

# CONSTRUCTION

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

Vol. 2, No. 2.

DECEMBER, 1908

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Modern London Business Buildings  
See page 37.



- MONTREAL -  
BOARD OF TRADE BUILDING

- HEAD OFFICE -  
'SATURDAY NIGHT' BUILDING,  
T O R O N T O

- LONDON, ENG. -  
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CONSTRUCTION

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ARE BEING MANUFACTURED AND INSTALLED BY US.

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Handsomest  
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Bear  
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Accuracy  
of  
this  
Statement.



Note  
the  
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Work  
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Such  
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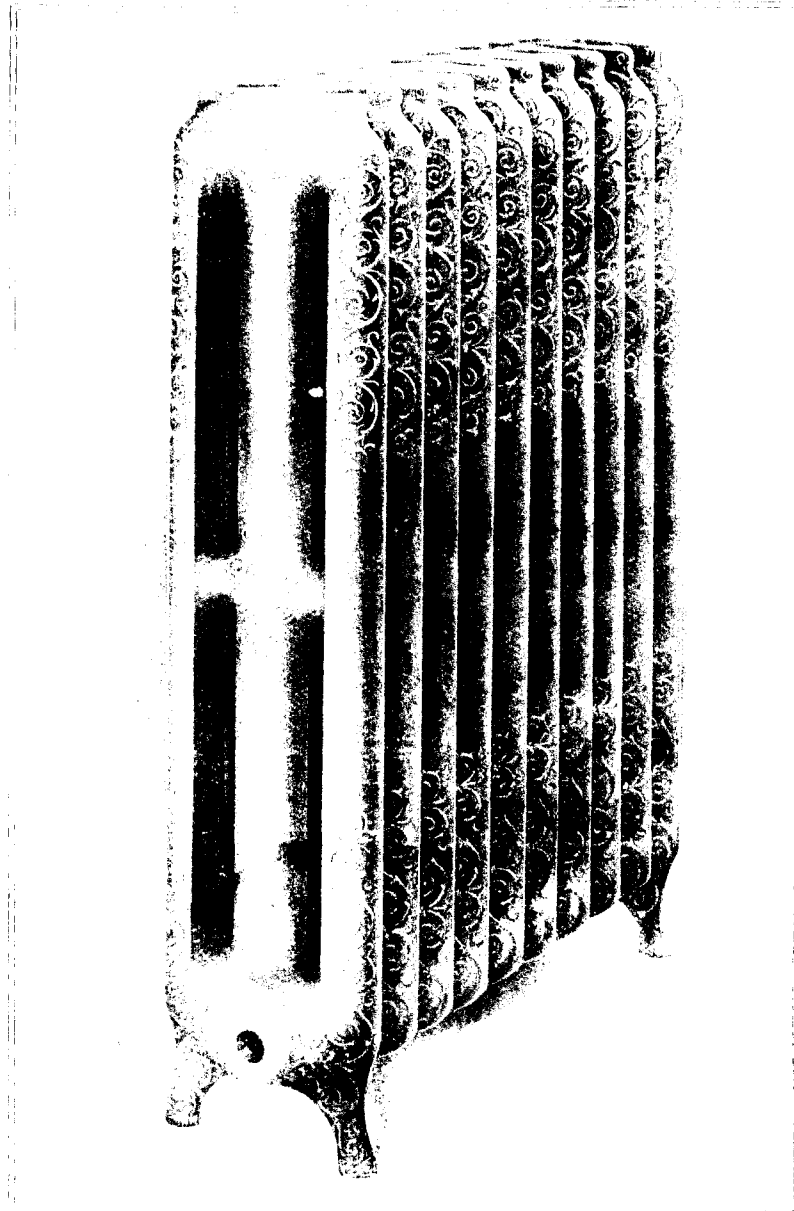
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The same style of ornamentation reigns supreme, so that in every installation, whether comprised of 2, 3, 4 Column, or Wall Radiators, the ornamentation will be found to be absolutely consistent throughout. This is a distinguishing feature of the KING.

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## PORTLAND CEMENT

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ANNUAL CAPACITY ONE MILLION BARRELS

Unexcelled for Strength, Fineness, Color and Uniformity

Highest Quality—Fulfilling requirements of all standard specifications.

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**THE OWEN SOUND PORTLAND CEMENT CO.**  
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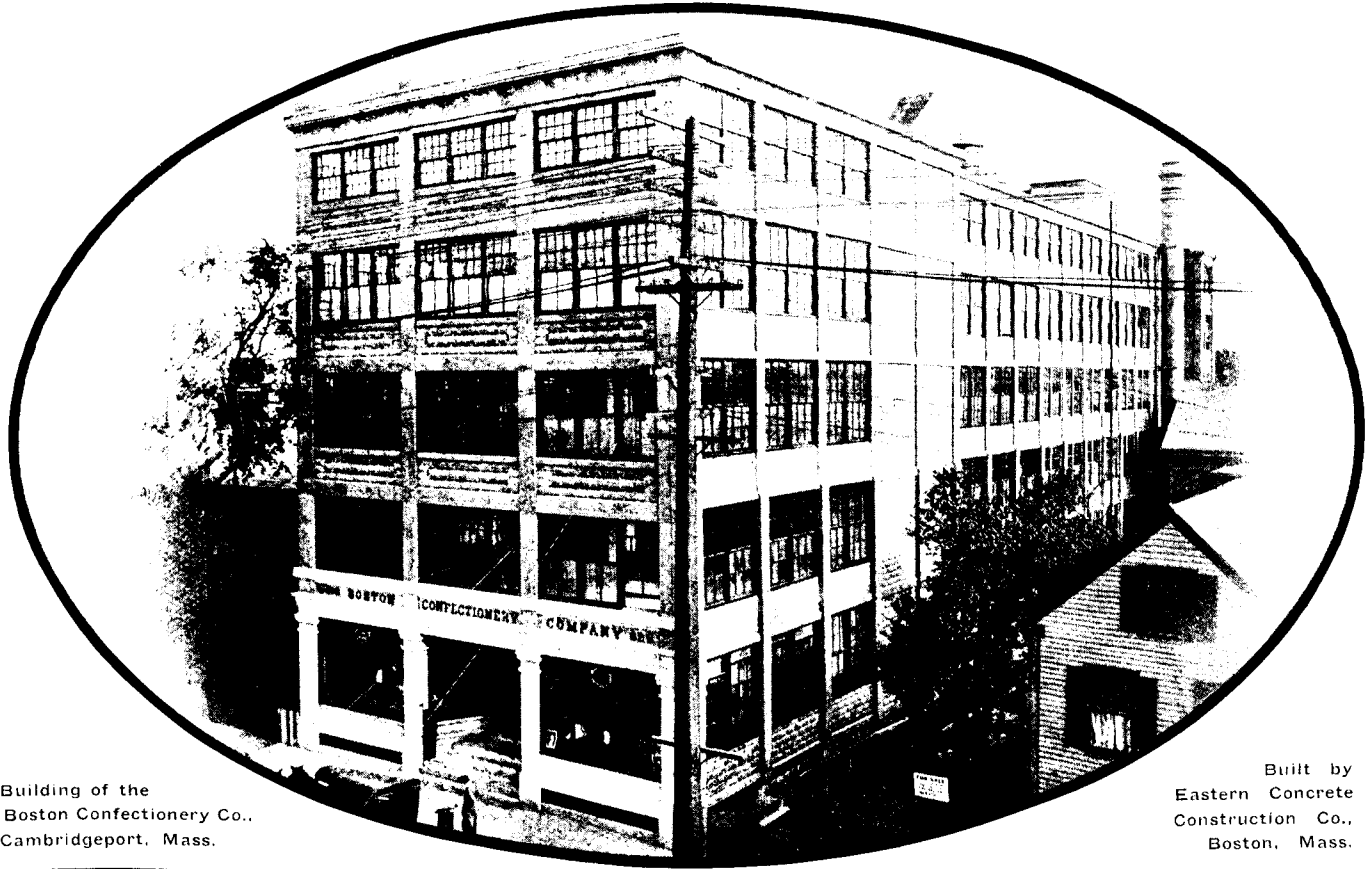


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Built by  
Eastern Concrete  
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The growing tendency to the use of IDEAL Concrete Building Blocks is a practical guarantee of prosperity to the owner of IDEAL Concrete Block Machines.

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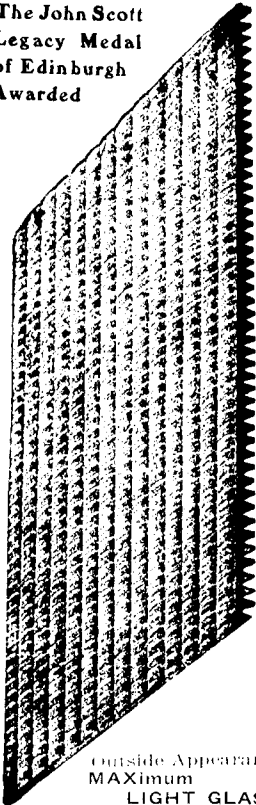
The "IDEAL" is simple, unbreakable and, considering its superior value, remarkably low in cost. Its output is greater with less labor than any other machine.

Other machines in the "IDEAL" line are Mixers, Brick Machines, Sill and Lintel Machines, Column, Spindle, Ball, Sidewalk, Step and Sill Moulds. Illustrated catalogue, a practical builders' encyclopedia on concrete construction, sent free.

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Produces Light Effects in Dark Interiors,  
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is as far ahead  
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### Rigid connection of diagonal shear

members is to-day as  
it was six years ago, the  
one important improve-  
ment in reinforcing steel  
for concrete. Engineers, archi-  
tects, and builders realize that  
rigid connection is essential for the  
Strength, Safety, Fireproofness,  
Shockproofness, and general Dura-  
bility of the finished structure.

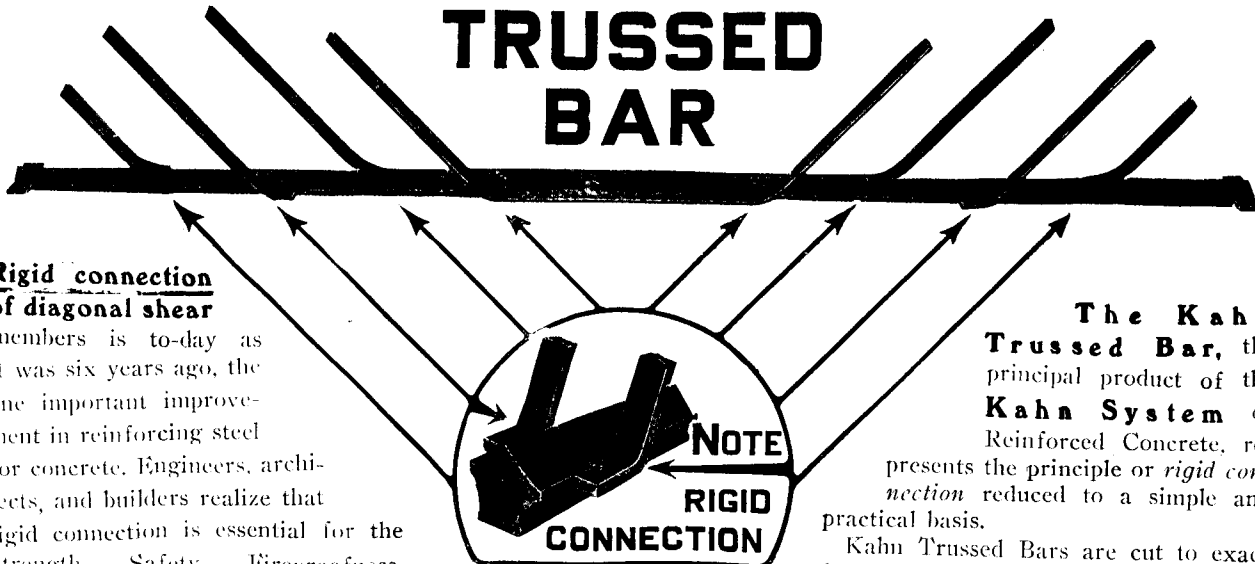
Structures of every type, of every size, have been built Kahn System—Factories, Warehouses, Power Plants, Hotels, Apartment Houses, Office Buildings, Public Buildings, Bridges, Viaducts, Reservoirs, Tunnels, etc. We publish separate catalogues describing them.

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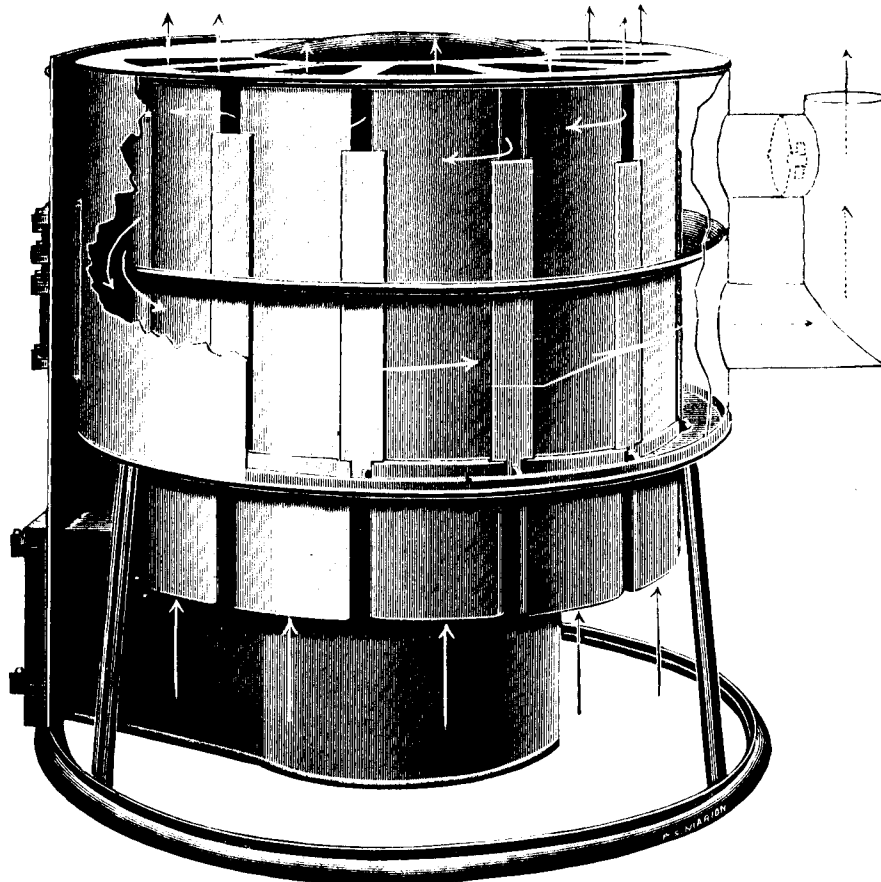
Works and Executive Office, Walkerville.

Sales and Engineering Office, Toronto



The Kahn  
Trussed Bar, the  
principal product of the  
Kahn System of  
Reinforced Concrete, re-  
presents the principle or *rigid con-*  
*nection* reduced to a simple and  
practical basis.

Kahn Trussed Bars are cut to exact  
lengths in our Shops and furnished  
with any desired type of shearing or  
length of diagonal up to 48 inches.



The above cut shows the *Direct* and *Indirect* attachment applied from *Back* of Radiator; also *Course of Fire Travel* around air heating columns to smoke pipe.

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For Thorough and Efficient Heating Qualities, Quickness in Action and Economy in Fuel, it Cannot be Surpassed.

## Economy in Fuel==An Abundance of Fresh Warm Air

The Hot Air columns have immense Fire Surfaces which overhang the fire. Thus all products of combustion come in direct contact with and completely surround them, making the largest amount of heating surface to each square foot of grate surface ever produced in a warm air heater.

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We are particularly well equipped for manufacturing and installing Iron Stair Work, and we can meet any requirements in this branch of ornamental iron.

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# **Stanstead Granite**



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Stanstead Junction, Beebe Plains, Quebec



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For over Twenty-Five Years our Safes and Vaults have passed Successfully through Canada's worst fires. This proves our claim—Absolutely Fire-proof

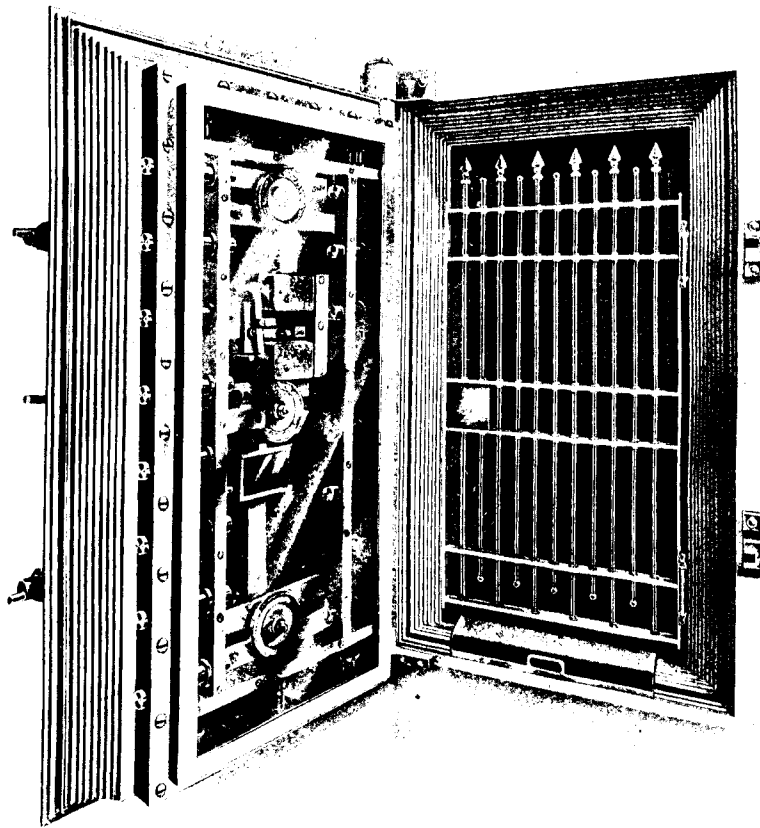


Illustration shows Vault installed by us for the NATIONAL TRUST CO., in their Head Office, Toronto. This door is one of the heaviest in Canada, weighing 6 1-2 tons.

Don't fail to get our Catalogue and Prices before placing order for Safes or Vaults of any description

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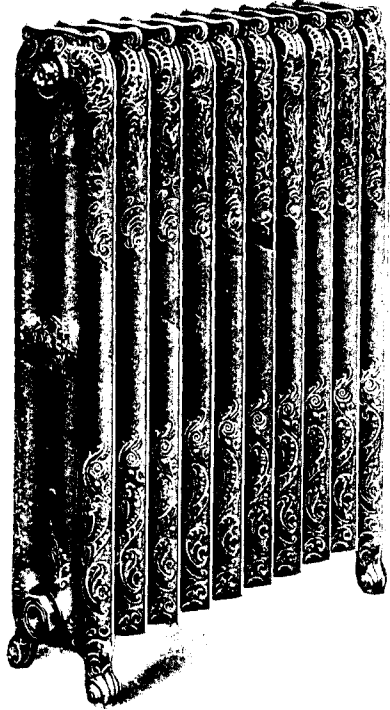
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Not only are we still in the lead with the largest assortment of new patterns and designs, but we are maintaining that standard of mechanical and artistic perfection in our product which has made the "**Safford**" a safe radiator to specify. It costs us money, but it means dollars to you and your clients.

