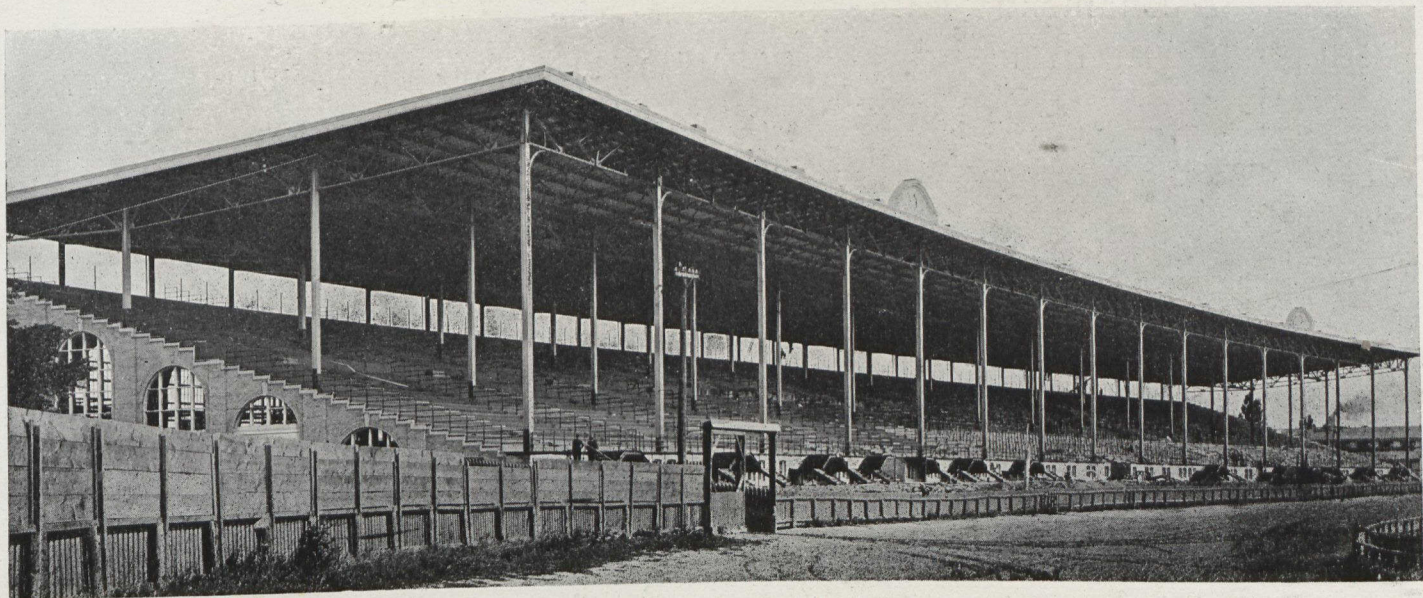
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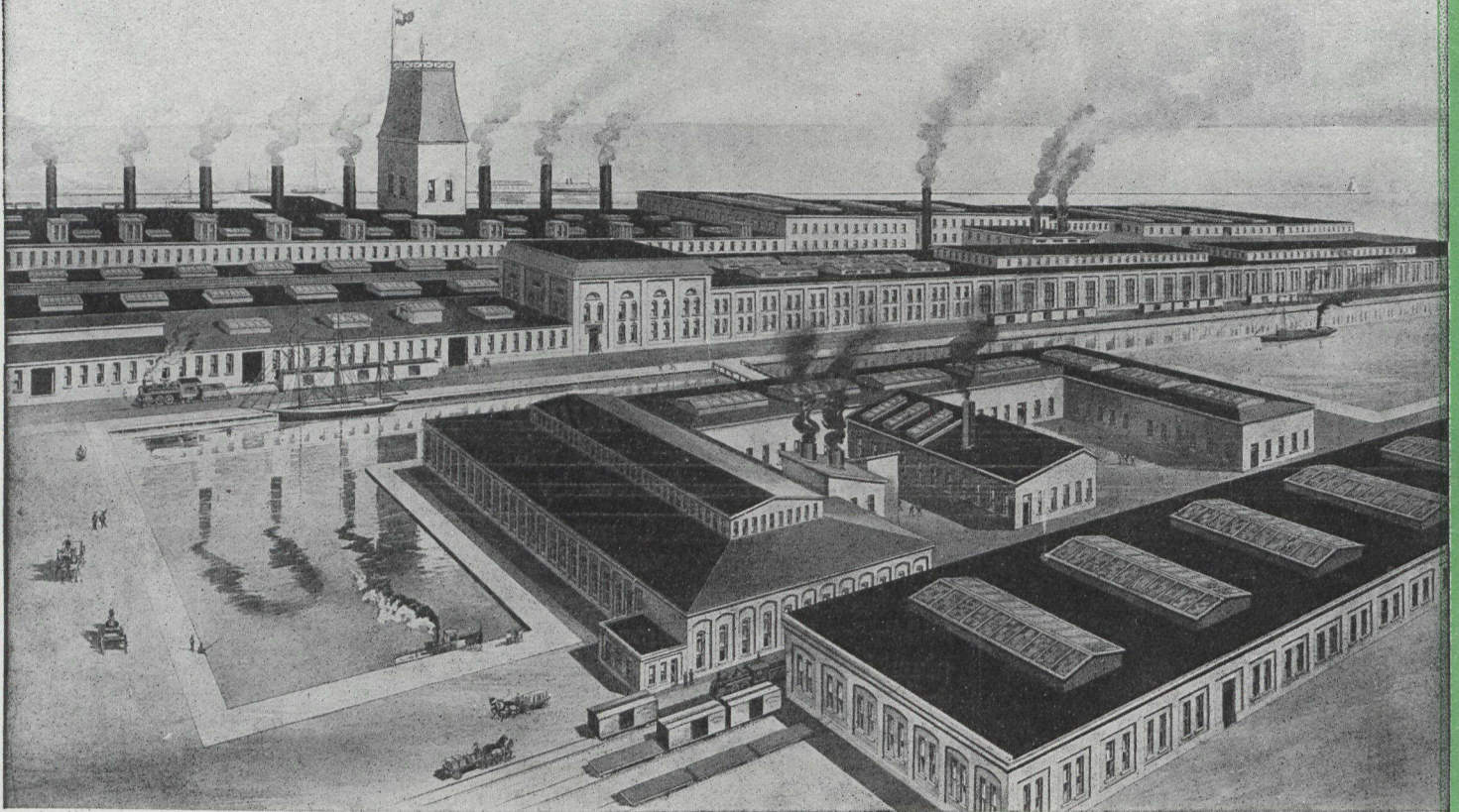


Railway Building, Canadian National Exhibition. George W. Gouinlock, Architect.



Largest Covered Grand Stand in the World, Canadian National Exhibition, Toronto. George W. Gouinlock, Architect.

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CONSTRUCTION

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



Vol. 3

TORONTO, SEPTEMBER, 1910.

No. 10

Annual Exhibition of Architectural Drawings

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Saturday Night Building

TORONTO

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“YOU WILL BE ASKED TO CONSIDER the employment by Canadian capital of architects practising in the United States, who have no other interests here than the commission which they derive from their plans. The work of the skilful gentlemen may have assisted the architects of Canada, but we feel that the time has arrived when Canadian architects can do the work. The only evident manner in which this object can be attained is through placing a heavy import duty on the services of foreign architects. With us this is purely a matter of self-protection. We are always ready to meet and welcome visiting architects, but I think that it should be the object of this institution to protect its members as other bodies protect theirs.”—*President F. S. Baker at R.A.I.C. Assembly at Winnipeg.*

In view of the wave of opposition sweeping over the country, against the incursion of foreign architects it appears timely that we should point out that CONSTRUCTION since its first issue has consistently contended for the protection of the profession against the employment of foreign architects. The following excerpts from the editorial columns of July, 1903, CONSTRUCTION, should prove interesting at this time.—EDITOR.

If our buildings are built by foreign architects whose work must necessarily be influenced by the conditions prevalent in their own country, how can we ever hope to develop a Canadian architecture that will reflect our national traditions, our tastes, and our social habits and commercial pursuits? And if we are to have no architecture peculiar to us as Canadians, how can we ever boast of being a nation? A pitiable condition it would be indeed if our finer structures, in which we must necessarily take national pride, bore no mark of the handiwork of our own people, but were the product of foreign designers whose work was influenced by the traditions and conditions of the country from whence they came.

In view of these obvious facts, it is most unfortunate that many of Canada's largest institutions, in which Canadians have a right to take pride, find it necessary (so they say) to employ architects from the United States. They tell us they would prefer to give the work to a Canadian architect, but they can find none who have had sufficient experience in designing the especial type of building they desire. Even though this were true, it would be a most un-Canadian stand to take. We would ask how can we ever have architects with experience in designing large buildings if we give this work to foreign architects? We must be a nation of highly unbalanced incompetents if our business institutions find that they require structures of a type that cannot be built by Canadians. Some of our financial institutions are the worst offenders in this particular, institutions whose success depends upon the development of our country more than those in any other branch of business. They say to us, "We have been successful in handling your money to the extent that we are enabled to build a stately, dignified home for our business, a structure that will be a monument to Canadian industry and enterprise, an indication of our confidence in Canada's future. But this building is to be better than you can build." The cost of such a structure is surely a monument to Canadian enterprise and commercial development, but the building itself is nothing short of a monument to our national incapacities and unbalanced development. . . .

The reason for the employing of American architects on Canadian buildings is simple. Owners get an

exaggerated idea of the importance of their project. They assert that they will build something greater than has heretofore been attempted in Canada, and having been dazzled by the exaggerated greatness of things American, they believe that to accomplish this end they must go beyond the borders of Canada for an architect.

The United States has many highly capable architects well suited to the conditions prevalent in their own country, but they are not as well fitted to execute work especially adapted to conditions in Canada as are our own designers. If we want to develop an American architecture in Canada, we should employ American architects, but if we have sufficient national pride to desire an architecture distinctive to Canadian traditions, life and conditions, it must be developed by Canadian designers. . . .

When a foreign architect is employed to design a Canadian building, he is selected because of the character of the work he has executed in his native country. In the execution of this work he has used certain materials and appliances with success, and when he plans the structure and prepares his specifications, the connection formed from many years of business association with the manufacturers of these materials and appliances is bound to show its influence. We have not only employed the architect, but we have also brought with him his connection.

The New York architect does not know our contractors; he does not know our brick, our stone, our cement, our appliances or our fittings. He only knows the contractors and materials he has had long experience with in his work in New York. He does not care to know things Canadian. He is employed to erect a building Canadian designers were not equal to, and he is not inclined to investigate materials that are untried in a work of such great magnitude. . . .

The almost invariable rule is, therefore, that the American architect will use his influence with the owner in favor of the contractor he has tried and the materials he knows. Thus, while possibly the owner may have originally intended to only employ a foreign designer, he finds, when his building is finished, it is purely an American production. Almost every dollar expended in its erection has been forever lost to Canada, Canadian money, produced in Canada, by Canadians, from Canadian industry and resources. . . .

We wish to make it plain that we quite understand that we are obliged to use many foreign makes of materials in our buildings, but we have Canadian made materials and appliances that may be used to advantage if the designer knows these materials and feels favorably inclined towards them. This cannot be expected of the architects who never used our materials, and does not know them.





Messrs. Carrere & Hastings reply to editorial in July CONSTRUCTION—Say that no architect of standing and good repute will approve of same—Real issue avoided.

IT WAS ONLY REASONABLE to believe that Messrs. Carrere & Hastings, and their associate, Mr. Eustace Bird, of Toronto, would bitterly resent the criticism of the latter's published statements relative to the inferiority of Canadian Architects, as appeared in an editorial in July CONSTRUCTION.

It is only human that they should undertake to show that a wrong interpretation had been placed upon Mr. Bird's public statement, and, it is quite within the usual order of events that they should endeavor to undo the evil perpetrated by an unfortunate press interview that never was, and even now, has not been withdrawn.

Thus, in accordance with that which was expected, we have received a letter—a letter addressed to the editor from Messrs. Carrere & Hastings, which reads as follows:

Sir,—Our attention has just been called to the editorial in the July number of CONSTRUCTION referring to an interview with Mr. Bird which appeared in the Toronto Daily Star.

Without any desire to reply to your editorial, or to enter into a controversy, we write to protest against this gratuitous, unfair and unseemly attack upon us and upon our associate, Mr. Bird. Any fair-minded person who reads the interview, and reads the editorial, must see that you have perverted the facts, misquoted Mr. Bird—or rather attributed to him statements which he did not make, though they form part of the article; that you have given to what he did say an entirely different meaning from what it is evident that he intended. We cannot believe that any architect of standing and good repute can possibly sympathize with your motives, or with your manner of presenting your case.

There is one statement which you italicize, namely, "The plans for the Bank of Toronto were designed by Mr. Bird in his office in the Traders Bank building, and were examined and approved by Carrere & Hastings," which Mr. Bird did not make, and could not have made, because it is not a statement of fact. The designs were made by us in our office in New York in collaboration with Mr. Bird, and developed into working drawings by Mr. Bird in our office in Toronto. This same statement applies to all our Canadian work. Mr. Bird is not our representative in Canada, as you state, but our full associate.

You make the statement: "Mr. Bird had evidently taken special care to inform the Star's reporter of the names of the Canadian architects and architectural firms who submitted plans with him for the structure in question that were by the way considered inferior to his."

If you will take the pains to read the report of the interview, you will find that the Star does not quote Mr. Bird as making such statement, and we are informed that he did not make any such statement.

As a matter of information, Mr. Bird (who was born in Barrie) is a Canadian. He has long been associated with us in our office in New York, and his ability induced us to send him to Canada when we were urged to open an office in your city.

Our first Canadian commission came to us unsolicited. It may surprise you to know that we were urged, not only by our clients, but by some of our fellow Canadian architects, to open an office in Canada, and we are not conscious of anything that has happened in the course of our practice to justify the attack which you have made upon Mr. Bird and ourselves, and which we must resent.

As a further item of information it is proper for us to state that the commission to design the Bank of Toronto was given to us more than a year ago; that we have been studying

this problem with great care and deliberation ever since. The bank in its wisdom thought best to consult other architects. Recognizing their right to do so and to dismiss us upon compensating us for services already rendered, we could offer no objection to the course which they were pursuing, and did nothing to influence them in their decision.

We have endeavored to be absolutely fair, and have a right to expect the same treatment for Mr. Bird and ourselves.

Yours very truly,
CARRERE & HASTINGS.
IVAN S. MACDONALD, ESQ.,
Editor and Manager of CONSTRUCTION,
Toronto, Canada.

It will be noted that the above letter is a criticism of the editorial policy of CONSTRUCTION, and our "method of presenting our case rather than an explanation of Mr. Bird's rash, unethical act. Why did Mr. Bird not come forth with some defence on his own behalf? Why does he not tender the profession and the Canadian public some explanation for such unwarranted and unprofessional behavior? But, he is silent, and Messrs. Carrere & Hastings deprecate, not the action of their Associate, but the "perverted" policy of CONSTRUCTION.

If our correspondents will read, carefully, the editorial in question they will note that their Associate was not misquoted but that the statements attributed to him were only those that so appeared in the article in question as published in the public press. If the reporter of this paper misquoted Mr. Bird, he should have seen to it that the remarks accredited to him were corrected. In his not having done so we have every reason to believe that the interview was not only correct, but, that its publication was quite in accordance with his wishes.

With regard to the remarks of the reporter in connection with the interview, both as to whom the other competing architects were and as to where the plans were actually drawn, we would say that it is most unusual for a newspaper man to, unnecessarily, go to more than one source for information, in the preparation of an item of this character. Mr. Bird was in possession of all the necessary information—he was the man being interviewed. Why, therefore, should he not be the man who answered all the queries of the interviewer? More than this, we say again, if Mr. Bird resented the unethical manner in which his interview was handled—if the statements made in the article in question were not correct why did it not protest and have them rectified?

The fact that Mr. Bird is a Canadian augurs for nothing except that it should cause the profession in Canada to further resent the statements made by him. There might have been a greater excuse for a man who came from New York or Europe from whence we must get our architectural inspiration.

Our correspondent further states that "no architect of standing and good repute can possibly agree with our motives." So remember! Canadian architects, that if you resent the inference that you are untrained because you live in a country where architecture is undeveloped—if you do not agree that it is only reasonable that large Canadian corporations should go to New York for architects to design their buildings—if you agree with the re-

sentful spirit of an article that undertakes to protect the profession against the insidious attacks of a representative of a foreign architectural firm, then, mark you! because of these things you are not an architect of "standing and good repute."

It must be remembered that we have no quarrel with American architects who come to Canada to secure work, so long as they conduct their practice and themselves in a manner compatible with professional decency. But, we have a right to resent the incursion of foreign architects who undertake, either themselves or through their Associates or representatives, to enhance their own reputations by casting aspersions upon the profession in Canada. We do not blame American architects for attempting to secure work in Canada, but, we do maintain that it is not right that Canadian corporations, whose very existence depends up on the wealth and prosperity of the country, should employ them.

And last, but not least, our correspondents inform us that they were employed by the Bank of Toronto to design its proposed new building more than a year ago and that they had been studying the problem "with great care and deliberation ever since." We further learn that the Bank saw fit to dismiss them and consult other architects. These other architects, we are told, were given two months to study the problem and get in their plans as against "a year of great care and deliberation." We do not dwell upon this matter with any idea of belittling the work of our correspondents but simply to demonstrate that the Canadian competing architects were working at an extremely great disadvantage.

Allegheny County Court House competition limited to resident architects—A spirit of local pride displayed that we in Canada as a nation do not possess.

AN ARCHITECTURAL COMPETITION is being conducted by Allegheny County, Pa., for a new County Court Building to be erected at Pittsburg. The structure will not only be the largest and most important building in Pittsburg, but it is proposed to erect one of the finest public buildings in Pennsylvania.

If a competition were being conducted for a structure of like proportions to be erected in one of our Canadian cities by some of our larger corporations, they would feel it incumbent upon them, in justice to their stockholders, to call in New York or Boston architects to submit designs, but strange to say, Pittsburg, a United States city, finds it quite possible to get along without the services of the architects from these important art centres. They have not found it necessary to even admit designs from Philadelphia, a city of the same State. In fact, the competition has been limited to fifteen architects and architectural firms that are residents of Allegheny County.

The report made to the county commissioners and signed by Architects Cass Gilbert and J. Monroe Hewlett, of New York, and County Engineer J. G. Chalfant, states that the names were selected from among the architects of Allegheny County, "who, by past experience and training, appear to have demonstrated their special fitness for architectural work of this character."

In addition to the award of the commission for the erection of the building, there will be a number of awards of money prizes. The first prize, of course, will be the erection of the building; the second prize will consist of \$1,000; a third prize \$750, and several fourth prizes of \$500 each, the number to be determined later.

Allegheny County displays a pride, a spirit, an independence as a small community in a local way that we in Canada, as a nation, do not possess.

Here is a county that, even in so great an undertaking, forbids the incursion of architects from other cities in its own State, let alone those from cities in other States in the same country, while we in Canada tolerate, yes, invite,

encourage, architects of a foreign country to design and construct our larger and more important structures. Large architectural firms in the United States find less opposition in securing work in Canada than in cities outside of their own State. The reason for this deplorable condition is not to be found in the fact that we have not capable architects of our own, but because we have no national backbone.

If owners in American cities find it expedient to refuse, to employ architects outside of their own county, what chance would an architect as a resident of Canada (be he ever so capable) have of securing a commission anywhere in the United States? The answer appears quite clear.

A review of the operations of the cement interests for the past year—The Cement Merger—Its promises—Its policy and its effect upon the industry. . . .

WHEN THE CEMENT MERGER was formed on the 20th of August of last year, the news was received by consumers and independent manufacturers alike with some misgivings. The consumer thought he foresaw, the successful establishment of a great monopoly that would sooner or later raise the price of portland cement (a commodity that is to-day regarded as the "staff of life" in constructional development) to an exorbitant degree, and thus seriously hamper the work of improvement and development, upon which our industrial success as a young nation depends so much. When confronted with the argument that the importation of foreign cement would solve the difficulty, should prices of Canadian-made cement soar too high, it was even whispered that the merger would be strong enough to railroad through Ottawa an increased import duty on the materials and thus make impossible foreign competition.

Some of the cement manufacturers whose plants were not included in those that formed the merger, thought they saw in the hazy distance a "Standard Oil Octopus" in the cement industry in Canada and that trust methods would be employed to whip them into submission or crush them out of existence, one after the other, until every tentacle of the giant monster had drawn firmly into its grasp its quota of the spoils. The incorporators, on the other hand, declared emphatically, that there was absolutely no ground for any such alarm, but that the merger had been formed only for the purpose of affecting economies in management, manufacture, sales and freights, together with the object of increasing the consumption of cement through a systematic educational campaign, as to where, how and when, cement may be profitably used. In addition to this, the merger frankly declared, that it proposed to bring to an end the ruinous competition, that up to the time of its birth, was eating the very vitals out of the industry. The merger, in this manner, committed itself to a constructive policy and disclaimed any intention to adopt any method or undertake any procedure that would demoralize the market either from the standpoint of the consumer or the independent manufacturer.

One year has passed, and it is gratifying to note that the merger has made good its promises and kept faith with both consumer and independent manufacturer alike.

The consumer will get his cement for 1910 at an average price of \$1.25 per barrel at the mill—a price lower than has heretofore prevailed in Canada, with the exception of the short interval during 1909, when cement was being sold below actual cost of production, a condition that could not continue for any length of time.

The following average price per bbl., for cement during the past five years, according to the report issued by the Department of Mines, is interesting: 1904, \$1.41; 1905, \$1.42; 1906, \$1.49; 1907, \$1.55; 1908, \$1.39; 1909, \$1.32. Thus it may be seen that the present conditions under which cement is sold in Canada, have by no means

abnormally raised prices. It is argued that cement is sold cheaper in the United States, and while this is true, to some extent, it must be remembered that the cost of manufacture is considerably less across the border. This is due to the fact that coal is such an important factor in the manufacture of cement and the United States mills are advantageously situated in close proximity to the great American coal fields, thus materially reducing the cost of one of the largest items of expense in the manufacture of cement.

The independent mills very wisely came to an understanding whereby they jointly appointed a sales agent, who has so thoroughly organized his sales and delivery systems that cement may be delivered to any point, from the closest mill, in accordance with the natural laws of commerce, thus eliminating unnecessary long hauls, and thereby bringing the cost of delivery to a minimum.

Both the merger and the independent companies (through their sales-agent) have launched out into great educational campaigns with the purpose of increasing the consumption of cement by the farming community and the lay public, thus demonstrating that both branches of the industry are proceeding to increase their outputs rather than abnormally raise prices.

The conditions under which cement is sold in Canada to-day, may be termed most favorable. Because of the stability of prices, the architect and engineer are safe in making their estimates, the contractor is safe in making his tender, the dealer is protected in his purchases and the consumer is given a standard product at a reasonably fair cost, plus a minimum freight rate, made possible through following the natural laws of commerce. The general public is being served through the, undoubtedly, future increase in the adoption of cement as a structural element in the place of inflammable and unstable materials, promoted through the systematic campaigns of instruction now being carried on by both sections of the industry.

As long as the cement interests continue to develop the industry along these lines, as long as their policy continues to be constructive, they are deserving of the good will and support of the Canadian building public. But should they ever become over-confident of their entrenchments and undertake a policy of coercion, they will have dropped the bone for the shadow.

Constructional development and improvement is and will continue to be in Canada for some years hence, one of the greatest factors in our growth. Cement has become as indispensable in structural work of every character and type, as are the hands of the laborer who does the work and an ambitious country will never tolerate a monopoly in a material so universally used in both public work and private enterprise.

Action of U.S. Congress in the appointment of Commission of Fine Arts contrasted with the policy of Canadian Government in the erection of buildings at Ottawa. . . .

WHILE THE CANADIAN GOVERNMENT is preparing to erect a Four Million Dollar Departmental Building at Ottawa after plans prepared by the underpaid, inefficient staff of the Government Architect, we learn that the United States Congress has enacted a bill creating a Commission of Fine Arts to pass upon the location, plans, etc., for all future buildings, monuments and the like in the District of Columbia. It seems ludicrous that deputations representing the architectural profession in Canada should be obliged to go to Ottawa to plead with the Government to deter from adopting plans for so important a national work, that on the face of them must appear faulty in every important particular, to every citizen of good taste—plans prepared by an inferior staff under the most adverse conditions.

It would seem that the Minister of Public Works, even though he may have a perverted taste in architectural de-

sign, would find in the Art Museum bungle enough evidence of the inefficiency of the Government Architect's staff, as far as work of such magnitude is concerned, to cause him to realize that it is at least of as great importance to employ the best architectural brains in Canada for large Government buildings as it is in the case of private and commercial work. Surely there is no more important architectural work in Canada than our National buildings at our official home. We say it is extraordinary that the architectural profession should be obliged to plead with the Government to pursue the course which is so obviously the only right and safe one—the course which, if conscientiously and earnestly pursued, would bring honor and credit to the Government, approbation and distinction to the Minister of Public Works, and contribute to the beauty of our National House, of which Canadians should be enabled to be justly proud.

Without going into the details of the architectural bastardy in the exterior design of the Art Museum recently completed in Ottawa, and of which the Government Architect was the author, it is sufficient to note that the monstrosity, is structurally defective—that great cracks have developed in its walls and that the building is in such a precarious condition as to give even its designers no little concern.

We learn that the massive, meaningless, gingerbread tower is settling on its foundation, and that the cracks recently developed show a tendency of the whole mass to fall out, away from the structure proper. But this is not enough; the Government proposes to give us another one of these architecturally, indecent and structurally defective masses of cemented building materials designed by the same man—designed after the same style, only this one is to be larger, higher and more costly.

It would seem in the face of all these things, that if Mr. Pugsley were to act, in this matter, with only our national welfare, pride and honor in view, he would find it high time to change his course of procedure.

In direct contrast to this attitude assumed by the Minister of Public Works, is the action taken by the United States Congress. The United States Government buildings at Washington have all been designed by America's most prominent architects, and they all bear evidence of having been the product of the brains of thoroughly trained men. But even this is not sufficient. The United States is not satisfied to entrust anyone of their future national structures to the judgment of even the best individual architects in the country. They have decided that in work of such national importance it is well to have the collaboration of the combined brains of the best architects in the United States. Just note the personnel of this Commission of Fine Arts.

Mr. Daniel H. Burnham, of Chicago, the eminent architect, who prepared plans some years ago for the beautification of Washington, is named as chairman. The other members are Messrs. Thomas Hastings and Cass Gilbert, of New York, two of the most rarely gifted of American architects; Messrs. Daniel C. French and Frank D. Millet, of New York, each standing respectively in the front rank of American sculptors and painters; Mr. Frederick Law Olmstead, Jr., of Boston, landscape architect and worthy son of a famous sire, and Mr. Charles Moore, of Detroit. These men have practical business sense as well as the truest artistic instincts, and they will do much toward making Washington one of the finest capital cities in the world.

Commenting upon the appointment of the Commission, STONE says: "It is high time that there should be some regulation of art and architecture in the National City of the country. Most of the great public edifices are dignified and worthy of the Nation, and there are many striking public memorials. But there are also statues that would disgrace any art-loving city. It may be impossible, owing to sentimental reasons, to displace these, but the new Commission may prevent the erection of similar atrocities to keep them company. It is a pity that there was not

suitable supervision from the start of the Hall of Statuary. The idea that underlies this gallery of heroes of the various States of the Union is admirable, and most of the individual statues are good enough in themselves. All that was needed to make this a display of which the country might be proud, despite the varying merits of conception and workmanship, was such general supervision as would bring the statues in harmony one with the other. The public will welcome the Art Commission, especially as President Taft has risen to the full level of the occasion in naming the first incumbents."

Canadians have just as strong an appreciation for the aesthetic in architecture as have the citizens of the neighboring Republic, and the Canadian Government in refusing to provide means whereby the proposed addition to our national group at Ottawa will be such as we can take a justifiable pride in, is not by any means carrying out the will of the people.

Washington appoints a Commission of the most eminent architects and artists in the country to pass upon the designs of all its national structures, and Ottawa delegates an underpaid, overworked, official of mediocre ability with an inefficient staff to act as their architectural advisor and designer and constructor of our national buildings. It is time that Mr. Pugsley woke up to the realization of the importance of the responsibilities of his office. It is not too late, as yet, for him to change his proposed course.

Q July building operations show big gain—Month records an average increase of 47 per cent.—Indications point to a heavy volume of fall work. . . .

CONTRARY TO THE SOMEWHAT QUIET ORDER of things which usually prevails in the mid-summer season, building operations in July showed a strong and substantial forward trend. An average gain of 47 per cent., as based on comparative figures supplied CONSTRUCTION from centres in practically every section of the Dominion, bespeak for the month a growth and progress which stand out far ahead of even the highly satisfactory records made in the same period during the past few years. The force of activity for this season of the year is more significant than would appear on the surface, particularly so in view of the heavy operations of the preceding months, in that it is a pretty good sign of an uninterrupted continuance of the present prosperous condition as well as an indication of a volume of fall work greater than has ever been carried out at any previous time.

Montreal's tremendous total in itself reflects a development in new buildings and structural improvements that augurs mightily for the expanding industrial and commercial strength of the country, and would be a big credit to even a more thickly populated and equally as prosperous a centre. Her aggregate value for permits issued amounting to \$3,206,708 and equivalent to an increase of 470 per cent., gives the metropolis priority for the month over all other cities in the Dominion in volume of work undertaken together with the second highest standing as regards percentage gain. From Montreal east the returns to hand show no break in the situation, and the assumption is, in view of the universal activity manifest in the more important Maritime cities, that the intermediate points experienced their full quota of the month's work. Halifax and St. John reversed the less favorable order of the preceding month by noting increases of 33 per cent. and 183 per cent. respectively, while Sydney adds to her prestige by again annexing a gain of 154 per cent.

Ontario, however, was less assertive, although Toronto in a total of \$1,953,285, representing a 5 per cent. gain, registers the second highest amount recorded. A retrograde condition, as far as comparative figures indicate, is noted in this province in five instances, viz.: Fort

William, 16 per cent.; London, 48 per cent.; Ottawa, 73; Berlin, 20 per cent.; and Peterboro, 28 per cent. In most of these cases, however, the decrease denotes no serious decline as far as actual investment is concerned. On the other hand, Port Arthur turns to good account with an increase of 51 per cent.; Hamilton advances 30 per cent.; and Brantford and Windsor annex gains of 12 per cent. in either case.

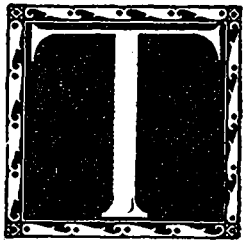
In the West, the progress of the immediate past give but little indication of diminishing. Winnipeg notes an aggregate total of \$1,044,800 and a gain of 8 per cent.; while Regina phenomenal uplift of 490 per cent. is the biggest increase noted for the month. Saskatoon and Calgary are also on the safe side of the ledger with an advance of 187 per cent. and 185 per cent., respectively; as is likewise Brandon, which has to her credit an increase of 46 per cent. over the corresponding period in 1909. Victoria and Lethbridge, however, fail to equal their last year's amount for the month, the loss in order named being 40 and 30 per cent.; although the falling off in the latter case can be ascribed to the fact that in July, 1909, the permits included an item of \$50,000 for the erection of a municipal power plant. The outlook in both of these places, as in all western cities, is encouraging. Calgary reports a heavy volume of warehouse and business property scheduled for this Fall, while Vancouver expects August to establish a record month.