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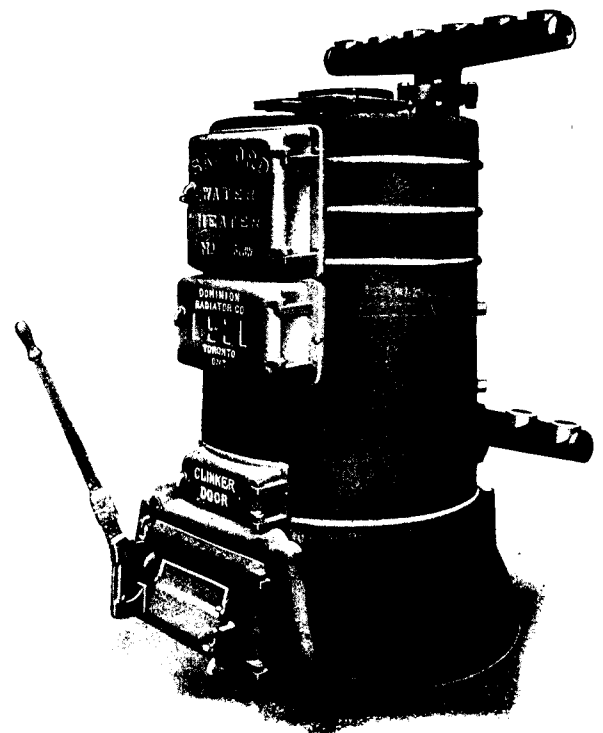
### Safford Hot Water and Steam Radiators

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We felt that there was an immense amount of unnecessary energy expended in firing the old type Boiler, hence the "**Safford.**"

Write us for catalogue to-day.

We can now furnish High Base Boilers in sizes up to No. 4.



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**"PULLMAN VENTILATORS"-----PURE AIR AT ALL TIMES**



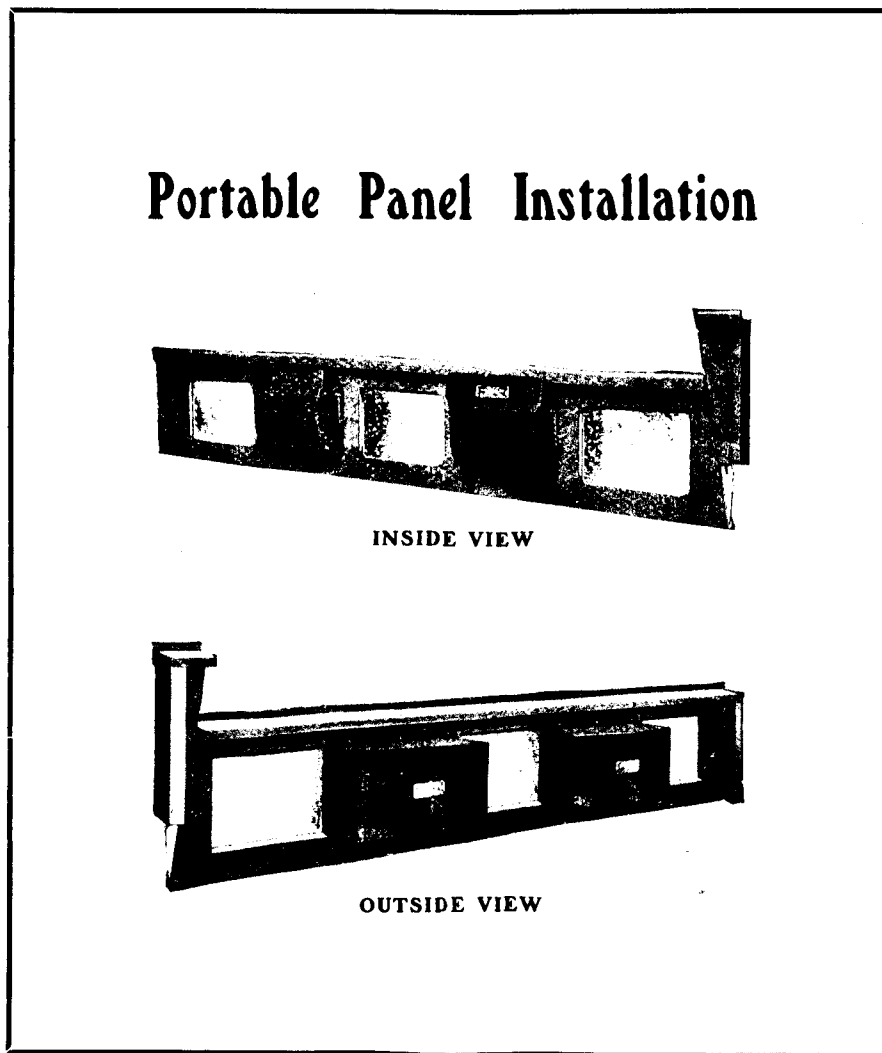
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Do not affect the temperature of the room.



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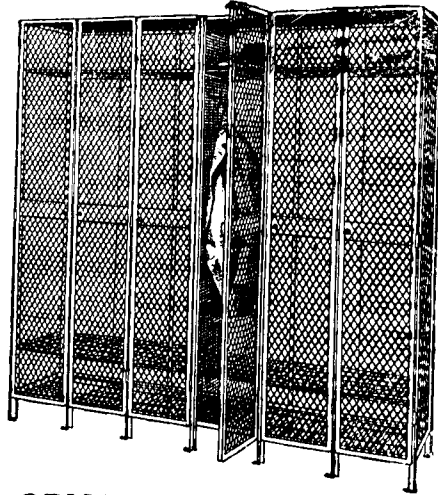
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(Patented 1907)

These Stairs are the Neatest, the Lightest,  
the Strongest Stairs on Earth.

They take less room, bear more weight, last longer, stand more fire than any other.

They are manufactured by *machinery specially designed*.

These stairs are usually made of steel, but when used in private residences, for which they are particularly suitable on account of their neatness, brass or other metal is generally adopted.

As time savers in construction they are invaluable to architects and owners.

For Ocean Greyhounds, Warships and all vessels, where *strength combined with lightness* is indispensable, their value will be understood by Marine Engineers

ESTIMATES SUBMITTED WITH SKETCHES  
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**CANADIAN ORNAMENTAL IRON CO.,**

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These Stairs were Erected in the McCall Wholesale Warehouse, Toronto.

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The Clay of the Don Banks is the Natural Building Material of the City of Toronto and Its Vicinity.

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To Introduce a Material from Other Fields is to Oppose a Natural Law.

Toronto's Architects Appreciate These Facts and Specify the Products of the Don Valley.

The Result is Architectural Harmony, Both in Quality and Appearance.

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TORONTO GENERAL TRUST BUILDING  
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*Toronto*

Nov. 11,

1908.

The Don Valley Brick Works,  
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Gentlemen,-

It gives us much pleasure to record our good opinion of Don Valley Products. For many years we have specified your Common and Face Brick and Terra Cotta Fireproofing, and may say that the quality of the materials you have always supplied, has been quite up to the mark.

In the buildings we have erected in Toronto and elsewhere, where Don Valley Products have been used, we feel a certain security, being fully assured that they are such as to withstand the elements and wear of time, in a manner quite equal to the best materials that could have been procured on the Canadian market.

Yours very truly,

WE MANUFACTURE

**The Best Quality of Face and Common Brick in All Grades**

Our facilities for giving prompt delivery and first-class service are unexcelled

**The Don Valley Brick Works**

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# TERRANO

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# STAIR-TREADS

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**Terrano Stair-Treads** are manufactured from the same material as our TERRANO JOINTLESS FLOORING.

**Terrano Treads** are moulded to fit the iron stair frames and are delivered at the building, ready to be put in place. TERRANO can also be furnished for risers.

**Terrano Treads** are manufactured in Canada and immediate delivery is guaranteed: any colors can be furnished and any style of nosing.

**Terrano** makes the cheapest and best stair tread on the market.

Prices, samples and full information furnished on request.

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# "MARMO" TERRA COTTA

Manufactured by

**The Leeds Fireclay Company, Limited**  
Wortley, Leeds, England

The new Bank of Nova Scotia Building, Winnipeg, one of the handsomest bank buildings in the West, Messrs. Darling & Pearson, Architects, is entirely constructed of "MARMO."

Estimates and samples on application.

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Carrere & Hastings and Eustace G. Bird, Associate Architects.

**AN EXCELLENT EXAMPLE OF CANADIAN MARBLE**

The Interior Marble of this  
Building was quarried by us.

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Rough Blocks, Cut Building Stone, Slabs Polished and Unpolished,  
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# Roman Stone

(Trade Mark Registered)

**IS THE SAME ALL THE WAY THROUGH**

On this account it possesses these two great advantages:

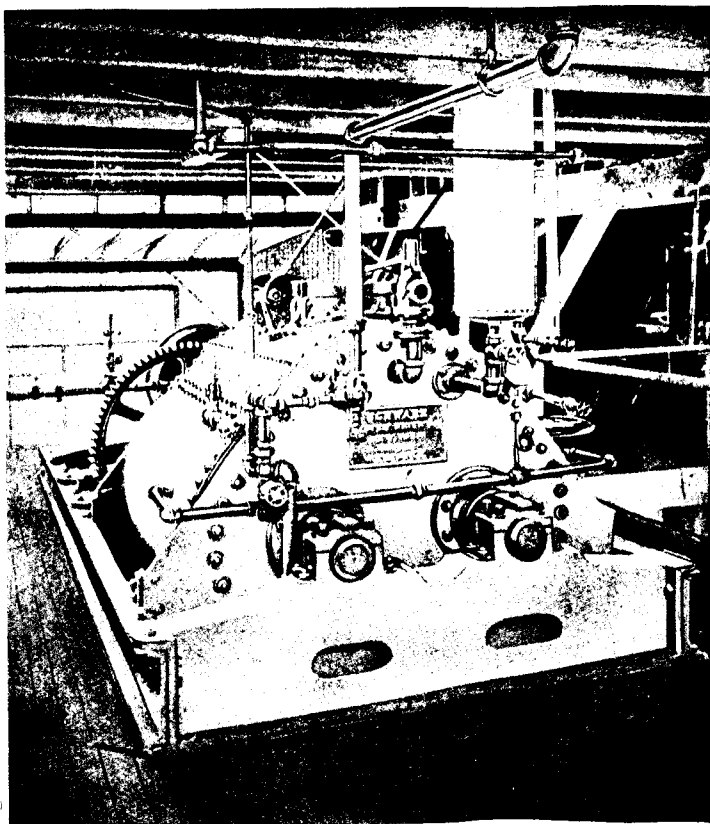
*It has no facing which is so apt to crack off.  
It is tooled or carved after it is hard.*

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The making of Sand-Lime Brick is a real process of rock formation. Nature's work of ages performed in a few hours producing a building material unexcelled in beauty, strength and fineness.

They must, however, be made in a SCIENTIFIC way which means:

UNIFORMITY in the absolute perfection of slaking the calcined lime into hydrated lime.

UNIFORMITY as to the moisture of the prepared sand-lime mixture to be pressed.

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Let us show you why the SCIENTIFIC SYSTEM is the only right way.

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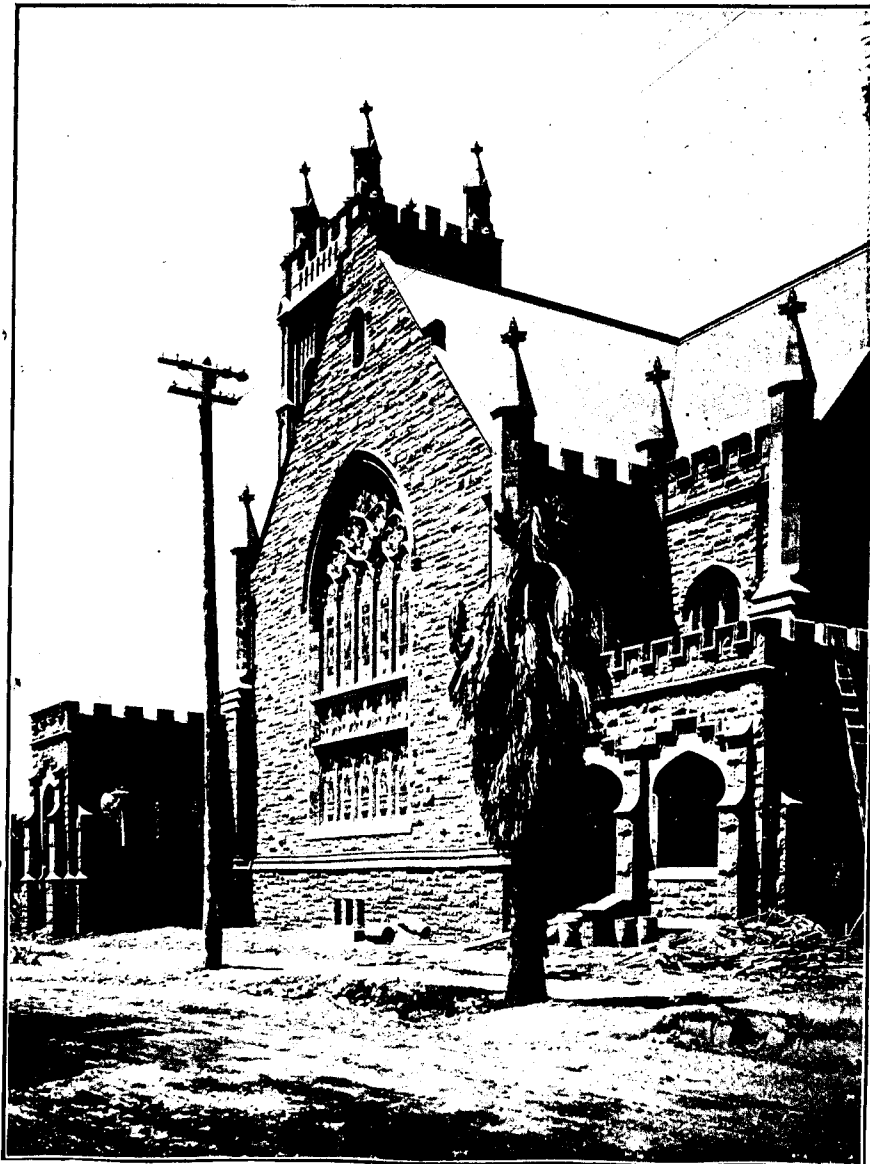
is the *cheapest*, the most *effective*, the most *satisfying* to yourself and your customers.  
*We can make good.* Don't take our word for it *Investigate* and see for yourself.



REAL RANDOM  
ASHLAR

STONE ANY FRAC-  
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FOR, TO MEET  
ARCHITECTS' DE-  
SIGNS WITHOUT  
CHANGE

ANY SPECIFIED DE-  
SIGN, REGARDLESS  
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OF UNDERCUTS



PRESBYTERIAN CHURCH, PASADENA, CALIFORNIA. (Partial view.)



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WORK  
OF ALL KINDS

FRIESE, OR BELT  
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ATION FOR PARKS  
AND ESTATES



This building is where we have *made good*. We can do as much for you, and you can do the same for your customers. *Broken Ashlar* laid up in block and snack, no blind or false joints, but the *goods* at practically no greater cost to you than the ordinary *mud pie* and *gingerbread* blocks.

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**We erect large buildings any place where our system has not been installed.**

**We supply moulds according to designs submitted for any work that you have in hand.**

**OUR MOTTO**—Each and every piece of work different, made practical by the low cost of operating by the California System.

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CO., LIMITED

HAMILTON - - - CANADA

Will be Glad to Furnish Estimates and Plans for  
**Steel Bridges and Buildings**

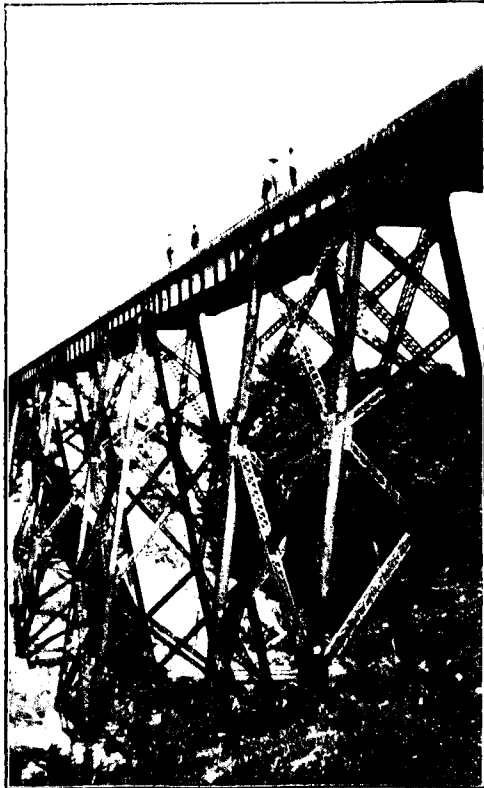
ENGINEERS and BUILDERS of **Structural Steel Work**

**5,000 Tons of Steel in Stock**  
**Annual Capacity 18,000 Tons**

**Beams, Angles, Channels, Plates, Etc.**

**Any Size from 1 1/2 Inch to 24 Inches,**  
**and any Length up to 70 Feet**

**NOTE:**—We advise that enquiries for any work in our line be sent at the earliest possible time, in order to arrange for reasonable delivery.



Trestle on Canadian Pacific Ry., near Port Burwell, Ont.



Our Exhibit of Staved Columns, Veneered Doors, etc., at the Canadian National Exhibition, Toronto, 1908.

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Buildings were erected and equipped with special machinery and appliances for the manufacture of

### **HARDWOOD INTERIOR FINISH**

Our Sprinkler System of fire protection minimizes risk of loss and consequent disappointment to purchaser, which architects who are erecting large and important work appreciate much.

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Toronto Office : 90 Yonge St.

Factory : WALKERVILLE, ONTARIO.

## Three Exclusive Features of Hecla Warm Air Furnaces

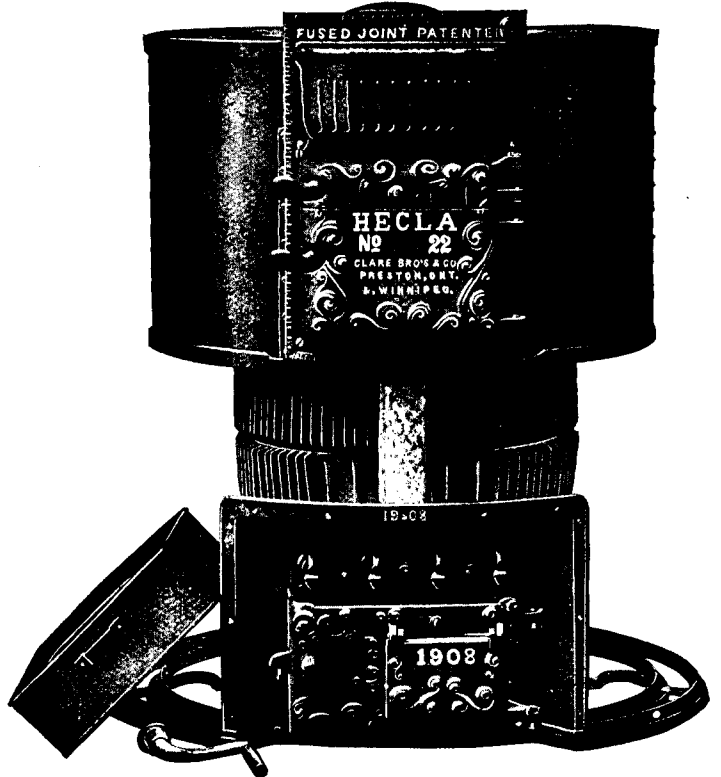
ought to be remembered

**Steel Ribbed Fire Pots** have three times as much radiating surface as any other style of fire pot. Result: **Economy.**

**Patent Fused Joints** absolutely prevent the escape of gas, dust or smoke. Result: **Sanitary Atmosphere.**

**Individual Triangular Grate Bars** enable one to clear all ashes and clinkers from the fire without using a poker. Result: **Convenience.**

These **Exclusive** features of **HECLA** Furnaces are described in detail in our catalogue, which we shall be pleased to send upon application.



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**Paterson's Wire Edged Ready Roofing for Steep Roofs**

*Over half a million rolls used in Canada*

**Paterson's Amatite Ready Roofing**

*Mineral surfaced, fireproof, requires no painting*

**Barrett Specification Roofing Felt and Pitch**

*The best covering in the world for flat roofs*

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*Sanitary, Durable, Economical*

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## The NATURO

The Closet with the Slant.

The Perfect Closet.

Endorsed by Physicians.

No Bath Room Complete  
without It.

When You can get the Best  
why not have It ?



THE horizontally seated form of Water Closet has since earlier times been the accepted model of seat. So firmly has usage impressed this form of Closet seat upon mankind that prior to the invention of the **Naturo** Closet Bowl and Seat no change has been made as differing from the usages of the dark ages, when the use of the crude, interior vault was first introduced.

The evolution from this vault system to the modern porcelain Closet is remarkable in that while the *surroundings and appearance* of the Closet have greatly improved, especially from a Sanitary point of view, this really limits the advance, the crude principles as first conceived being continued practically unchanged to the present day, even the height of the Seat from the floor being carried down to us.

To the general public, interested only in the appearance of the plumbing fixtures as from time to time improved, it has probably never occurred to note that, notwithstanding these improvements, the shape and height of the Water Closet Bowl has undergone no change, and this fact becomes really remarkable when it is understood that the high, horizontal seat is not only uncomfortable, but physiologically incorrect.

# THE JAMES ROBERTSON CO., Limited

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## HERE IS SOMETHING YOU HAVE WANTED FOR A LONG TIME A PERMANENT EXHIBIT

We have recently installed in our office a large number of handsome panels, showing a great variety of building bricks.

In these panels are shown the leading brands of Scotch, American, English and Canadian building bricks in a variety of colors, and many handsome and striking effects have been produced.

Architects and contractors will find our exhibit of great value enabling them to show their clients the material as it will appear when in actual service.

We handle high-grade goods at moderate prices. By modern systems and other facilities we are able to execute your commands quickly and satisfactorily.

### A FEW OF OUR EXCLUSIVE LINES:

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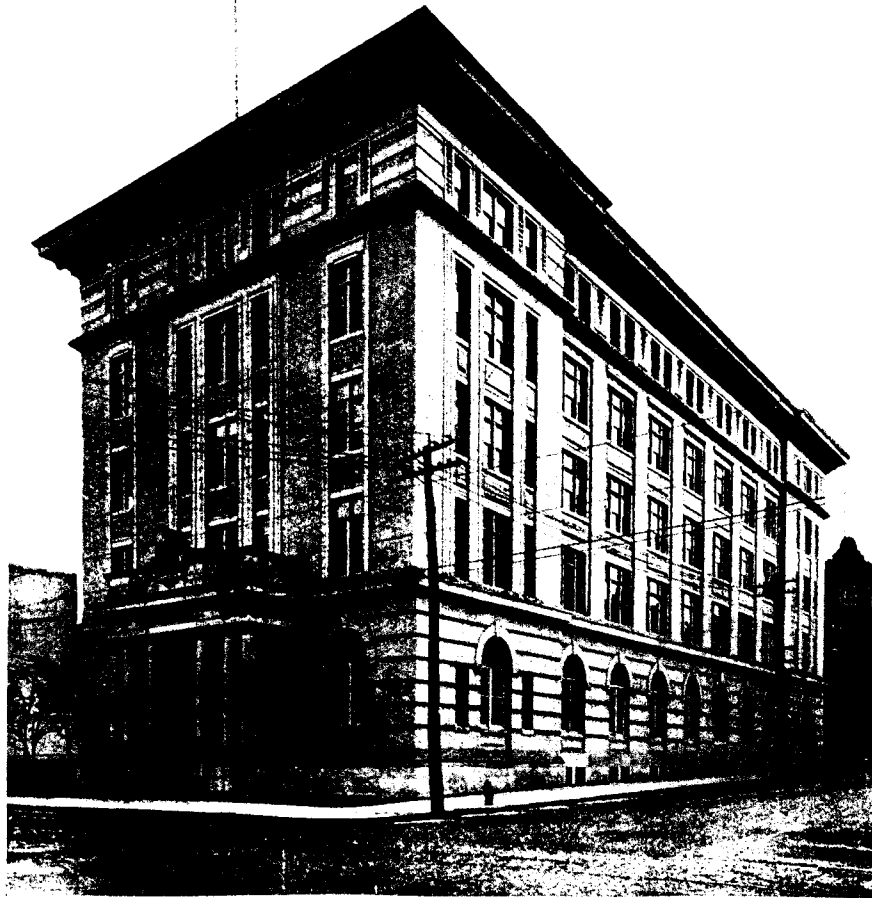
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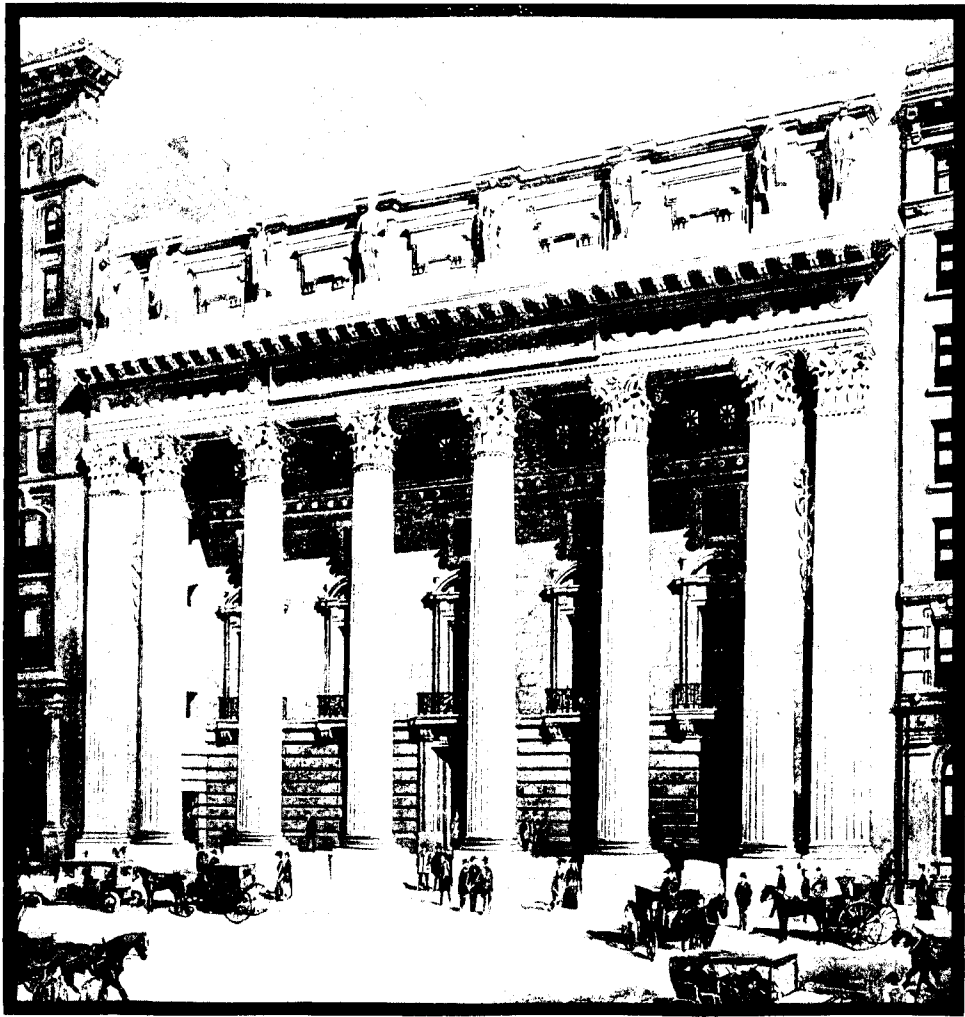
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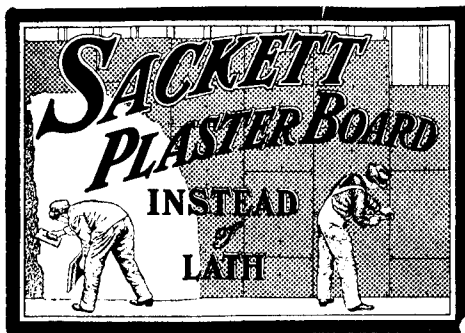
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.. A JOURNAL FOR THE ARCHITECTURAL ..  
ENGINEERING AND CONTRACTING INTERESTS OF CANADA

Vol. 2

December, 1908

No. 2

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Saturday Night Building

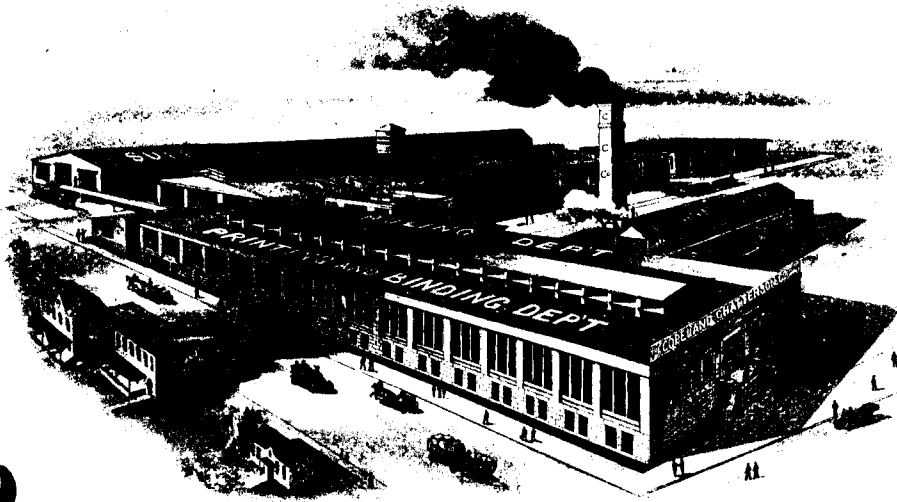
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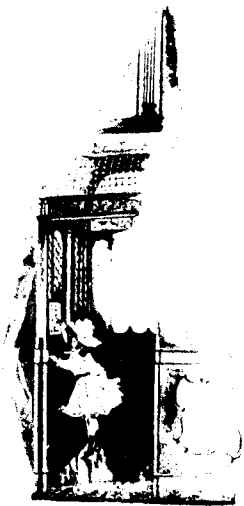
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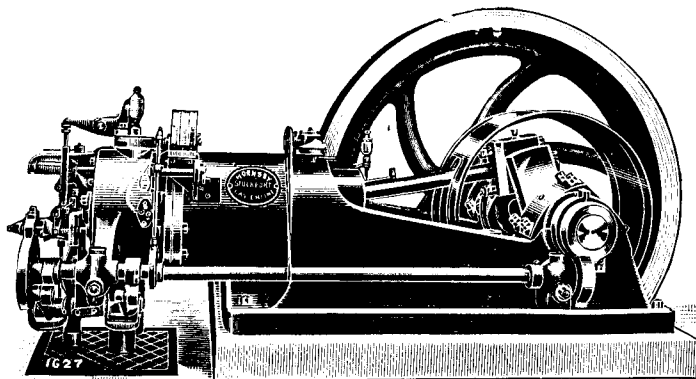
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**BOSTON ARCHITECT'S DESIGN SELECTED FOR CALGARY LIBRARY—ALBERTA ARCHITECTS UTTERLY IGNORED IN COMPETITION — ANOTHER INSTANCE OF OUTSIDE PREFERENCE.**

**A** NOTHER instance of the employment of outside architects to design a Canadian building has been brought to light at Calgary, where at a recent meeting, the architects of that city denounced in no mistakable terms the Calgary Library Board for their action in selecting the plans of a Boston architect for the proposed \$50,000 library building, after utterly ignoring the Alberta architects who were asked to submit competitive designs.

The arbitrary manner in which the board made the award certainly justifies this resentment, as the way in which they took it upon themselves to waive all precedent by inviting—under the pretext of seeking advice—a member of the Boston firm to come to Calgary, and then deliberately awarding him the commission for the work, is not only an affront to professional dignity, but a direct contravention of every precept of conventional business practice.

The architects of Alberta were entirely disregarded in the transaction. None of them were invited to meet the committee, nor were they given an opportunity of explaining their plans. What did their time and labor amount to? The board was quite convinced that the Boston architect's plans were the best—he told them so, and he ought to know, being a specialist in library buildings. Had he not elucidated the salient features of his own plan and the shortcomings of the others with which he was kind enough to familiarize the board? They were extremely fortunate in securing so able a councillor—quite compensated for the portion of his expenses they offered to bear in coming to Calgary. They needed his services, and therefore had sent for him, and he corroborated their vaguely formed opinion that western Canadian architects were quite incapable of designing even a \$50,000 library building. So why bother with explanations from the other architects; it would be useless, a mere waste of time.

The self-imposed delusion was complete, and thus the other competitors were denied the privilege—an inherent right—of being heard regarding the merits of their plans, which the committee had asked them to submit.

It is only reasonable to believe that the board should employ some competent adviser to guide them in the selection of a suitable design—the importance, the cost, and the purpose for which the building is to serve warranted it; but why they should go outside the confines of the Dominion to find one capable of this function, and moreover, nominate one who was a party to the competition, is something that is quite unfathomable. Can it be

possible that in the architectural fraternity of Canada, there is no one who can assist in an advisory capacity and pass judgment in a matter of this kind in a fair, disinterested and impartial manner? We answer "No." There are any number of them with a discriminating knowledge of both design and construction, who would gladly lend their co-operation even though it involved to a slight extent a personal sacrifice and made demands upon their time.

In the first place, why should outside architects be invited to compete for work of this kind in Canada? Supposing the Alberta architects who competed did not evolve a plan that would in the eyes of the committee meet their requirements or be suitable for the building in question, does that imply that the architectural resources of Canada have been exhausted and that there is a dearth of native talent? Hardly. It goes without gainsaying that there are a number of practitioners in the Dominion, who have a well-grounded understanding of library design and construction—who have had experience in this class of work, and who have been successful in their creations. Hundreds of municipalities throughout Canada bear witness to the fact, despite the failure of the Calgary Library board to recognize it. Why then were not other Canadian architects given a chance to prove their ability?

If it was necessary for Calgary, in order to conserve her interests to draw upon architects outside the Province of Alberta, why a Boston architect? Why not a Winnipeg architect, a Vancouver architect, a Victoria architect, or one from Toronto or Montreal? It would at least have saved the import duty on the plans, which surely, as a *patriotic, law respecting body*, the board in tends to pay. Or was it that the requirements of Calgary are so exacting that the men who built up Montreal, Toronto, Winnipeg, Victoria, etc., were not equal to the task? It would seem that way, but it was not; and we would dislike very much to believe that the board in any particular has been guilty of nepotism. All deductions of this unheard-of procedure seemingly indicate a predilection for American architects; the effects of a sort of *absent treatment* whose subtle influence has exerted itself in certain public and private instances; a lack of faith in Canadian ability.

There is not one mitigating circumstance that justifies the action of the board. The competition apparently was a competition on the surface and that was all. Behind it there seemed to have been a predetermination to give the work to an outsider, as the shameful manner in which the Alberta architects were treated, indicates.

Yet it is said that some of the members of the board are enthusiastic protectionists—staunch supporters of the policy of high tariff. Surely this is a conspicuous example of their zeal. Of course, there is an exception to every

rule—why not make Calgary the exception this time? Certainly. The Government should in this instance, condescend to exempt American materials from duty and lower the barrier to alien labor. (?) Why not make a good job of it and show the poor Yanks that we are an hospitable nation? It has been done in other exceptions, and now Calgary wants to help sustain the country's reputation.

Even the gentleman from cultured Boston must have a mild contempt for Canadians after the easy manner in which he landed the job. It would be quite unfair to attach the blame to him. He knew the conditions in this country, the lack of stringent tariff laws, the penchant that some Canadians have for American architects and had, therefore, only displayed a quality that is quite human. He came, saw more than he expected to see, and conquered—not so much by virtue of his design, but because the board was only too ready to yield; had, in fact, previously decided upon it.

As we said before, we would dislike very much to believe that it was in any way a case of nepotism, nor would we like to believe that there was an emolument in it for the Board. It, however, throws off a malodor, the odor of sacrificed national pride rising from the charnal pile of an unaccountable outside preference.

The Board may have fallaciously reasoned that protection is only necessary for Canadian industries and resources, and not for Canadian art. They may deem the development of building design in Canada a thing quite uncalled for. If so, how can they account for their going abroad for a plan to meet their somewhat fastidious ideas? If Canada needs no art in her buildings, why almost any style of a rectangular structure should have answered the purpose. There is no doubt in our mind that had the Board examined the designs submitted without prejudice, they would have found in the work of the Alberta architects, at least one plan equally as meritorious in design, construction and arrangement as that of the Boston architect.

This is the second happening of its kind in the West, within recent date, that has come to our notice. Regina was the other offender. In her case it was a hospital building, and she too found a specialist—a Chicago architect. In view of the fact that the United States is so prolific in specialists, possibly we could find a few who make an exclusive business of officiating on library boards. Let us try—just make another exception. Surely, the experiment cannot result in anything more disastrous to the integrity of Canada than the two instances to which we refer. In fact, being steeped in the principles of high protection, the instrument of the upbuilding of the United States, Canada might profit from them.

The time is over due when Canada must grapple earnestly with the conditions that confront her. She must protect her interests, not only those of her industries and resources, but of her arts as well. The art of design in building is an important one. The architect works out his design to give expression to his native materials—the materials with which he is familiar, and his protection means the protection of Canadian material firms, contractors and working men. It is up to the architects of Canada to bring this matter before the Dominion Parliament with a view of obtaining legislation and will effectively conserve the interests of Canada. And let those who are exponents of a high protection, such as we learn some of the Calgary Hospital Board are, practice a little more of their creed. It would have a better and more wholesome and beneficial effect in the upbuilding of Canada.

It is gratifying to learn that the Alberta architects are not going to submit meekly to the outrageous treatment accorded them by the Library Board. They have decided to publicly exhibit their plans, and are anxious that the accepted design, which they say has not as yet been seen

by anybody but the members of the Library Board, should be exhibited as well. This action on their part will be taken in order that the citizens of Calgary may have an opportunity of judging for themselves as to the merits of the different designs. It is a step in the right direction—one that shows that the Western architects have full confidence in their creation—and it should bring the people of Calgary and the West to the realization of how Canadian interests are being subverted to the interests of the country across the border.

*PROPOSALS TO FEDERATE ALL CANADIAN ARCHITECTURAL BODIES—A SOLUTION OF PRESENT CHAOTIC CONDITIONS..*

WE ARE PLEASED to learn that there is a movement on foot to bring about the federation of all the architectural bodies in Canada, with the recently established Canadian Institute at its head.