	Permits for July, 1910.	Permits for July, 1909.	Inc. per cent.	Dec. per cent.
Berlin, Ont.	\$ 19,800	\$ 27,200	....	27.20
Brandon, Man.	29,960	20,480	46.28	....
Brantford, Ont.	61,825	54,877	12.60	....
Calgary, Alta.	520,098	182,280	185.32	....
Fort William, Ont.	156,200	186,235	....	16.12
Halifax, N.S.	65,150	48,635	33.95	....
Hamilton, Ont.	268,500	205,475	30.67	....
Lethbridge, Alta.	84,520	121,988	....	30.70
London, Ont.	37,700	73,808	....	48.92
Montreal, Que.	3,206,708	562,156	470.43	....
Ottawa, Ont.	202,500	760,100	....	73.35
Peterboro, Ont.	30,725	43,245	....	28.94
Port Arthur, Ont.	173,375	114,260	51.73	....
Regina, Sask.	305,030	51,300	490.60	....
St. John, N.B.	77,100	27,200	183.08	....
Saskatoon, Sask.	147,275	51,315	187.00	....
Sydney, N.S.	45,169	17,750	154.47	....
Toronto, Ont.	1,953,285	1,854,105	5.34	....
Vancouver, B.C.	639,530	549,107	16.46	....
Victoria, B.C.	222,290	372,120	....	40.26
Windsor, Ont.	37,950	33,650	12.77	....
Winnipeg, Man.	1,044,800	962,300	8.52	....
	\$9,319,490	\$6,319,986	47.46	....

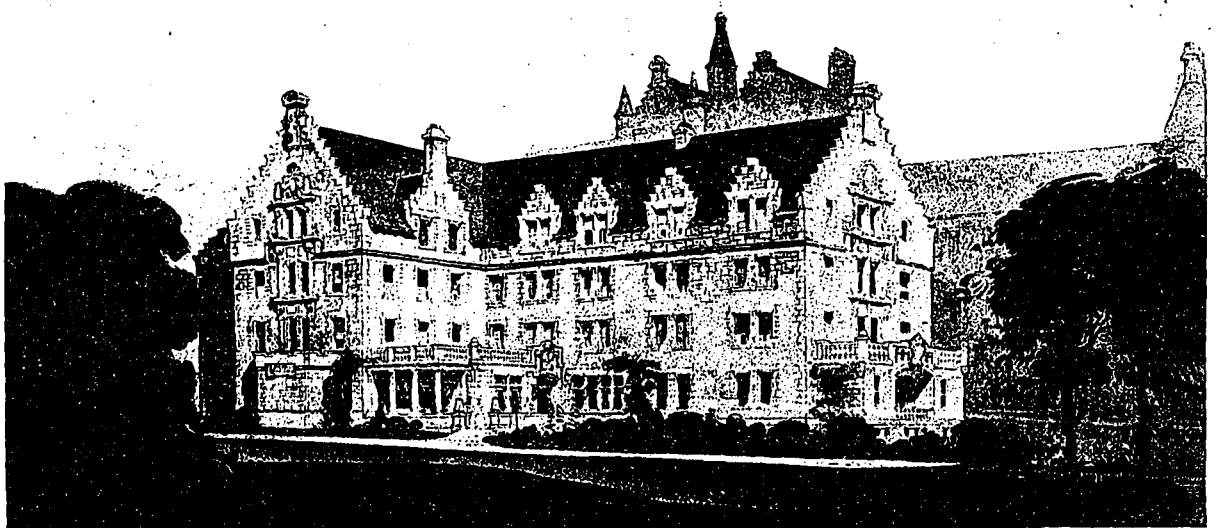
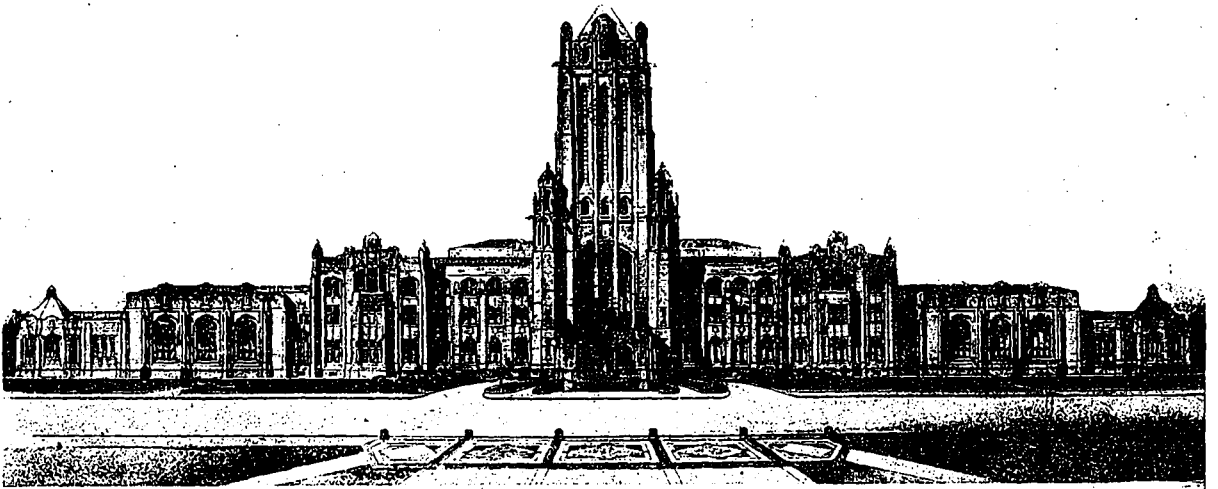
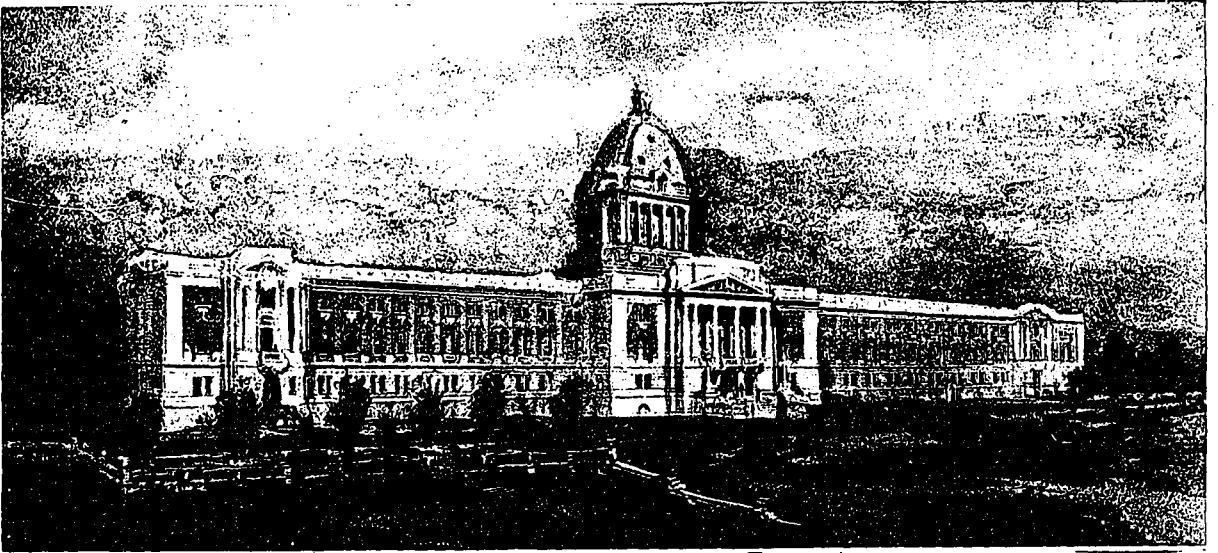
OFFICERS of the Royal Architectural Institute of Canada for the ensuing year, as elected at the third annual General Assembly held at Winnipeg, are as follows: President, F. S. Baker, Toronto, (re-elected); vice-presidents, J. S. Resther, (Montreal), Edmund Burke, (Toronto), S. Frank Peters, (Winnipeg). Alcide Chausse, Montreal, and J. W. H. Watts, Ottawa, were again chosen to fill the office of honorable secretary and honorable treasurer, respectively. The meeting which was well attended, considered a large number of important subjects of interest to the profession. These subjects, together with the general business of the assembly will be dealt with more fully in the October issue of CONSTRUCTION, as will also the proceedings of the Ontario Association which convenes in Toronto during the period of the National Exhibition.

CORRECTION.

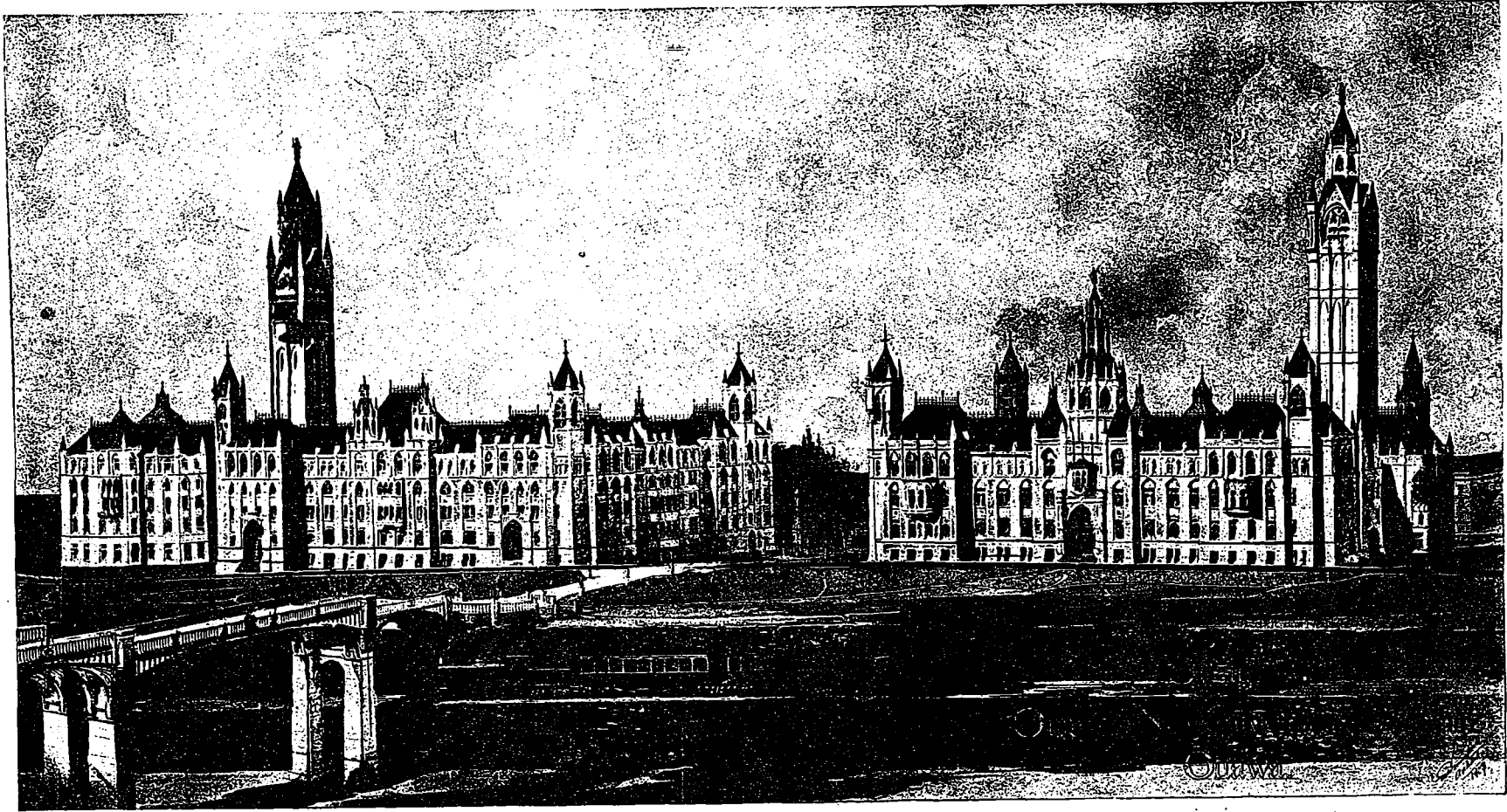
We desire to draw our readers attention to an error appearing in the August issue of CONSTRUCTION. In connection with the Confederation Life Building, used as an illustration on page 36, in the advertisement of the Standard Ideal Company, Messrs. Wickson and Gregg are accredited with the design for the splendid new addition recently erected; instead of Mr. J. Wilson Gray. We beg to take this opportunity to rectify this regrettable mistake. Mr. Gray was not only the architect for the new extension, but was also the designer of the original building which is one of the oldest and most important office structures in Toronto.



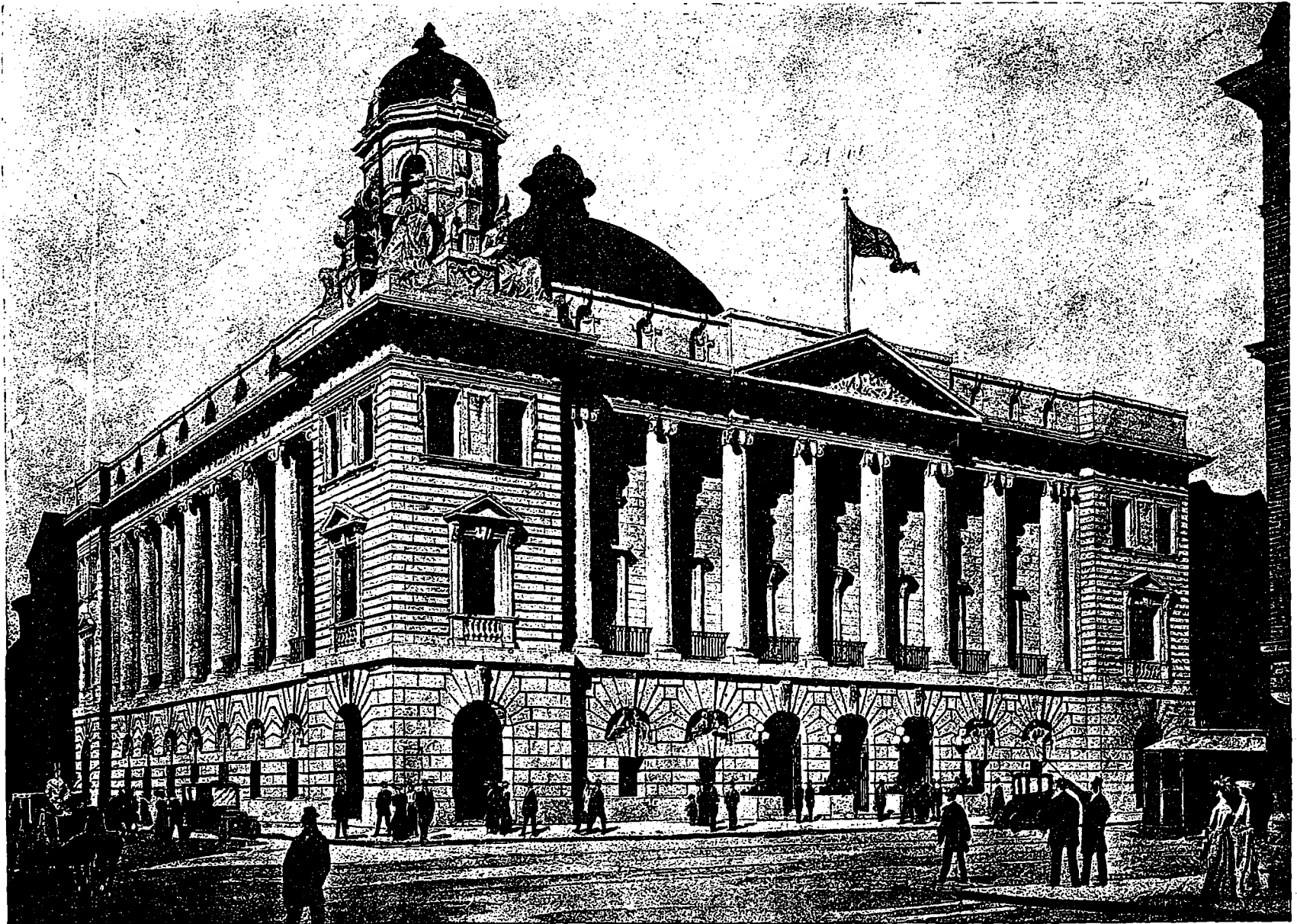
THE LOAN EXHIBIT of Architectural drawings by the Ontario Association of Architects in the Applied Arts Building at the Canadian National Exhibition, will prove to be a most important factor in the promotion of a better appreciation of architectural design by the Canadian lay public. The designs exhibited as reproduced in the following pages fairly represent the development of architecture in Canada, as well as demonstrate the more recent accomplishments of Canadian architects. In their endeavor to add interest to the exhibit the Ontario Association of Architects secured the loan of a large number of drawings from some of the more prominent British architects. A large number of these are also illustrated in the following pages. Owing to the fact that some of the designs of both Canadian and British architects were not available for reproduction at the time of going to press we were unable to illustrate the complete exhibit.



Design for the Saskatchewan Parliament Buildings at Regina. Design for Proposed Justice Building, Ottawa. Design for Nurses' Home, Royal Victoria Hospital, Montreal. All by Messrs. E. & W. S. Haxwell, Montreal.

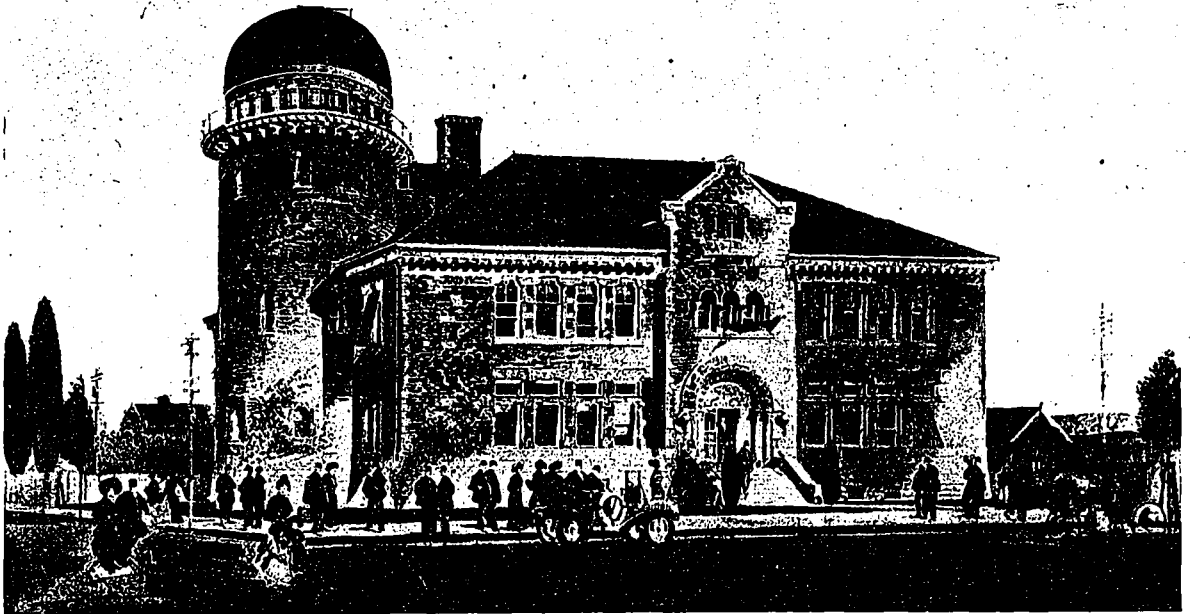
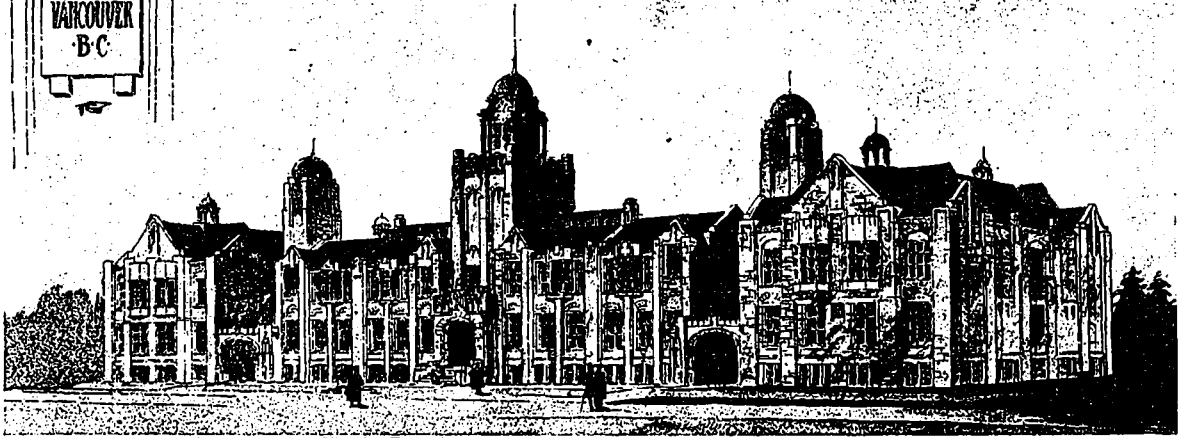


Competitive Design for Proposed Departmental and Justice Building, Ottawa, by Geo. W. Gouinlock, Toronto.

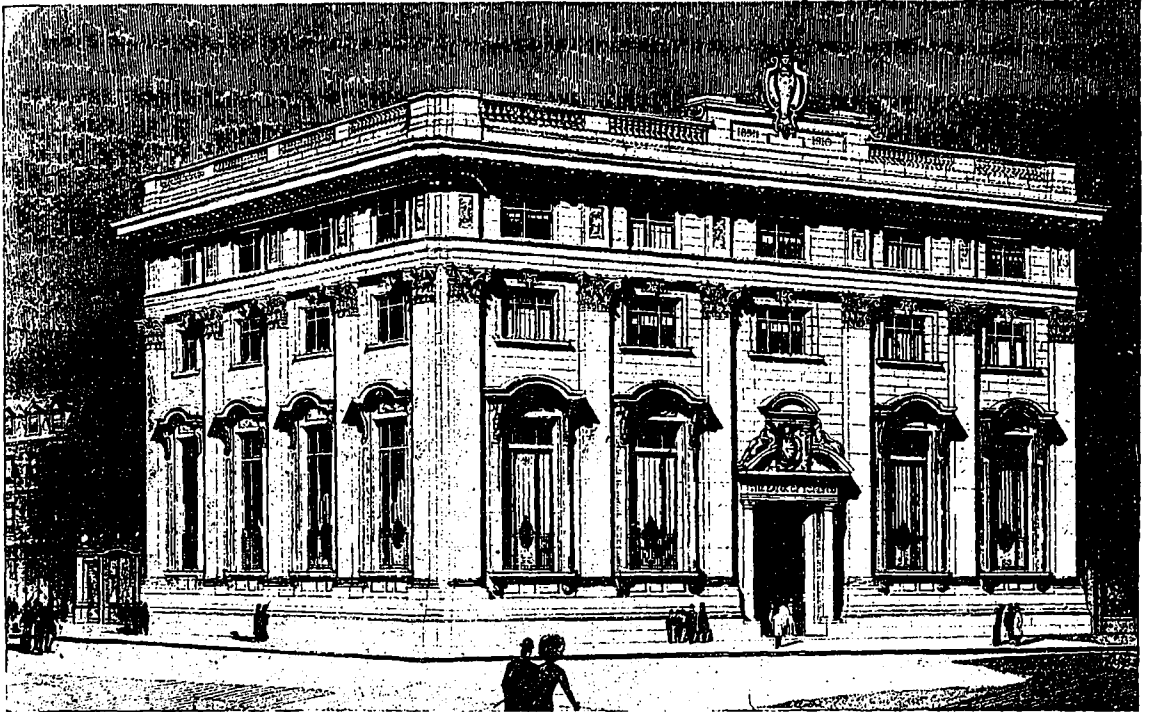


Competitive Design for Proposed Bank of Toronto Building, King St., Toronto, by Geo. W. Gouinlock, Toronto.

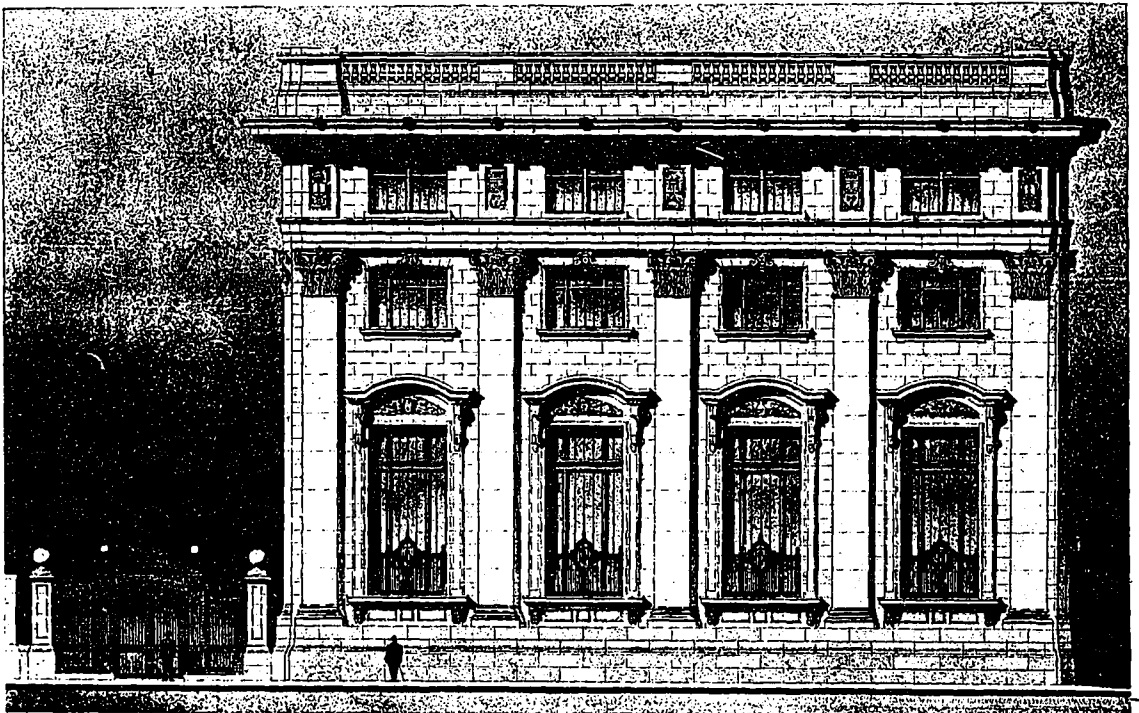
UNIVERSITY
BUILDING
VANCOUVER
B.C.



Competitive Design for University Building, Vancouver, B.C., Design for Astronomical Observatory, Toronto, Design for Country Club, by Geo. W. Gouinlock, Toronto.

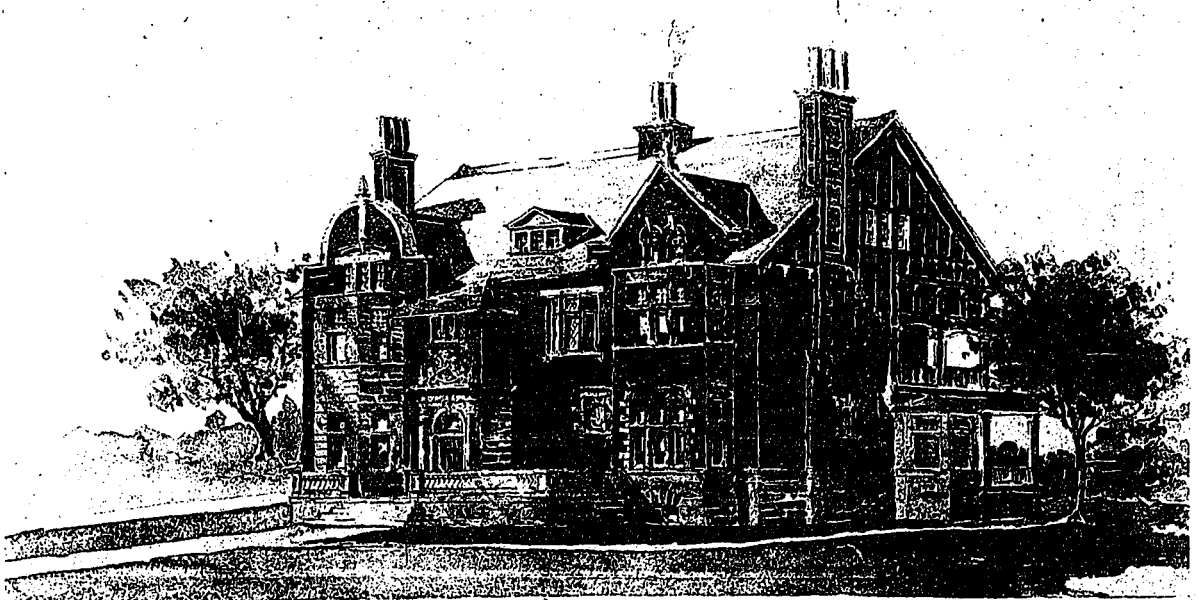
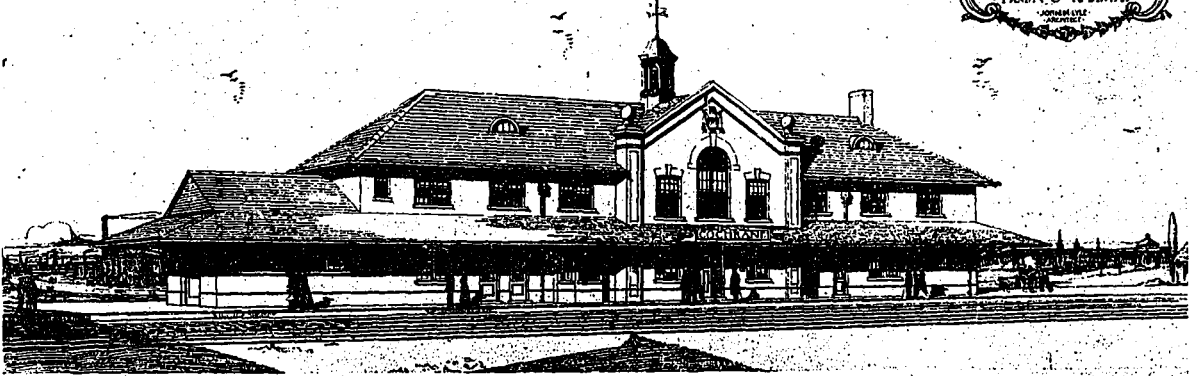


Competitive Design for Proposed Head Office Building, Bank of Toronto, Toronto, by John M. Lyle, Toronto.

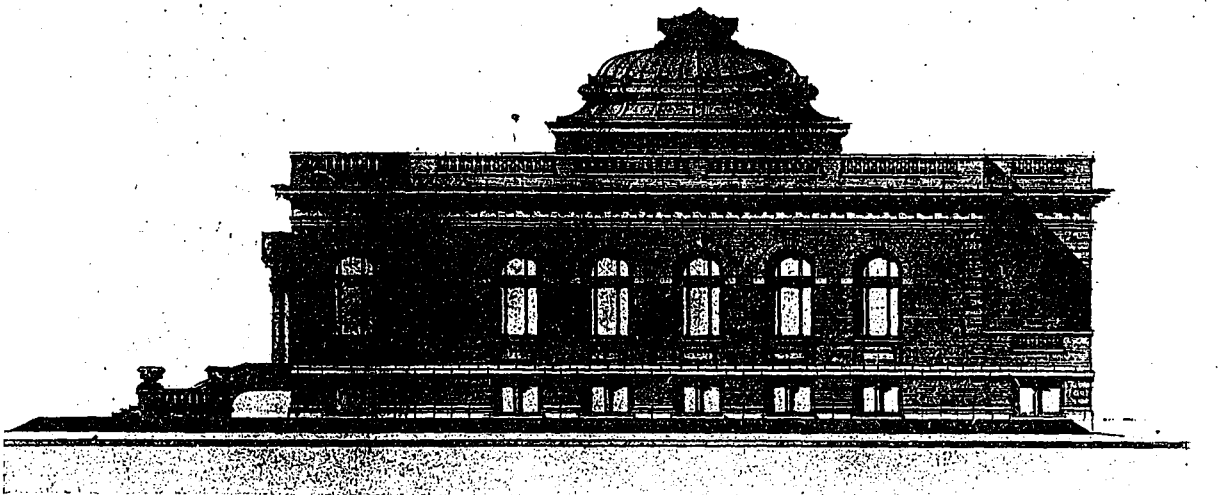
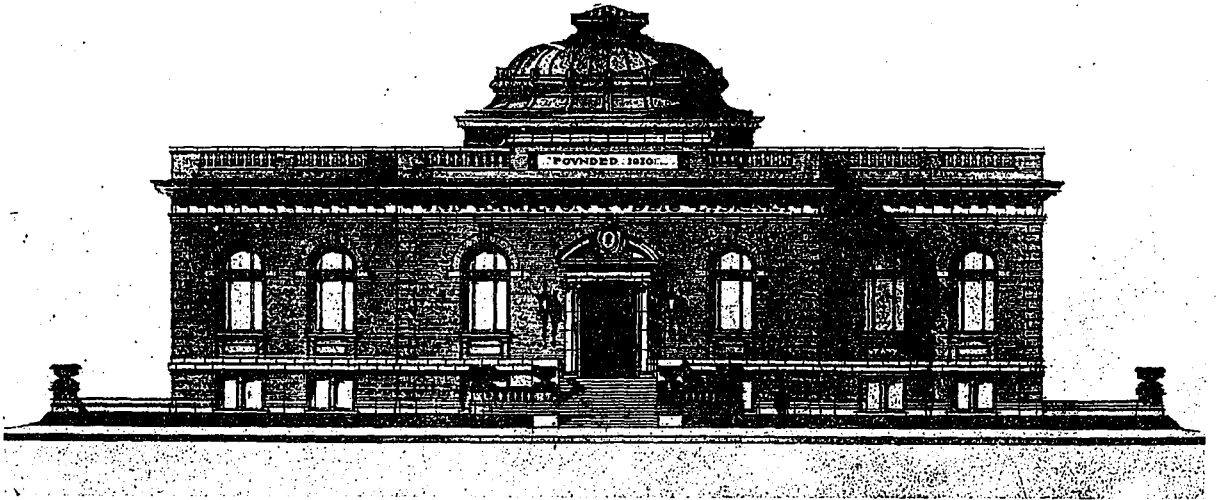
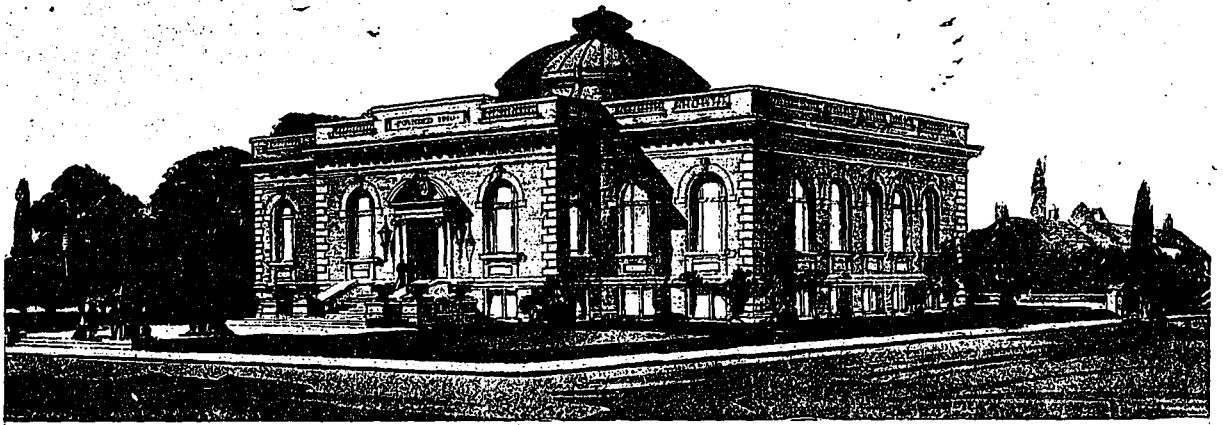


Side Elevation, Competitive Design, Proposed Head Office Building, Bank of Toronto, by John M. Lyle.

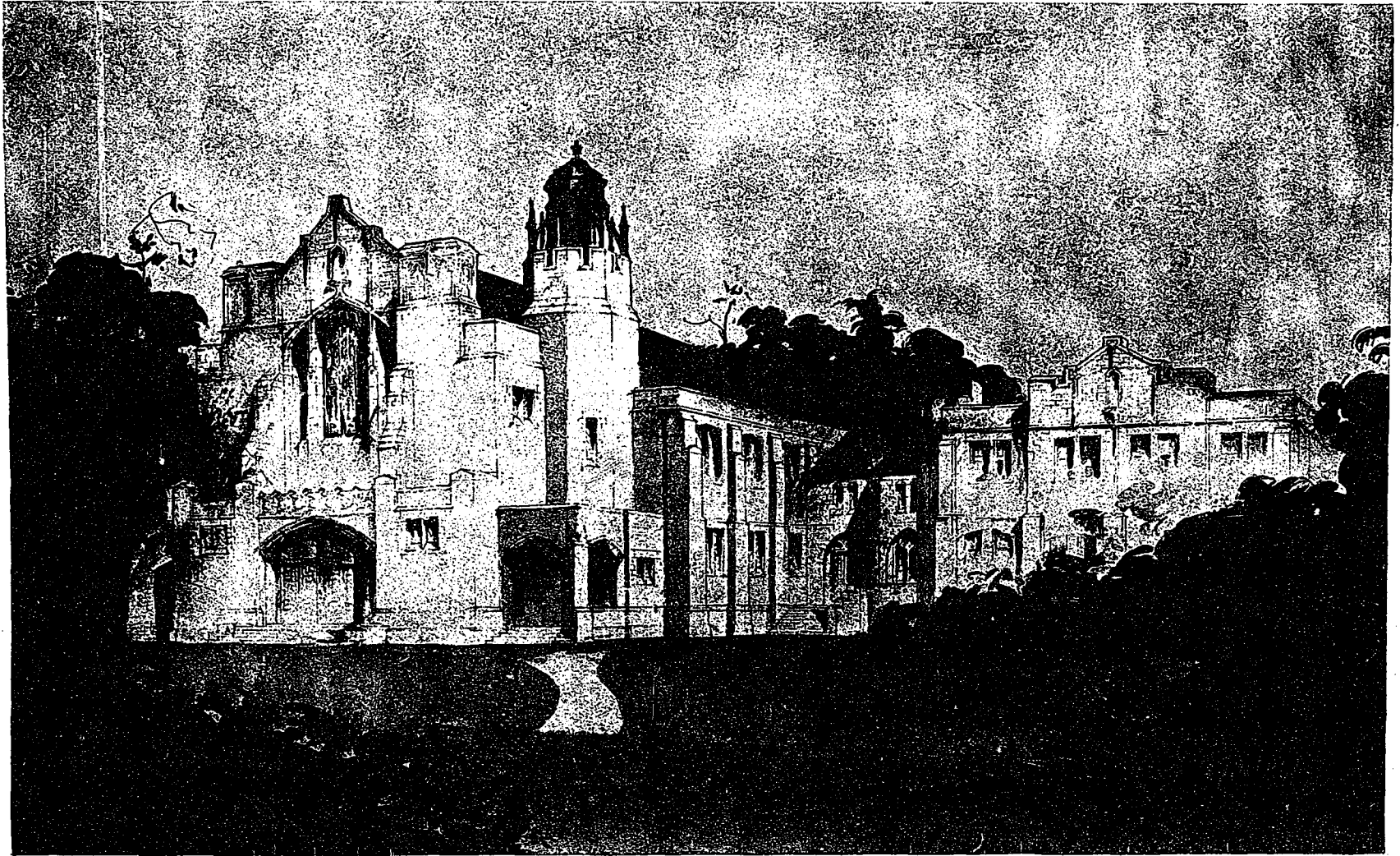
NEW UNION STATION AT
COCHRANE
 FOR THE
 T. AND N. O. RAILWAY
 JOHN M. LYLE
 ARCHT.



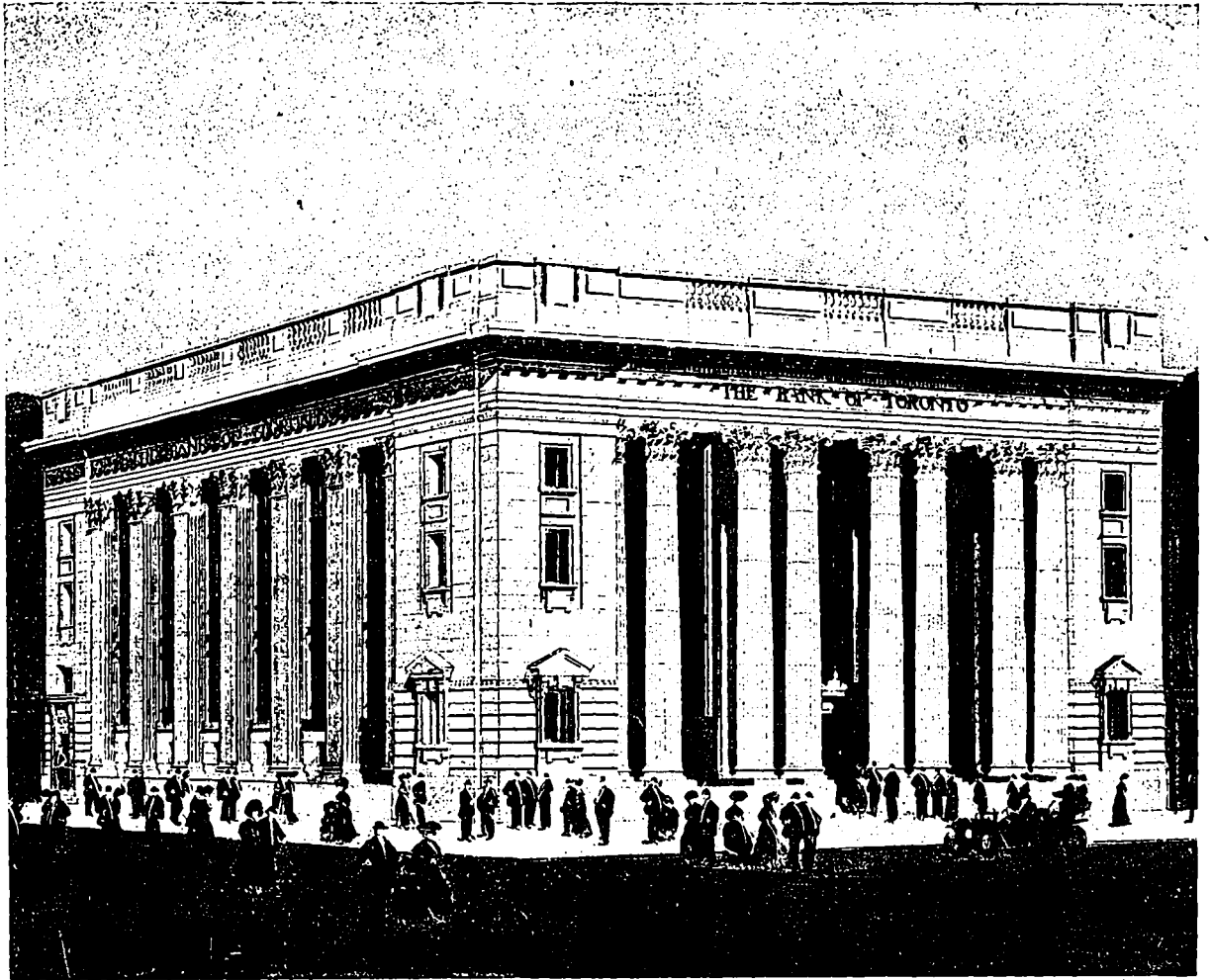
Design for Union Station at Cochrane, Ont., by John M. Lyle, Toronto. Design for Residence, by the Same Author. Design for Residence, by Geo. W. Gouinlock, Toronto.



Design for Proposed Hamilton Library, by John M. Lyle, Toronto.

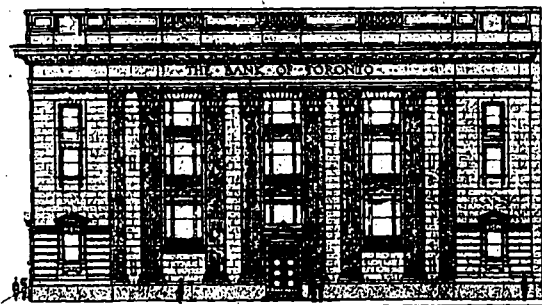


Study in Ecclesiastical Design, by Messrs. Wickson & Gregg, Toronto.

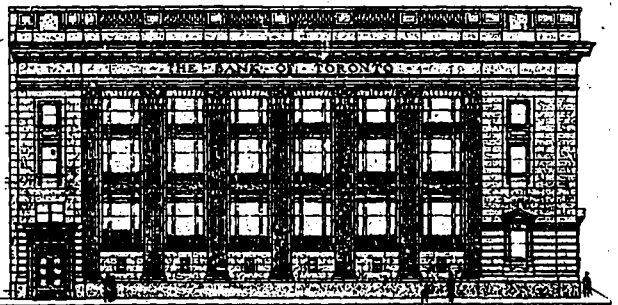


PROPOSED HEAD OFFICE FOR THE BANK OF TORONTO

SPROATT & ROLPH ARCHITECTS TORONTO
SCALE 1/8 INCH = 1 FOOT

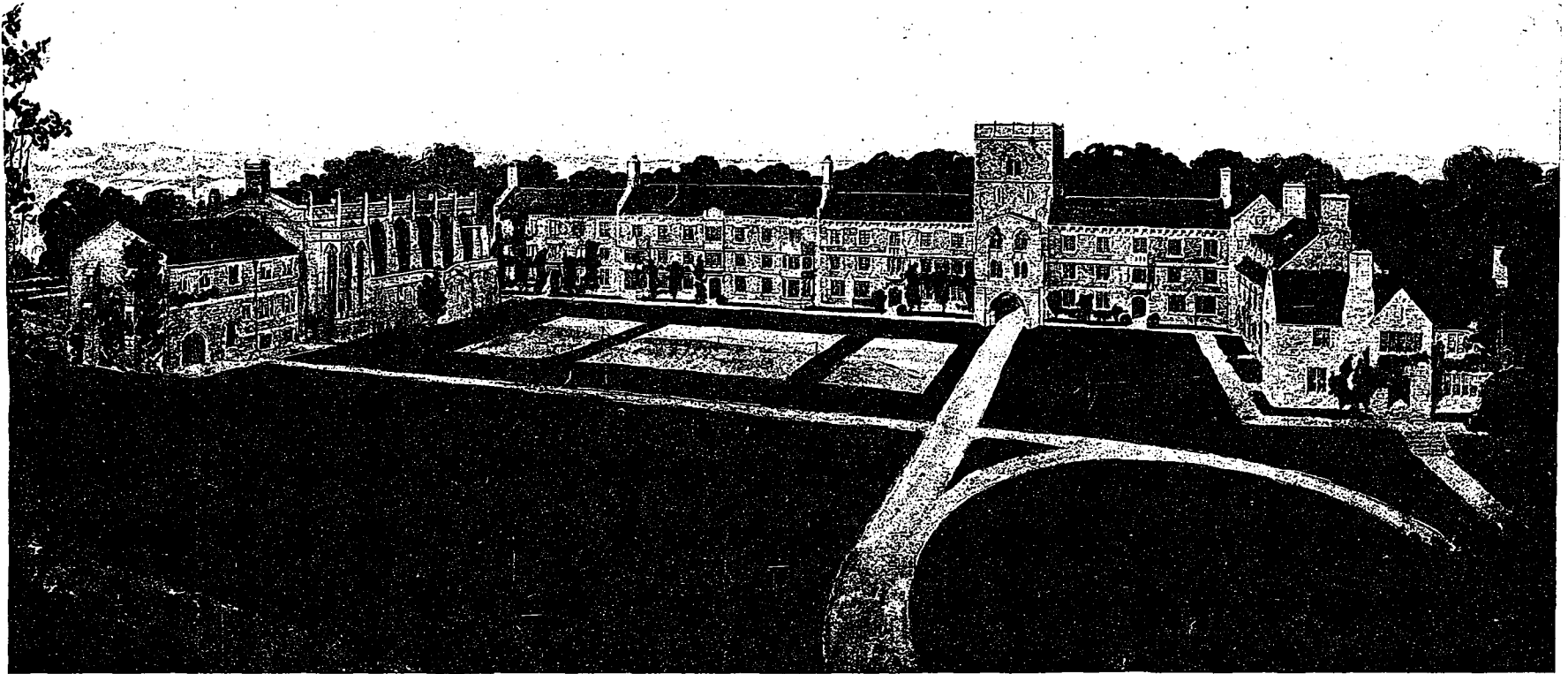


-KING-STREET-ELEVATION-

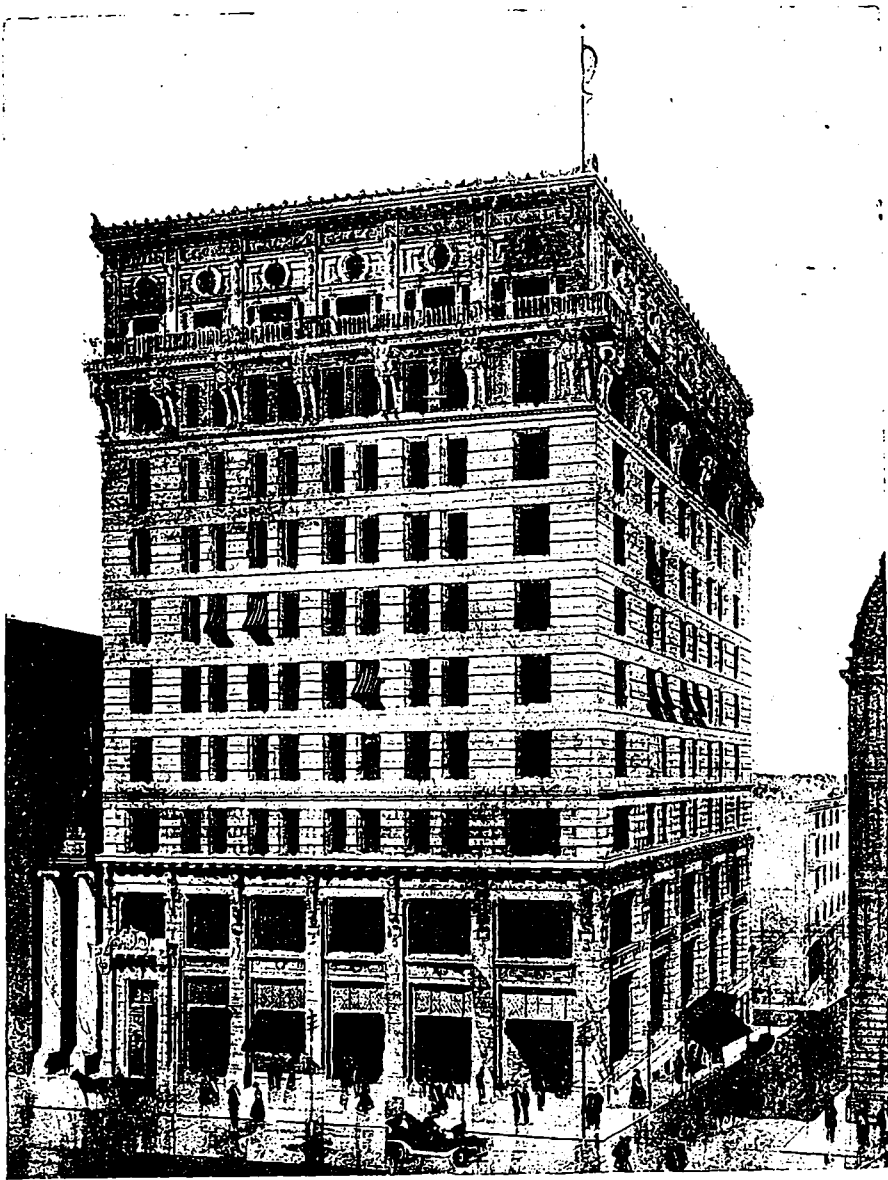


-BAY-STREET-ELEVATION-

Competitive Design for the Proposed Head Office for the Bank of Toronto, by Sproatt & Rolph, Toronto.

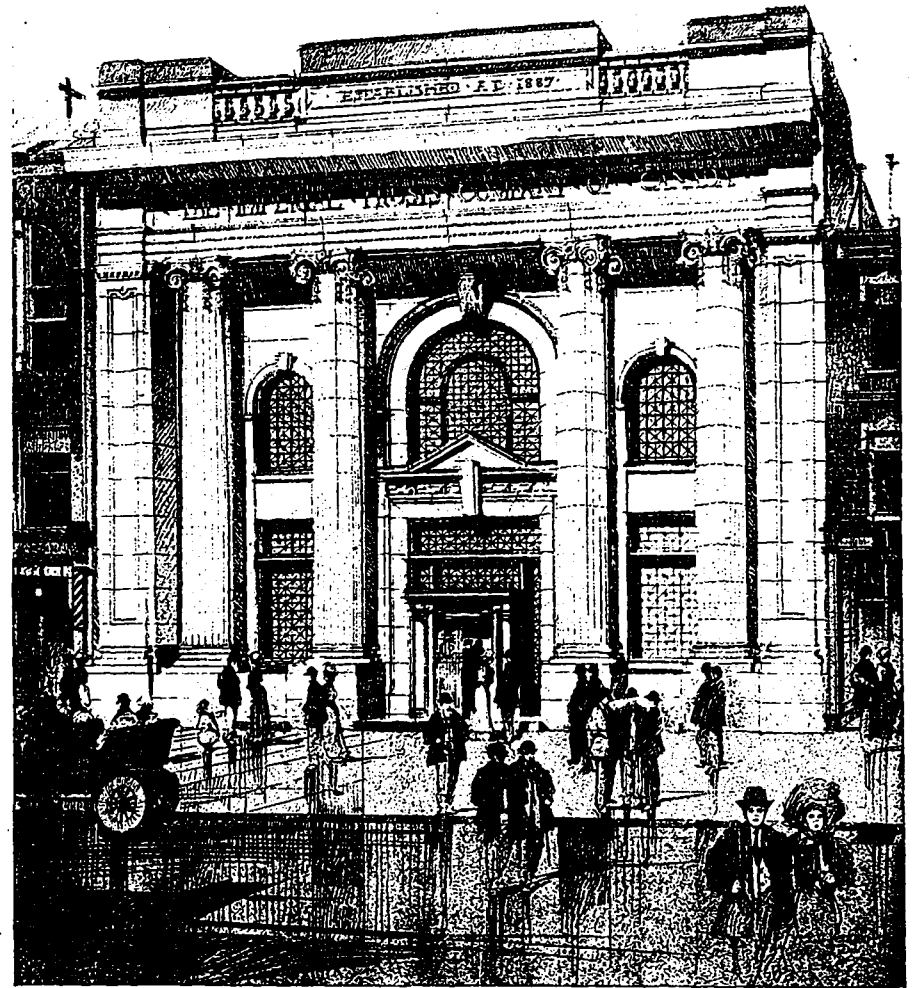


Design for Victoria College and Library, by Messrs. Sproatt & Rolph, Toronto.

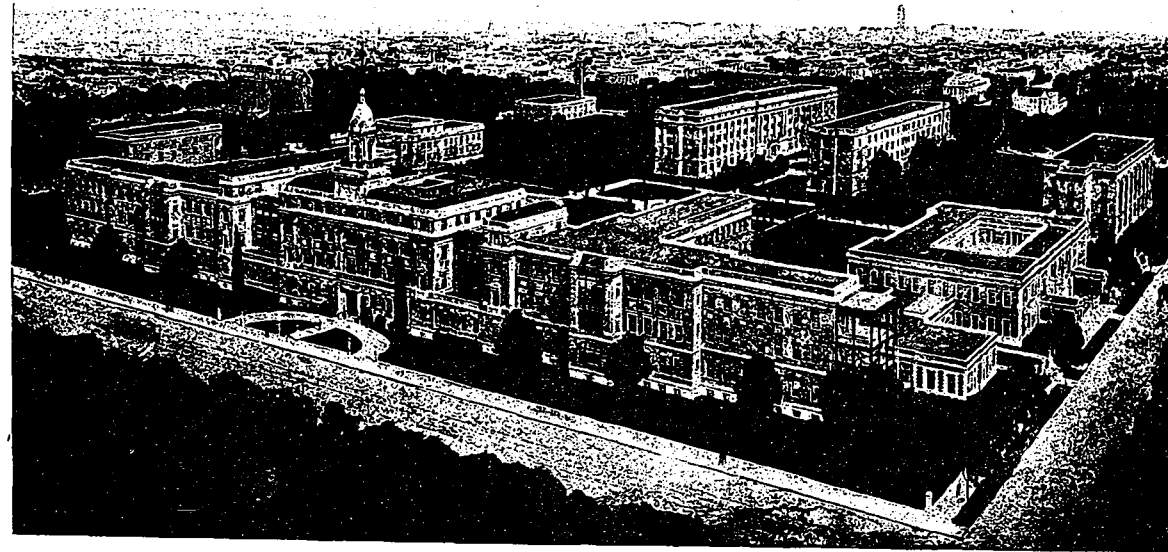


Competitive Design for Dominion Express Co.'s Building, Montreal, by Messrs. Burke, Horwood & White, Toronto.

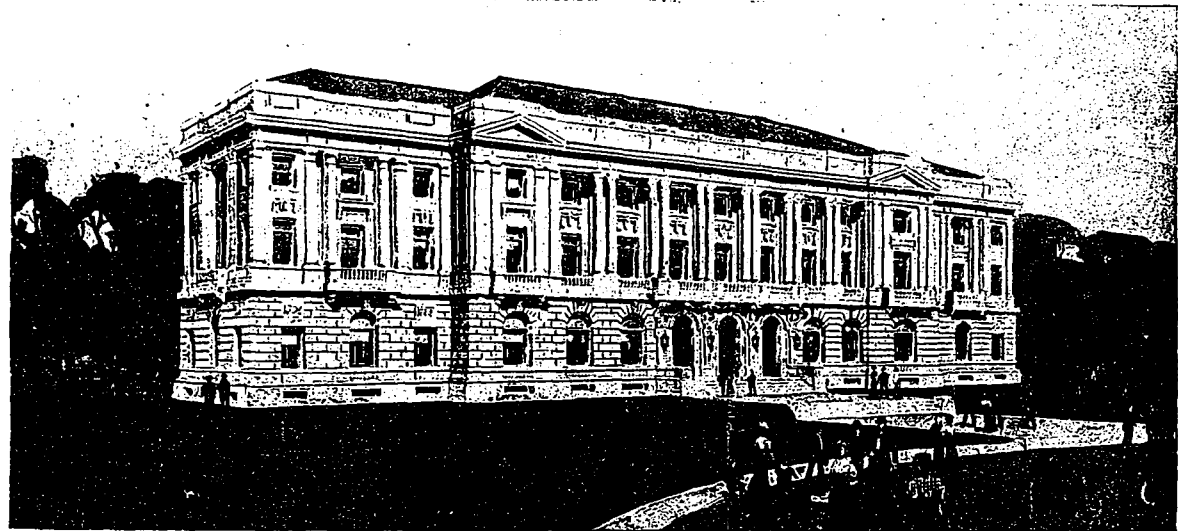
CONSTRUCTION, SEPTEMBER, 1910.



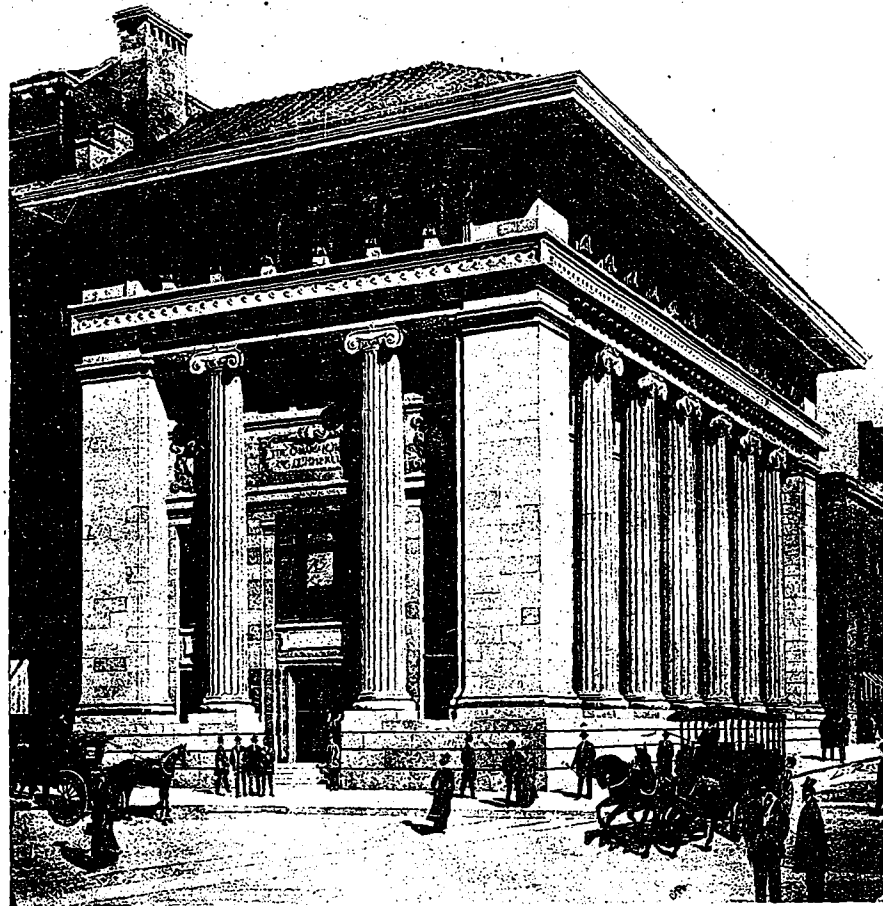
Design for the Imperial Trust Co.'s Building on Richmond St., Toronto, by Messrs. Chadwick & Beckett, Toronto.



Birdseye View Perspective of the Proposed Toronto General Hospital. Darling & Pearson, Architects, Toronto.



Design for an Academy of Music, by Murray A. White, of the Firm of Burke, Horwood & White, Toronto.