It has for some time, been recognized that Canada should have a national body of architects, which fact brought about the organization and incorporation of the Architectural Institute of Canada. This Dominion organization must not be looked upon as the creation of any clique of individuals, but to be a success and to successfully accomplish its purpose, it must be a thoroughly Canadian organization, supported, upheld and maintained by not only every individual architect in the Dominion, but by every body of architects. It is true that local bodies may have individual problems which they have to solve, and just as these problems can be more easily dealt with by a local association of architects, rather than by the individual members, so can the common problems of all the provincial architectural bodies be much better solved through a Dominion body which shall be strengthened by all the local bodies throughout the Dominion.

As we understand it, the suggestion at present is about as follows: It proposes to request the five or six provincial bodies now in existence to consent to join the Canadian Institute as a body in each case, at the same time retaining their full identity and all of their educational and examining work, under the name of (for instance, we will say) "The Manitoba Chapter of the Architectural Institute of Canada." All architectural clubs at present existing will be asked to consider the same proposal in each of their individual cases. This would imply an increase in the annual fee paid by the members of the Canadian Institute, and a consequent reduction in the annual fee of the provincial bodies and clubs, so that no greater total fee would be paid for membership in the Canadian bodies than is required under present conditions.

If such a movement should be successfully brought about, the profession of the whole country would be represented by influential bodies in each locality, with a financially solid and powerful institute at the head, the membership of which would reach five hundred or more. It is further proposed that this Institute should give financial support to the provincial bodies or clubs in their educational and examining work, and, with its extensive membership, it would exercise an influence of considerable power from its headquarters at Ottawa, and represent the profession in Canada with great dignity.

This suggestion should be welcomed by every architectural body in Canada as a solution of the present chaotic conditions existing. The effect of such a movement would be to give the architectural bodies in the different portions of the country an opportunity to thrash out the several problems before them, and arrive at conclusions and policies that would be agreeable and beneficial to all and would eliminate the unfortunate condi-

tion of having organized architectural bodies in various portions of the country, working at cross purposes.

As the provinces are federated under one Dominion Government, so should the architectural bodies be, if they wish to exercise concentrated effort in the raising of the standard of architecture of this country. Local effort, it is true, is beneficial, while scattered effort is futile, but combined effort is the one thing to be desired.

*SINS OF THE ARCHITECT AND CONTRACTOR — CONSPIRACY, CARELESSNESS, FOGGISM AND SHARP PRACTICE, THE MOST DANGEROUS EVILS.*

**T**HAT THE SINS of the architect and the contractor are many is a regrettable but nevertheless an undeniable fact. Many architects of recent years have adopted very shady methods of soliciting business. Some have entered into business association with contractors, material dealers and manufacturers, and their advice to their clients has been influenced by these business connections.

Instances are not rare where architects have conspired with contractors to hold up the owners for extras, and, in fact, recently some contractors have grown so bold that when putting in a tender on a job they will plainly ask the architect how much must be included in the tender for him. Contractors' combinations have been discovered and some attempt has been made to break them up, but there is still much to be done along this line of reform.

The building and contracting industry is a vast one in Canada, and many millions of money are invested in the industries directly or indirectly connected with building construction, and it should behoove every respectable architect, contractor and manufacturer to discourage in every conceivable manner the growth of the monster "graft."

The following is an interesting confession from a correspondent signing himself "Sinner," recently published in one of our contemporaries in the United States. He seems to speak from experience:

The ethics of the contractor is something to which the average architect and material man should, and in some measure does, pay careful attention. We have said "some" and the reason why we qualify is that it is, occasionally, to say the least, an exception.

Just why an architect does not put forward at all times, the requirement of sterling honesty on the part of a contractor is a question which he will have to answer for himself, but we have our ideas on the subject.

Perhaps there is something to be gained by not scrutinizing the man too closely, or being honest himself (the architect, we mean), he thinks all others are, as well and in this case, he learns, when too late, that the job has been jobbed as well as others. There is another who has been hit, quite hard, and that is the owner, who last of all has to bear the burden of a "mistake" on one part, and infamy on the other.

An honest contractor means an honest job, no heartaches, no quarrels or law suits. It means more than that. It means a good reputation for both the contractor and architect—good enough capital for either.

Give a calf enough rope and he will strangle himself. Give a crooked contractor an opportunity, and he will emigrate to pastures new, at frequent intervals.

If an architect is not a walker in the straight and narrow path, sooner or later he takes a walk also. We know of one who, in "his day and generation," was a peer of them all; recently he finished a sixty days' stunt on the county stone pile.

A contractor who "skins" the job enjoys only a limited spell of prosperity. His song soon becomes "nothing doing."

In this bailiwick we know of contractors who need not "sign up"; they make money, honestly, too.

We know of others with whom a contract as well as a bond is of little use towards completing a strictly honest job.

"Extras" are the bane of the owner; a good architect does not have many extras. Sometimes they are necessary, but as a rule, with an honest architect and an honest contractor, they are mighty scarce. True, even with the best of use, there may be something which should have been included in the original specifications and was not, nevertheless with careful drawing of the articles governing the contract there ought to be nothing wanting on which the contractor could build extra claims.

Many times we have heard of a shrewd contractor who, in making his bid, discovered some important detail which was left out, thus enabling him to make a much closer proposal than some of the less observing competitors, expecting to make up the low figures on the "extras."

We know of one architect who forgot to include a stairway to a second storey in the plans. The sharp contractor discovered this and made an unusually low bid, secured the job and when it came to stairways he held the owner up for a big sum and made considerable money on the contract.

Plumbers are about as questionable in these matters as any, and the owner who gets out without a "hold-up" on their part is a rare one. Perhaps there is some reason why they are the most cordially hated of all the contractors, who have to do with the construction of a building.

Our best, our leading, our successful architects are those who give careful attention to every matter of detail even in the proper selection of the contractor. Those who are careless soon find their business on the wane.

Another class of architects are those who do not progress with the times. You can tell them by noting the last building for which they drew plans and comparing it with the one planned several years since. The style is the same, the construction is the same.

Once in a while we find one who knows it all. He says: "I have used such and such material for years and it is good enough for me."

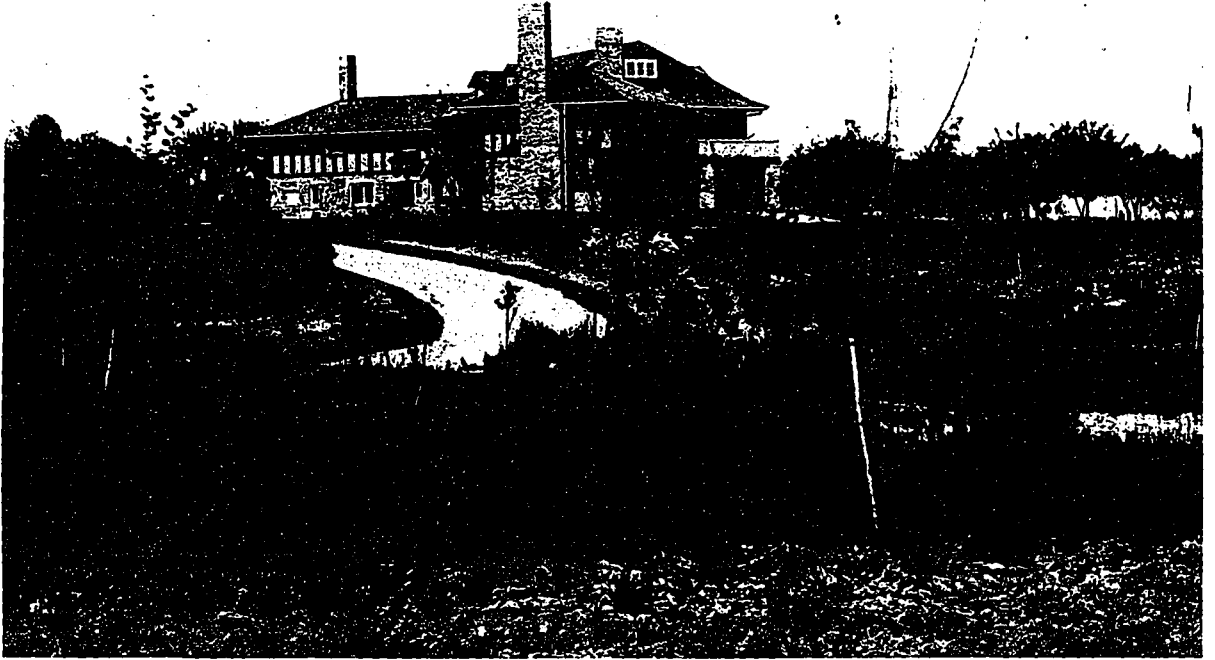
A little more reading, a little more "absorption," if you will, would do as good, but the matter of progress on the part of all would eliminate the factor of the "has beens."

Sometimes the material man does not receive the recognition he deserves; he is in a position to do the architect a great deal of good, it is his business to keep posted on improvements and if allowed to present the merits of his goods we are quite sure the architect would add to the character of his work without lowering his dignity.

We know of one material man who makes a specialty of a certain kind of furnishings, we will say church furniture, knows a great deal about the most modern methods of construction, especially as regards seating and their arrangement. He offered one architect the benefit of a large list of such plans, and received for his kindness, "No, I thank you; I do only original work, never copy anything, work it out in my head." This architect has one small back room in a cheap building, has been there several years; will be there several more, if he don't get into the county poor house. His clothes look seedy, he looks rather rusty, is both; in fact he was a "has been" before he commenced his profession.

Another class, which makes mistakes are those who always have the same contractor do their work. It looks bad; it is bad. Too close "fellowship" means loss for someone; usually, as before, the owner.

Both get careless, both get something else—sometimes. Taken, however, as a whole, the profession, both of the architect, the material men, and the contractor, is far better as to its ethical side than a few years since, and it lies with the two first as to how much better it will be in the future.



VIEW OF COUNTRY HOME AND GROUNDS OF MR. JAMES RYRIE, SITUATED TWO AND ONE-HALF MILES EAST OF OAKVILLE, ONT. BURKE AND HORWOOD, ARCHITECTS.

**COUNTRY HOME OF MR. JAMES RYRIE.**---Designed to Harmonize with Beautiful Estate Which Surrounds It.---Built Partially of Stone Native to Its Grounds.---Estate Equipped with Private Water Supply, Telephone and Sewerage Systems. . . .

**O**NE of the fascinating spots where architecture and landscape combine to effect a picturesque consonance in their relationship, is the country home of Mr. James Ryrie.

Situated on the north shore of Lake Ontario, about two and one-half miles east of Oakville, this delightful home, both in design and construction, has seemingly be-

come a very part of the beautiful grounds which surround it. The house which is two stories high, besides the third story formed by the low broad roof with spreading eaves, dormer windows and moss green shingles, presents a most attractive appearance with its simple character, hospitable lines and homelike atmosphere.

At the front of the house is a large spacious verandah



COUNTRY HOME OF MR. JAMES RYRIE, SHOWING THE LARGE RUBBLE STONE AND CLINKER BRICK CHIMNEY AT THE SOUTH-WEST END. BURKE AND HORWOOD, ARCHITECTS.



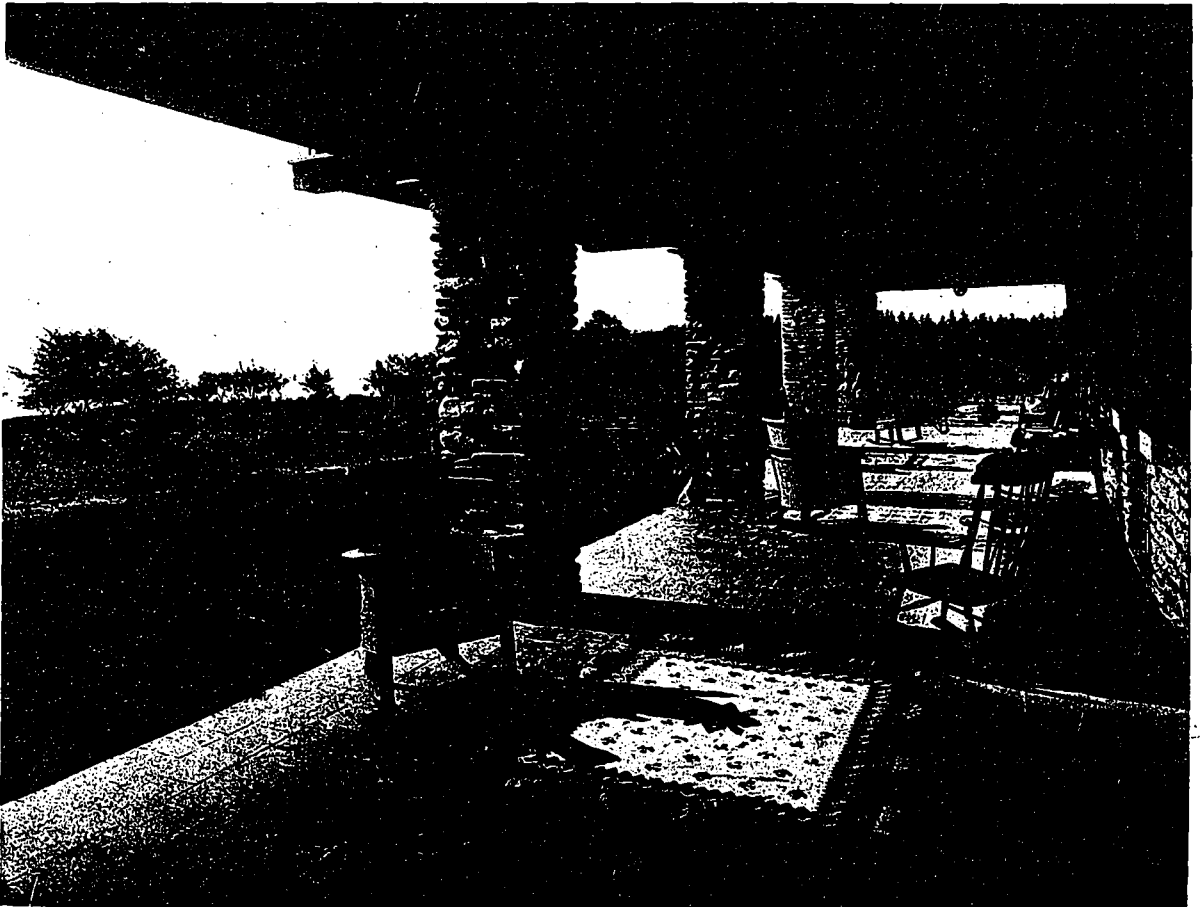


FRONT ELEVATION, FACING THE LAKE SHORE, COUNTRY HOME OF MR. JAMES RYRIE. BURKE AND HORWOOD, ARCHITECTS.

paved with large red tiles at the level of the adjoining lawn. This splendid feature is formed by massive stone piers two feet square supporting the front portion of the second story. Facing the south-east, it commands a delightful view of the grounds and orchard of cherry, apple and pear trees, and the lake beyond, while two well-placed balconies at the front and the end wings, extending back at angles of about 45 degrees, further add to the picturesque beauty of the whole.

Consistent with its natural surroundings, the masonry walls of the first story of the residence, are built of flat

lake stone which was obtained from the shore in front of the property. The upper portion is of solid half timber construction, morticed and fastened with primitive wooden pins in marked contrast to sham half timber work seen in many modern dwellings. The timbers are left rough from the saw, and stained a greyish brown in harmony with grey tones of the stone work; and in keeping with this combination are the chimneys faced with clinker bricks, running from greys to light olives and browns, growing out of and blending with the rubble stone forming their base.



SPACIOUS VERANDAH, COUNTRY HOME OF MR. JAMES RYRIE, SHOWING THE LAKE STONE PIERS SUPPORTING THE UPPER FRONT PORTION OF THE HOUSE. BURKE AND HORWOOD, ARCHITECTS.

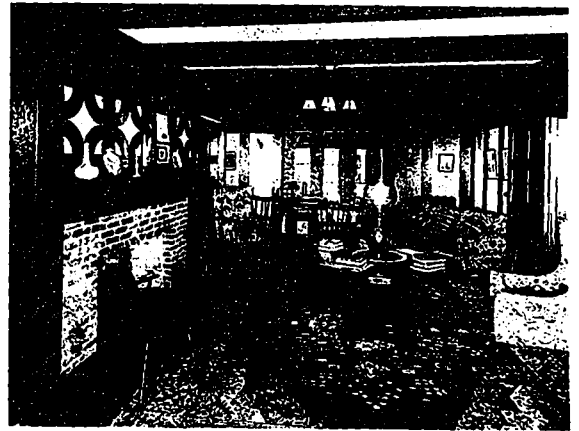
# C O N S T R U C T I O N

Internally the house is characterized by the same simple and inviting appearance which so strongly marks the

taining three bedrooms and a bathroom on the second floor.



VIEW SHOWING RIGHT WING, COUNTRY HOME OF MR. JAMES RYRIE. BURKE AND HORWOOD, ARCHITECTS.



LIVING ROOM, COUNTRY HOME OF MR. JAMES RYRIE. BURKE AND HORWOOD, ARCHITECTS.

exterior. A large entrance hall, with staircase leading to the floors above, extends through the building at the centre, and practically separates the living from the service department.

The living room is on the opposite side of the hall from the dining-room, and adjoining it is the billiard-room, with a built-in brick fireplace at one end and a wall cupboard at the other. These three rooms have timbered ceilings of solid Georgia pine with walls panelled in the same material. The living-room has also a built-in fireplace of brick, while in the dining-room in a niche extending to the right at the front wall is a large cosy ingle-nook.

The right wing of the house in which the kitchen and pantries are located, is used wholly as servants' quarters. It is fitted up in a manner quite in keeping with the whole place, being provided with a verandah, and con-

Upstairs, in the family portion of the house is a sewing-room opening on to the balcony, and seven well-placed bedrooms, the two in the left wing being provided for visitors. All bedrooms have been placed convenient to the bathroom, and each has running water and individual clothes closets.

Situated well back on the grounds from the house are the other buildings on the estate. These consist of a man's house or lodge, and the stable and coach-house. As with the residence a great deal of material used in their construction, is native to the lake shore, both buildings being built of flat lake stone for the first story, with half-timbered construction above.

Immediately in front of the stable and coach-house is a large paddock, while adjoining it on the right is a cow barn, with



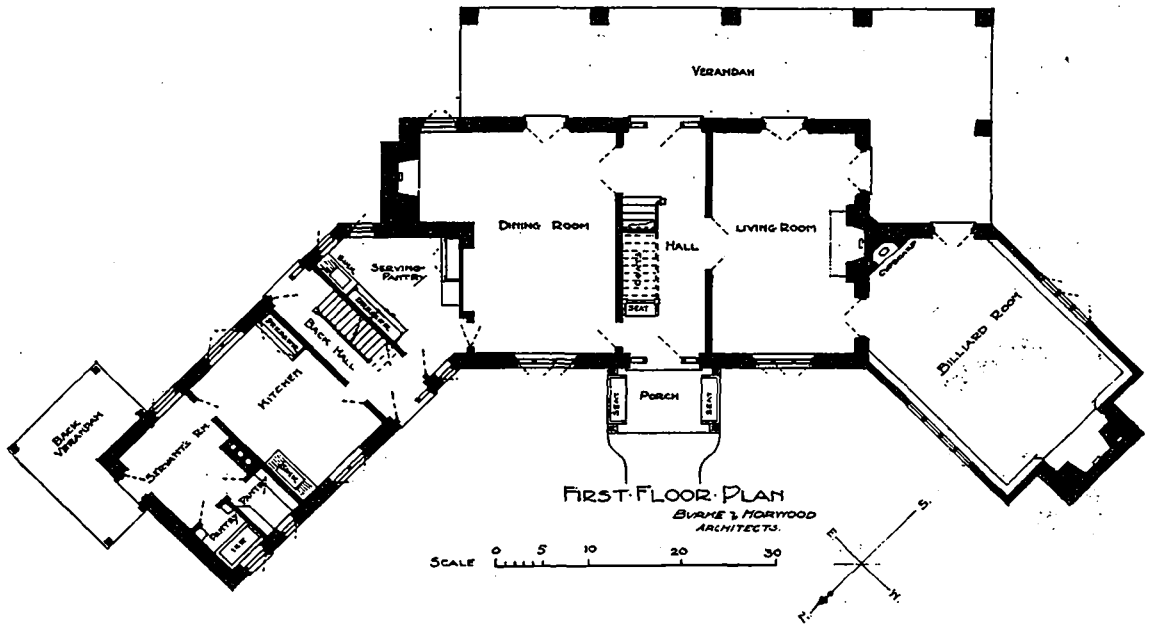
VIEW SHOWING LEFT WING, COUNTRY HOME OF MR. JAMES RYRIE. BURKE AND HORWOOD, ARCHITECTS.