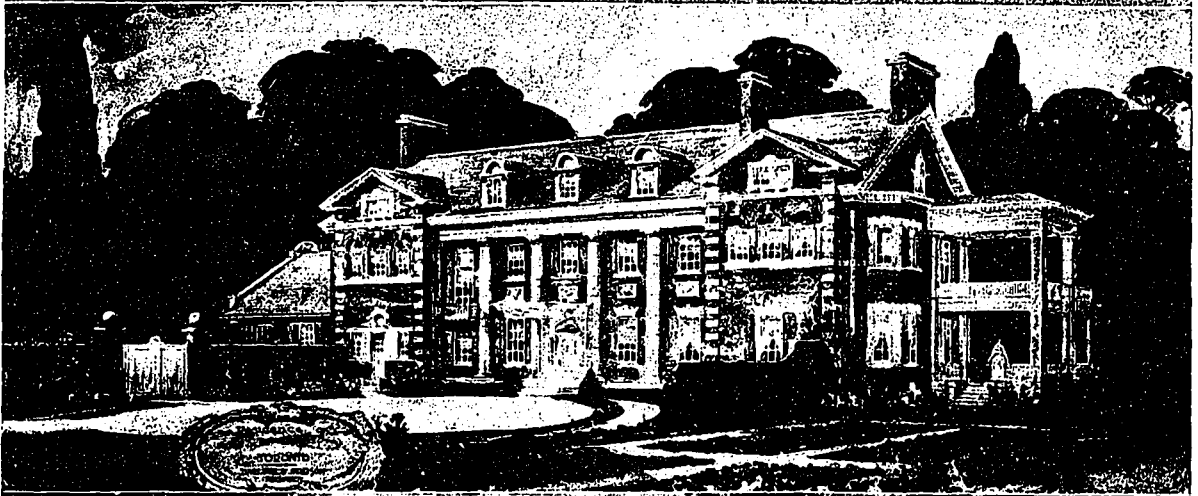
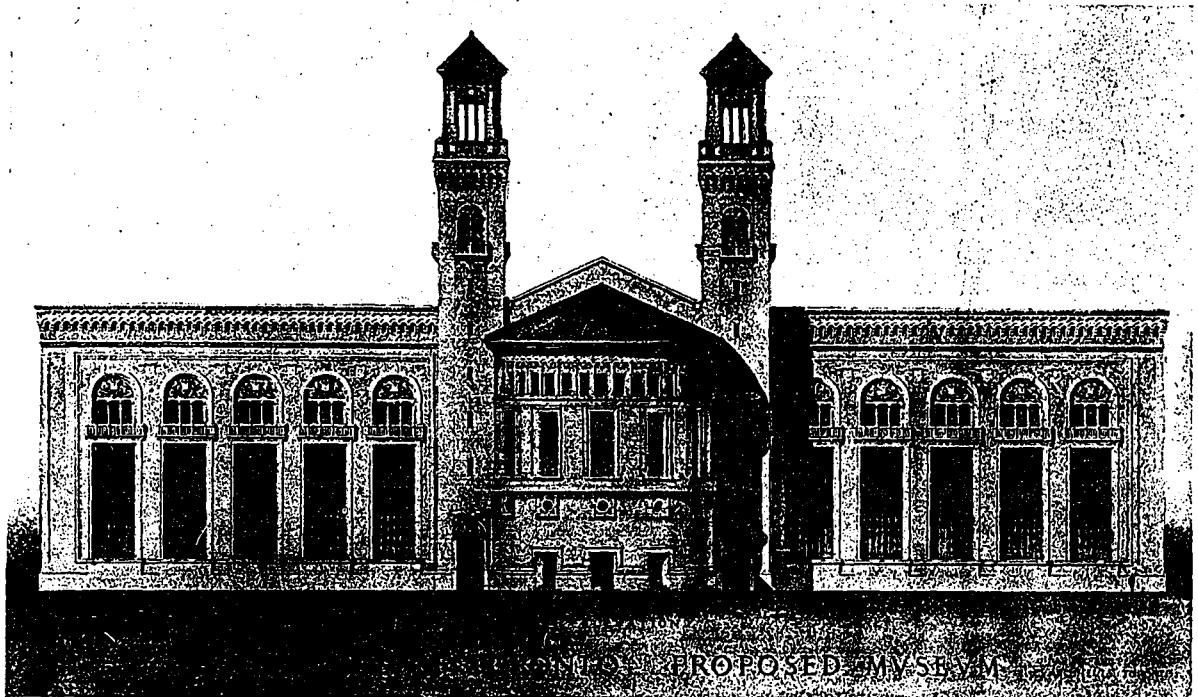


Design for Proposed Building for the Canadian Bank of Commerce, by Darling & Pearson, Toronto.

CONSTRUCTION, SEPTEMBER, 1910.



Design for Standard Bank Building, King St., Toronto, by Messrs. Darling and Pearson, Toronto.

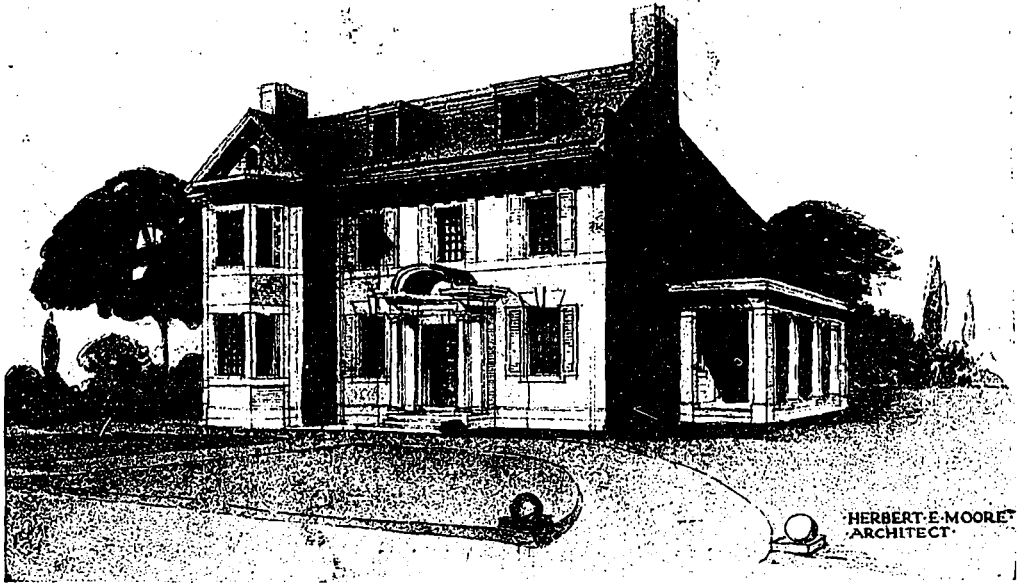


Design for Proposed Museum, University of Toronto, Together with Design for Residence, by Messrs. Darling & Pearson, Toronto.



Designs by R. J. Edwards & Saunders, Toronto, Including Elevation for Masonic Hall on College Street, Toronto.

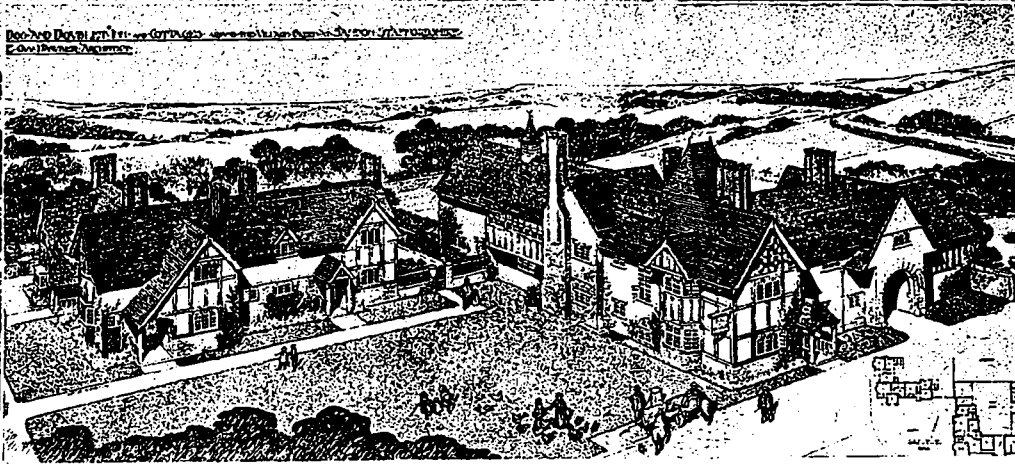
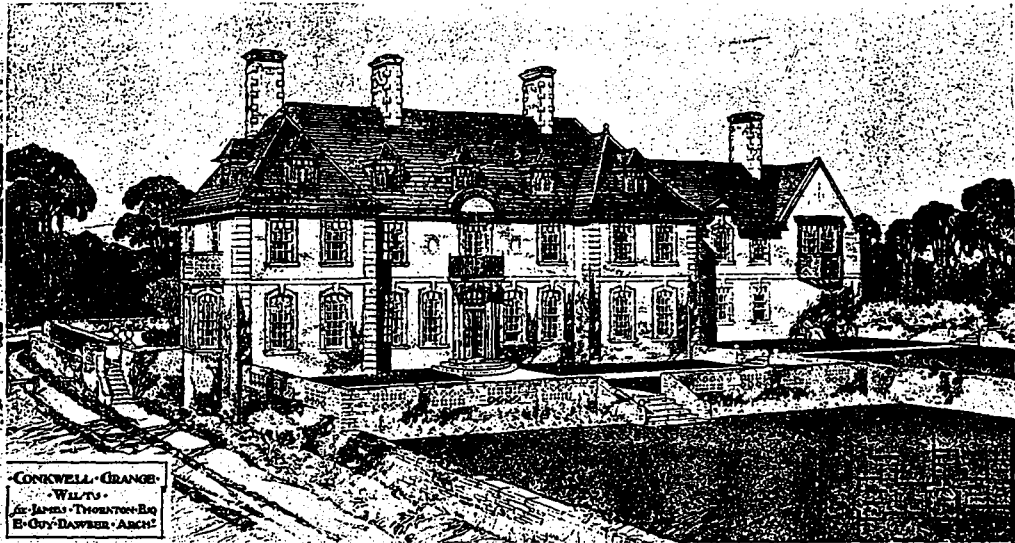
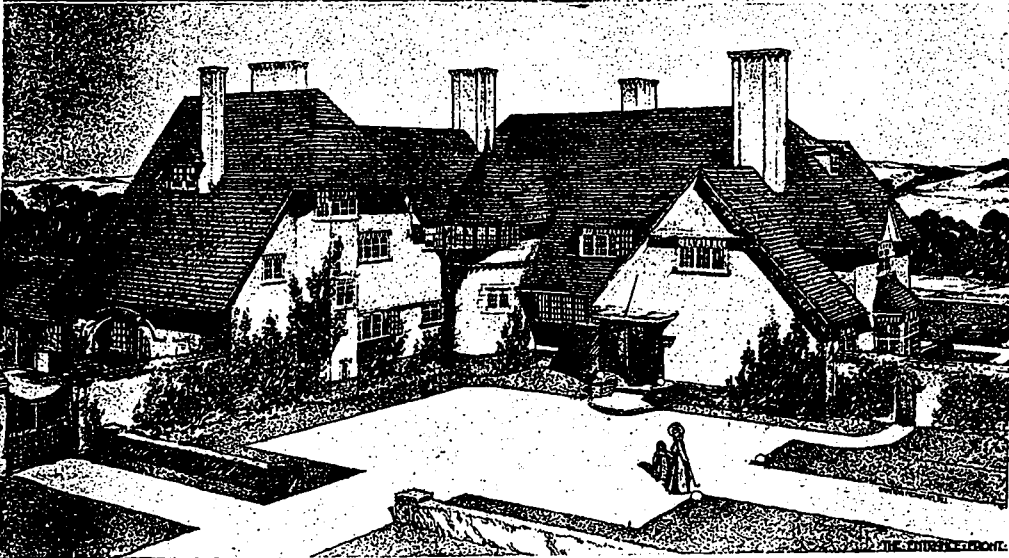
THE PRESBYTERY OF
OUR LADY OF LOURDES



Design for the Presbytery of Our Lady of Lourdes, by Herbert E. Moore, Toronto.



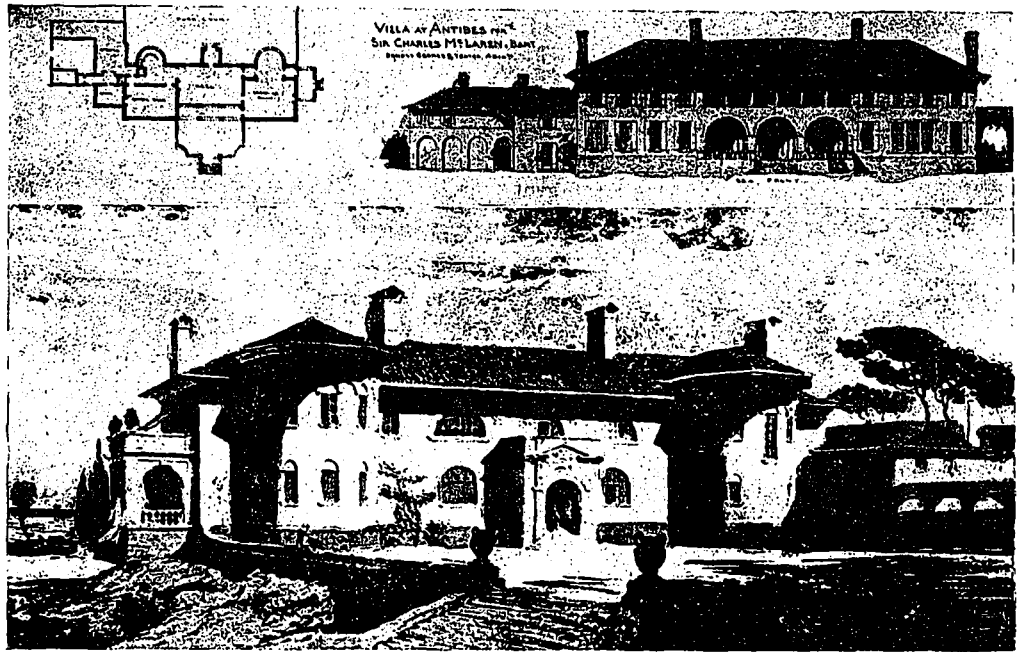
Design for St. Barnabas' Anglican Church, Toronto, by Andrew Sharp.



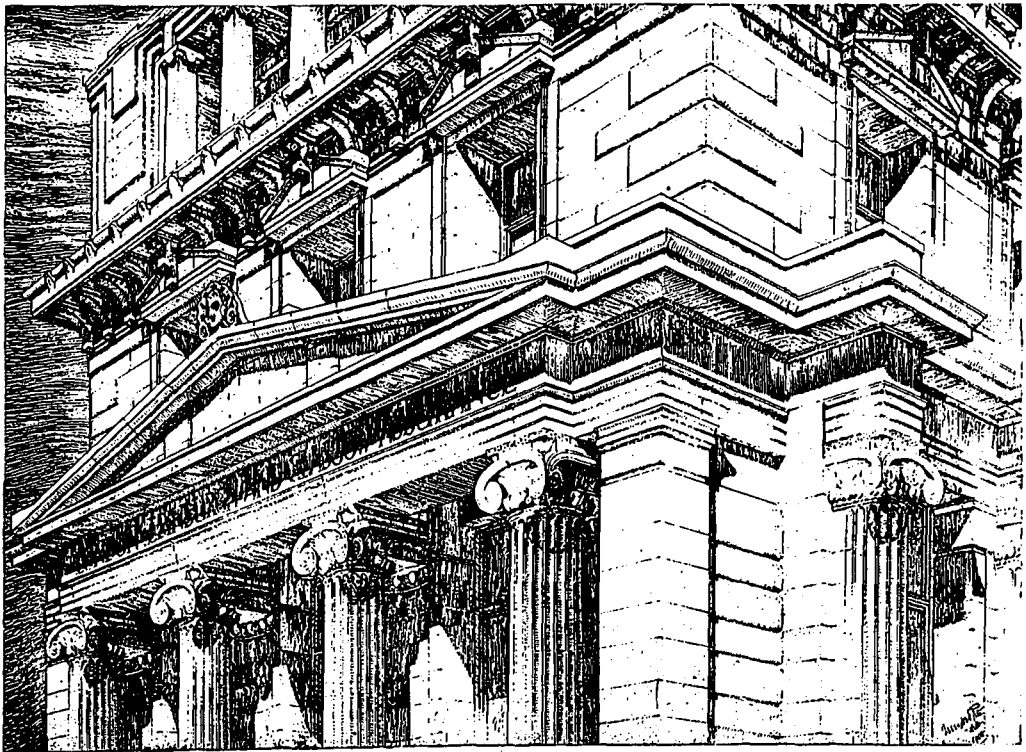
CONKWELL GRANGE
- WILTS -
BY JAMES THORNTON ESQ
E. GUY DAWBER ARCHT

DOG AND DOUBLET INN AND COTTAGES ROUND THE VILLAGE GREEN AT SANDON, STAFFORDSHIRE, ENGLAND
E. GUY DAWBER ARCHT

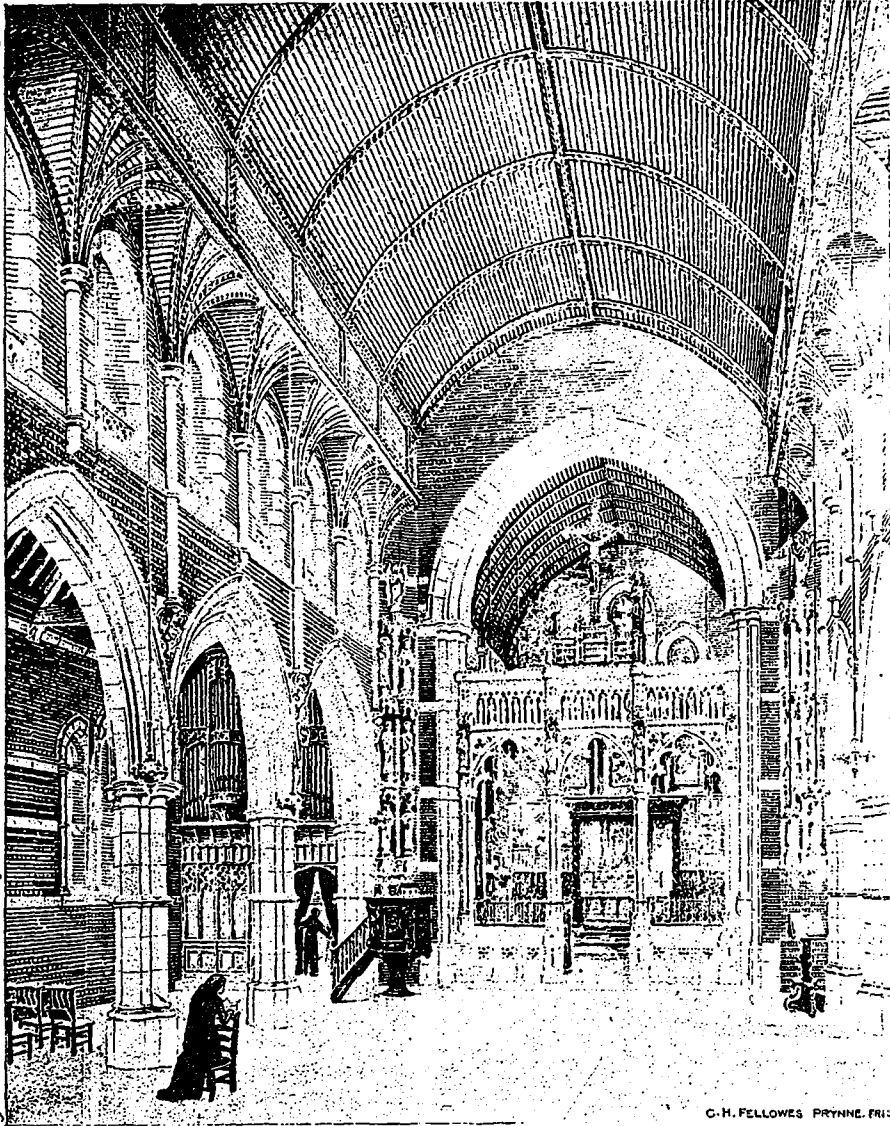
Upper Left Design, Residence at Bibsworth, Worcestershire, Eng.; Lower Left Design, Residence at Park Down, Surrey.; Upper Right Design, Conkwell Grange, Wilts.; Lower Right Design, Dog and Doublet Inn and Cottages Round the Village Green at Sandon, Staffordshire, Eng. All by E. Guy Dawber.



Design for Villa at Antibes, Eng., by Ernest George & Yeates.



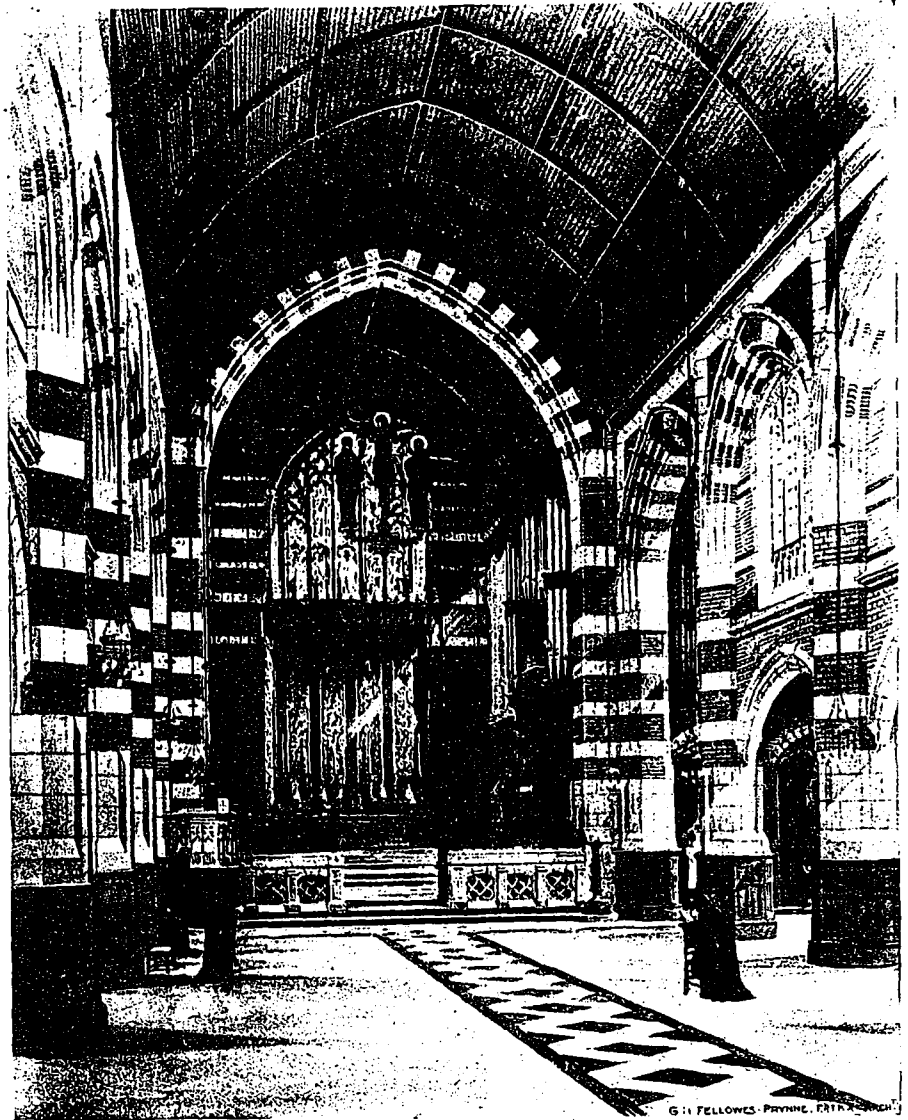
Detail of Pediment Assurance Offices, Euston Square, London, Eng., by Berford Pitt.



G. H. FELLOWES PRYNNE, ARCHT.

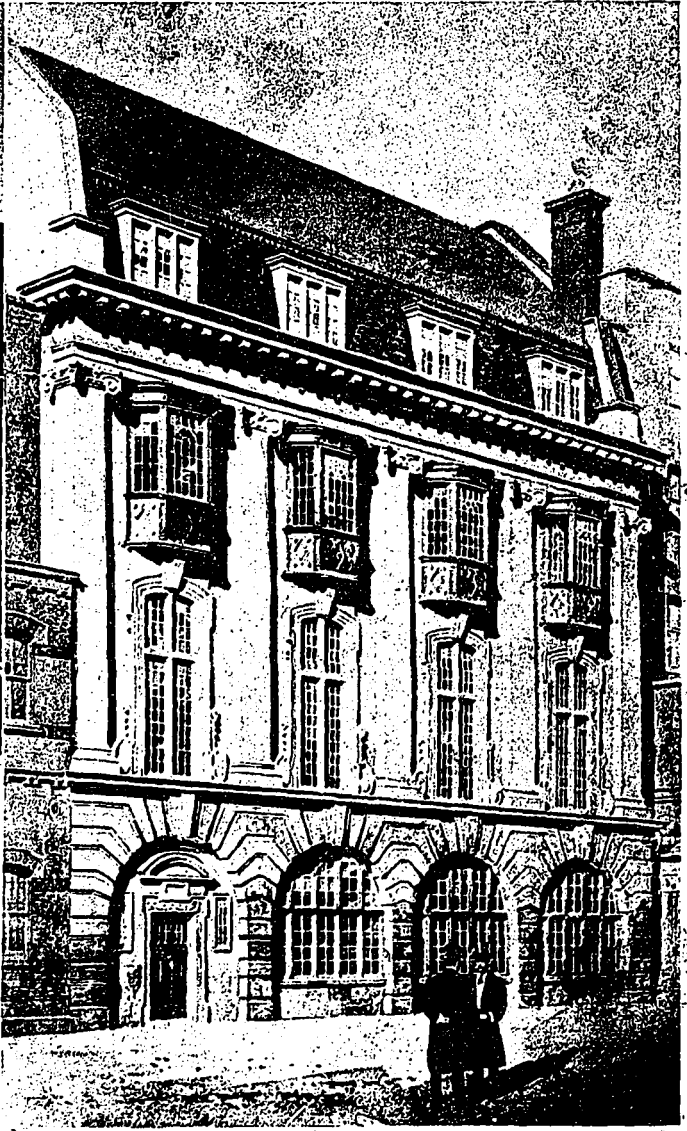
Design for Interior of Saint Willfred's Church, Bognor, Sussex, Eng., by George H. Fellowes Prynne.

CONSTRUCTION, SEPTEMBER, 1910.

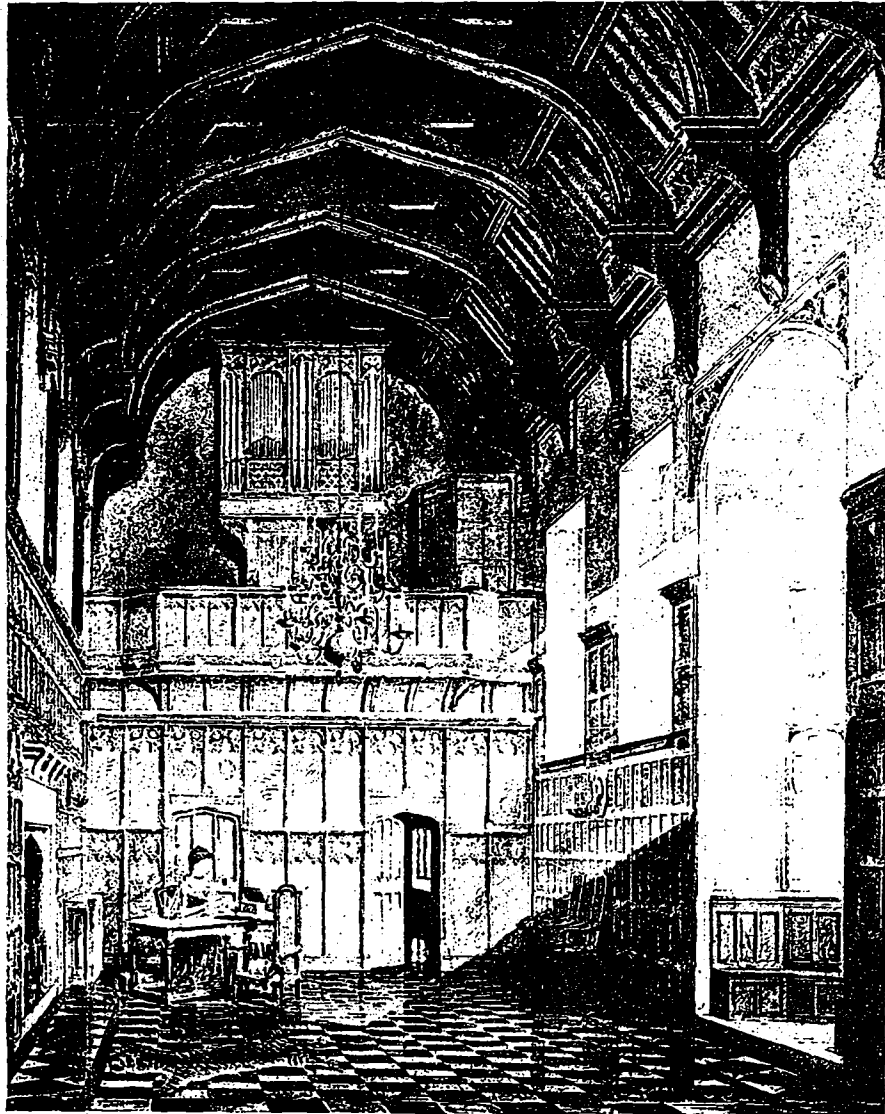


G. H. FELLOWES PRYNNE, ARCHT.

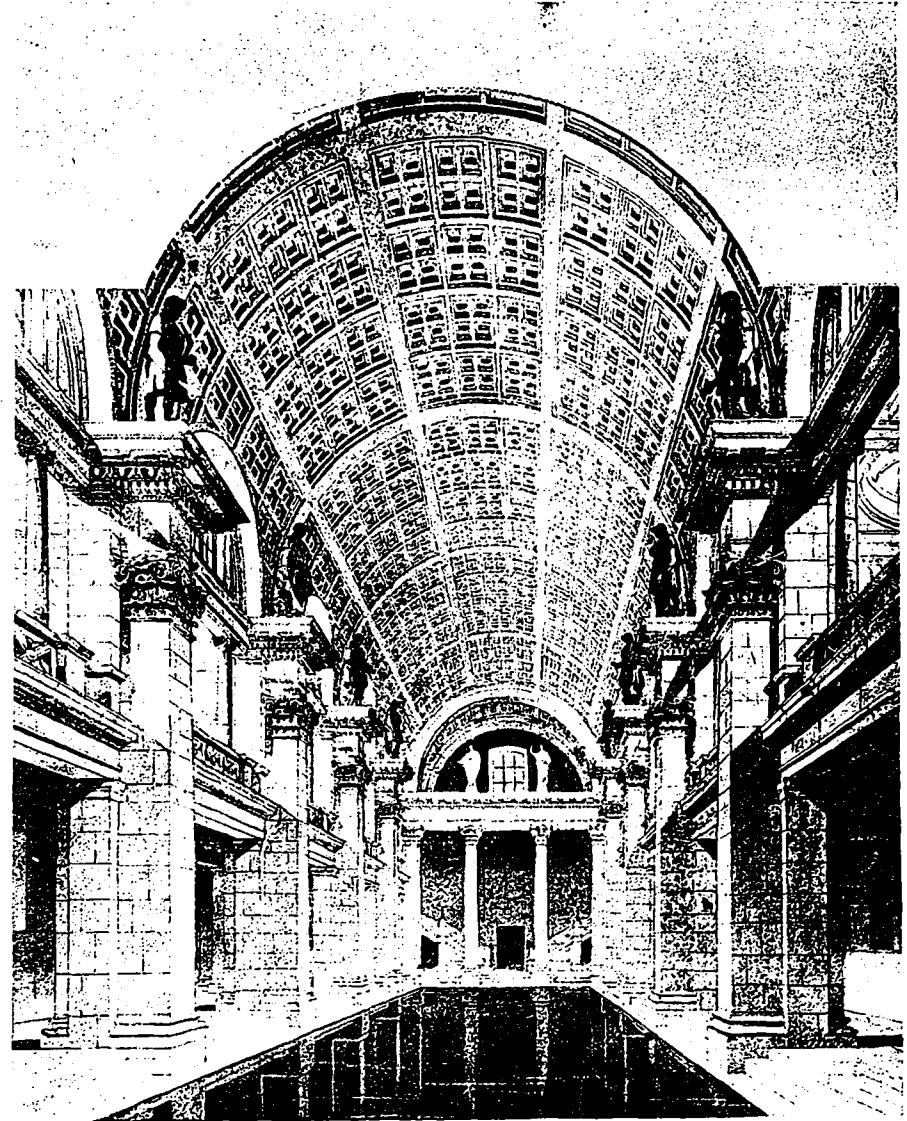
Interior St. John's Church, Sidcup, Kent, Eng., Designed by G. H. Fellowes Prynne.



Upper Design, Garden Front and Interior for English Residence, by Halsey Ricardo; Lower Left Design, Hatfield Herts, Four Acre, Winfield Hants, Eng., by Ernest Newton; Lower Right Design, Proposed Offices, Guild Hall, London, Eng., by Sydney Perks.



Design for Interior of Hall at Hengrave, Suffolk, Eng., by Walter J. Tapper.