BILLIARD ROOM, COUNTRY HOME OF MR. JAMES RYRIE. BURKE AND HORWOOD, ARCHITECTS.



INGLE NOOK IN DINING ROOM, COUNTRY HOME OF MR. JAMES RYRIE. BURKE AND HORWOOD, ARCHITECTS.



a modernly-fitted hen-house and poultry yard beyond. The lodge is a good-sized six-room dwelling, and extending along its front is a beautiful hedge running parallel with the driveway with lead up from Lake Shore road to the circular carriage path, off of which is located the porch at the rear of the family residence.

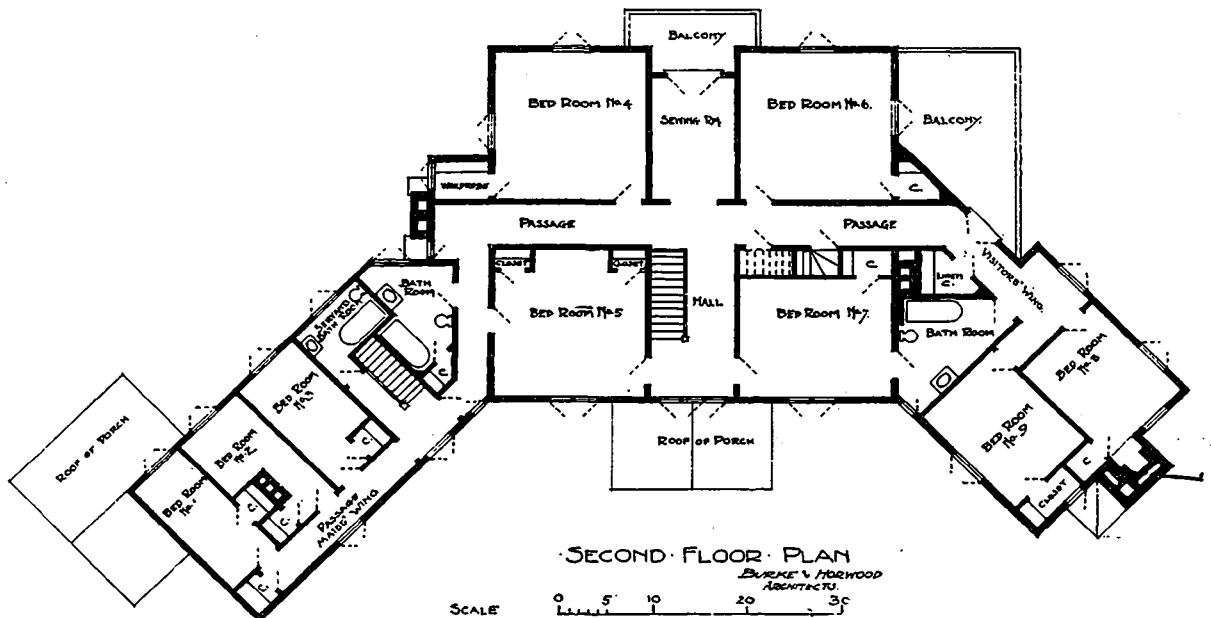
All buildings are connected to each other with a private telephone system, and as for sewerage, the estate leaves little to be desired, as six-inch glazed tile pipes carry off the drainage to a septic tank located at the northeast section of the property.

Another exceptional splendid feature in the way of convenience and utility, is the private waterworks system which supplies the various structures and lawn service. This system is operated by a Fairbanks engine, located in the basement of the barn. It has a capacity of 2,000 gallons per hour, and irregardless of the number

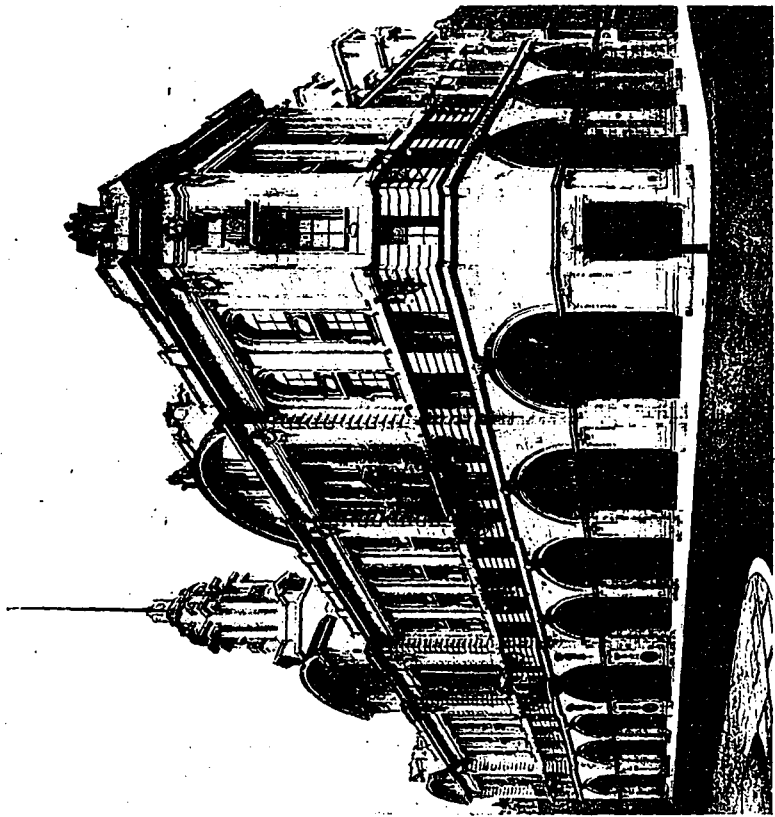
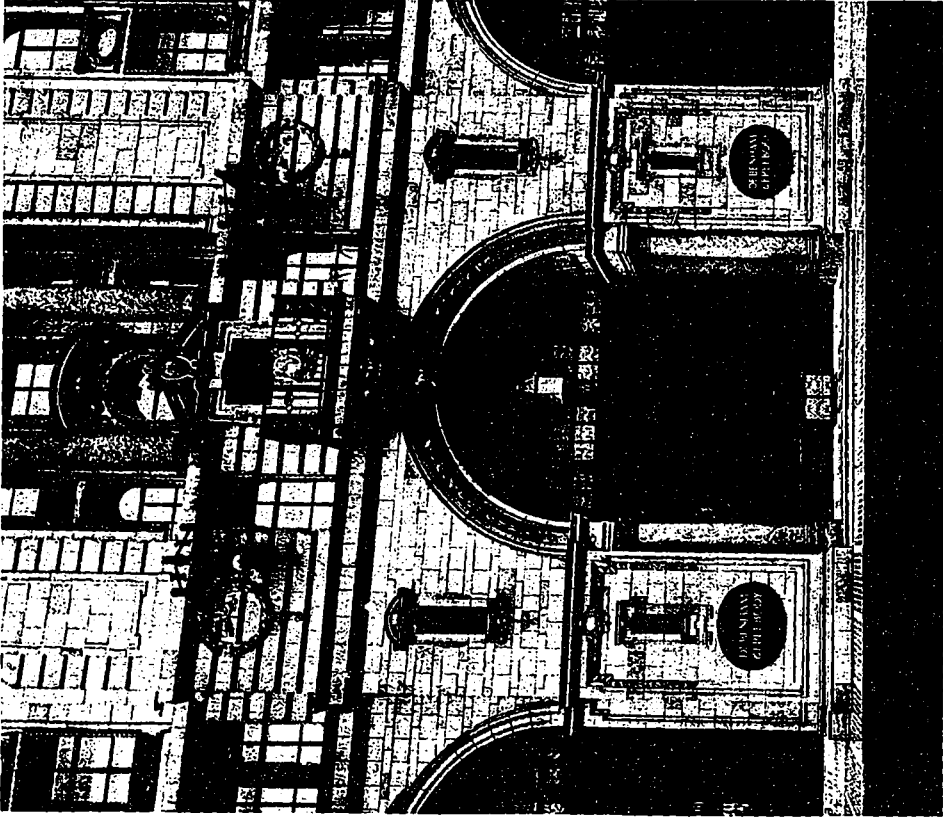
of faucets or garden taps in use, is capable of maintaining a strong and steady pressure at all times.

The architects of this admirable group of buildings are Messrs. Burke and Horwood, and they were governed to no little extent in the disposition of the various structures by the existing hedges, magnificent growths of cedars 20 to 30 feet in height.

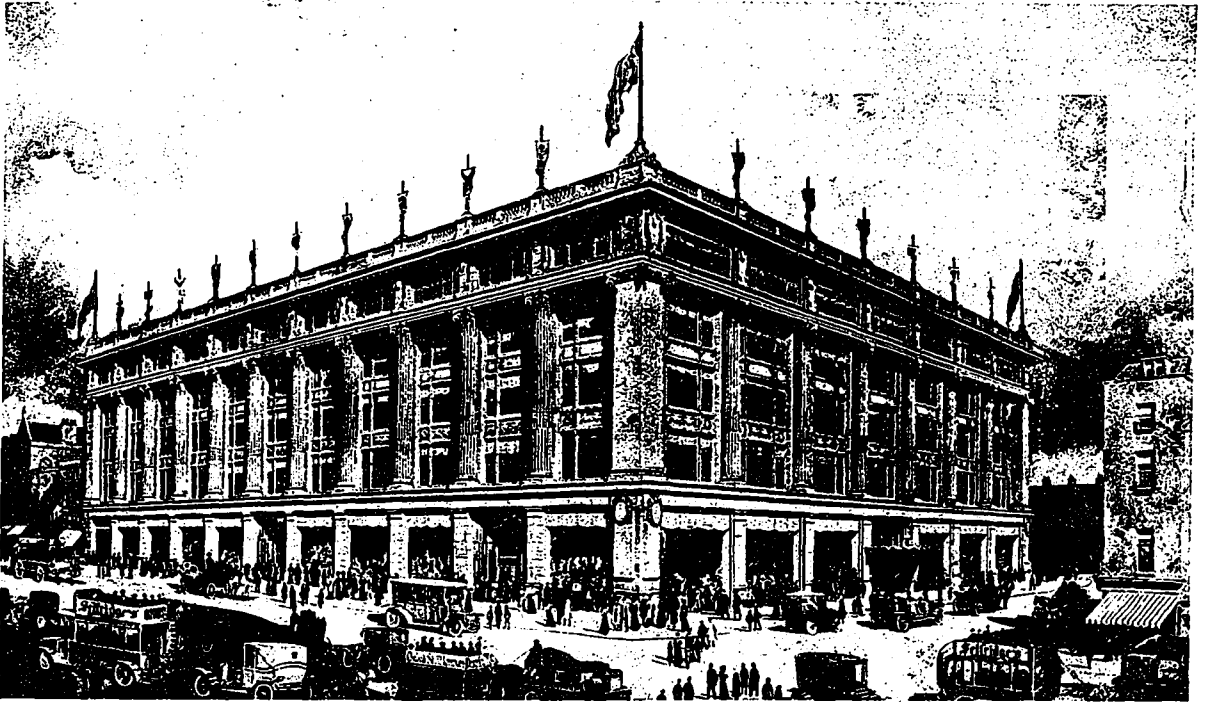
A COMMITTEE OF THE MINISTRY of Ways of Communication, St. Petersburg, has under advisement the question of introducing in Russia a new electro-turbine engine, invented by an Italian engineer, which requires neither wires nor electric stations. The speed developed exceeds 100 kilometers (62.07 miles) an hour. It is said that this engine, which costs \$40,000, can cover a distance equal to that from St. Petersburg to Moscow, 375 miles, without a stop.



FIRST AND SECOND PLANS, COUNTRY HOME OF MR. JAMES RYRIE, SHOWING THE ARRANGEMENT OF THE VARIOUS ROOMS. BURKE AND HORWOOD, ARCHITECTS.



EXTERIOR VIEW AND DETAIL OF MAIN ENTRANCE OF MESSRS. DEBENHAM & FREEDY'S PREMISES, WIGMORE STREET. A STRIKING EXAMPLE OF THE USE OF CERAMICS IN A MODERN LONDON BUSINESS BUILDING. MESSRS. WILLIAM WALLACE & JAMES T. GIBSON, ARCHITECTS.



PERSPECTIVE OF LARGE MODERN DEPARTMENTAL STORE, NOW BEING ERECTED IN OXFORD STREET, LONDON, FOR SELFRIDGE & COMPANY, LIMITED. THE BUILDING WAS DESIGNED BY MR. R. FRANK ATKINSON, F.R.I.B.A.

## MODERN BUSINESS PREMISES IN LONDON.---American Influence on Construction and Design.---Steel-frame and Ferro-Concrete Buildings.---Experiments in the Use of Ceramics.---Greater Dignity and Beauty in Business Architecture. By HUGH B. PHILPOTT

**I**F WE WOULD find, in London or any other city, the buildings which most clearly exhibit modern developments in construction and the use of materials, it is naturally to the business premises that we turn. Here, if anywhere, we may expect to find the newest methods exemplified. The business man is not greatly concerned about architectural traditions nor about abstract beauty in building. The building in which he can most comfortably, quickly and effectively do his work is the building which he requires, and if steel or ferro-concrete is found to conduce to this end he is generally ready to adopt these newer methods of construction in preference to the old. And that is precisely what we find in London. If it cannot be said that the owners of business premises are wildly revolutionary in their ideas, it is nevertheless true that their patronage is mainly responsible for some very remarkable building developments which have been seen in London during the last few years.

Of all the changes the most striking and the most far-reaching in effect is the increasing use of structural iron and steel. Steel stanchions and joists are now almost universally employed; the wall has almost lost its structural importance, and is often little more than a screen against the weather, the whole weight of floors and roof being carried on the steel framework.

But while there is this general use of steel in building construction, there does not appear to be as yet any general movement amongst English architects in the direction of adopting in its entirety the American system of steel skeleton construction, the system in which all the structural members are of steel with riveted connections. There are buildings of this character in London, but they are the exception rather than the rule. The Ritz Hotel and the "Morning Post" buildings are probably the best examples we have. I am not dealing with hotels in this

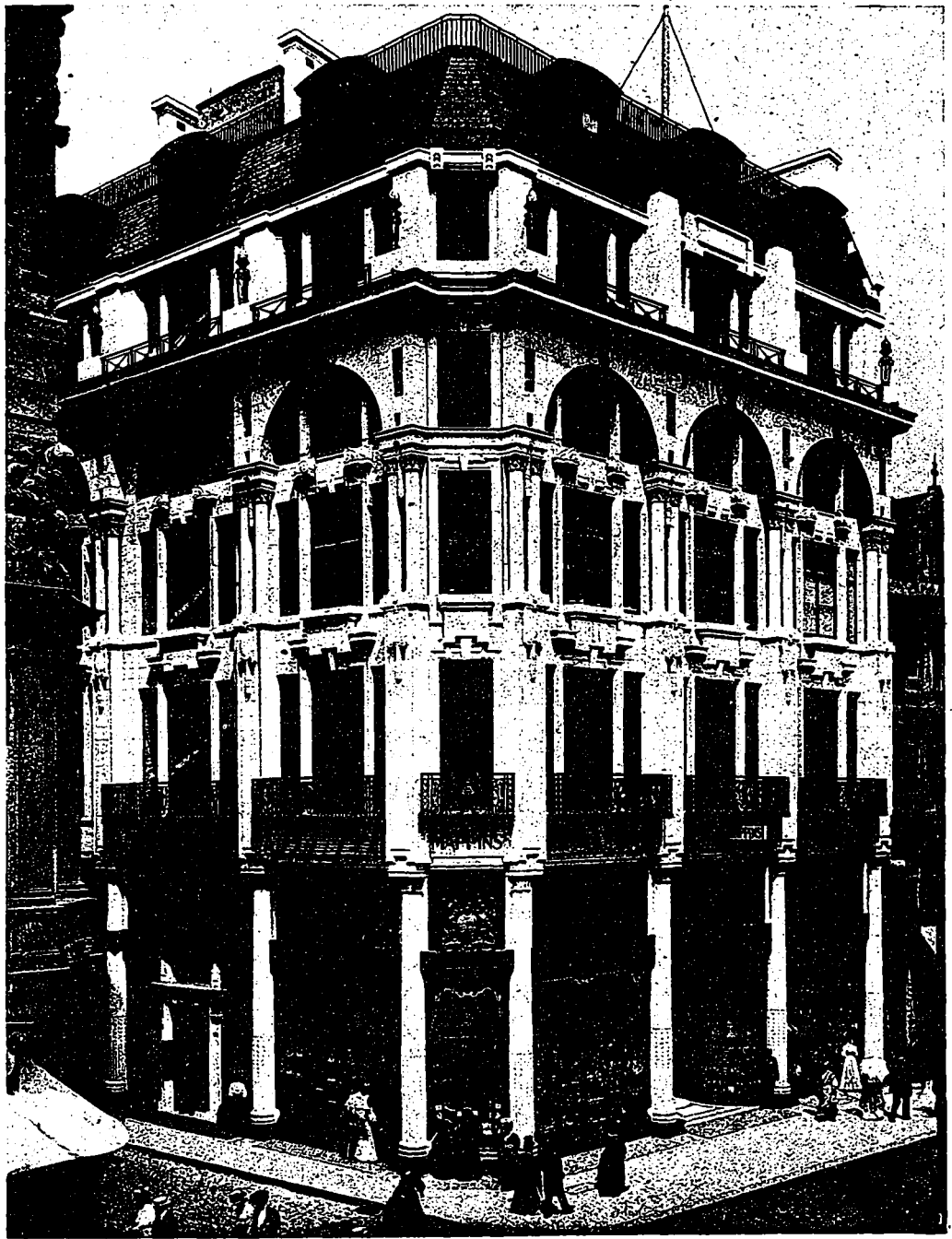
article, but the "Morning Post" building, which stands within the area of the great Strand improvement scheme—the most important London street development of modern times—furnishes us with a very good example. The building stands on an irregular site with a sharp angle jutting up into the Strand—a difficult site to deal with by the older methods of construction. By the use of the steel skeleton it has been possible to utilize this projecting portion—the apex of the triangle—to much greater advantage than could have been done if the floors and the domical roof had depended for support entirely upon the masonry. But the determining factor which induced the proprietors to decide upon a steel building was their desire to obtain a large and unbroken area in the basement. This, which would be impossible if the superstructure were supported on brick or masonry piers, is easily accomplished with a steel construction.

The architects of this building were Messrs. Mewes and Davis, and the contract for the erection was carried out by the Waring White Building Company, their engineer, Mr. S. Bylander, acting as consulting structural engineer. Mr. Bylander has been concerned in the designing of steel skeleton buildings in America and in this instance he was able to carry out almost in its entirety the American system. Architecture and steelwork were designed simultaneously, architects and engineer consulting each other and completing their scheme in every detail before a beginning was made with the building. An immense number of figured drawings were prepared, including special drawings to show the methods of connecting the stone, brick, steel and concrete.