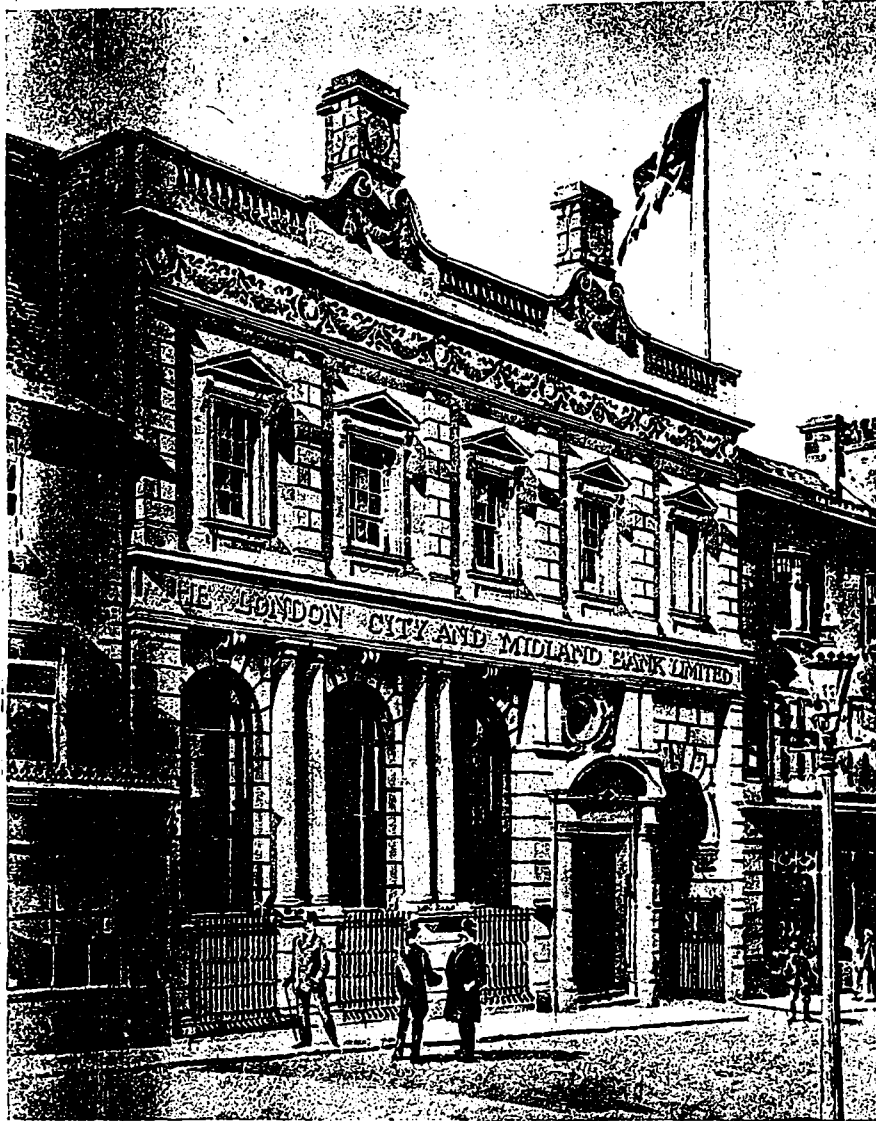
Design for Covering in the Great Roman Bath at Bath, Somerset, Eng., by Frank W. Baggally



Front Elevation, Ardenrun Place, Blindley Heath, Surrey, Eng. Designed by Ernest Newton.



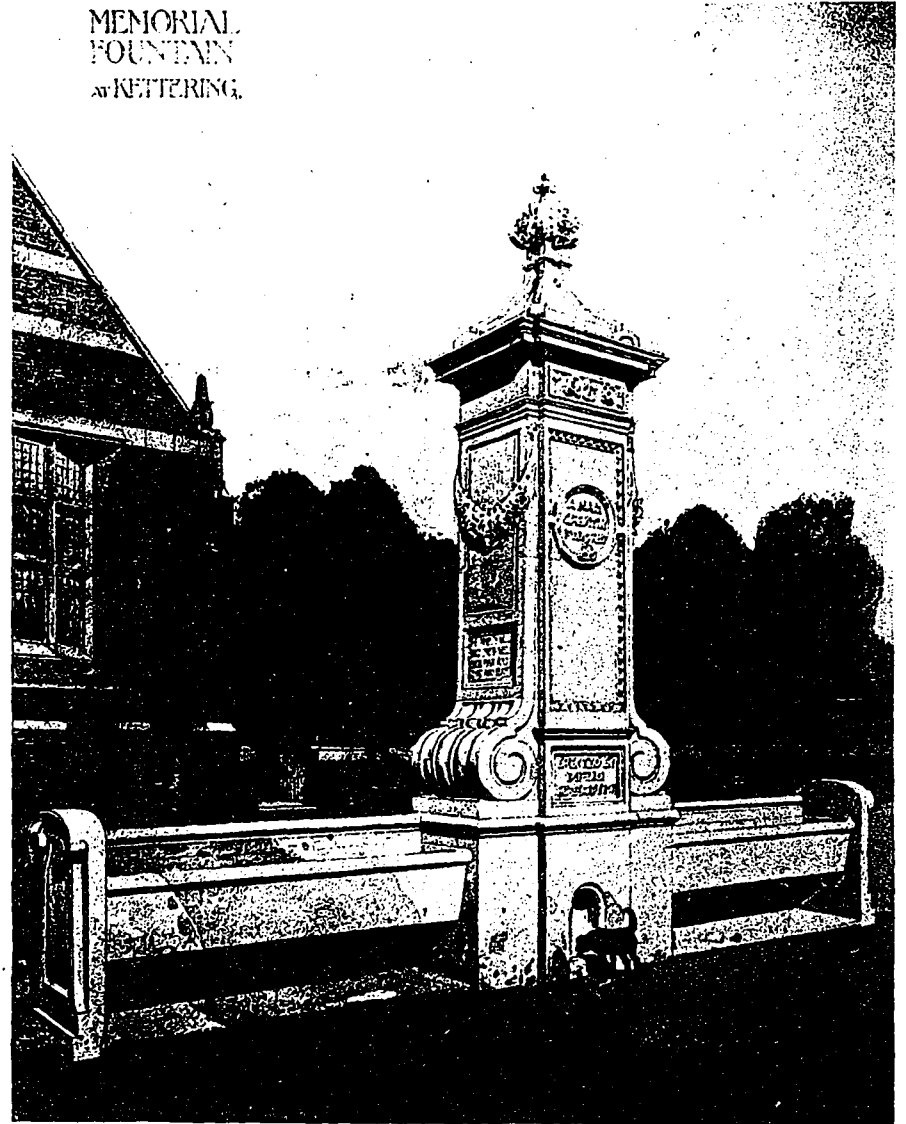
Rear Elevation, Ardenrun Place, Blindley Heath, Surrey, Eng. Designed by Ernest Newton.



Design of New Premises of the London and Midland Bank, Limited, Eng. Messrs. Gotch and Saunders, Architects.

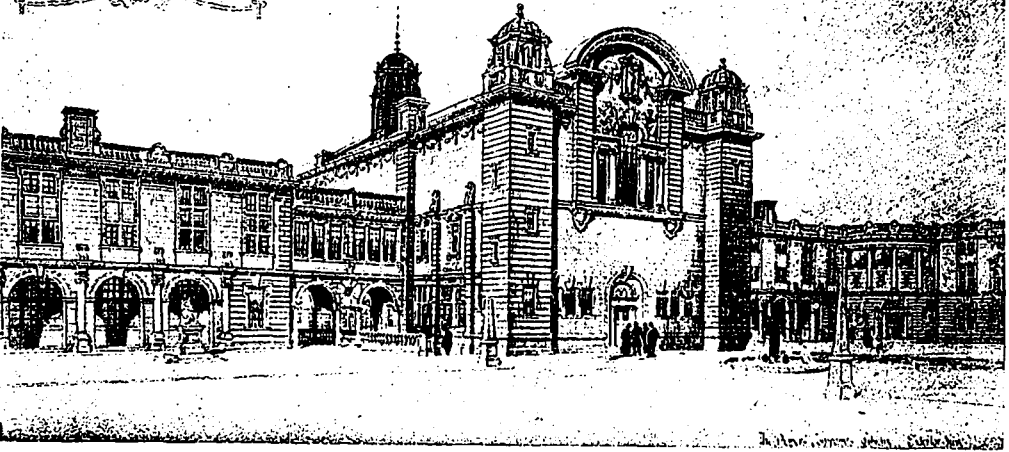
CONSTRUCTION, SEPTEMBER, 1910.

MEMORIAL
FOUNTAIN
AT KETTERING.



Design for Memorial Fountain at Kettering, Eng., by Messrs. Gotch & Saunders.

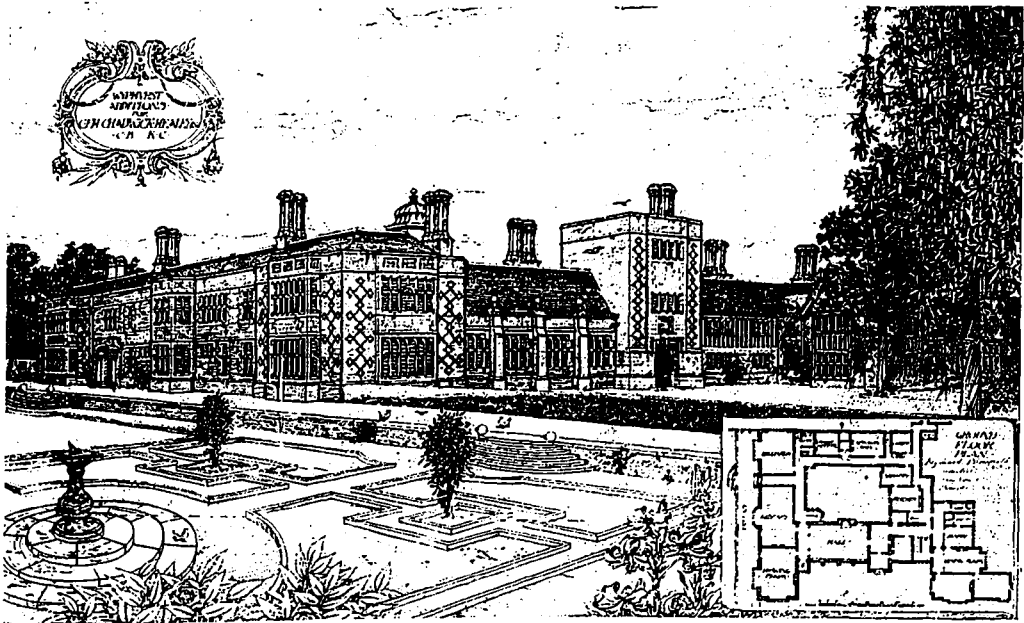
THE LIBRARY - UNIVERSITY COLLEGE
 OF SOUTH WALES & MONMOUTHSHIRE
 CARDIFF - W. D. CAROE - ARCHTCT



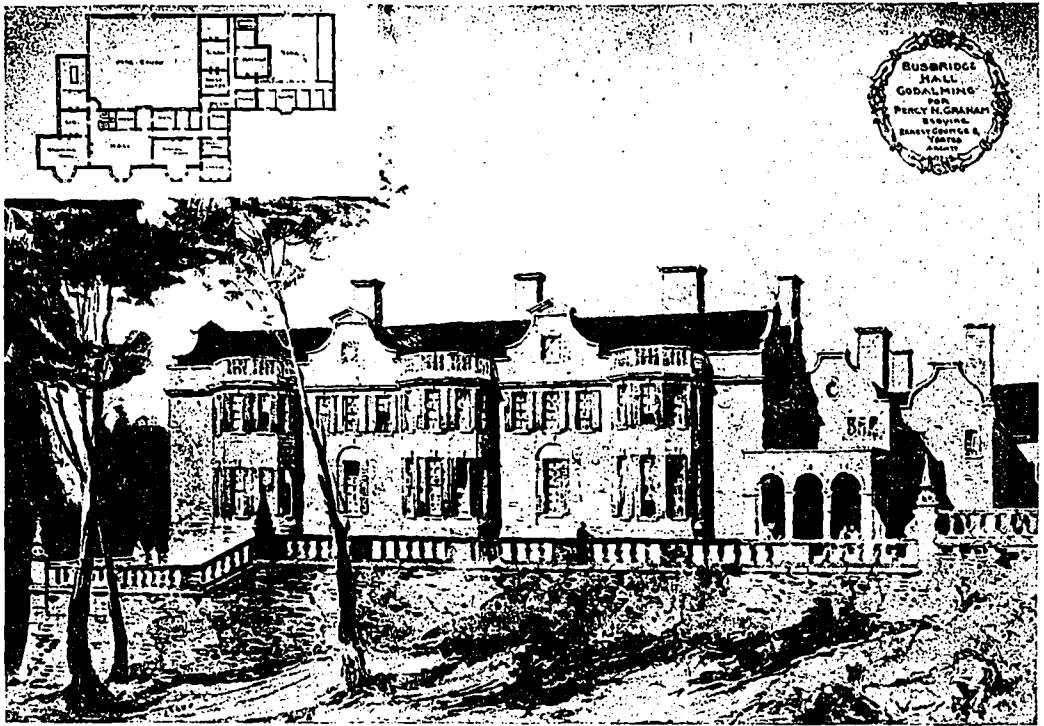
Design for Library, University College of South Wales, Monmouthshire, Cardiff. W. D. Caroe, Architect.



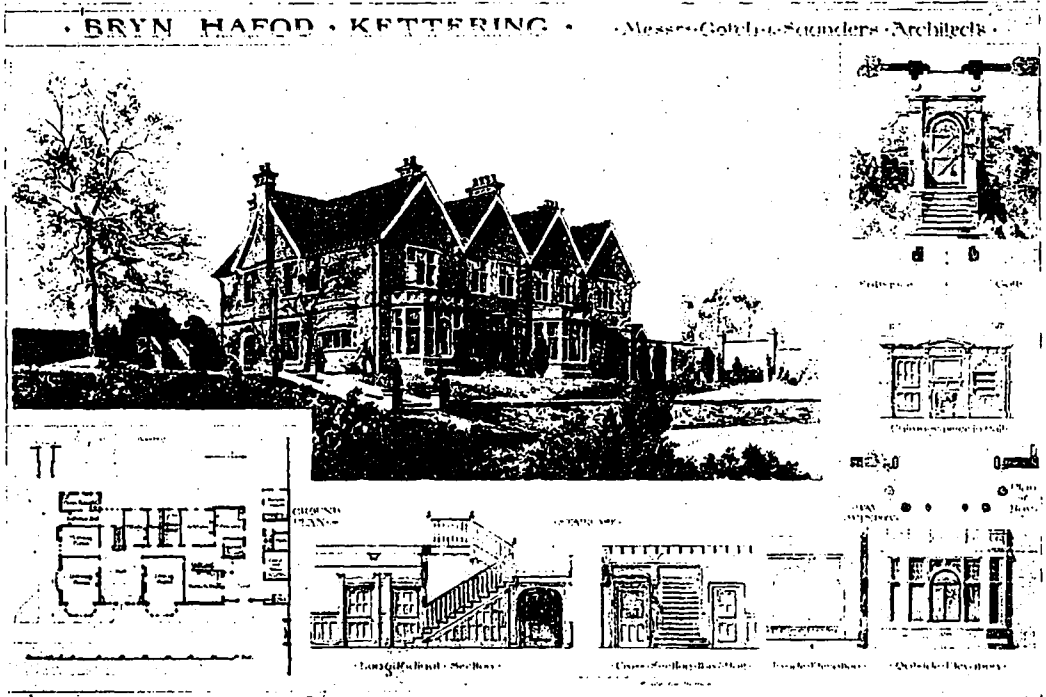
Design for Proposed Residence at Hampshire, Eng., by Sydney Perks.



Design for Wyphurst Additions at Cranleigh, Eng., by Reginald Blomfield.



Design for Busbridge Hall, Godalming, Eng., by Ernest George & Yeates.



Designed for Bryn Hafod, Kettering. Messrs. Gotch & Saunders, Architects.

CONSTRUCTION

A JOURNAL FOR THE ARCHITECTURAL
ENGINEERING AND CONTRACTING
INTERESTS OF CANADA



Ivan S. Macdonald, Editor and Manager

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ADVERTISEMENTS—Changes of, or new advertisements must reach the Head Office not later than the fifth of the month preceding publication, to ensure insertion. Advertising rates on application.

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

Vol. 3 Toronto, September, 1910 No. 10

CURRENT TOPICS

BRISTOL HAS THE OLDEST SHOT TOWER in the world, which was erected by William Watts, plumber, in 1769, and is 120 feet high. It was "built" by sawing a square hole in the centre of the various floors of his house, and locating the well in the cellar. This tower is still in use, although it has been heightened by the addition of some stories. Watts secured a patent on December 2, 1782, and sold his London rights in 1800 for £10,000.

* * *

THE RESTORATION OF THE PALACE OF THE POPES at Avignon is steadily proceeding, and numerous interesting archaeological discoveries are being made. The apartment called the "Salle des Audiences" is now completely restored, and in the chapel the stained glass which was destroyed during the occupation of the building as a barracks has been replaced according to its original design. The municipality of Avignon are occupied with the restoration of the ancient battlements extending along the bank of the Rhone, between Porte Saint-Dominique and Porte de l'Oulle.

* * *

IN THE COMPLETION of the new City Hall, Trinidad, Colorado has just come into the realization of a dream of twenty-two years. The foundation of the building was laid in 1888, but nothing further was done until a few years ago when the work was resumed. The cause of the intervening lapse of inactivity was due to omissions and imperfections in the original plans, such as the failure to include a heating plant, or to provide a chimney of any kind for the building. The "statue quo" and troubles in connection with Calgary's new municipal building, sink into insignificance when Trinidad's experience is considered.

IN THE COURSE OF EXCAVATIONS being carried out on the prehistoric and Roman settlement at La Croix St. Charles, on the Mont-Auxois (Cote d'Or), the remains of four temples were discovered during 1909. The largest is octagonal, each side measuring about 25 feet 6 inches; another rectangular temple possesses a stone tank. These buildings are considered to date from the reign of Trajan or Hadrian, and to have been destroyed at the end of the fourteenth century, but they replaced older sanctuaries. The wooden pipes of the water supply, placed end to end and connected together by iron rings, have been found *in situ*.

* * *

CIVIC ADVANTAGES in the way of sanitation, cheap power, and products of utility from heretofore purely waste matter, has been established in the English city of Coventry where a new dust destructor has just been completed near the towns electrical works. In this undertaking Coventry displays an administrative ability, and an economic wisdom that can be profitably studied by a large number of Canadian municipalities. The plant is equipped with two furnaces designed to destroy 80 tons of refuse a day, and it is calculated it can deliver 197,000 pounds of steam to the electrical works. The clinker is to be made into paving slabs. The slab-making plant has a 500-ton hydraulic press and pumps and a hydraulic accumulator driven by a 50-horsepower horizontal engine. The total cost of the destructor was \$105,000.

* * *

THE WORK OF RECONSTRUCTION in Valparaiso, Chili, is progressing very rapidly, according to a report of U.S. Vice-Consul Charles F. Baker. The central plaza and several streets leading to it are being raised about a meter (39.37 inches), necessitating a vast amount of new installation of all kinds. In the same section of the city there are many new buildings in course of construction, mostly business blocks of two to three stories, and of reinforced concrete work.

There is also a great deal of building going on in Santiago, though not so much of the concrete work, only the larger buildings about the centre of the city. Many of the better buildings are of brick plastered over on the outside with cement, while many of the larger dwelling houses have the "tabique" wall. The upright pieces are 4 by 4 inches, placed 16 inches apart, and filled in between with sun-dried bricks. Then wires, size 14 to 16, are run around this wall inside and out, about 6 inches apart from bottom to top. The wall is then plastered over with mud or cement.

The plans for the work of the rebuilding of Valdivia will soon be completed, but until that time nothing but temporary building will be done.

* * *

THE SECRET OF SUCCESS IN CONCRETE WORK, says an eminent authority, lies in the knowledge of what to avoid, and may be briefly summarized as follows: Avoid an unknown cement, cement delivered in unbranded sacks or casks, or one of foreign manufacture. British-made is good enough, and is branded. Avoid lumpy or caked cement. Avoid a quick-setting cement. Avoid accepting the first aggregate to hand; choose the best obtainable for the purpose. Avoid the acceptance of an aggregate on sample; see it in bulk. Avoid the use of a natural aggregate without knowing its history, and insist upon screening and apportioning sand. Avoid muddy water or water of a decided coloring. Avoid slovenly methods of gauging and mixing. Avoid sloppy concrete or semi-dry mixtures. Avoid mixing quantities of concrete which cannot be immediately disposed of. Avoid the use of dead concrete. Avoid frost, and carefully protect finished work. Avoid laving concrete in water. Avoid heavy or long-continued ramming. Avoid earth and rubbish falling upon and mixing with concrete. Avoid weak shuttering or sparse timbering. Avoid the removal of centering, shuttering or timber until the work is hard. Avoid the temptation to generalize in specifying.

IN HIS ANNUAL REPORT, U.S. Consul George Horton, of Saloniki, Turkey, states that the population of that city is steadily increasing, and shops and houses are being erected at the rate of 120 to 150 a year. Most of the building material comes from European countries. The United States supplies a little hardware, but has lost the trade in nails, in which it formerly led. A good business could be done in American pitch pine, oak, and other kinds of wood for furniture manufacturing, and for floors, windows, and doors, if some reliable importer there could get into touch with a firm willing to co-operate. A small amount is now brought from Smyrna, but the extra commissions, freight, and handling make extensive business impracticable. This should be equally as good a market for Canadian materials.

* * *

CONTINUED ACTIVITY IS NOTED by U.S. Consul John Q. Wood, of Venice, in the exploitation of new hydro-electric plants of North Italy. He cites some examples: Work is progressing rapidly on the 9,000 horsepower works at Ponte della Serra in the Province of Belluno, under the direction of three electrical companies, one of which is the Edison (Italian company), whose central office is located in Milan. The Milani hydro-electrical plant, producing a force of 10,000 horsepower, was inaugurated in November, near the city of Verona. The electrical equipment was supplied by the Westinghouse Company of Havre. Electric car lines are springing up in all parts of this district, enormously stimulated by the cheap electric power. The State frequently subsidizes these companies, as in the case of the line from Belluno to Pieve di Cadore, which will receive \$115 per kilometer (\$0.62 of a mile). Railroad activities are also progressing. The line from Bologna to Verona is nearing completion, much to the regret of the citizens of Padua and Vicenza, for these cities will be cut off from the international line to and from Milan and Bologna, and incidentally Venice will lose many visitors who have been accustomed to stop off at Padua and pay a little visit to Venice before proceeding north or south. A new road from Belluno will penetrate the Dolomites at Lavaredo, and be extended to Toblach, in Austria-Hungary, thus opening up another means of communication with central Europe.

* * *

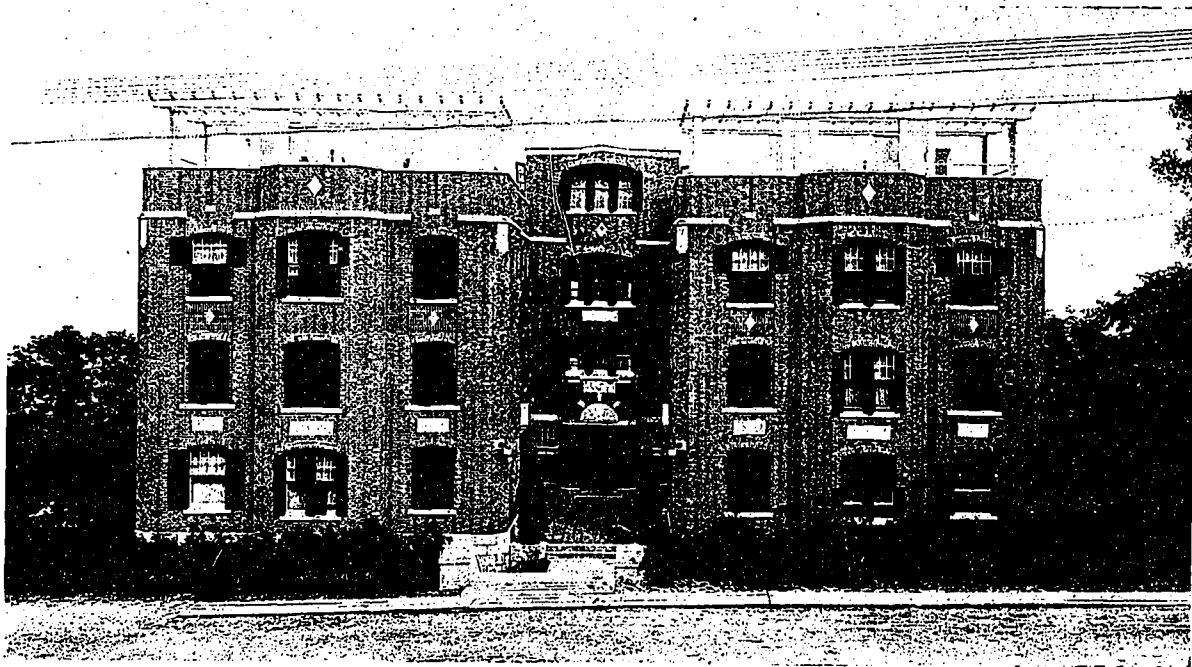
COMMENTING UPON THE PROPOSED alterations and improvements for Buckingham Palace, THE BUILDER says: "Several of our leading daily and weekly papers have rushed eagerly into the fray on the question of re-fronting Buckingham Palace. The evident popularity of the discussion almost persuades one that the public are at last beginning to take an interest in matters architectural—though we fear that the multitude of counsellors will do but little towards arriving at a conclusion. The Sphere puts forward a scheme that is certainly not an improvement on the existing building, though the design of 1824, which is also illustrated, has considerable artistic merit. The Illustrated London News has a series of views of Royal Palaces, among which our own does not come out so badly; indeed, if it were not for the effect of poverty due to its being painted, it may be doubted whether any change is likely to be one for the better. We are rather inclined to agree with the Guardian in the view that, while the Palace is no doubt dingy and uninspiring, little confidence can be felt that, if it were demolished, the artists and architects of the day would be able to guarantee us anything better in its place. It is, at any rate, broad in its massing and scholarly in detail, which is more than can be said of most of the buildings recently erected in London. Probably the existing vogue of over-accentuated verticality and 'original' decoration is a passing one, but while it lasts we should be sorry to see a building that possesses, whatever its faults, the qualities of breadth and repose replaced by one that fails in these respects."

AS THE DURABILITY OF CONCRETE WORK is occasionally called in question, it may be useful to recall that in the south of France the concrete arch bridge known as the Pont du Gard was erected in the year 56 B.C. The concrete in this was not composed of crushed stone or other small aggregate of the variety now employed in concrete bridge work, but was of the old style, consisting of alternate layers of large and small stones, gravel, etc., and of cementitious materials. Vitruvius describes the materials and methods in use before the Christian era, and other writers, like Alberti in 1845, and Palladio in 1570, accurately described the method which the "ancients" (as they call them) employed, "of using boards laid on edge and filling the space between with cement and all sorts of small and large stones mingled together." It is very improbable that the Pont du Gard would have withstood the rigors of a northern climate, but its actual state of preservation, as well as that of many other specimens of ancient concrete work, proves that if modern work is honestly executed it will many times outlast any reasonable bond period, so that a very small yearly sinking fund per cent. is all that is required for properly designed and erected concrete work.

* * *

THE PRECARIOUS CONDITION of the Leaning Tower of Pisa is the cause of much alarm at present and is the subject of world-wide discussion. THE BUILDER, London, in commenting upon the recent signs of failure developed in this famous tower, says: "The Royal Commission appointed to consider the present state of the campanile have reported that their investigations led to the wholly unforeseen and distressing discovery that, instead of being founded upon a massive spacious base, as was generally believed since Grassi, in 1831, and Rohault de Fleury, in 1859, published their collections of plans, the actual foundation simply consists of ring-shaped masonry exactly corresponding in girth to the huge cylindrical mass superimposed thereon. In fact, the inner diameter of the ring foundations is 7 metres 40 centimetres, which is precisely that of the space inside the tower. This discovery, taken together with the further astonishing fact that the foundations are merely 3 metres (9 ft. 9 in.) beneath the surface, constitutes henceforth incontrovertible proof that the campanile was originally built perpendicularly, and that its leaning propensities, which are becoming more and more accentuated, are due to other causes than the intention of its constructors. In 1829 it was 4 metres 388 millimetres out of vertical line, but during the last eighty years the Commission affirms that the tower leans an additional 5.5 millimetres for every metre of its 54 metres in altitude. The reasons given for this dangerous state are principally that the base of the tower has always been immersed in water, and that a deep cistern dug quite near seventy years ago in an unsuccessful attempt to drain the area around the foot of the tower made matters worse. The tower had already been considerably weakened by earlier excavation for a basin for mensuration purposes. Later in 1834 the severest shock of earthquake ever felt at Pisa left the leaning tower some 13 centimetres more out of the straight. It is to be hoped that speedy measures will be taken to place this important example of Romanesque art out of danger."

THE ARCHITECTURAL FIRM of Messrs. Watt, Jacques & Williamson, London and Windsor, have dissolved partnership. Mr. John M. Watt, architect, will take over the head office at London, and Messrs. Jacques and Williamson take over the Windsor branch, under the name of Jacques & Williamson, architects. Mr. John M. Watt will be located at 216 Masonic Temple, London, Ont., and Messrs. Jacques & Williamson will be located in the Jordan and Griffith building, Windsor, Ont.



"Travancore"—A Recently Erected Montreal Apartment House. which Introduces Several Features in Design Quite Uncommon to Dwelling Structures of this Type.



APARTMENT * BUILDING WITH ROOF * PERGOLA AND FORMAL * GARDEN

Located at entrance to Mount Royal Park, Montreal, the "Travancore" presents several new features in apartment house comforts and luxuries.

CANADIANS, generally speaking, have been slow to adopt the apartment house mode of dwelling, and in the comparatively few that have been, up until recently, erected in Montreal, Winnipeg, and Toronto, there are certain evidences which indicate that we have not as yet become as expert in the designing of this type of dwelling as have our American cousins, with whom the apartment house has long been an established fixture. By this we do not wish to imply that our architects are unable to design that which we require in this type of structure, nor do we desire it to be understood that we have not well designed and constructed apartments in some of our larger cities. But the apartment house fever has not as yet taken sufficient hold upon us to force landlords to vie one with the other in offering prospective tenants, conveniences and comforts made possible through plan and equipment peculiar to their own building.

Montreal and Winnipeg, however, seem to have advanced along these lines more than has Toronto, and in these cities there are to be found several recent apartment houses that give evidence of a strong tendency among landlords to spend money for every reasonable equipment that their architect may provide compatible with domestic comfort and convenience.

One of the most recent structures in which this tendency of the owners of modern high-class apartments is demonstrated is the "Travancore" erected in Montreal by A. H. Creed.

Apart from all the usual modern conveniences that

have become an essential adjunct to the high-class apartment building, the "Travancore" is notable for two exceptional features: a pergola on the roof and the spacious formal garden at the rear.

Through the introduction of these additional accommodations, two of the greatest objections to apartment house life has been overcome, viz., lack of access to open air and sunshine, and the absence of a well kept lawn. Few apartment house owners have been successful in overcoming these two important deficiencies of the modern apartment building. The "roof pergola" provides the tenants of the "Travancore," in addition to an unparalleled view of the beautiful surrounding scenery, an ideal lounging place on summer evenings, where they may enjoy the cool mountain air.

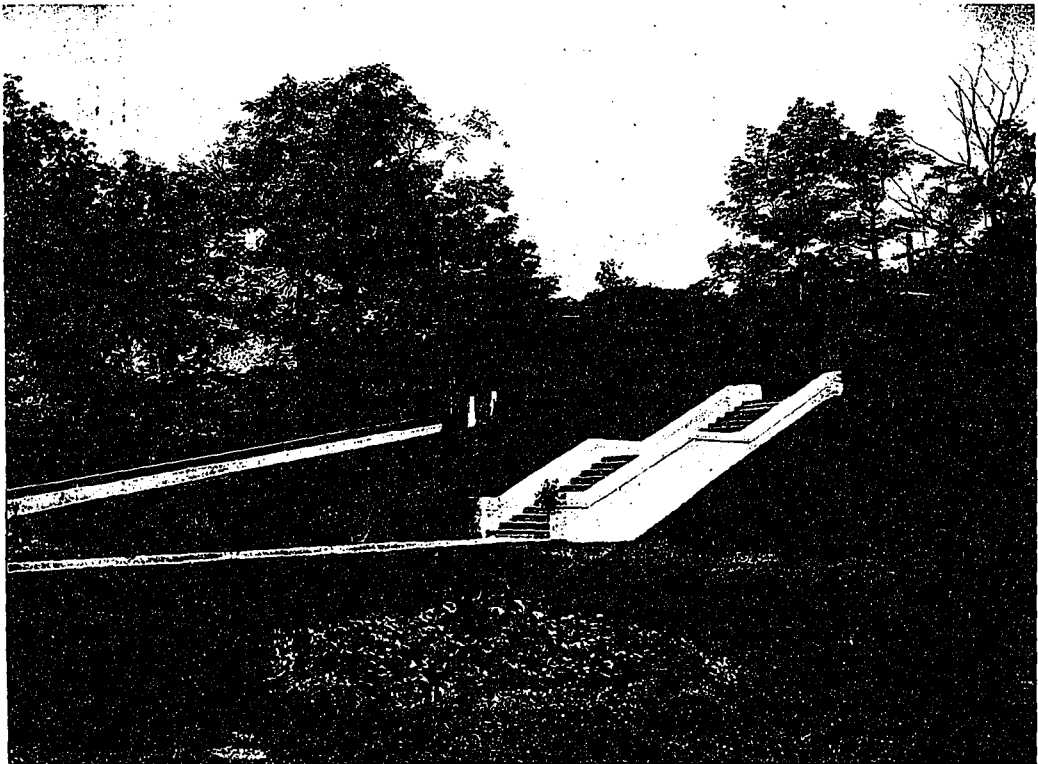
The large formal garden at the rear lends an air of refinement and beauty to the whole scheme and eliminates the usual stuffy and cramped atmosphere attendant to apartment house life. It serves to give the tenant all the comforts of a luxurious private house on a beautiful spacious site, together with all the comforts and conveniences of the modern apartment building.

The Travancore is located at the western entrance to Mount Royal Park in Cedar avenue, on the southern slope of the mountain, where it commands a magnificent view of the city of Montreal, the river St. Lawrence and all the surrounding country. A more ideal site could hardly be conceived of.

In the plan the architects have worked out one excel-



An Unusual Adjunct of the "Travancore" is a Roof Pergola an Excellent View of which is Obtained Herewith. This Innovation Suggests Certain Possibilities in "Roof Gardening" which Might Well be Considered by Architects in Providing Outdoor Advantages, Especially where the Ground Dimensions are Restricted on All Sides.



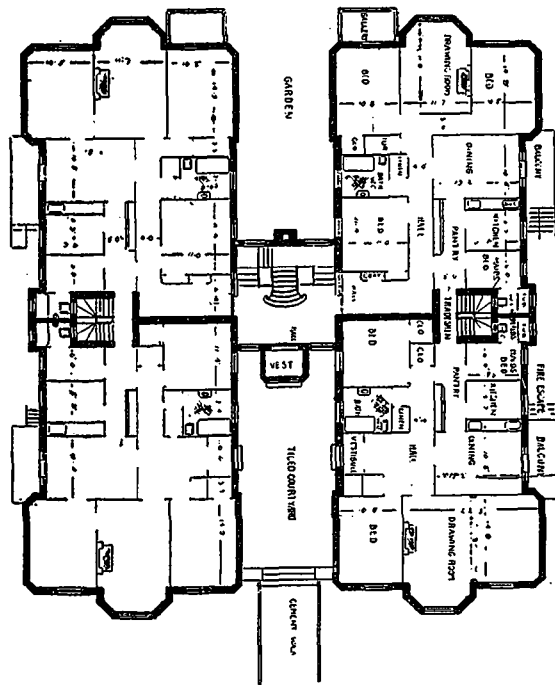
This View Shows the Formal Gardens with its Well-kept Terrace and Lawns, a Feature Which Gives the Occupants of "Travancore" the Advantage of More Than Sheltering Walls and Internal Comfort and Conveniences, besides Rendering the Erection of a Structure of this Type, less Objectionable in the More Exclusive Residential Districts.

lent scheme. The structure is built in two distinct sections (one of which is an exact duplicate of the other) in the form of an H, the section represented by the cross-bar of the H contains the entrance hall and main stairways. Through this arrangement of plan each and every room in every apartment has been provided with direct outside light, air and view. One of the troublesome tasks of the designer of the apartment building is to strike upon a practical and economical plan that will render unnecessary "inside" rooms.

The building contains fourteen apartments of seven rooms each, viz., drawing room, dining room, kitchen and pantry; three bedrooms and bathroom, servants' bedroom and separate bathroom. The floors throughout are of hardwood and the woodwork of natural oak, with rubbed finish. The main bathrooms have tiled floors. The plumbing throughout is of the highest class open work and includes pedestal china lavatories, china W.C.'s, and porcelain enamelled baths, sinks, wash tubs, etc., furnished by the Standard Ideal Co. of Port Hope, Canada. Each suite is equipped with wall safe, gas stove, refrigerator, curtain poles and window shades.

The exterior walls of the structure are of red shale brick of a deep rich tone, with sandstone trimmings. One of the commendable features of the building is the provision made in its construction and equipment for protection against fire. The central connecting section containing the entrance hall and main stairways is of fire-

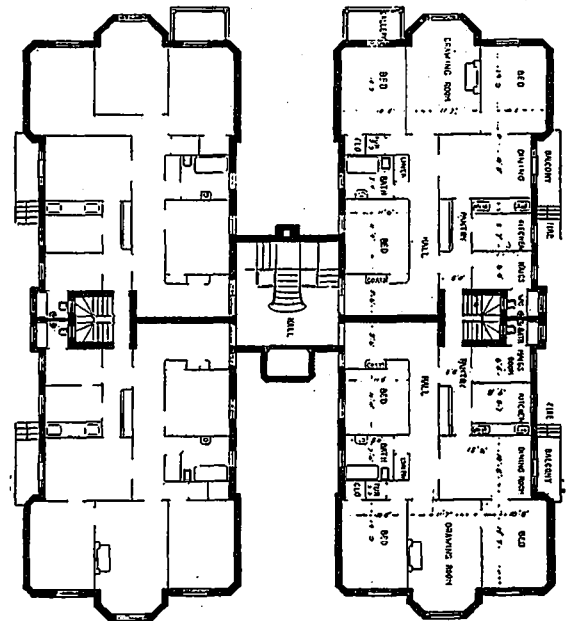
UNDER THE HEADING "MODERNIZATION OF CANTON, U.S. Vice-Consul-General Myers, at Canton, in a recent report makes some interesting comments on the construction work in progress at that city. The report says in part: On Shameen, during 1909 a municipal bath house was constructed at a cost of approximately \$8,160. A "go-down" and junior staff quarters for the Hongkong-Shanghai Banking Corporation, and a building for the Chartered Bank of India, China, and Australia are under construction. The examination shed and quarters for the outdoor staff of the Imperial Maritime Customs, situated opposite Shameen, at Honam, was completed last year. The bund from Tai-sha-tau to Shameen was also pushed forward and practically finished. Many new buildings, semi-foreign, were erected along the bund during this time. At Tai-cha-tau the imposing railway terminus for the Canton-Kowloon Railway was completed. At Tung-shan residences and railway buildings for the use of the



Ground Floor Plan, "Travancore" Apartments, Montreal, Showing the Tiled Court Yard, the Main Vestibule and Hall, and the Garden Approach at the Rear.

proof construction, having solid walls of brick laid in cement mortar, floors of reinforced concrete and staircase of wrought iron and marble. This section is cut off from the sections on each side containing the apartments, by fireproof doors. The two main sections of the structure are divided into four sections by fire walls. A stand pipe is provided with which is connected fire hose in the main hallway on each floor, and each apartment has an exterior wrought iron gallery connecting with a wide, well constructed fire escape.

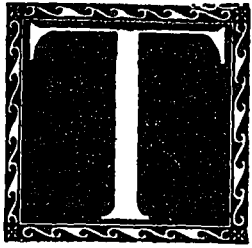
In all, the "Travancore" in the matter of luxurious appointments, and modern, convenient and complete equipment, is one of the finest apartment buildings in Canada.



Typical Floor Plan, "Travancore" Apartments, Montreal, Showing the Arrangements of the Upper Suites.

staff, and also several schools and residences for American missionaries have been constructed. During the year the new dormitory building of the Canton Christian College was completed at a cost of about \$14,300.

ENTERTAINING IN LIFE PECULIAR IDEAS as to the hereafter and determining not to have his body disturbed in future aeons of time, William Lay, a coal merchant of Honeoye Falls, N.Y., left a unique will, from which the following is an extract: "That a grave be prepared of at least the ordinary size and depth; that the bottom thereof, for a depth of at least six inches below the place prepared for the body be constructed of reinforced concrete; that above said foundation a space be left for the reception of the body, and the said space be large enough so that there will be an opening about six inches on all sides above and around the body; that my body be placed in a winding sheet of suitable material and placed in said grave without box or coffin; that said grave then be filled and the body entirely covered along the sides and above with reinforced concrete, consisting of one part Atlas Portland cement to three parts of clean gravel; that said concrete be brought up to a point about two feet above the level of the ground, and the ends of the solid concrete levelled and the top given an oval form. that the same be furnished with a smooth surface, and upon the same may be placed an inscription containing my name, 'William Lay,' the figures '1854,' that being the year of my birth, together with figures indicating the year of my death, and that no other inscription be placed thereon."



THE * ARCHITECT AND * FIRE * PROTECTION

By IRVING K. POND, A. I. A.

An address before the convention of the National Fire Protection Association,
at Chicago, May 19, 1910, by the President of the A. I. A.

THE SUBJECT OF THE RELATIONSHIP of the architect to substantial building and to fire protection is one of wide significance and with many ramifications. The matter is not so simple as at first appears, for it deals not only with the present status of building development, but with the past as well, and reaches far out into the future.

Speaking from his purely personal standpoint and regarding only his selfish interests, the architect might urge thorough and yet more thorough methods of building construction and protection, that the monument to his skill and genius may last throughout the ages, adamant against the destructive agencies of water, fire, climatic conditions, and shock. The architect likes to consider himself as a maker and recorder of permanent history, but build as stably as he may, the Nile will undermine the foundations of Karnak and Luxor, fire will lay low the "Ephesian Dome," frost and moisture will sunder the massive buttresses and earthquake will scatter the columns of the temples which man has reared to carry the glory and fame of his race on through the ages.

But the architect of the present has to deal with other causes which go toward the unmaking of history as embodied in architecture. The changing conditions of everyday life act as destructive agents, so that the economic loss in the demolition of the present to prepare the ground for the future is as appalling in a way as is the destruction by any of the natural causes. The philosophic attitude to maintain toward the whole subject is, that out of each great loss must come some gain, and that no great good is attained without the payment of an adequate price. And so in considering the matter of permanent building and protection against the elements, we are brought face to face with the modern problem which is taxing the ingenuity and genius of our architects and economists, the problem of city planning for the present and the future.

The value of building for permanency is to be carefully considered where conditions are ever shifting and buildings to serve the special purpose of to-day may not meet the requirements of to-morrow. The logic of city planning must appear as keen as the logic of house planning, and the distorting of the function of one part of the city must appear just as chaotic and as fatal to the economic order as the derangement of the functions of various rooms in the dwelling. The furnace room should be equipped to receive the furnace and fuel and calls for certain protection which need not be afforded to other portions of the house. To erect the furnace in the drawing room or to install the range in the boudoir is to derange the life of the household and stultify the meaning and design of the house and to presage a lapse into barbarism or to indicate a non-emergence from that estate; and thus is indicated the possible connection between city planning and logical construction and necessary protection. The logical planning of the city—the laying down of permanent lines of development, the laying out of permanent avenues of intercommunication and lines of transportation that the functions of the various portions of the city shall not be deranged, but shall be susceptible of logical and rational growth and development—bears directly on the matter of comparative stability of construction.

The wisdom in creating city planning commissions and even in applying the theory to smaller districts becomes apparent and should be emulated in our own country by our legislative bodies, and warrant of law rather than individual initiative should bring about the desired result. This idea which has been in practice and has justified its existence for a long time in Austria, is coming into vogue in Germany and is just now being adopted in England. Various of our American cities are attacking the problem from some special point of view individual to the locality, but the wider problem in all its manifold bearings on social organism, industrialism, housing, sanitation, morals, and beauty has as yet to be conceived by the general body of American city planners. When our civilization is established and we cease to be a restless body pushing forever toward the frontier, our cities will partake more of the nature of fixed abiding places and less of the nature of the camp, as our residences to-day are smacking more of the permanency of buildings and less of the ephemerality of the tent. At such time sanely conceived civic centres will be established, calling for permanent structures suited to the needs of the locality and connected with other similar centres by great arteries of intercommunication, which themselves will be of a permanent and lasting nature. The industrial quarters, the residential quarters, the wholesale quarters will be distinctly differentiated as are the apartments of the logically designed dwelling, and will be susceptible of logical and predetermined growth. When the laws of economics shall have been understood, when each man's duty to his neighbor and to the community shall be as thoroughly recognized as are the rights he arrogates to himself, when the laws of order and the love of beauty shall have been established in the heart of the race, the overtopping commercial structure in the centre of the residence district will be a thing of the past. In fact, in the logical city overtopping commercial structures will not, as now, add their disfigurement and their problems of transportation and of sanitation to the neighborhood they infest, and the matter of protective construction and protective appliance will be simplified.

It would seem impossible that the city should develop without certain destruction of existing forms and functions, and it will be seen that this condition should be recognized in the problem of construction and of protection especially in the earlier stages of the city's development. The possibility that factories or that apartments may be torn down within a comparatively short period of time, to be replaced by buildings more extensive and devoted possibly to other uses, must affect the character of the construction, and to insure against great economic loss in the wreckage of existing structures the protection of life and property should be made to depend more largely upon external means and appliances.

Passing now the relationship of construction and protection to city planning and coming down to first principles, perhaps the most effective method of protection as it affects the community generally would lie in the operation of a law making the loss or damage to extraneous property or to life to hold against the owner of the property from which the fire spreads or the damage emanates.

If the title to such property were vitiated until claims had been settled there would be less argument as to the desirability of protection in specific cases, and there would be smaller need to penalize neighboring buildings of a higher type. It may at some time be the function of the American Institute of Architects by itself or in conjunction with your able body to suggest such legislation and assist in its advancement; but without awaiting that time the Institute may find other methods of serving the community along these general lines.

The American Institute of Architects, the function of which not only is to elevate the status of the entire architectural profession, but to better the building conditions in general, is contemplating the formulation of a typical building code which shall be on a par with its standard form of contract and general contract conditions and its standard specification. In this it needs the affiliation of the protection and insurance engineer. A body like the American Institute of Architects should be eminently fitted to undertake such a work, for it not only understands the technical details of building construction, but it comes to the work without any personal bias or any individual to serve, regarding only the highest good of the community. The architect's desire to build a monument for himself may in this instance be disregarded. The protection engineer, however, as represented by the National Fire Protection Association, is a necessary co-operator in any scheme of code formulation, for he has tested in his laboratory the action of the elements upon materials under the most severe conditions and can lend most valuable technical aid. His tendency, however, from the side of underwriting, would be to stiffen up on conditions, possibly to the disadvantage of the building owner, in order to protect his interests against possible losses. There would always be the suspicion of self interest in the advice of the underwriter. The formulation of a standard building code is quite difficult as it is desirable, for its mandates must be in general terms, susceptible of application in all sections of the country. The architect would have a more open mind to the use of certain materials; for instance, unprotected cast iron in window mullions, or unprotected lintels supporting short spans of masonry, for he has known the metal used in these forms to stand the most severe test possible under actual conditions, whereas, under the artificial conditions of the laboratory the protection engineer has found them to fail. A liberal yielding by the architect from his point of view to that of the underwriter and a reciprocal action on the part of the underwriter would result in a code of great general value and equity. The architect would endeavor to study conditions so as not to penalize the high class building and legislate against the owner of such a building in favor of a neighboring building of lower type. The high class building should be protected against the lower class building by equitable legislation and the lower class building should not be allowed to jeopardize the entire neighborhood as well as itself. At the same time the higher type of building, especially when it runs into an inordinately high structure, should not be permitted to jeopardize the safety of life and limb within its own confines. This entire subject impinges on that of city planning and the logical distribution of various types of industries and commercial activities.

As a practical phase of the general topic it is well to note the valuable work which the Board of Underwriters and your Association are doing in promulgating data with reference to fire protection. In relation to this a suggestion has been made by an eminent architect that this work is too technical in its nature to reach the generality of architects and owners who naturally should, and under certain conditions would make use of the provisions. At present the information with regard to the simpler forms of fire protection is contained in large pamphlets from which it is to be with difficulty extracted, and, moreover, the information is generally so put that it is not quite clear to any but engineers and architects who have had special practice along those lines. The few architects in the

larger cities who pay any special attention to this subject, of course, keep up to the mark by special correspondence, consultation with insurance engineers, and constant reference to the Board of Fire Underwriters in specific cases; but the great majority of the architects of the country know absolutely nothing about the simplest matters of fire protection methods.

An educational propaganda can best be carried on by a series of primer-like leaflets of uniform size, mailed regularly, perhaps once a month, to every architect in the National directory, and to every builder, forming in due course a portfolio of technical sheets which can be replaced from time to time as they become obsolete. One leaflet could deal with brick enclosures for staircases, another with brick enclosures for elevators, giving diagrams of roof houses and doors, or even more important, a statement as to costs showing how little more of expense it involves to incorporate these refinements and how much it adds to safety, and finally how sure it is to be adequately recompensed by the saving in insurance. A series of leaflets on various types of fire doors and automatic and other metal window frames with an explanation of their advantages and a general statement of the cost as compared with wooden frames; data as to modern methods of mill construction embodying the latest types of girders and flooring and column and beam connections, should be given out in this form, as well as suggestions as to the construction of simple fireproof stairways, especially those of reinforced concrete, such as can be constructed in any town by a clever mason at small expense. An important feature would be a sheet on automatic sprinklers, with an appeal for their use, and a statement of approximate cost of their equipment such as an ordinary building, 50 x 100, on the ground, and six stories high, would require; and it would be quite to be desired that the information given on these sheets as well as the information which is given to architects personally should be such that the architect could place reliance on it and not find after he had installed certain appliances and introduced certain specific methods of protection, that they were for naught and would have to undergo costly reconstruction.

It is not infrequent in actual practice that the means adopted or appliances installed under specific recommendation of one official of the Board of Underwriters have been summarily rejected by another official, and there is no redress. Remove and reinstall, or up go the rates or no rates will be considered. This is rather trying to the architect who has done his work conscientiously, and it forces a situation rather difficult of explanation to a client who naturally cannot comprehend the case and quite naturally conceives his architect to be at fault. Discretionary power on the part of public commissions is being considered and recommended as a panacea for modern legislative ills, and should be, where the drastic enforcement of non-elastic laws operates at the same time against private interest and public good. But on whom can such arbitrary power safely be conferred in the case of the general government? The Board of Underwriters has not to consider that question, for it need not be governed by drastic laws, but in all justice and logic may make the particular method suit the particular case.

A word as to certain specific architectural functions must be uttered, especially as it concerns a matter in which unenlightened and arbitrary rulings make or break. The architect is forever struggling to encompass beauty to endow all his forms with grace and charm; otherwise he is no architect. In this he is not aided by the Underwriters' rules, which tend more and more to make the objects to which they apply more crude and ungainly. This is especially so in the matter of frames and sash and the proportions of windows. So, too, with fire doors, and their appliances; and so with many matters. In many instances the matters might be adjusted by a commission, were its ruling not to be negated immediately by another commission. These suggestions are not uttered in a carping spirit, but to indicate that equity between man and man should be conserved, equity between associations and

capital also. The ethical element will enter into the operations of even a Board of Fire Underwriters and the aesthetic element will not down where the true architect is concerned; and so it must be apparent that questions of business ethics and personal fair dealing and questions affecting public taste, inhere in the problems of the protection and the insurance engineer and the powerful association they in general so wisely represent.

PANAMA CANAL IN FINAL STAGE OF CONSTRUCTION

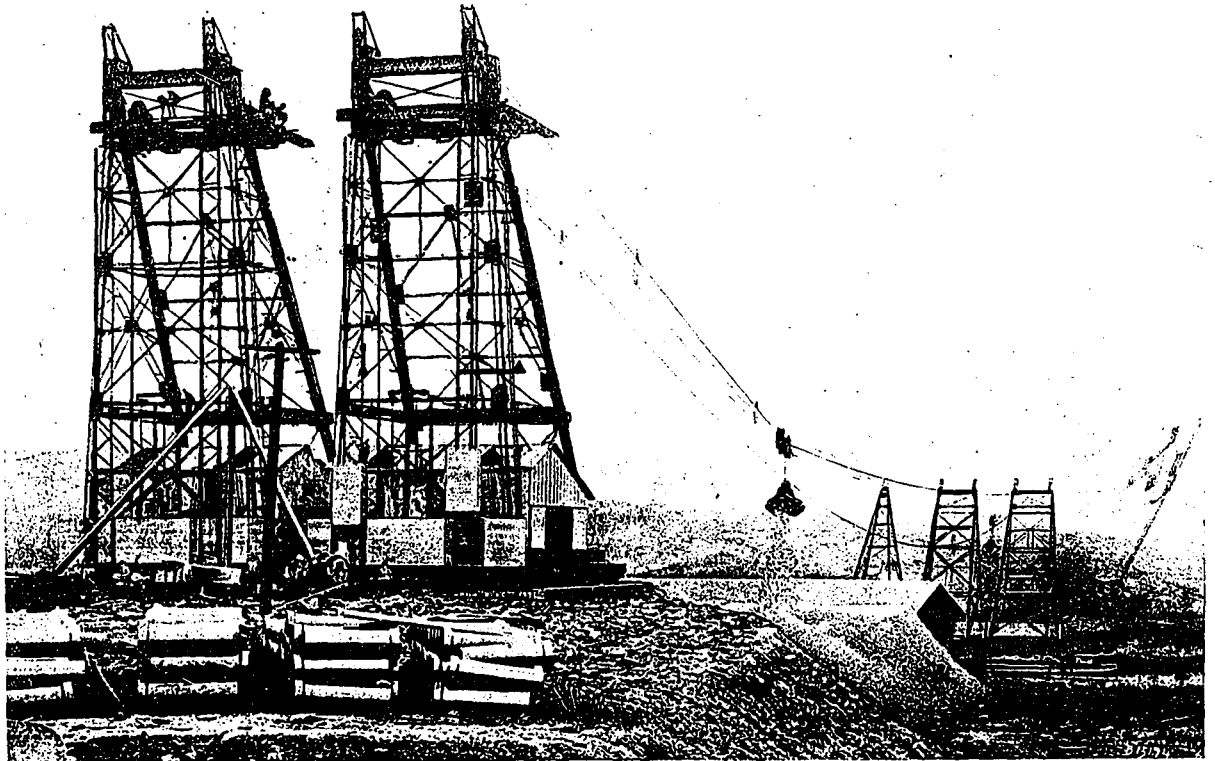
Method of carrying out huge engineering task and description of mechanical equipment.

THE BUILDING OF THE PANAMA CANAL is now in its fourth and final stage. The first stage was the sanitation of the Canal Zone; the second, the re-building of the Panama Railroad so as to supply facilities for transporting the spoil from the excavations to the dumps; the third, the excavation of the canal; the fourth, and last stage, the building of the Gatun dam and locks, and the locks at Miraflores and San Miguel. On August 1st of this year, the excavation (182,000,000 cu. yds., of which 40,000,000 cu. yds. available had been done by the French) had advanced to a point where only 101,000,000 cu. yds. remained to be done, which, as officially stated by Col. Goethals, can be finished by August 1st, 1911. The remaining excavation is proceeding at the rate of about 3,000,000 cu. yds. per month.

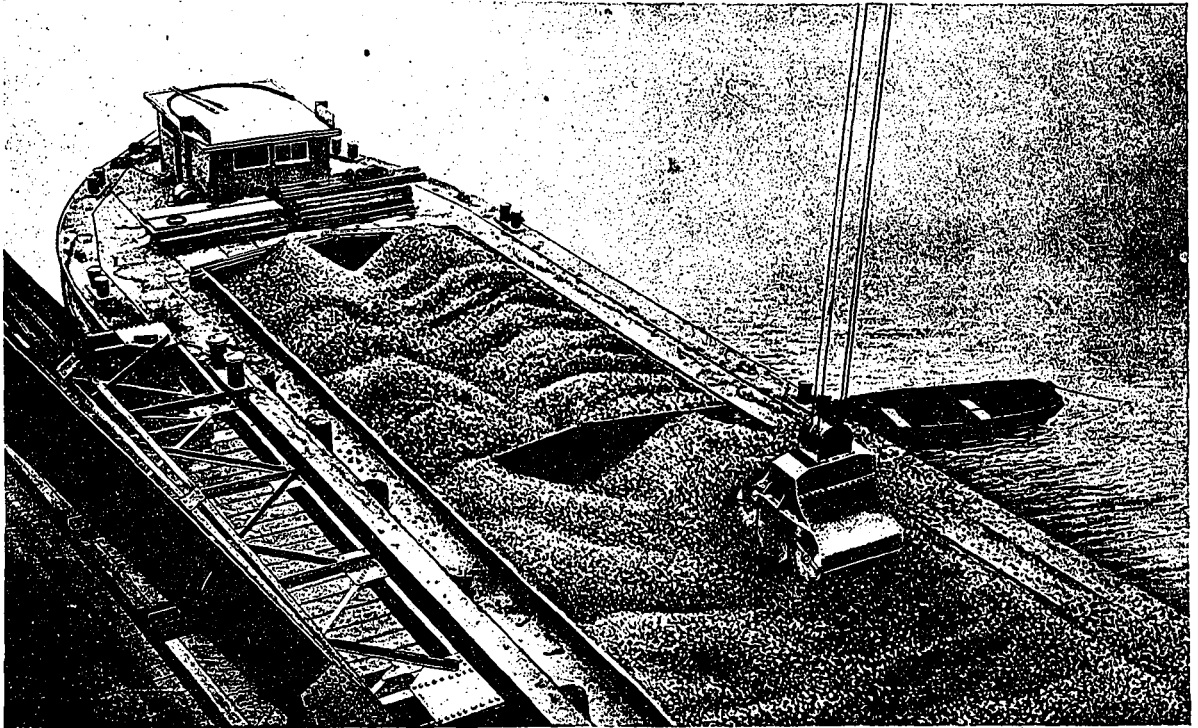
Keeping pace with the speed of excavation are the construction operations in connection with the Gatun dam and locks. The most important part of the mechanical

equipment are the 13 Lidgerwood high-speed cableways, which were especially designed and installed for building the Gatun locks. Upon five of these, known as the un-loader cableways, will fall the brunt of the work, and upon the ability of these five to handle the amount guaranteed, or more, must depend the question of whether the canal will be finished and in operation on January 1st, 1915, or earlier. These cableways have exceeded their guaranteed capacity by such a large percentage that the engineers in charge of this section of the work are confident that it can be finished at a much earlier date. They are recognized unofficially by Col. Goethals as "that 1913 crowd."

The work of these five cableways is to handle the broken stone and sand which will be required for the walls and floors of the locks. There are six locks, each 1,000 feet long in the clear and 110 feet wide. They lie side by side in flights of three, making a total length of more than 3,000 feet. Together they provide a total lift of 85 feet with some to spare for changes in the initial water level. In these locks there will be used 2,000,000 cu. yds. of broken stone, 1,000,000 cu. yds. of sand and 2,200,000 barrels of cement. The stone and sand arrive in barges on a branch of the old French Canal. The un-loader cableway takes it out of the barges with great grab buckets and delivers it 600 feet or more away in heaps in the storage yard. From here it is taken by the cars of an automatically operated electric railway to the mixers, and from the mixers the concrete is taken in other electric cars to where the second set of eight cableways can put it in place in the forms for the walls and floor. Four cableways arranged in pairs on two sets of towers handle the broken stone and a single cableway with independent towers unloads the sand from the barges and deposits it on a storage pile. Each cableway has a span of 800 feet. In the duplex cableways the cables are 18 feet apart. This corresponds with the distance apart of the transverse bulkheads in the barges. The cableways



The Five High-speed Lidgerwood Cableways which are Handling, from Barges to the Storage Heaps, the 2,000,000 cu. yds. of Broken Stone and 1,000,000 cu. yds. of Sand Required to Build the Gatun Locks at Panama Canal.



Looking Down at a Loaded Barge from the Operators' Booth, Showing the Ease with which the Operators Direct the Movement of the Grab Bucket.

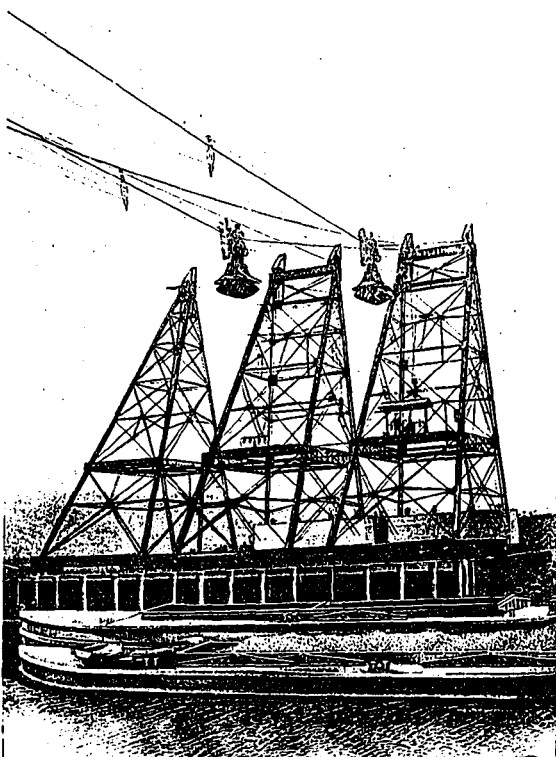
are all mounted on steel towers 85 feet high. The towers are mounted on trucks and travel on tracks, so that each cableway performs the function of a travelling crane. The unloader cableways travel the length of the storage yard. Those for building the locks travel more than 3,000 feet. They are all moved electrically, each pair in uni-

son. From the carriage of each of the five unloader cableways there is suspended an improved special 70 cu. ft. iron-ore type of excavating bucket. Each bucket grabs an average load of 54 cu. ft. The load is hoisted 85 ft., conveyed about 600 ft., dumped on the storage pile, and the carriage and bucket returned. This round trip has been made in 1 minute and 8 seconds. The cableways were guaranteed to handle 50 cu. yds. an hour each. They have carried 90 cu. yds. in an hour, and the average operation up to date is 60 cu. yds. per hour. This ought to be materially increased with practice. The present record is declared to be double that of any cableway previously employed anywhere.

The high speed and consequent increase in the capacity of the cableways is due to the ease with which the operation of the cableways is controlled; the rope-lead that simultaneously raises and traverses the bucket; the high-speed shock-absorber with which the fall-rope carrier is equipped, and a new type of button-stop.

The hoisting and conveying machinery in the head tower is controlled by an operator in the tall tower stationed on an elevated platform commanding a clear view of the bucket at all times and in all positions. He controls two 150-h.p. motors by master controllers of the New York Subway type, and the air brakes by two levers operating magnet valves 800 ft. away. The physical effort of operation is so easy that the operator can comfortably maintain the high speed. In all previous cableways this effort was so fatiguing that, although it was possible to attain a speed of 35 round trips per hour with mechanical levers, this could not be sustained for any length of time.