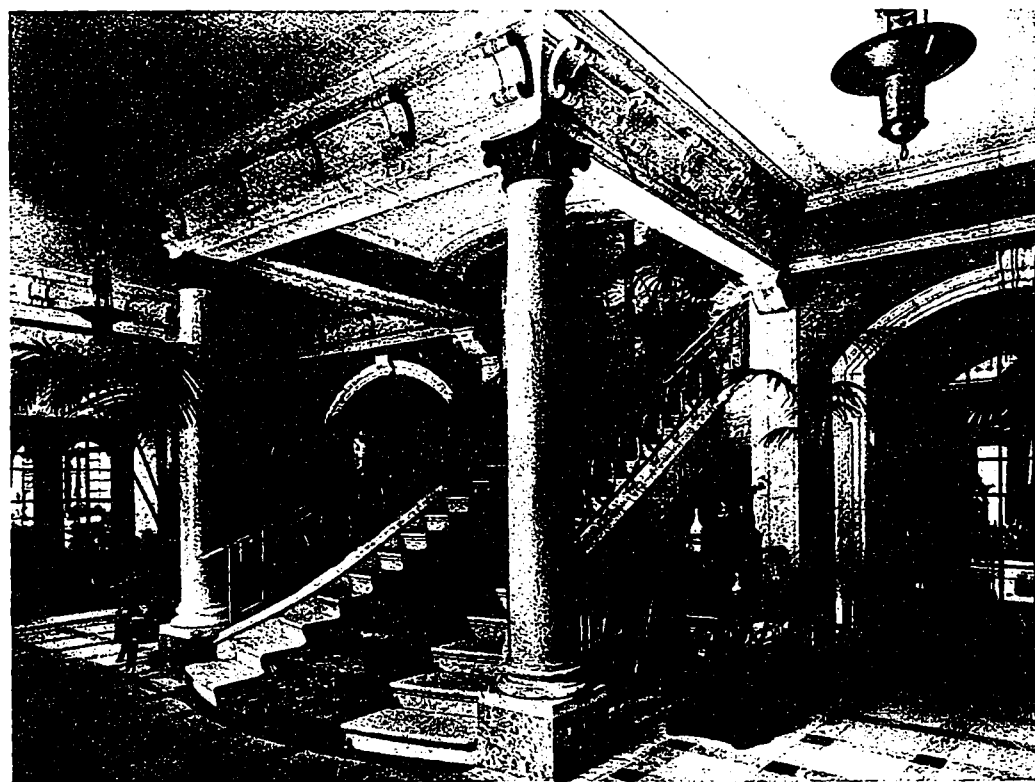
The customary English method, as adopted in most of our recent buildings, is somewhat different. The architect prepares his design independently and then, as a rule, obtains the assistance of an expert constructional engineer



WINCHESTER HOUSE, OLD BROAD STREET, E.C., LONDON. A RECENT BUILDING OF THE OLDER STYLE OF SUBSTANTIAL MASONRY, PLANNED FOR OFFICES AND SHOPS. MR. JOHN BELCHER, A.R.A., ARCHITECT.



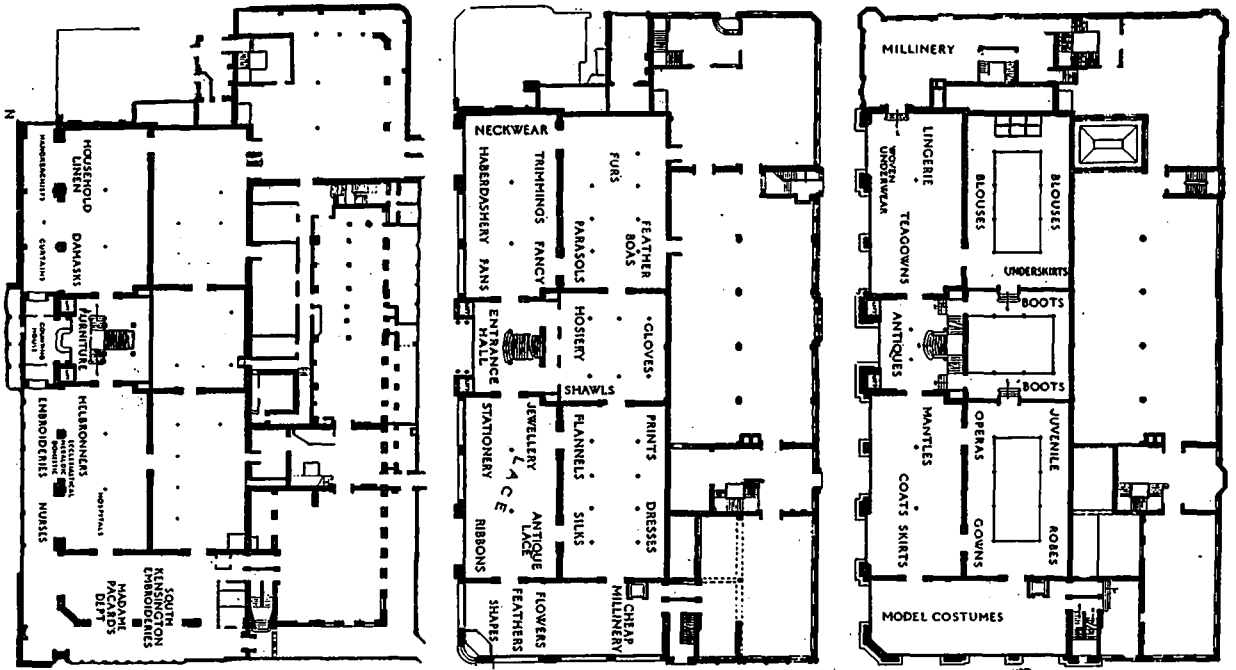
MODERN BUSINESS BUILDING OF MAPPIN & WEBB, OXFORD STREET, LONDON. DESIGNED BY MR. JOHN BELCHER, A.R.A.



VIEWS OF ENTRANCE HALL AND A SECTION OF THE THIRD FLOOR, MESSRS. DEBENHAM & FREEBODY'S PREMISES, WIGMORE STREET, SHOWING THE LUXURIOUS APPOINTMENTS OF A MODERN LONDON RETAIL ESTABLISHMENT. MESSRS. WILLIAM WALLACE & JAMES T. GIBSON, ARCHITECTS.



# C O N S T R U C T I O N



BASEMENT, GROUND AND FIRST FLOOR PLANS OF MESSRS. DEBENHAM AND FREEBODY'S PREMISES.

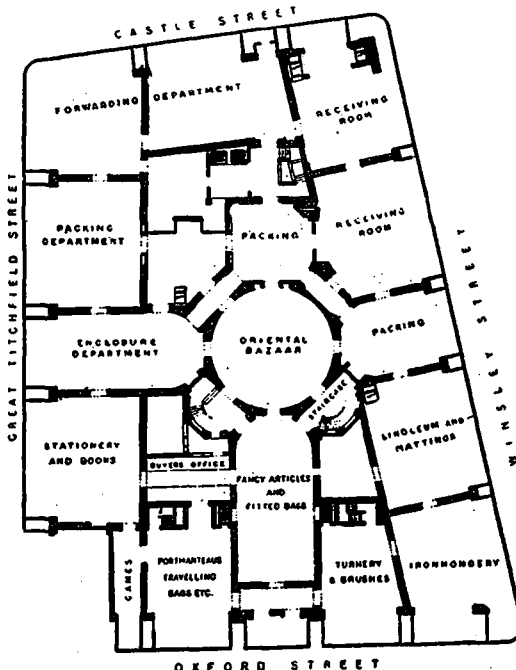
eer, who indicates on the drawings the positions and sizes of steel stanchions and girders. The quantities are then taken out by a quantity surveyor, and on the basis of the drawings and quantities a number of steel firms submit competitive tenders. It will be seen that we have not as yet in England so close a co-operation between architect and engineer as is customary in America, nor have we adopted steel construction in so complete, thorough-going and scientific a fashion.

A great obstacle to the progress of steel construction, and also of ferro-concrete in England, is presented by our restrictive building regulations, which were devised before the newer forms of construction had been introduced, and have not yet been altered to suit changed conditions. The necessity of building walls, although constructed of steel or ferro-concrete, of the thickness which would be appropriate if they were entirely of brick or stone, involves an immense waste of material and goes far to counterbalance any saving in cost of construction which the newer building methods might otherwise effect. This, however, is only a temporary check. The building regulations throughout the country are certain to be altered at no distant date so as to remove needless restrictions against the use of any serviceable building material.

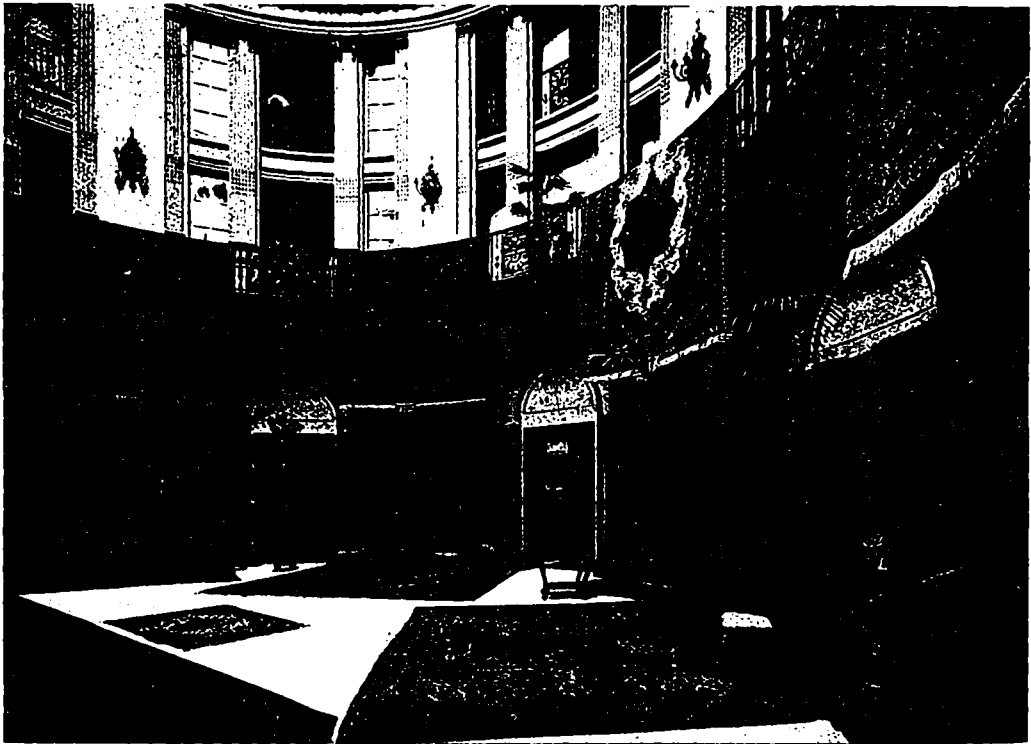
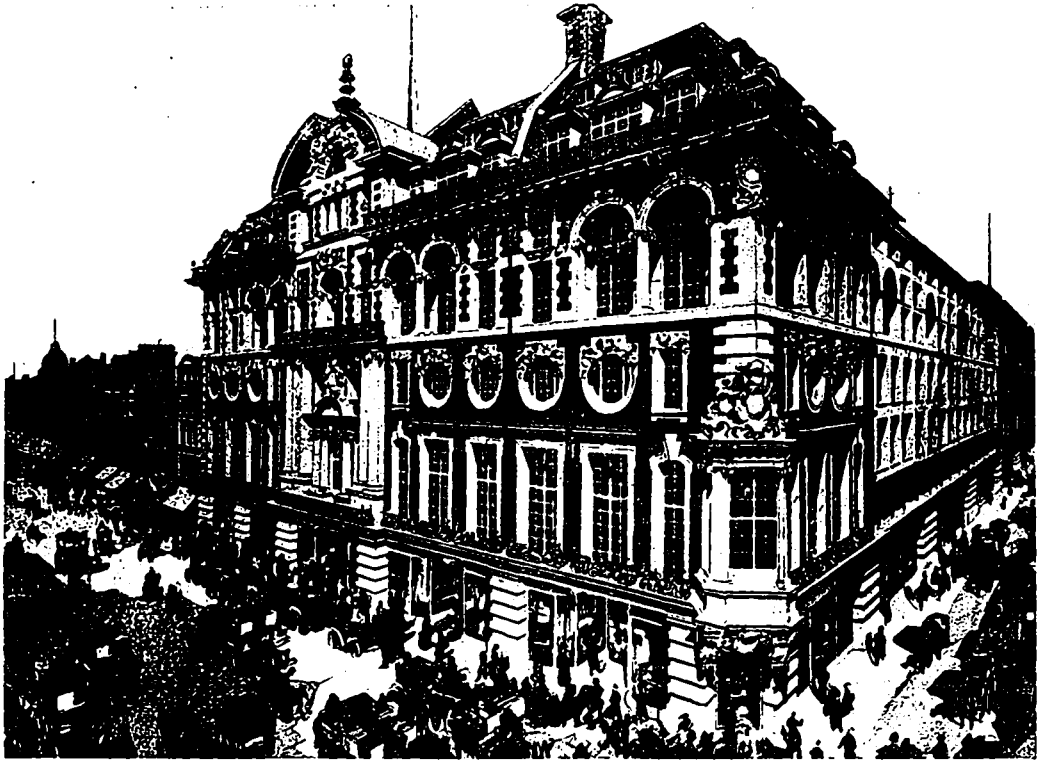
Another very common difficulty is the fact that, as things now stand, the architect who adopts the steel skeleton system of construction thereby diminishes his own emoluments. It is necessary, of course, in such cases to employ a highly qualified structural engineer; but at present there is no recognized arrangement for the payment of his fees. The present practice seems to be for the archi-

tect to pay them out of his 5 per cent. commission. It is hardly to be expected that architects should be greatly enamoured of this system, and the building owner will require a good deal of educating before he can be brought to see that it may really be good economy to pay a substantial fee to a specially qualified engineer in addition to the architect's commission.

But in spite of obstacles the use of steel in building is steadily increasing and some of the new buildings that are springing up clearly demonstrate the practical value, from the commercial point of view, of the newer methods of construction. Take, for instance, the huge building which is being erected in Oxford Street for the American house of Selfridge & Company, Ltd. The contract is being carried out by the Waring White Company, and Mr. R. Frank Atkinson, F.R.I.B.A. is the architect. The building is not yet completed, but it can be seen from the architect's perspective, which we reproduce, that the design is of extreme simplicity and of a bold impressiveness. Though internally the building is of steel construction the exterior is, as it appears to be, of self-supporting masonry. The piers of the ground floor are of blue brick, the huge columns are of Portland stone and the whole of the facades is faced with the same material. Foundations and walls have been made strong enough to allow of additional storeys being added to the building, if desired at some future time. There are 3,000 tons of steelwork in the building, and the foundations go 60 feet deep into the London clay; the floors are of ferro-concrete, and are built to carry a safe load of 220 lbs. to the square foot. The interior walls are carried on steel, so that they may be removed later when the



BASEMENT FLOOR PLAN, MESSRS. WARING AND GILLOW'S PREMISES.



MESSRS. WARING & GILLOW'S LARGE GENERAL RETAIL ESTABLISHMENT, OXFORD ST, LONDON, SHOWING THE LAVISHLY DETAILED EXTERIOR, TOGETHER WITH A VIEW OF THE ROTUNDA. MR. R. F. ATKINSON, A.R.I.B.A., ARCHITECT.

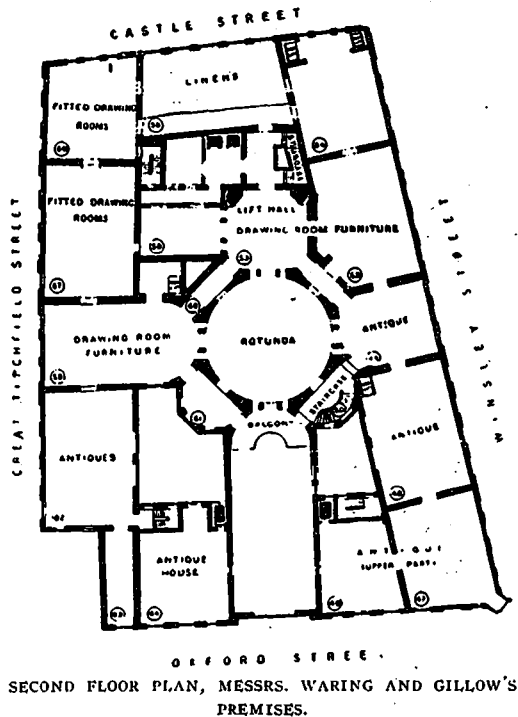
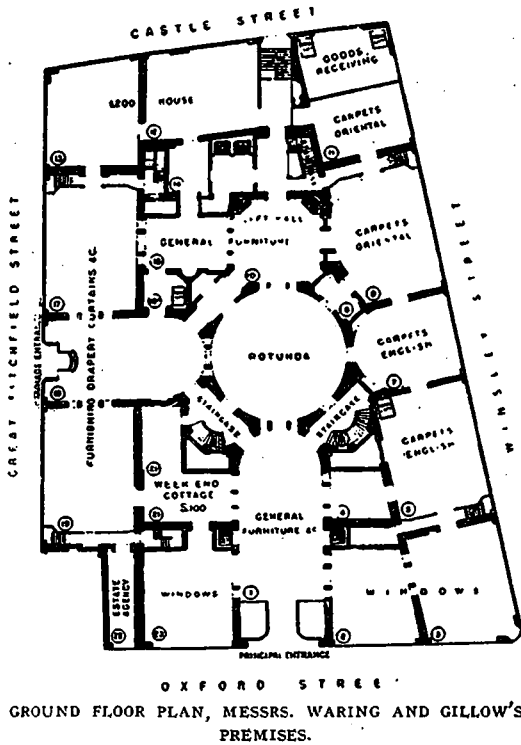
law permits. The building has a floor area of 24,500 square yards, and will be the biggest retail establishment in London.

In respect to cheapness and rapidity of erection Messrs.

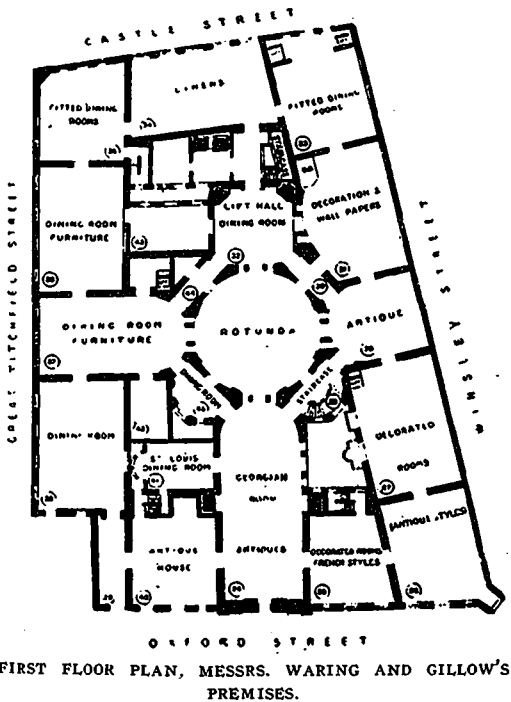
gress. This is graphically illustrated by the photographs which show the building at two stages in the course of erection. The first of these photographs was taken on September 17, the second on October 2, so that the difference represents only fifteen days' work.

In regard to the use of materials nothing has been more interesting in London building during recent years than the experiments that have been made in the use of glazed ware. The natural desire to find a means of protecting our buildings from the begriming effect of London smoke and fog has led to a greatly increased use of glazed bricks and of a glazed terra cotta. A glazed facade can, of course, be washed, and made to appear after the lapse of many years, as clean and fresh as when first erected. This is regarded by some architects as a defect, inasmuch as the buildings are denied the advantage of the mellowing, harmonizing influence of time. But more, probably, would admit that the gain of having a material which can be readily cleaned without injury to its texture outweighs any loss arising from a too obtrusive newness of appearance.

One of the most successful essays yet made in the use



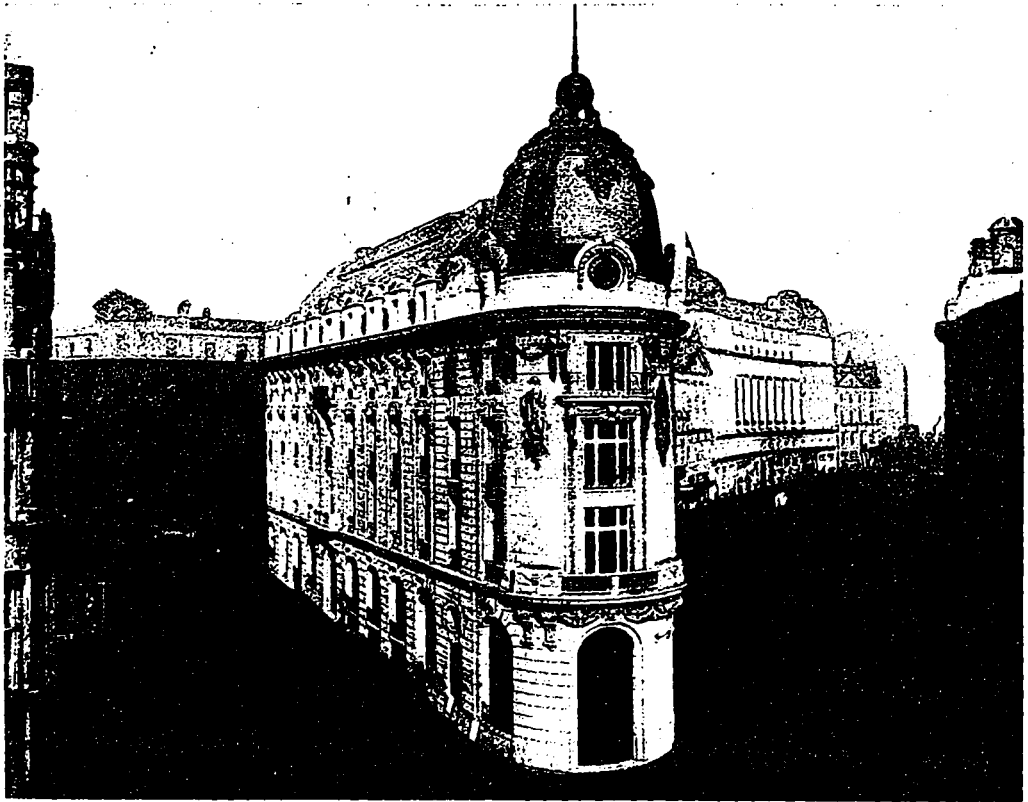
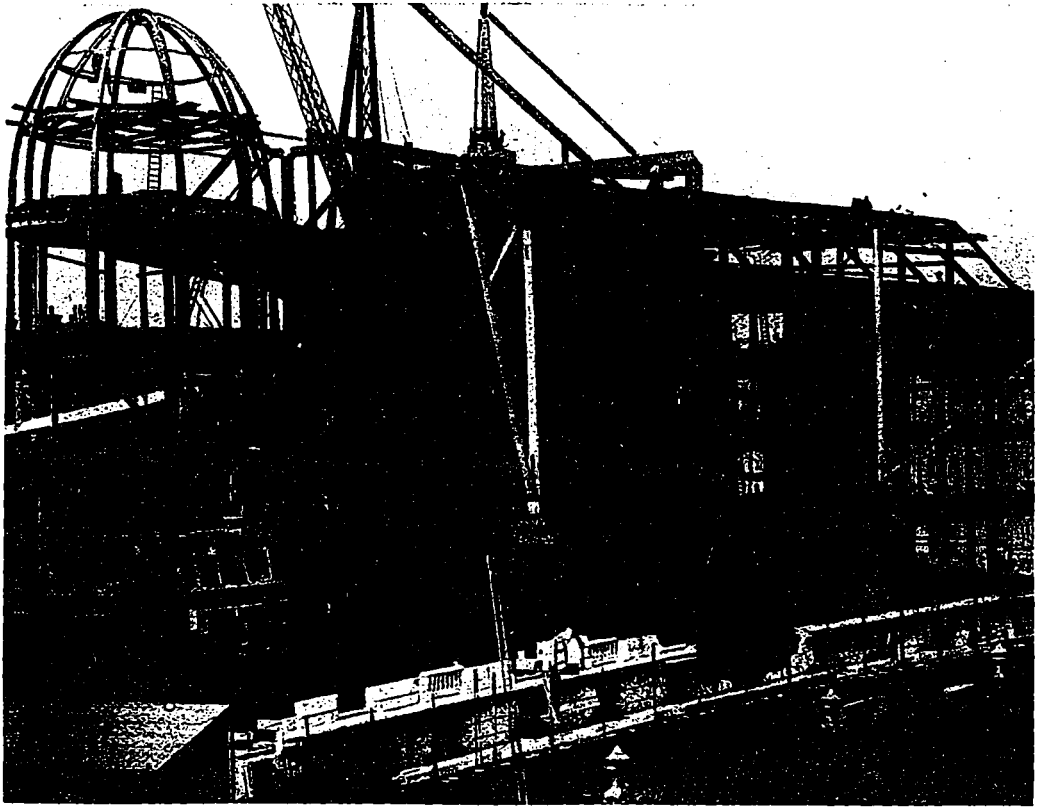
Selfridge's establishment will probably create a record. This result is due in part to the close co-operation between architect and engineer and in part to the rectangular plan-



of this material is in the new premises of Messrs. Debenham & Freebody in Wigmore Street. It is the white glazed blocks which are used exclusively in this building. Touches of color are given to the main facade by the use of green marble columns with gilded capitals, and colored marbles are freely used in the interior. The joint architects, Messrs. William Wallace and James T. Gibson, have shown a nice appreciation of the capacity and the limitations of their material. It is not employed, as has sometimes been done, as a mere facing material; the blocks are bonded into the brickwork and fulfil a structural as well as a decorative function. On the other hand there is a reasonable flatness in the treatment throughout; the material is not built up into columns—a use that is quite possible and is sometimes adopted, but not without some loss of grace and of apparent strength—and the ornament is delicate and refined, with the soft, flowing continuity that suggests a plastic material.

This fine building is distinguished above almost all the retail establishments of London by the high artistic ideal that has been realized in its building and decoration. Nowhere does there appear to be any sacrifice of

ning. The total time taken in the erection of the building will prove to be very short, but there have been some delays. The really phenomenal thing is the rate at which the building grew when the work was actually in pro-

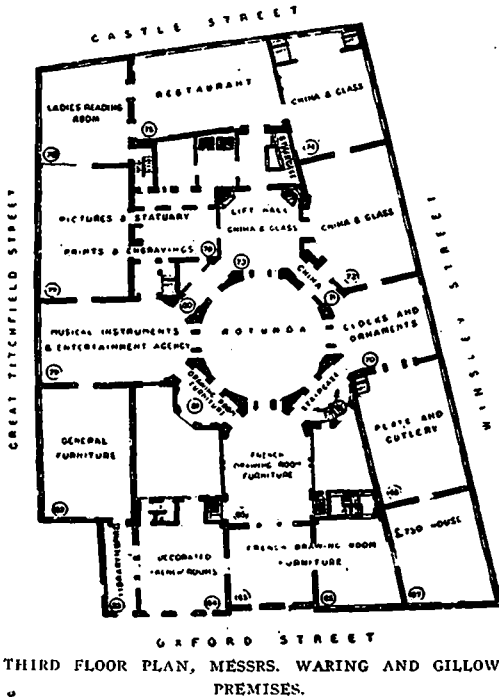


FRAME WORK AND COMPLETED BUILDING OF THE MORNING POST ON THE STRAND. THE UPPER VIEW SHOWS TO WHAT EXTENT STRUCTURAL STEEL IS BEING EMPLOYED IN THE ERECTION OF SOME OF THE MODERN BUSINESS BUILDINGS IN LONDON. MESSRS. MEWES & DAVIS, ARCHITECTS.

beauty to commercial exigencies. Every detail has evidently been considered not merely from the point of view of attracting the public but also with a view to achieving an artistic ensemble. Mr. Ernest W. Gimson and Mr. Gilbert Seale are responsible for the enriched plaster ceilings and the Birmingham Guild of Handicrafts supply some admirable decorative metal work, including the lettering in blue and green enamel on the stallboards—a novel and happy feature.

But the great distinction of this building from the architectural point of view lies in the admirable solution it affords to the perplexing problem of the modern shopfront. The shopkeeper has learned that with the aid of plate glass and iron girders builders can give him a huge, unbroken expanse for the display of his goods. And, as a rule, this is his first demand. The architect's problem is how to supply this demand without completely spoiling the architecture. Obviously a building "without visible means of support," as the police charge has it, is an artistic anomaly. But if the client insists on his full extent of advertising space, what is the architect to do? Quite commonly he gives the problem up—hands over the

and Gillow's new premises in Oxford Street an interesting and successful device is adopted. Here, instead of an arched construction, we have heavy rusticated piers which, though necessarily helped by concealed girders,

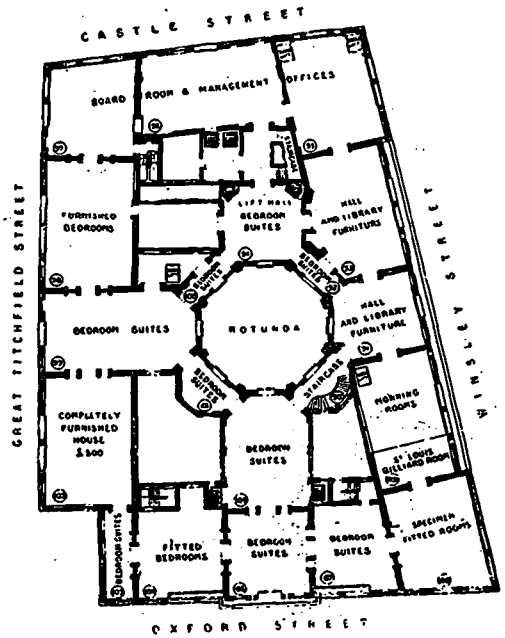


THIRD FLOOR PLAN, MESSRS. WARING AND GILLOW'S PREMISES.

ground floor to the Philistines and starts producing architecture at the first floor level. A curious instance of this may be seen just now in Piccadilly, where an important building just completed for an insurance company shows an elevation, from the first storey upwards, on which the architect has expended much skill and taste; but below is a gaping void with an advertisement board pointing out that the fine frontage 40 ft. by 20 ft. is available for a shop. The first floor has a colonnaded front and the columns rest upon nothing—with a somewhat weird effect.

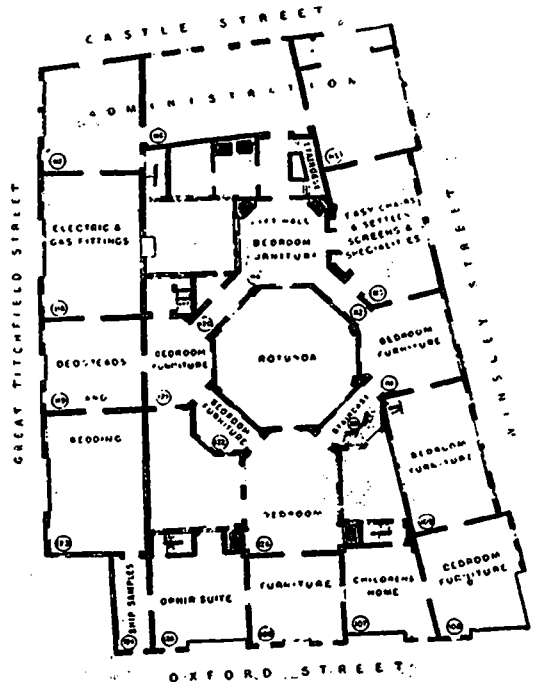
In the case of Debenham and Freebody's building Messrs. Gibson and Wallace have adopted the expedient of a series of arches extending through two storeys. The arches spring from the first floor level, giving a big semi-circular light to the mezzanine floor as well as a wide opening for the ground floor shop. The piers and arches give both an apparent and a real support to the superstructure, which thus forms with the lower storeys a complete and harmonious architectural composition.

A structural relationship once established between the lower and the upper storeys, it becomes possible to treat the shopfronts in a variety of ways. At Messrs. Waring



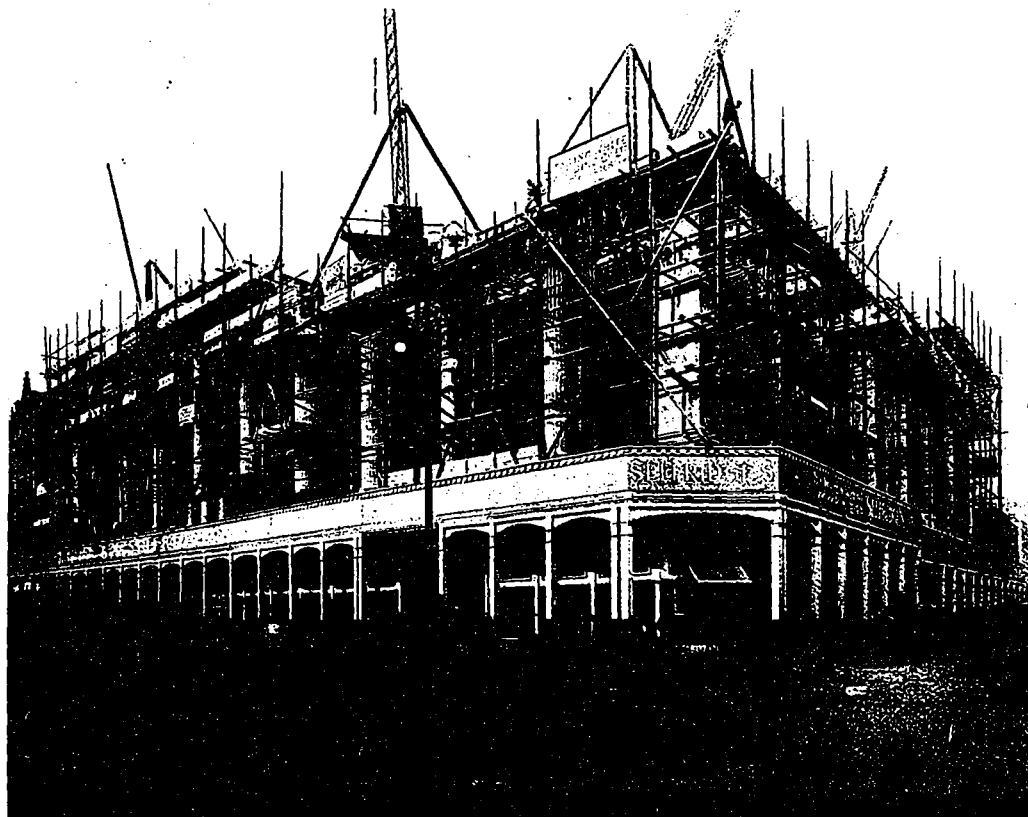
FOURTH FLOOR PLAN, MESSRS. WARING AND GILLOW'S PREMISES.

take a large share of the weight of the superstructure, and effect the architectural connection between the upper and lower portions of the building, which is such a desideratum. The novel feature is the way in which the



FIFTH FLOOR PLAN, MESSRS. WARING AND GILLOW'S PREMISES.

shopfronts are recessed between these piers. The streets of plate glass, enclosed in bronze frames, are shaped to the curves of the entrances, receding far enough to



VIEWS OF SELFRIDGE & COMPANY'S BUILDING, SHOWING: PROGRESS OF CONSTRUCTION ON SEPTEMBER 17 AND OCTOBER 2. AN IDEA AS TO THE RAPIDITY WITH WHICH THE WORK IS BEING CARRIED OUT CAN BE SEEN FROM WHAT HAS BEEN ACCOMPLISHED IN THE SPACE INTERVENING THESE DATES.

form extensive showrooms in which furniture and other goods can be effectively displayed.

This imposing structure, which was designed by Mr. R. F. Atkinson, F.R.I.B.A., presents a bold and striking elevation to Oxford Street. The ground floor is of grey granite, the upper portion of Portland stone and dark red bricks and the roof is of green slate. The ornament is somewhat florid, but no doubt it is one of the functions of the building to call attention to itself, and that it effectually does. Structural steelwork was used to a considerable extent in this building, and the floors and roof are of reinforced concrete. The most notable internal feature is a spacious rotunda, which forms the central feature on every floor. It is about 90 feet high and is covered by a glass dome.

Next to Messrs. Waring and Gillow's premises in Oxford Street there has just been erected a building which in its delicate and rather attenuated grace affords a striking contrast to its robust and massive neighbor. This is the new shop which has been built from the designs of Mr. John Belcher, A.R.A., for Messrs. Mappin and Webb, the silversmiths. Steel construction has been extensively used in this building and ample spaces are provided for the display of goods, both ground floor and mezzanine floor being included in the shopfronts. The tall slender columns have steel stanchions behind them, so that there is no question of their ability to sustain the weight of the superstructure. But they are sufficient to give that appearance of support which the eye demands, and to establish the structural relationship between the upper and the lower parts of the building. The vertical lines are continued upwards in the form of square piers or pilasters on the first floor and graceful twin columns with delicately carved capitals of original design on the second floor. From the broken entablature above the twin columns spring semi-circular arches, affording, with the deep cornice above, a welcome change from the predominantly vertical character of the elevation. The facade is entirely of Pentelic marble—a luxurious experiment, in so far as London buildings are concerned. The roof is of green slate; the bases of the columns are of bronze, and the balustrade on the first floor is of wrought iron with gilt embellishments.

Mr. Belcher's designs are always distinguished for the freedom and originality with which he treats Renaissance forms. This is illustrated among recent London buildings not only by Messrs. Mappin and Webb's premises but also by a very different type of building, Winchester House, London Wall, of which we illustrate the principal facade. London Wall is a very narrow thoroughfare, so that the building is not seen to advantage, and the photograph does much less than justice to a very powerful and original piece of design. The rusticated piers of the ground floor are of grey Cornish granite, the upper portion of the building being of Portland stone. The most striking feature of the elevation is a series of pilasters projecting from the wall at the first and second storeys and boldly sculptured in their upper portions into huge Titans with arms raised supporting a deep cornice. The six figures are all different from each other and are very vigorously modelled. There is variety, too, in the heads above the first floor windows and other minor sculptural work. Ironwork flambeaux stand on the main cornice and above them on the wall of the attic storey are lion's heads with wreaths.

The building which is distinguished by this remarkable elevation is an example of the older style of substantial masonry construction in which steelwork plays comparatively little part. It is planned for offices and shops.