The rope-lead which simultaneously hoists and traverses the bucket causes the latter to move in a curved line corresponding somewhat to the hypotenuse of a triangle, instead of moving on the vertical and horizontal sides. Considerable increase of speed and diminution of travel is thereby effected. The high-speed shock-absorber with which the fall rope carrier is equipped is the invention of Spencer Miller. It permits the carriage to travel at the unusual speed of 2,500 ft. per minute, more than double the speed of any previous cableway. The button-stop employed has been successfully tested experiment-



A Close View of the Tall Towers of the Unloader Cableways, Showing the Position of the Barges and of the Operators.

ally with a fall-rope carrier running at the speed of 3,000 ft. per minute.

On account of the ease of operation of these cable-



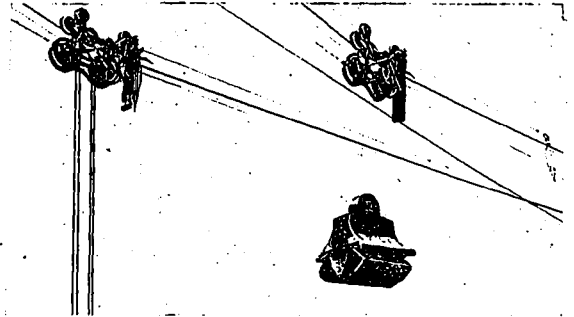
One of the Cableway Operators in His Booth, Showing the Simple Apparatus with which He Controls the Operation of the Bucket and Carriage.

ways, considerable difficulty has been experienced in re-training the operators from racing with each other. The cableways have frequently been operated at a speed of 3,000 ft. per minute, which, being at present too severe for the fall-rope carriers, is now limited to 2,500 feet per

minute. Some of the small pieces forming the heads of the fall-rope carriers are being replaced with heavier pieces which, it is believed, will admit of even the higher speed.

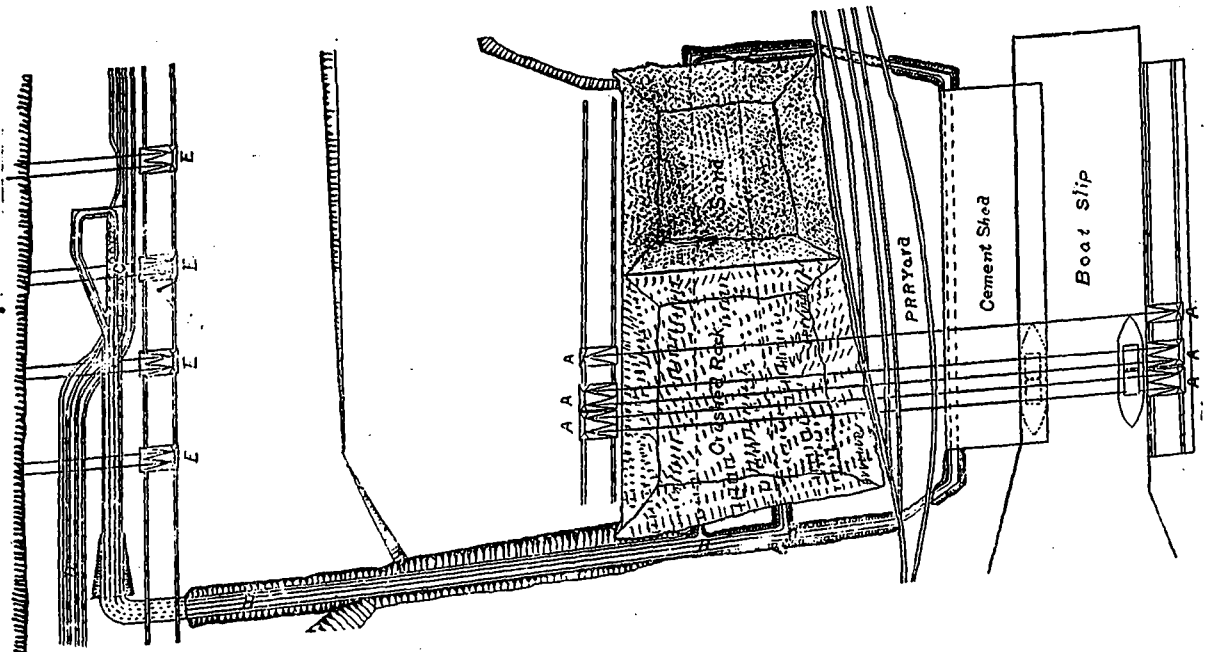
Another feature of these cableways which is new is that the bucket is counter balanced like a passage elevator. Thus only the net load has to be hoisted and only enough power is required to do this and overcome friction and inertia.

The eight cableways used for putting the materials in place in the lock walls are similar in span, height, style of

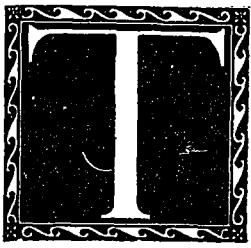


Another View of the Carriage and Buckets, Showing also the Fall-rope Carriers.

towers, and method of control to those for unloading the materials, but they will never be called upon for such rapid work. While they will handle the entire amount of concrete, and besides this, the wooden forms and the many tons of old rails which are to be put into the concrete for reinforcement, there are eight of them as against five of the others, and each will have much less to do. This is necessary as the placing of the concrete requires care and deliberation. The immense quantity of concrete material for the Gatun locks will perhaps be better appreciated if one remembers that handled separately it amounts to more than 3,300,000 cu. yads., while the total cubical contents of the Great Pyramid is only 3,800,000 cu. yds. Tradition says that it took 100,000 men a hundred years to build the Great Pyramid. The Gatun locks are morally sure to be finished before January 1st, 1913, and may be ready for opening the canal for use in 1913, thus justifying the confidence of "that 1913 crowd."



Plan of the Cableways, Showing their Relationship to the Branch of the Old French Canal where the Barges Arrive, the Cement Shed, the Storage Yard, and the Automatic Electric Railways.



THE * ARCHITECTURE OF * ADVENTURE

By PROFESSOR W. R. LETHABY.

"The spirit of experiment in building has been the living force and active principle of all architecture."—Paper read before R. I. B. A.

BY THE ARCHITECTURE OF ADVENTURE is meant the spirit of experiment in building which has been the living force and active principle of all architecture. If it is desired to give two separate though consistent meanings to the words architecture and building, by the first we must mean building enhanced by sculpture and painting—that is, building completely furnished as Morris says. In any case mere needful and experimental building is the main substance, force, and origin of the art. So far as it has to meet changing conditions and ideals it must be experimental. Therein lies the present difficulty. From a review of the attempts made it would seem impossible to continue in old ways or revert to past types. We have passed into a scientific age, and the old practical arts, produced instinctively, belong to a different era. History shows that any basis on which there can be general agreement over a long space of time will produce architecture of a sort. The one thing essential is this agreement, so that a process of development may be set up by continuous experiment. The only possible basis of agreement at the present time is the scientific method.

The Greeks probably took over the notion that architecture was to be reached through a system of ratios from the Egyptians; in any case it belongs to many ancient peoples. Greek thought on the matter was very clear-cut, and with them proportion meant a definite pre-arranged relation of measured quantities. Polyclethus, the sculptor, wrote, "Success in art is attained by exactness in a multitude of arithmetical proportions." Greek artists all agreed to such a theory. Notwithstanding this their architects, as a matter of fact, seem nearly always to have been engineers. The engineering element in Roman architecture is most marked and it was this indeed which entirely burst the old bottles of tradition and transformed the art into one of daring structural adventure. Most of the great Roman architects seem to have been engineers in the strict sense. The identity between engineers and architects continued into the Byzantine period, and into the Middle Ages. The great Mediæval buildings are solutions of problems of how to throw stones high into the air and balance them there. A great French castle or cathedral was not designed as beauty, it was developed along a line of experiment as surely as the great ocean liners are being so developed.

With the Italian Renaissance men there was a set-back. The mighty architecture of ancient Rome was studied certainly, but for the mere fashion of outward adorning and not for its science of construction. The notebooks of Leonardo da Vinci, however, are full of practical exercises and of experiments. Indeed he was the first to enter on a systematic inquiry as to the mechanics of architecture. Amongst his schemes was one for a town, for he was a pioneer in town planning as well as in aviation. The only other artist of the Renaissance who caught the idea of investigating principles was Durer, and he possibly had access to Da Vinci's notes. In his manuscripts in the British Museum are some studies of domes of a parabolic section and some exercises in plan schemes.

Although Wren was not a world-genius like Leonardo

da Vinci, he was in many respects an English Leonardo, and the one architect we have had whose formal thought (as opposed to the flashes of insight of a dozen men like Pugin) matters. More even than a great artist, Wren was a great man. Robert Hook, another scientific architect and his friend, says of him, "Since the time of Archimedes there scarce ever met in one man in so great a perfection such a mechanical hand and so philosophical a mind." Wren was almost certainly the first in England to apply the methods of scientific investigation to the laws of structure, and Hook is said to have been the first who stated the mechanical properties of the arch.

It seems clear that Wren contemplated writing a history of architecture and also a general philosophy of its first principles. The notes were probably written when, over eighty, he had retired from active work to pass his time in contemplation and studies. His intention appears to have been to give "a larger idea of the whole art" of architecture, beginning with the reasons and progress of it from the most remote antiquity, and thereby to reform the generality to a better taste.

Architecture aims at eternity, and therefore is the only thing incapable of modes and fashions in its principles. "The orders are not only Roman and Greek, but Phœnician, Hebrew, and Assyrian, being founded upon the experience of all ages, promoted by the vast treasures of the great monarchs and skill of the greatest artists and geometicians, everyone emulating each other." The orders, that is, were admirable so far as they embodied much experiment and long experience. He complains that while architects dwell too much on the ornamental side of architecture they slightly pass over the geometrical side, "which is the most essential part of architecture. For instance, can an arch stand without buttment sufficient? If the buttment be more than enough it is an idle expense of materials; if too little it will fall; and so for any vaulting; and yet no author hath given a true and universal rule for this nor hath considered all the various forms of arches." Wren then investigates the laws of stability by consideration of the centres of gravity of the several parts, and concludes: "The design where there are arches must be regulated by the art of statics and the duly poising of all parts to equiponderate. Hence I conclude that all designs must in the first place be brought to this test or be rejected." He says that he adopted the form of vaults used at St. Paul's from Sta. Sophia "because it was the lightest manner and requires less abutment; I have therefore preferred it to any other way used by architects." Some sketches for the great dome show that its section was conceived as conforming to a general parabolic curve rising from the plinths of the great piers and passing through the abutments and over the crown of the so-called cone. Wren saw, and probably was the first of architects to do so, that necessity, which he equates with nature, must be one with beauty.

There is a view as to the meaning and content of architecture which holds that it is primarily building according to the natural laws of structure and stability, according to need and order, and always with care and finish. That it must ever vary with ever-changing conditions, and that

this ordinary building may have associated with it painted and sculptured stories, or inlays or fretted works and gildings, while the essential architecture is still structure, and the method of architectural growth is by continuous experiment in the possibilities of structure. Nevertheless it should be clearly understood that any quest for originality just blocks the way, with our preconceptions and limitations, to any possibility of realizing a true originality, which properly is of the root, not of the appearance. True originality is to be found by those who, standing on the limits of the sphere of the known, reach out naturally to some apprehension and understanding of what is beyond; it is the next step in an orderly development.

What should be urged is concentration on practical, experimental, and scientific education. What we most need at the present time is the accumulation of power; we want high mechanical training, wide practical experience, and great geometry. And then we want to cover the field by a systematic research into possibilities. The possibilities of walls and vaults, and of the relation between the walls and the cell, and between one cell and another, want investigating. It is true such a training would not include the whole of architecture, but it would open the way to the best we can attain. We might hope thus to give up hugging the coasts of the known, to sail boldly forth under the stars. Thus, and thus only, may we enter again upon the architecture of adventure.

Building has been, and may be, an art, imaginative, poetic, even mystic and magic. When poetry and magic are in the people and in the age they will appear in their arts, but there is not the least good in saying, "Let us build magic buildings. Let us be poetic." Yet it is because these things are wanted that this problem must be faced.

Something desperate must be done. We should devote the next session to papers on constructive science, get Professor Karl Pearson to give his researches on the arch, Professor Perry to draw up a report on the application of mathematical inquiry to structures, and our Fellow, Mr. Dunn, should lecture on modern constructive problems. As talking of reason in design is to be tabooed as a self-evident truism, someone who is prepared to commit suicide should examine the prevalence of *irrationality* in modern buildings. The scientific side of our examinations should be rapidly screwed up, and the archaeological side as rapidly unscrewed. All our travelling studentships should be made to bear on the same quarter. Pugin students should be made to analyze varieties of mediæval vaults, and Soane students varieties of staircase arrangement. Tites should be sent to study French railway stations, Grissells to work at German hotels, and Godwins to American hospitals.

To emulate the highest in our art we need first the natural, the obvious, and, if it will not offend, the reasonable, so that to these, which might seem to be under our own control, may be added we know not how or what of gifts and graces. Thus may we hope to combine the two realities, the reality of natural necessity and common experience, and the reality of the philosophers, which is the ideal, and to reconcile again art with service.

HARD WOOD IS USED only to a limited extent for floors. The condition existing in the vicinity of Liverpool is quite the reverse from that throughout the continent of Europe, where even the most modest apartment houses are equipped with hard wood floors. In Liverpool the great majority of residences are carpeted, and it is principally in modern office buildings, which are of recent date that hard wood flooring is used. The hard wood flooring used is principally of oak and maple. Very little beech is used. The usual sizes are as follows: Mostly 1-inch thick, some 1¼-inches: widths, 3, 3½, 4, and 4½ inches, chiefly 3½ and 4 inches; lengths, practically all three feet and up. Two-foot lengths have been called for, but do not represent more than 5 per cent. of the trade. Prices, £50 to £40 (\$145.99 to \$194.66) per standard, Liverpool. In parquet flooring the sizes are: Thickness, 1 to 1½ inches; width, 2 to 3 inches;

length 9 to 12 inches. It appears that while ordinary flooring is tongued and grooved with matched ends, parquet flooring is grooved on the sides for mortar, or tongued and grooved, and end grooved on both ends, (but not tongued on the ends). Parquet flooring is steel polished, not sanded on the face. The price paid in carload lots is about 5s. (\$1.21) per cubic foot. It is shipped in bundles or sacks and in uniform lengths only. Only ordinary flooring is bored for secret nailing. All flooring is hollow backed. The hard wood flooring used in this market is imported prepared for use.

HOT WATER HEATERS AND RADIATORS

THE HOT WATER HEATER has become fully established as an adjunct in the equipment of the modern building. It has both a sanitary and economic feature that makes its adoption at least to be desired, if not an absolute necessity. The two essentials to be considered in the installation of a hot water heater, is, first, its efficiency; and the other, economy; that is how to obtain efficiency and an adequate hot water supply with the least possible fuel consumption. An exceptionally splendid apparatus in this respect, and possibly one which stands without a peer to-day, is the "Electric Weld" Combination Boiler and Gas Heater, for which A. Welch & Son, 304 Queen street west, Toronto, are the Canadian agents. This heater is adapted for use with either coal range or gas, and is suitable for all kinds of hot water service for residences, apartments, hotels, office buildings or any place where hot water is required. It is spontaneous in operation, and heats 1.3 gallon of water from 64 to 140 degrees, and 3 gallons of water from 64 to 90 degrees for immediate use. This means water at bathing temperature instantly from the lighting of the gas, at the full rate of a ¾-inch faucet, with city pressure. Where natural gas, which has nearly double the B.T.U. of artificial gas, is available, the results obtained are, it is claimed, in like proportion. The burner of the "Electric Weld" heater is of the Bunsen type, with raised gas ports, giving perfect combustion and adjustable to a gas consumption of from 30 to 50 feet per hour. It is not permanently attached to the heating coils in any way, and can be removed without breaking any of the connections. The heating coils, themselves, are formed of brass sections—hollow six-limbed crosses of cast brass, and arranged in such a way that the heat from the boiler impinge against each separate column from top to bottom. One feature in this connection is that the heating sections can be readily cleaned, if necessary, while same are in position, by the use of a small brush—the same that is in use for cleaning lamp globes. There is absolutely nothing to get out of order. The apparatus is decidedly simple in construction, and it can be disconnected or assembled by any plumber without the necessity of cutting the pipe or changing the fittings. The parts are made in standard sizes, and they can be obtained at a moment's notice either from the factory or branch agencies. They are simple and few in number, and where repairs are necessary, their installation does not require the service, or entail the cost of an expert. The Canadian National Exhibition at Toronto, where Messrs. A. Welch & Sons will have a display, will give the architects, plumbers and others interested in the hot water problem an excellent opportunity to judge the exceptional merits of the "Electric Weld" heater. It will also give them a chance to inspect Kinnear Pressed Radiators for steam and hot water heating, which this firm also handles. These radiators are made of pressed metal, and they were first put on the market in 1903, from which they have rapidly grown in favor. Among the advantages claimed for these radiators over other makes, are that they occupy only from one-half to three-fifths of the space otherwise required; weighs one-quarter as much, cost 75 per cent. less for freight and handling; has absolute heat control; no holes or pockets to catch the dust, and will not burst with frost. They are highly artistic in design, and can be furnished in single, double or three column sizes for wall or floor space, as the occasion demands.

NEW TORONTO SHOW ROOMS.

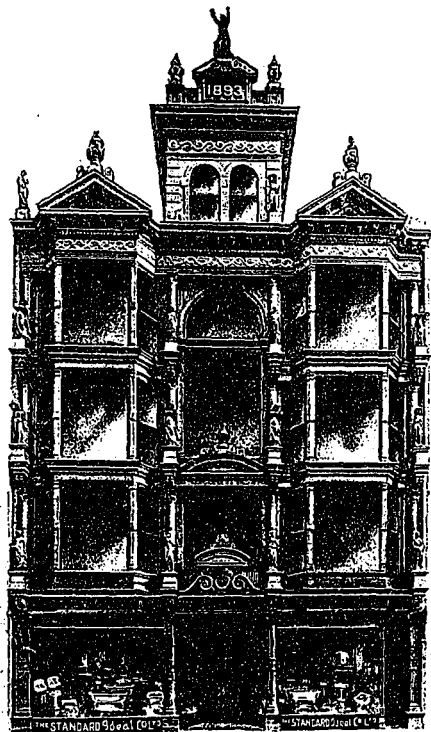
THE STANDARD IDEAL COMPANY wish to announce the opening of their new building, formerly Oak Hall, King st., East, and to extend a cordial invitation to architects, and those interested, to visit their show rooms and examine their extensive line of high grade, sanitary, enamelled plumbing ware.

The new premises have been remodelled to facilitate inspection and enable architects and owners to readily select the character of plumbing fixtures best suited to meet their particular requirements.

There is no item in the erection of a building that is more important or demands greater attention than that of the plumbing fixtures. While appreciating the neces-

at considerable expense and are designed to show the advantage the many different styles of "Alexandra" fixtures. "Alexandra" ware is the most sanitary and most beautifully designed cast iron enamelled ware manufactured. It is made in two parts, enamelled inside and out, light in weight, and convenient to handle. In design there is no ware in any point of comparison which equals these beautifully white symmetrical fixtures. In sanitary properties "Alexandra" ware is par excellence. It is manufactured of the highest grade of cast iron, with which is united a specially prepared porcelain enamel so that the expansion and contraction of the two materials are equal, thus rendering it impossible for the enamel to craze or crack, which is the case with so-called solid porcelain ware that in time, through the crazing of the enamel, becomes water logged and unsanitary.

These new show rooms in their complete equipment not only give the architect, plumber and owner an opportunity to view samples of the company's exceptionally large line of cast iron enamelled ware, but, in these specially designed bathrooms, it is possible for them to appreciate the most wonderful achievement that has been made in the design and manufacture of bathroom fixtures and sanitary fittings, and to appreciate the beauty and sanitary properties of "Alexandra" ware, as it appears when actually installed.



Oak Hall Building, King St. E., Toronto, Recently Acquired by the Standard Ideal Company, Port Hope, Ont., and Remodelled into Modern Show Rooms and Sales Department for High Grade Plumbing Fixtures.

sity of carefully considering the equipment of the lavatory, bath room or toilet, there are few prospective owners who can clearly conceive from a building plan, the exact scheme as worked out in the architect's mind. Realizing the need of more adequate facilities for practical demonstration, the Standard Ideal Company has accordingly altered their new premises, so as to give every reasonable means to those interested in sanitary enamelled plumbing fixtures, to properly judge what is required either as regards individual pieces or combination sets.

One of the exceptional features of the new show rooms is the tiled bathrooms completely equipped with "Alexandra" ware. These bathrooms have been fitted up

I. C. M. C. COMPETITION.

IN KEEPING WITH THE AGGRESSIVE METHODS employed by the Ideal Concrete Machinery Co., they have announced their intention to conduct a \$500 prize competition, consisting of 16 prizes for photographs of the best buildings erected of Ideal Concrete Blocks. The contest is open to all users of Ideal Concrete block machinery in the United States and Canada, and in all section of the world, and the programme provides for photographs of every type of building in which concrete blocks were used, including residences, barns, garages, churches, factories, stores, hotels, banks, halls, silos, etc. It further provides that all photographs must be made from 8 x 10 negatives, or larger if possible. If it is impossible to obtain negatives of this size, the 5 x 7 size will be acceptable. All photos should be mounted on linen, and should be sent in either to the company's office at London, Canada, or to South Bend, Ind., U.S.A., before November 1st.

- The following is a list of the prizes offered:
- First Prize—For the most artistic construction of Ideal Blocks \$100.00
 - Second Prize—For the second best construction of Ideal Blocks 75.00
 - Third Prize—For the third best construction of Ideal Blocks 50.00
 - Fourth Prize—For the fourth best construction of Ideal Blocks 35.00
 - Fifth Prize—For the fifth best construction of Ideal Blocks 25.00
 - Sixth Prize—For the sixth best construction of Ideal Blocks 15.00
 - Seventh Prize—For the best Silo construction of Ideal Blocks 70.00
 - 1 Special Prize of \$50.00 for the most artistic construction of Stucco on Ideal Blocks
 - 1 Special Prize of \$50.00 for the most artistic porch built of Ideal Ornamental Mold products. (Ideal Blocks used with molds admissible.

In announcing this competition, Mr. M. Wetzstein, president of the company, says in part: "We intend making the Ideal Concrete Building Block the standard building material to be specified by the architect and used by the contractor and builder if we must sit up day and night to accomplish it. Every day we are learning of splendid buildings of all kinds being erected of Ideal Blocks. We want the public to know this and, therefore, cause a demand for Ideal Blocks that will increase the output of every Ideal Block manufactory.

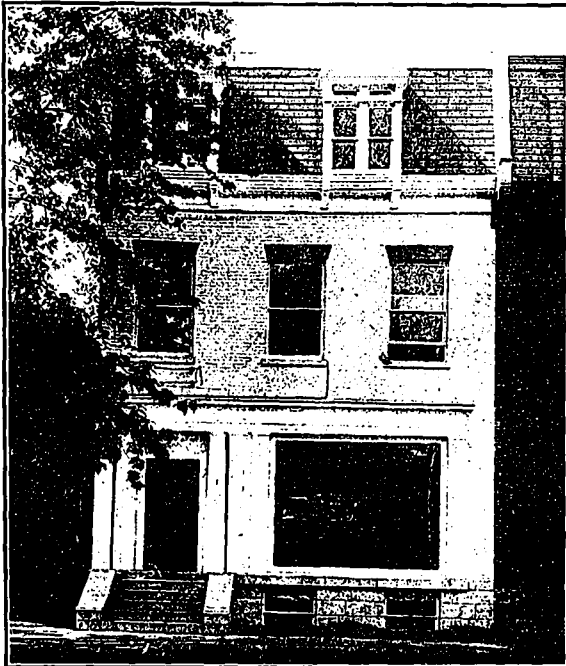
The five judges selected are: Mr. C. W. Boynton, inspecting engineer, Chicago, Ill.; Mr. E. R. Austin, Government architect, South Bend, Ind.; Mr. Henry G. Christman, contractor and builder, South Bend, Ind.; Mr. Ivan S. Macdonald, editor Construction, Toronto, Canada; Mr. Jno. Moore, architect, London, Canada.

In connection with this competition we might state that that the Ideal Concrete Machinery Co. is to be complimented upon their constant endeavors to promote better design in structures constructed of concrete blocks, and the many very excellent buildings that have been erected of this material bear unmistakable evidence of the fruit of their labor in this direction.

We predict that the number of photographs of highly creditable work in concrete block construction will be surprisingly large and their publication will prove interesting to both architect and contractor alike.

EADIE-DOUGLAS LTD., ENLARGES.

IN ORDER to better facilitate the carrying out of contracts and to further add to the already high efficiency of their present services, the Eadie-Douglas, Limited, of Montreal, have opened, in connection with their other lines, an exclusive mechanical and steam department under the management of Mr. G. M. Milligan, until recently associated with Manning, Maxwell and Moore, of New York. Mr. Milligan has had a broad experience in mechanical and steam engineering, and the conduct of the department



New Premises of Eadie-Douglas, Limited, 12-14 University Street, Montreal.

under his management, assures the architect and engineer a quick and satisfactory service in the execution of their contracts. The new department will be devoted exclusively to highest grades of mechanical and steam

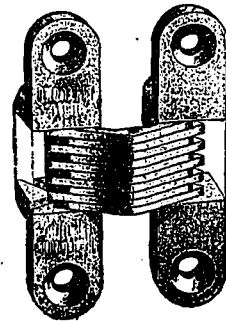
specialties and supplies, and will enable this firm, through their various connections, to quote promptly on complete specifications.

The new premises of the Eadie-Douglas, Limited, on University Street, which is illustrated herewith, interestingly incorporates in its construction; a number of the various building materials in which this concern specializes. This building was remodelled by Messrs. Saxe & Archibald, architects, to meet the particular requirements of this rapidly growing firm. The lower portion of the structure is finished in Burmantofts Marmo terra cotta, and the ground floor which forms a large, well-lighted and excellently appointed show room, is floored throughout with Terrano flooring. On the upper floors, the space is divided in modern offices which give every facility and accommodation for the various departments and clerical staff. In addition to the Eadie-Douglas direct interests, the Terrano Flooring Company, Limited; the Insulyte Company, and the B. F. Sturtevant Company, whom the Eadie-Douglas firm represent, also have offices in the building.

INVISIBLE HINGE.

MUCH ATTENTION HAS BEEN GIVEN to interior trim by architects, contractors and millmen during the past decade and the degree of perfection that characterizes the interior schemes of the simplest residence and the loftiest skyscrapers has been carried to a point little dreamed of a few years ago.

Hardware has played no little part in this exceptional development. The original, hard, utilitarian characteristics of interior hardware fittings have given place to



Soss Invisible Hinge as It Appears when Open.

beautifully wrought, stamped and cast designs to harmonize perfectly with any interior scheme, the architect may desire to carry out. There is invariably, however, one jarring note in the otherwise harmonious effect produced by beautifully designed modern hardware. That jarring note is the hinge.

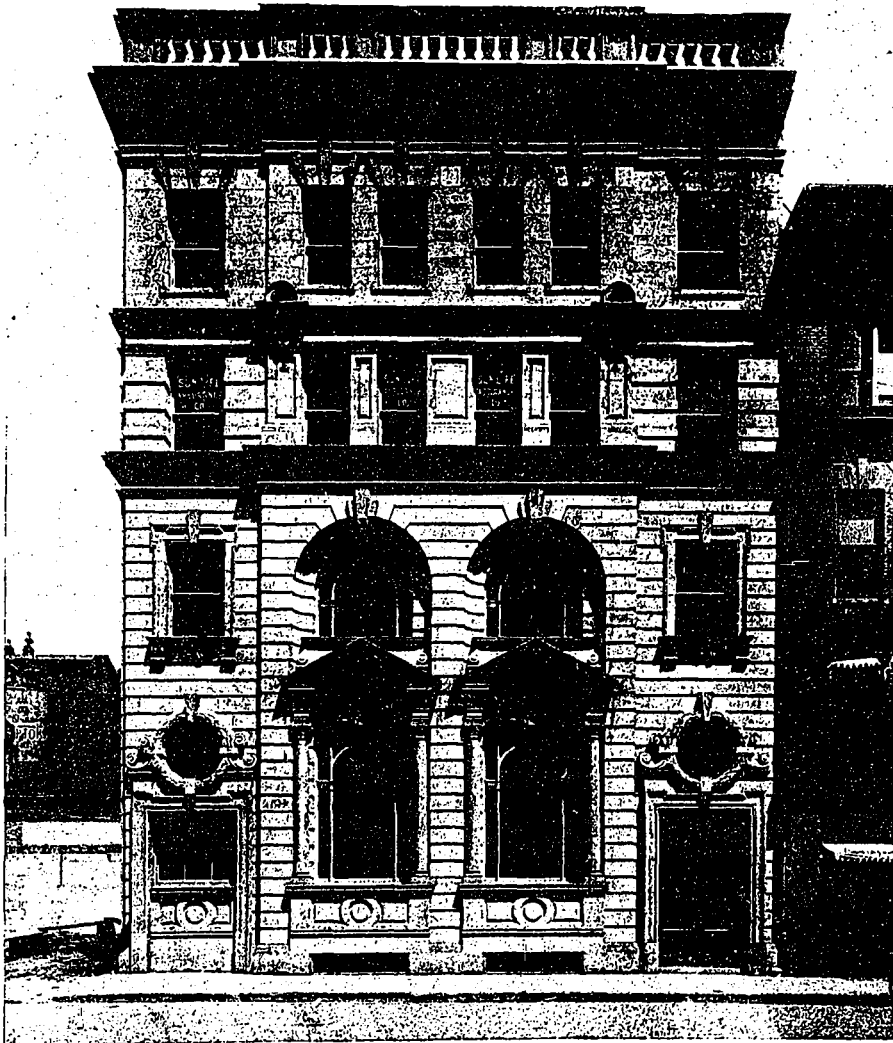
The protruding hinge has successfully defied all the skill of the modern craftsman. Its utilitarian functions remain always its predominant feature, and cannot be hidden even by the most expert designer. It has remained for the Soss Invisible Hinge to solve the difficulty. If the hinge cannot be made beautiful, then we must hide it. That is simply what has been successfully accomplished in the Soss Invisible. This hinge is simple, strong and highly practicable.

A view of one of these hinges, as it appears when the door is open, is shown in the accompanying cut; the hinge is very strong, being made of a composition metal that is frictionless, and will stand as much rough usage as the old-fashioned hinge. The Number 116 invisible hinge will carry a door 1½ to 2½ inches in thickness. The Company furnishes a template for use in laying out the mortise, so that the hinges will fit perfectly when applied. The point is made, that any carpenter can hang a door just as easily and quickly, as with a common butt. The

For Decorative Effect and Structural Value

ART STONE

is unequalled by any other manufactured stone and
 : : : unexcelled by any natural stone. : : :



Birkbeck Building, Toronto. George W. Gouinlock, Architect.

Estimates furnished from Architects' Drawings.
 Work executed in any part of Canada.

CANADIAN ART STONE CO., Limited
 PRICE ST. - - - TORONTO

Sales Agents: Eadie-Douglas Limited, Montreal

Branch Offices: WINNIPEG, 445 Main St.

OTTAWA, 81 Bank St.

hinges are provided with a roller bearing and work smoothly and with entire satisfaction.

The illustration which we present herewith, represents No. 112. The hinge can be seen only when the door on which it is applied, is open, as there is no projecting metal on either side of door. It is applied to the same part of the door and jamb, as the ordinary butt, and requires no special arrangement of the work. The hinges are adapted for wide application, but will be found especially suited for panel work, lockers, closets, partition doors, cabinets, bookcases, wardrobes, folding tables, china closets, ladies' writing desks, caskets, etc.

Another feature of the Soss Invisible Hinge is the fact that it is absolutely sanitary, and is therefore especially adapted for use in hospitals, sanitariums, hotels, etc., for which it is being rapidly adopted.

It is also now being used on Pullman cars, motor boats, etc. In fact the Soss Invisible Hinge is rapidly coming into use wherever a hinge is required. It has no unsightly straps exposed, and enhances the beauty of the door, room or cabinet wherever it is used; simple, strong, durable, practical and invisible as it is, the Soss Invisible Hinge promises to be a favorite with architects, contractors and owners alike. It is manufactured by The Soss Invisible Hinge Company, 104 Bathurst Street, Toronto, Canada, who will be pleased to supply additional information, prices, etc., upon request.

RAPID CONSTRUCTION.

STRUCTURAL STEEL WORK as applied to the erection of buildings excited little or no attention a quarter of a century ago. This was because at that time the adoption of structural steel to building construction was practically an untried quantity. It remained for the advent of the modern business building—the skyscraper which thrusts its huge frame in towering outline to set the wayfarer of the city street in amazement at the wonderful accomplishments being carried out. There is a picturesque quality about the "cowboy of the sky," as the structural steelworker is known, as he trips along his narrow path of steel, or swings through the air at the end of the boom, assembling the beam and girders, far above the pavement below, which makes him a fascinating character, and an inspiration to writers to record his daring both in epic and prose.

Toronto recently had an opportunity in the erection of Ambrose Kent and Sons' new building, at the corner of Yonge and Richmond streets, to witness the speed with which work of this nature can be carried out. The framework of this building, which is a ten-storey structure, embodying 650 tons of steel, was carried to completion in the remarkably short time of 28 working days. The work was begun July 19, and the structural members of the steel frame was completely in place on August 24th. It has

been the general opinion until lately that the facilities of Canadian manufacturers and steel fabricators were inadequate to the task of executing work in a time such as modern business conditions and requirements will allow. Increasing land values and the demand for accommodations make it imperative for work of this character to be accomplished in the shortest time possible. But, the erection of the steel work of the Kent Building demonstrates the fact that it is not necessary for Canadian interests to go beyond the boundaries of the Dominion; and this fact is further demonstrated in the erection of the framework of the Standard Bank Building, King street, Toronto, which was put up by the same concern.

During the process of construction, the work proved a subject of daily interest to the passing throngs, and the rapidity and thoroughness with which it was carried out is a glowing tribute to Canadian manufacturing resources, engineering skill and working organization: and conclusive evidence that Canadian architects and engineers can easily have their largest and most important structures executed by Canadian contractors.

WOOD STAINS.

THE IMPORTANCE OF WOOD STAINS and preservatives is something which has thoroughly impressed itself upon the architect and builder. It has simply remained with them to test and judge the merits of preparations of this nature, to ascertain the one which will produce the most consistent decorative results, and enhance the durability of the character of material to which it is applied. Attention is called in this instance to the well-known preserving qualities and beautifying effect of "Creosote Shingle Stains," whose value as a preventative of decomposition in wood construction has long been demonstrated by the fact that for many years these stains have been specified and adopted by both the foremost architects and builders in England and France, as well as on this continent. It is, however, only in recent years that "Creosote Shingle Stains" have become generally used. First coming into prominence as an artistic exterior finish, it is now being employed almost universally; not only on shingle roofs, but on barns, fences, outbuildings and wherever the architect and builder seeks to produce a harmonious blending of colors with the surrounding landscape. One of the essential features of this particular stain is that, as its name would imply, being made of creosote oils, it possesses a penetrating quality and germ-destroying virtue, such as is claimed is not found in other stains in which creosote oil is not a constituent. A number of Canadian houses have in recent years come prominently to the front in the manufacture of this line, among them the Manton Bros., whose announcement appears elsewhere in this issue. This firm supplies the trade from coast to coast, and they are perhaps the largest producers in this respect in the Dominion.

MANTON'S

**CREOSOTE
Shingle Stains**

are Standard



MANTON'S

Mortar Colors

for coloring mortar,
sand and lime
brick, etc.

Largest Manufacture s in the Dominion

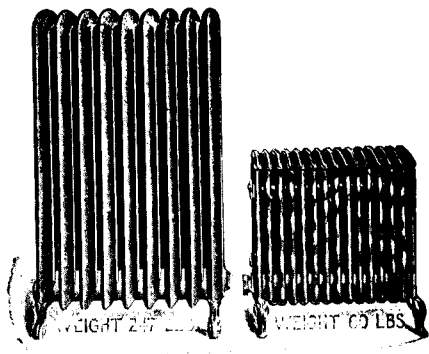
MANTON BROS.

Toronto, Ontario

Kinnear Radiators

ARE

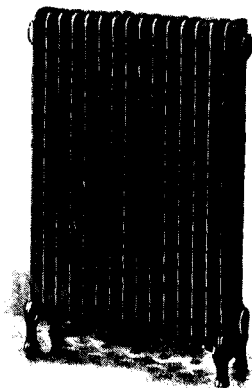
Noted for Extreme Lightness and of Handling. They Require but One-half the floor space and Weigh One-fourth as much as Cast Radiators.



Comparative size of Kinnear and old-time Radiators.

KINNEAR RADIATORS are strong, efficient, light, compact, sanitary, durable, and quick acting. Can heat a room in half the time it takes to heat with a cast heater. **Kinnear Pressed Radiators** will last a life time.

Kinnear Radiators Weigh 60 Lbs., the Cast 247Lbs.

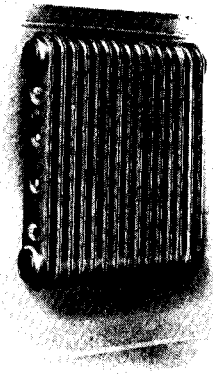


Kinnear Radiator

They are Built on the Plan of a Sheet Iron Stove, to Get Instantly Hot on turn of the Valve, and to get Heat out into the Room, Where it Heats You, not the Radiator.

You have absolute control of heat, will not burst with frost, have better circulation of water, and greater condensation power for steam.

Hold 40 per cent. less water than cast radiator, consequently effect a great saving in fuel, as it is much easier to heat 36 gallons of water than 60.

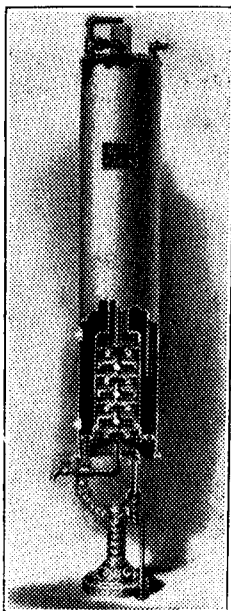


Kinnear Wall Radiator.

Requires half the space of the Cast Iron.

Why persist in heating up a ton or two of cast iron before you get any heat out of your radiator for yourself?

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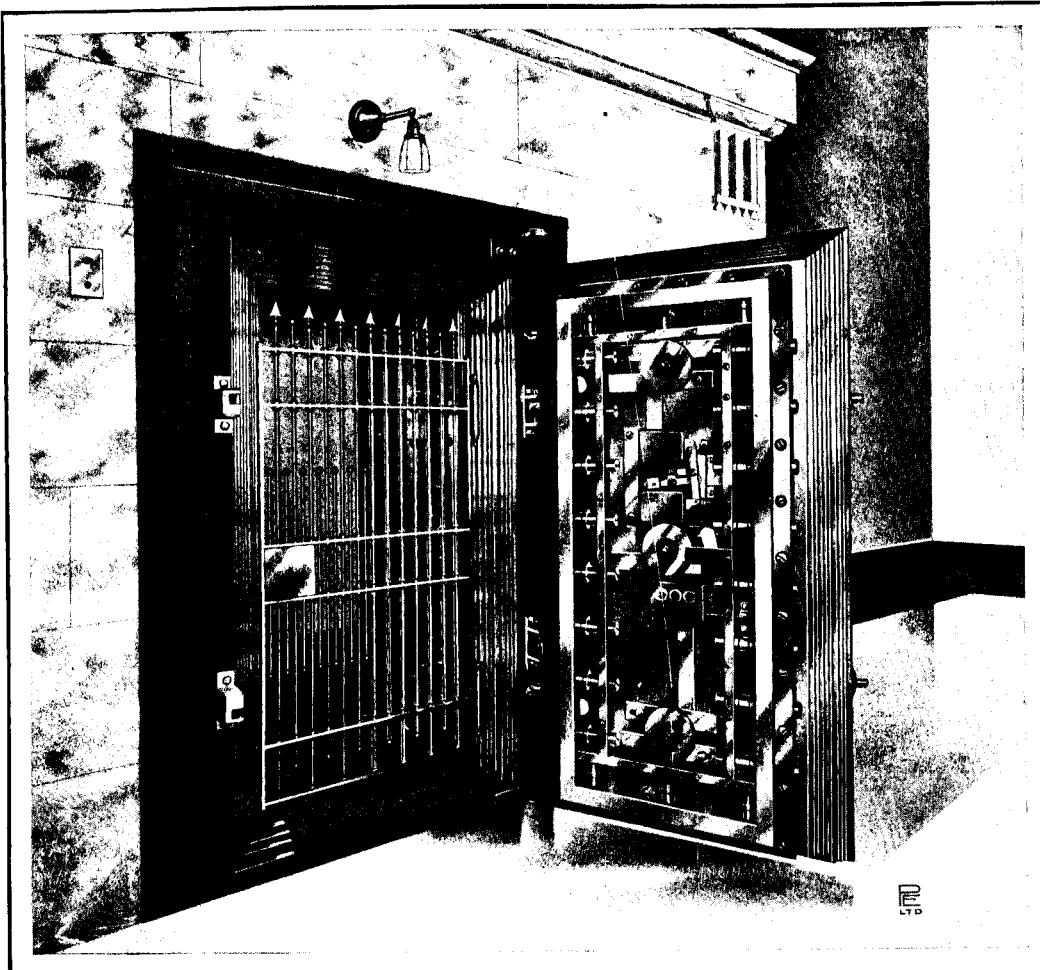


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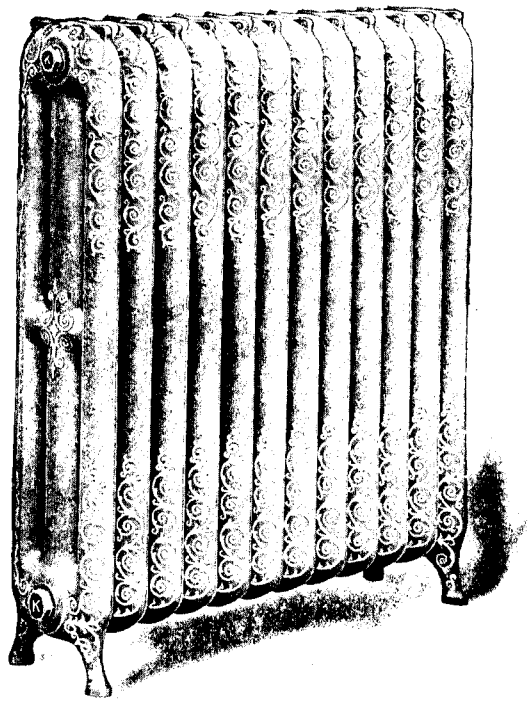
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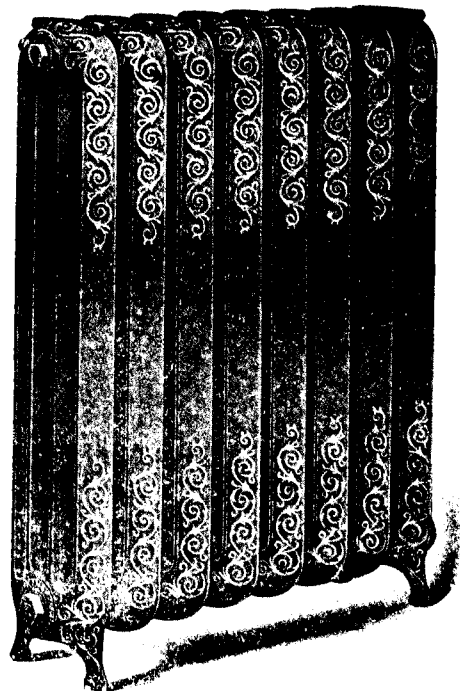
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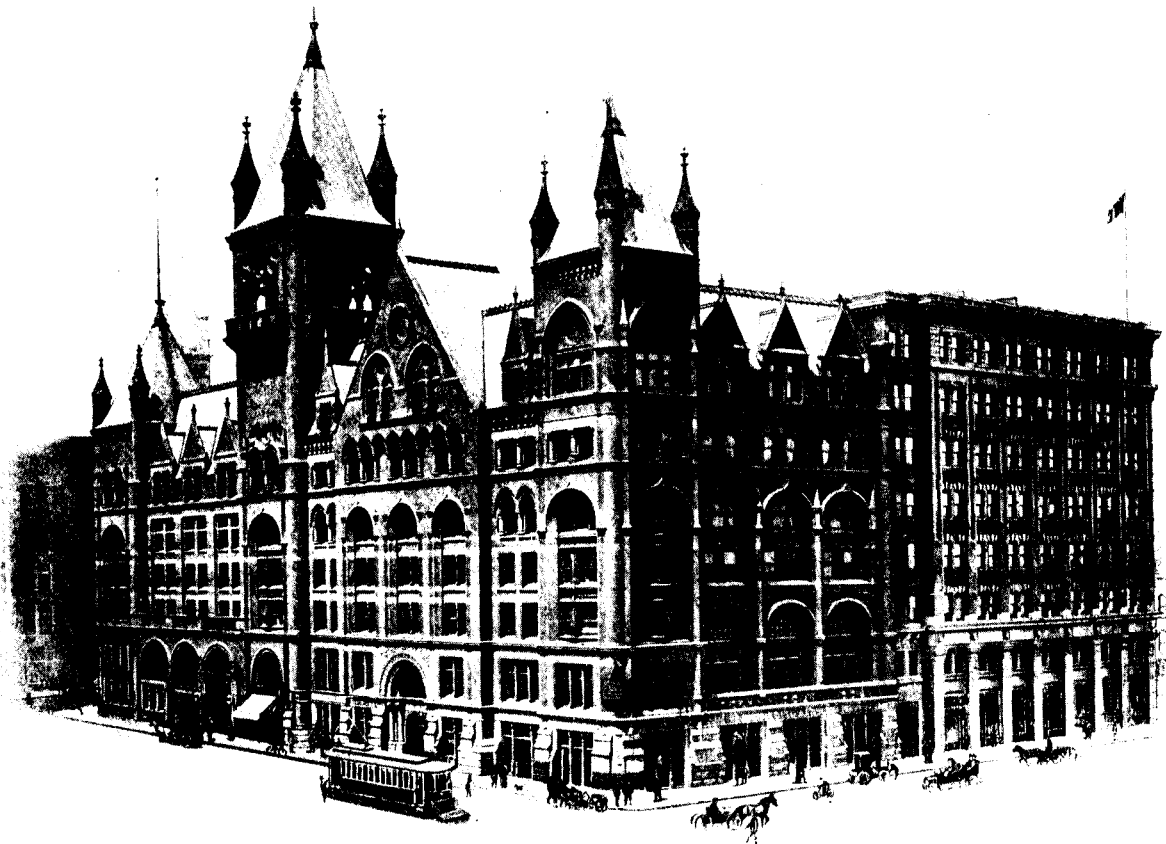


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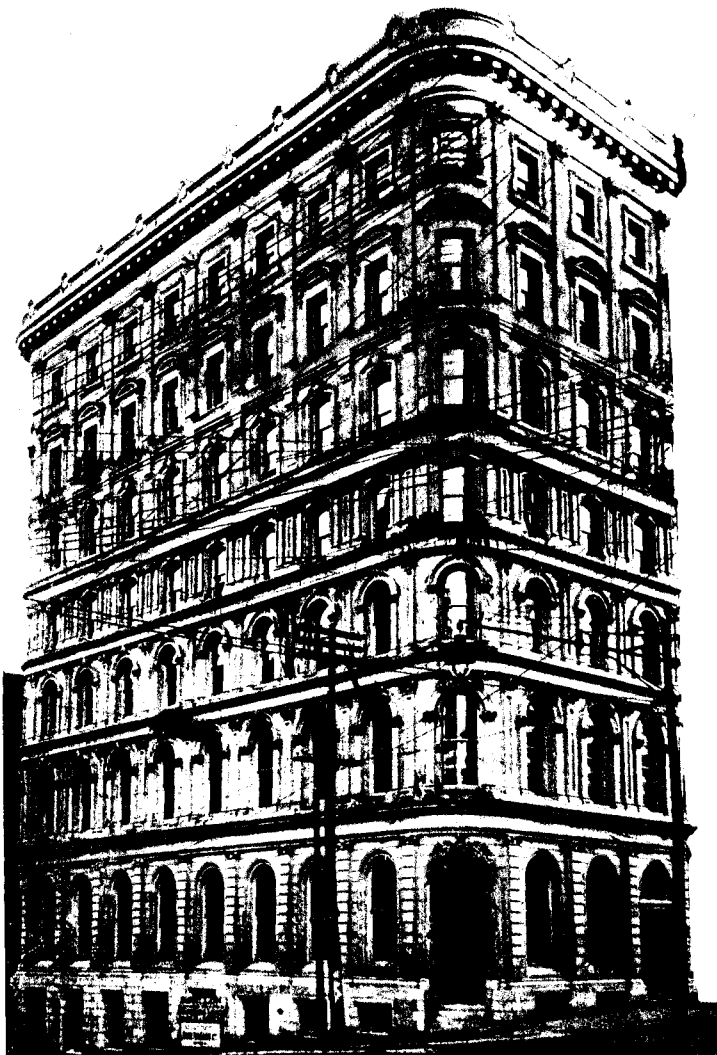
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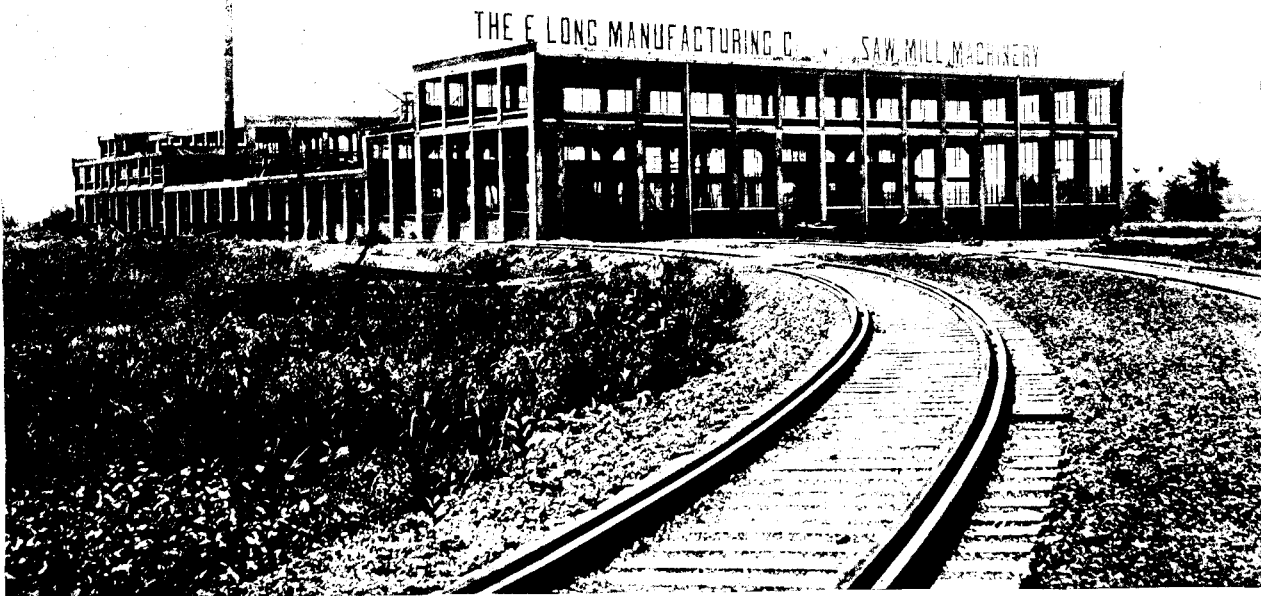


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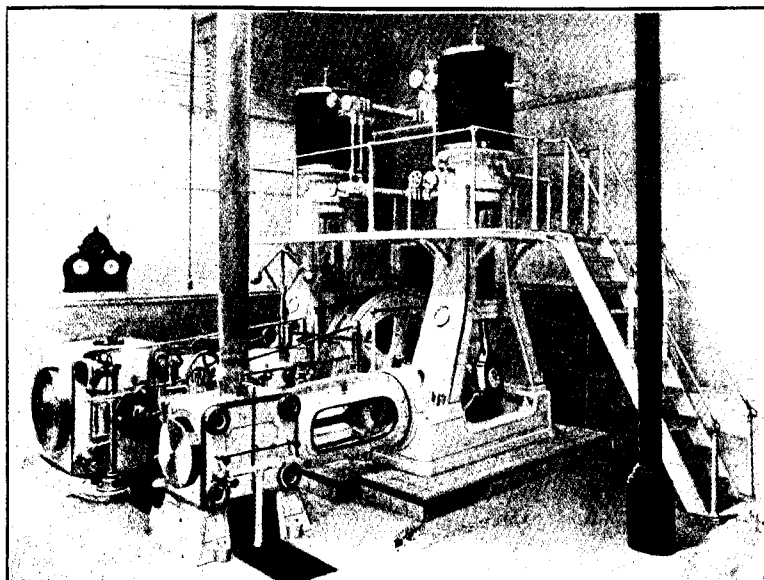
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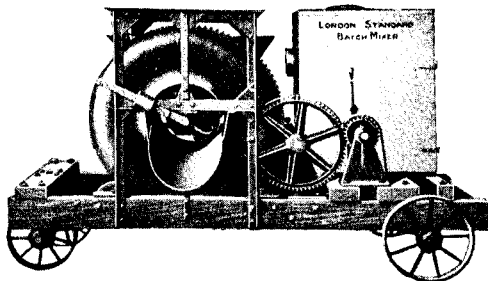
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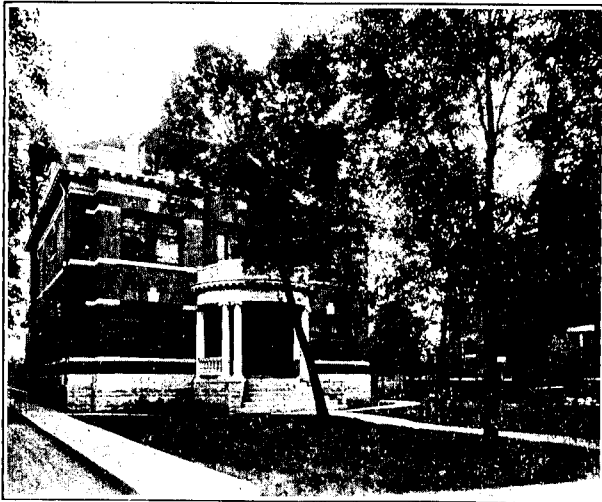
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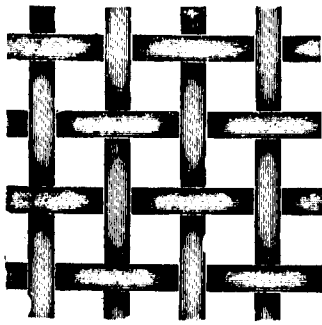
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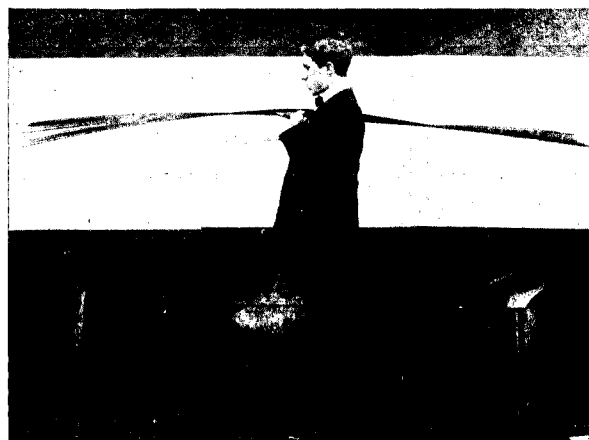
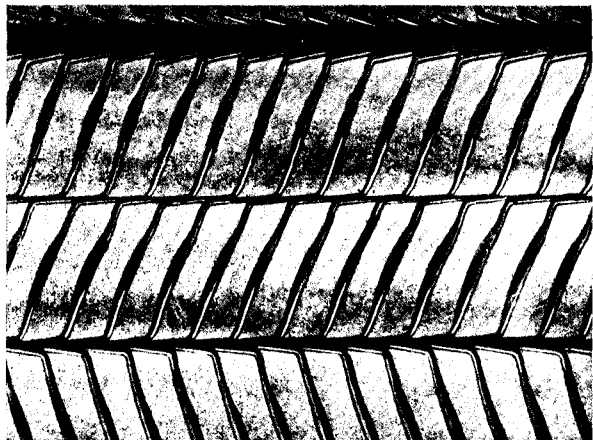


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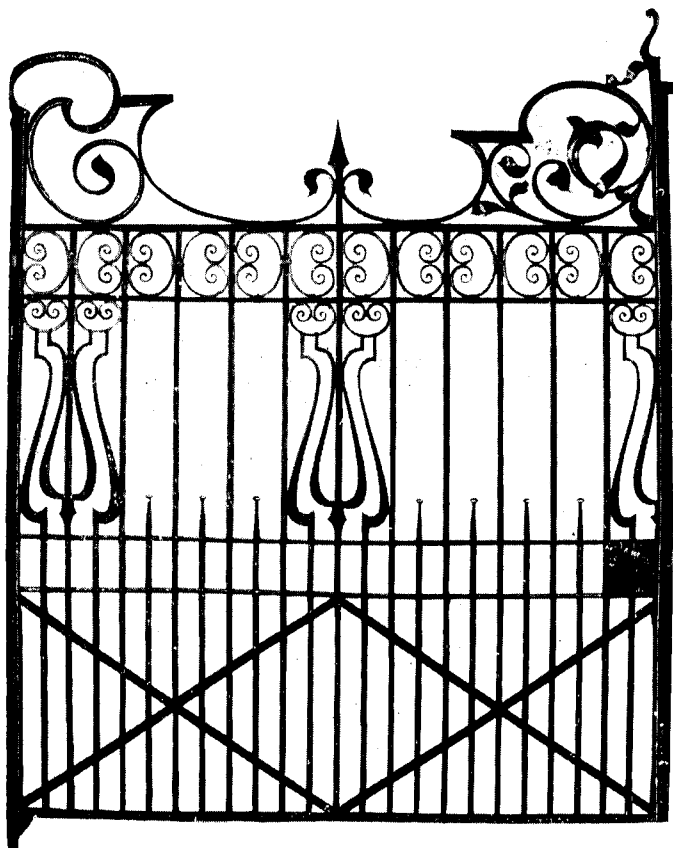
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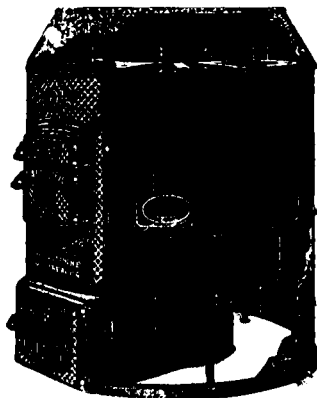
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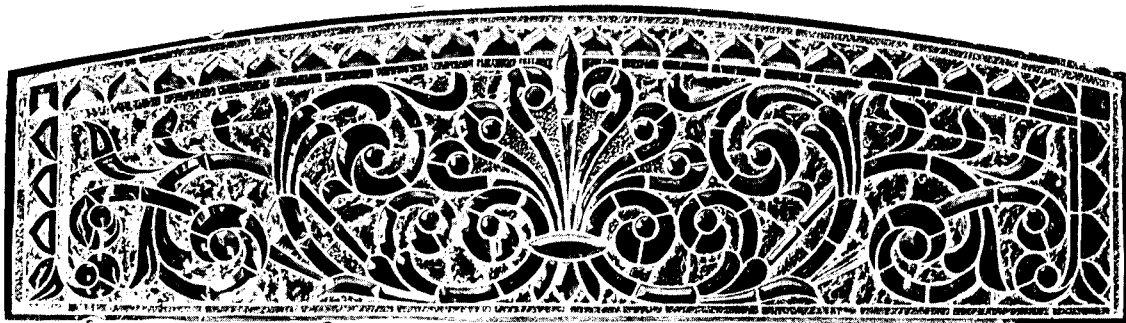
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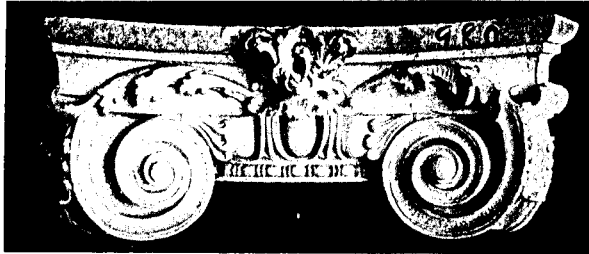
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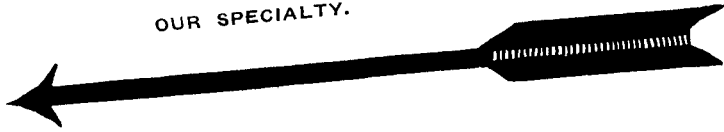
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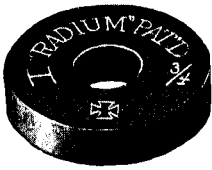
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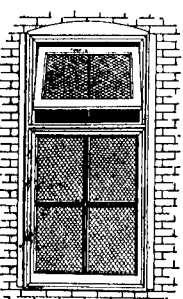
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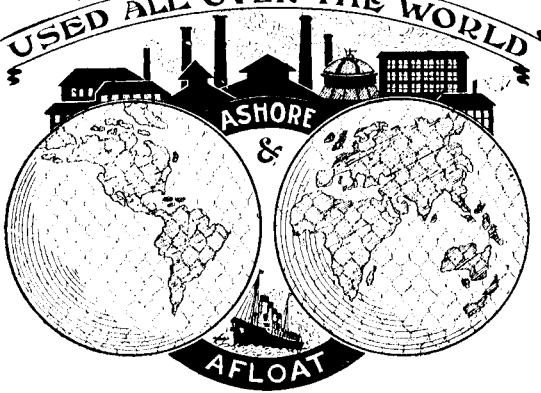
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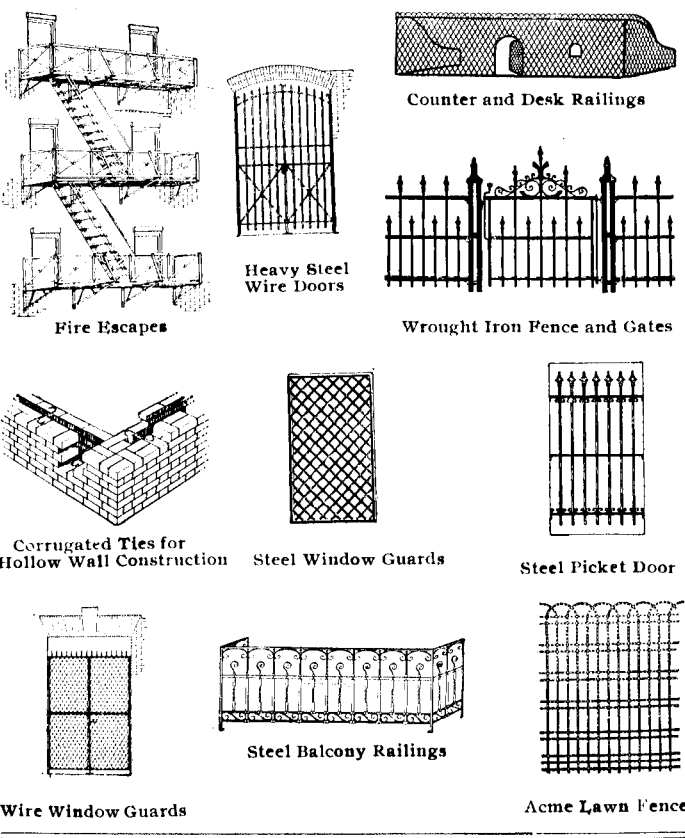
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