It is only possible in a single article to refer to a few of the recent business premises of London. But a wider survey would reveal even more strikingly the great advances which have been made of late years in imparting dignity and beauty to this class of building. The shops show a new concern in many instances for beauty of

building and decoration, and if we include the insurance offices, the hotels and such semi-public buildings as Lloyd's Register of Shipping we find that these buildings present some of the most worthy architecture of recent years combined with some of the finest work of our sculptors, art metal workers and decorative artists.

## RUBBER-ASPHALT PAVEMENT---New Type of Pavements in France and the Claims Made for Them.

EXPERIMENTS, covering a period of six years, have been made with rubber-asphalt pavement in several cities throughout France, according to U.S. Consul-General Robert P. Skinner, and as far as can be ascertained have given good results.

In the city of Marseilles a satisfactory experiment was made upon the Prado a number of years ago, and last spring three or four public places were similarly paved, these areas, however, being devoted to pedestrian traffic exclusively.

At the present time most asphalt paving involves the use of costly installations for the heating of the powder, a considerable amount of material, and a special class of laborers, all of which tend to increase the cost. Under the new process it is possible to make cold applications of asphalt, which are said to possess all the advantages of hot compressed asphalt without its drawbacks.

The material under description is a product resulting from the association of asphalt and rubber. Asphalt is a carbonate of lime impregnated with bitumen, with which rubber combines under certain conditions, thus effecting the cohesion of the calcareous molecules. This product is claimed to be more plastic and more adhesive than pure asphalt, and to resist higher temperatures. To obtain the combination of bitumen and rubber they must be energetically mixed in special devices, in which the asphalt, reduced to fine powder, is in the presence of rubber swelled and softened by a solvent. The material thus obtained is a brown powder darker than the original asphalt, and it suffices to compress it in order that it shall set and harden rapidly.

It is alleged that when asphalt is applied hot, the heat of the application coming into contact with a concrete foundation containing more or less humidity vaporizes the water contained therein, and the steam, by its force of expansion, escapes, thus destroying the compactness of the combination. This inconvenience does not present itself in the system under designation, which permits the application of a much thinner layer of asphalt and one which unites itself with the concrete, constituting a solid mass.

Rubber-asphalt must be applied upon a foundation of first-class concrete, consisting of 440 pounds of good Portland cement and 1 cubic meter (35.31 cubic feet) of pebbles and sand, the proportions being one-third of sand to two-thirds of pebbles. The thickness of the foundation should vary from 15 to 20 centimeters (5.90 to 7.87 inches) and it should be rammed with the back of shovels used in this work, and given the exact form which the roadway is intended to have, without the necessity of making later additions of concrete to bring the surface to its proper proportions. The surface of the concrete should be regular, so that the layer of asphalt may have a uniform thickness. This foundation should remain three to five days, according to the season, until it has acquired a sufficient hardness to support the ramming of the layer of asphalt. The surface of concrete having been well cleaned, is covered with a thin coating of special material, which is laid on with a brush upon which the rubber-asphalt powder is lightly sprinkled. Shortly after these preliminary operations the uniform layer of rubber-asphalt powder is spread to a thickness of 3.5 to 4 centimeters (1.37 to 1.57 inches), which is compressed progressively by means of a rammer. This done, the surface may be opened immediately to travel.

# PNEUMATIC CAISSONS.—Proper Equipment Important in Economically Carrying Out the Work.—The Type of Men Who Work in the Air Chambers.—Qualifications and Functions of Foremen.—Caisson Disease and Theories as to Its Cause. By T. KENNARD THOMPSON\*

ONE of the best money-saving devices for a contractor who has a number of caissons to build is a saw arbor run by compressed air or electricity. The saving in time in cutting the 12 x 12 timber to the right length, as well as the smaller sizes, pays for the machine in a very short time.

A really good pipe-cutting machine with dies, etc., is also indispensable, as also are pneumatically run augers for boring holes for bolts and drift bolts, and a pneumatic hammer for driving the same. An ample number of the best stiff leg and guy derricks and necessary side tracks, wharves, cement and other buildings will well pay for the outlay, large though it is.

Pneumatic caisson work is sometimes contracted for at below \$20 per cubic yard, but there are not many places where a contractor can take the work at this figure and complete his undertaking except at a loss, while in some places the cost runs up to \$40 or \$50 per cubic yard. As a general rule the cost of caisson work per cubic yard for the foundation of New York skyscrapers is about double what the pneumatic work for a fair-sized bridge outside of the city would cost.

The only proper way to light the air chamber now is by electricity, so where current cannot be purchased readily it is necessary to install a good electric light plant.

Telephone connection from the working chamber is also useful, and in some emergency cases would be invaluable in saving life and property. One of the most unpleasant accidents, is to have the bucket stuck in the shaft when the caisson has only one shaft and lock for men and material. This has frequently happened, keeping the men in the air from 10 to 12 hours overtime, sometimes with very dangerous results, for the men have used up their energy and have no food to replenish with, and are, besides, nervous about the outcome—a very disagreeable combination, to say the least, especially as half the time they do not know what has happened, or what is being done to get them out. As an example, last summer the door of the lock got "jammed" and the men in the working chamber kept "rapping" and blowing the whistle (five times) signifying that they wanted to come out. At first the men outside answered back with two raps, which means "hold" or "you will have to wait," but after a while the outside men who were working over the lock got tired of answering, so the sand hogs stopped signaling; and after quite a long silence the outside men signalled below repeatedly without getting any answer whatever, and becoming alarmed for fear that the sand hogs were paralyzed, they took the bull by the horns and took the whole lock off, allowing the surrounding material to enter the working chamber. The minute the lock was off the sand hogs, who had purposely refused to answer the signals, clambered up the ladder and went home. This paper could be filled with equally exciting experiences.

## LABORERS' HOURS AND WAGES.

The men who work in the air chamber, better known as sand hogs, are a hardy, reckless set. Until a few years ago they only received \$2.50 per day of 8 hours in New York city for pressure up to about 20 lbs. per sq. in. above atmospheric, the price rapidly increasing above that as the pressure increased and the hours of labor decreased, until at about 45 lbs. per sq. in. they only labored 1 1-2 hours per day, and even that was divided into

two shifts of three-quarters of an hour each, with a rest of four hours in between. Very few fatalities occur in the lower pressure and long hours, but many occur when the pressure is over 40 lbs. per sq. in.

Now, however, the unions have raised the lowest figure to \$3.50 a day, the actual working time being 7 1-2 hours with 1-2 hour for lunch. This requires three shifts a day: from midnight to 8 a.m., from 8 a.m. to 4 p.m., and then to midnight, for once the compressed air is in the working chamber work should not stop until the excavation is completed and the air chamber filled with concrete. For not only do stoppages increase the friction on the sides, but there is always a danger of accidents if there is no one in the air chamber but a watchman, since both the watchman and the guard tender outside are liable to go to sleep, and they have often done so, allowing the pressure to either go up too high and blow out or fall too low and draw the material in, sometimes allowing the caisson to sink until the working chamber is completely filled with material, which is removed with difficulty.

While the hours laid down by the unions are supposed to be all that the men can ordinarily stand, nevertheless, by taking care of themselves they have occasionally worked twice as long, but not continuously, day after day.

While watching a certain piece of work I went in and out of the air chamber for 86 hours without going to bed, and that, too, in pressures up to 35 lbs. per sq. in. above atmospheric. But I have had the bends twice, and do not propose to take the risk again, even though I only stay down a few minutes at a time.

The best sand hogs are Irish and Swedes, two classes that do not like each other very much, calling one another "square" and "round" heads. I have also had some very good colored men. Italians as a rule do not care for the work. Sand hogs cannot be classed under the head of skilled labor, which is the reason why the men are not better paid, for all that is needed is a good constitution and plenty of pluck. With these two qualities the ordinary sand hog can learn all he needs to know in a day, and he will do a big day's work when in the air chamber, using or burning up his energy, which likewise gives him a big appetite, so that we seldom see a lean sand hog, nor do we often see an old one.

## MEN IN CHARGE MUST BE EXPERIENCED.

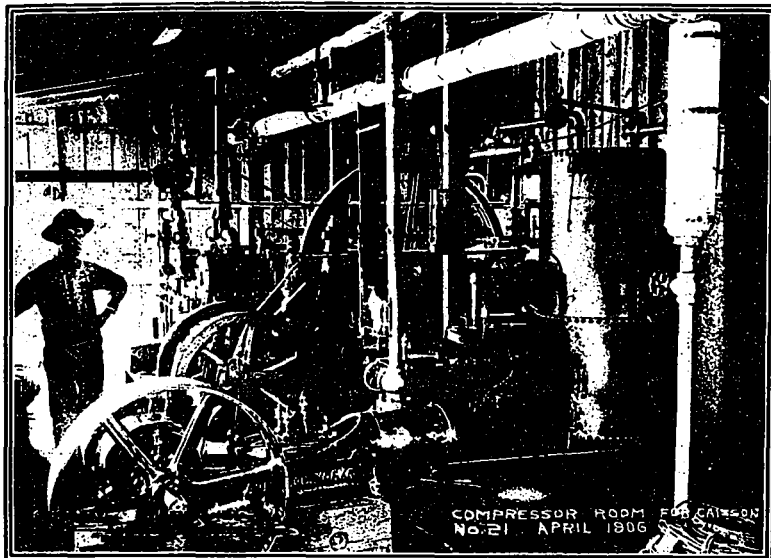
The foremen and superintendents, however, need years of experience and the ability to act quickly and fearlessly in emergencies, lack of which qualities have been fraught with disastrous results to life and property. For instance, in excavating it is customary to dig down in the center about a foot or two at a time, leaving a small bench around the cutting edge and then removing this just before they are ready to let the caisson "drop," which is often accomplished by lowering the air pressure for a few moments. Now, a good foreman will see that he gets an accurate report from the engineers at least twice a day, preferably just before 8 a.m. and 4 p.m., giving the exact position of each of the four corners as regards elevation and location, from which he will determine how much to throw the caisson by undermining one side more than the other, etc., and thus prevent

\*Ed. Note.—This is the second and concluding installment of Mr. Thompson's article on Pneumatic Caissons, the first part of which appeared in the November issue.



the caisson getting away from him. For after a caisson has penetrated more than 25 to 30 ft. it is often not only impossible to get it back into its proper position, but it is also impossible to prevent it from getting more and

each period of high water. These deflections were permanent, indicating that the land had followed the roof of the chamber. It is quite evident that the open seams in the brick lining have been caused by the deflection of the caisson deck carrying with it the steel shell and part of the brick work below it, and that the same phenomena will repeat itself with every stage of



COMPRESSOR ROOM FOR CAISSON.

more out with every foot of penetration, so that the utmost care and vigilance is required at the start.

A foreman who tries to keep his caisson right by means of a plumb bob or hand level, instead of from levels furnished by the engineers, will find it impossible to keep his caissons vertical and will be very much astonished to find how much he will be out of line and level.

Many accidents have happened to caissons which a little foresight would have avoided, as in numerous cases where the weight has been taken off, or not enough has been added to allow for the rising tide, with the result that the caisson almost completed, has broken away from its bed and risen enough to necessitate its being completely wrecked.

In 1901 a break occurred in the intake caisson for the new Cincinnati waterworks. This was a very expensively designed caisson and one that the writer would not recommend being copied. The following report of the accident was furnished to the Engineering News by the chief engineer of the works at that time:

"The pump pit is on level ground, about 200 ft. from the top of the river bank, and about 1,400 ft. from the channel where the intake pier is located. The caisson rests on clean sand saturated with water, the shoe being at an elevation about 15 ft. below the lowest point in the channel. The chambers of the caisson were filled with the same sharp sand in October, 1899, at a time when the river being low the air pressure required to keep water out of the working chambers was only about 15 lbs. per sq. in., which pressure was in a large measure counterbalanced by the weight of the sand ballast placed on the deck during the sinking process.

"The shaft connecting the pump pit with the tunnel was sunk immediately after the chambers had been filled; the portion of the shaft between the caisson and the rock being a cylindrical steel shell, lined internally with concrete and brick in Portland cement, and the same lining extending through the rock to the tunnel.

"This brick lining was built in November and the beginning of December, 1899, also a period of low water. The first high water after construction of the pit and shaft occurred on December 26, 1899. It reached 25.2 ft. above datum. At the date mentioned an open seam in the brick lining of the shaft made its appearance, which was readily repaired by an injection of Portland cement mortar under compressed air.

"On January 26, 1900, a second freshet in the river to elevation 34.6 ft. was attended with the same effect. A seam appeared again at the same place, and was repaired again in the same manner.

"On the occasion of a third rise, on November 30, 1900, elevation 42.3 ft., the same thing occurred again, but this time the seam showed itself about 10 ft. below the first crack. In the meantime levels taken on the deck of the caisson from time to time had shown a deflection upward co-incident with

Water higher than those preceding them since the execution of the work and until a sufficient weight has been placed on the deck to neutralize the effect of the highest water. For this reason it was decided not to repair the last crack until the pumping engines have been placed on the deck, as the weight of these engines will be equivalent to that of 25 ft. of water in the pit, and as the last high water (elevation 59.6 ft.) was only 11.4 ft. below the highest water on record, we will then be secure against any further deflection of the deck.

"There is, in fact, no necessity for filling this crack other than the desirability of having a water-tight shaft on the rare occasions when the tunnel will be pumped out for examination.

To be fair, the above report has been copied word for word. Obviously the caisson should have been designed so that it would always be heavy enough to stay down, and this could advantageously have been accomplished by using less wood and more concrete. In fact, the design of this caisson made it an exceedingly expensive one to build, having a timber roof or deck 10 or 12 ft. deep, and of oak, too, yet in spite of this excessive thickness the above report shows that the roof deflected upward. By using a modern thin (say, 3 or 4 ft. thick), yellow pine roof, and by using more concrete, the caisson would have been heavy enough to withstand the water pressure, especially if the working chamber had been filled with concrete instead of with sand.

In 1901, in sinking a crib for the Cleveland waterworks in Lake Erie, a steel working shaft 11 ft. in diameter was used. The shaft was attached to the bottom



GETTING READY TO ENTER THE LOCK. ON COMING OUT THE MEN LOOK WORN AND TIRED.

of the caisson about 80 ft. from the top, or at about the level of the bottom of the lake, and then extended downward for some 40 ft. more.

During construction the air pressure was from 25 to 30 lbs. per sq. in., but at the time of the accident the pressure was supposed to be less.

Without warning the shaft broke in two at a point just above the bottom of the lake, where it was rigidly attached to the caisson, and the upper 80 ft. shot up into the air, and in falling fell against the side of the crib, being too long to fall flat, which fact permitted the men to be taken out of the shaft uninjured—one man lost his life by falling down the shaft and four who were working below were drowned.

The fact that the shaft broke at what was apparently the bottom of the unsupported length, where the cantilever strain would be the greatest, would make it appear to be the result of a blow at the top, though a heavy wind storm might have had the same effect, and yet there were plenty of means at hand to have braced the shaft properly at little expense.

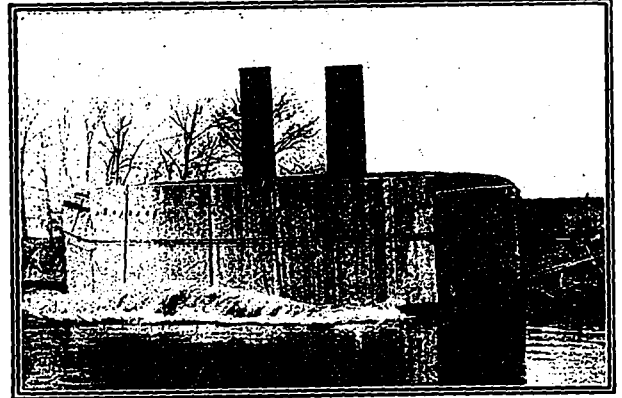
It is often difficult to make the men put in all the bolts in the flange connections and to see that they are all tightened up. Of course if a few bolts were missing and a slight blow was received at the top of the shaft, aided by a heavy wind, the accident could be easily accounted for.

There have been many causes for many kinds of caisson accidents, most of which could have been prevented with care. For instance, a large iron caisson broke loose off the coast of Nova Scotia and was carried out to sea, where it sank and was never heard of again.

In New York city most of the accidents have caused damage to the adjoining property, as well as to the caissons themselves, where by careless slacking of air, etc., material has been drawn from under the adjacent buildings, very badly wrecking them.

In one case the contractor or owner decided to save money by not using compressed air at all, and tried to

necessary to take out all the terra cotta floors and get a good firm of iron contractors to jack the steel work



LAUNCHING A CAISSON FOR RIVER WORK.

back to place. Needless to say, this cost more than good pneumatic caissons would have cost in the first place.

### CAISSON DISEASE.

When a novice enters an air lock the pressure is, of course, at atmospheric, and as soon as the outer door is shut (it is usually held shut by the pressure of the air), the pressure is gradually increased; but no matter how slowly it is increased one has, at first, more or less trouble in equalizing the pressure on both sides of the ear drums. This is usually accomplished by closing the nostrils with a finger and thumb and then blowing the air through the throat into the ear passages. Sometimes beginners cannot do this, and occasionally even an old-timer will get caught this way, if he happens to have a bad cold.

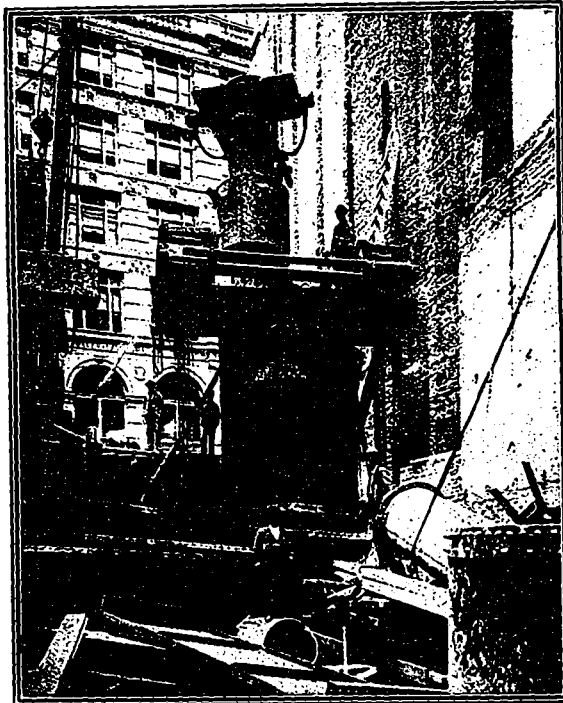
The result of getting "blocked" is that one or both ear drums may be ruptured, causing intense pain, or some blood vessel in the head may burst.

The most common complaint is known as the "bends," which only attacks one after leaving the caisson, sometimes several hours after, and thus tends to bear out the theory that caisson disease is caused by the air forcing the blood away from the surface and the bubbles of air remaining in the system when the person has left the air chamber too quickly.

The bends generally attack the arms or legs, and sometimes the lower part of the body, causing more or less intense neuralgic pains or cramps, which are said to resemble rheumatism, but to be worse. Yet, in spite of the intense pain and suffering, they rarely result in death.

The worse effect, however, is paralysis, which attacks the limbs or body, though generally the legs or lower part of the body. Sometimes the victim becomes paralyzed on the whole of one side. This trouble also, as a rule, attacks the unfortunate man shortly after he has left the compressed air, though sometimes not for several hours after. It is very rare for a man to be paralyzed while in the air chamber, though some have been killed the first time they have entered, and before they could get out.

Occasionally an old-timer, who has always considered himself immune, has been bowled over. When paralyzed, some completely recover after a few hours' treatment; some remain partly maimed for life, while others succumb sooner or later. Some experienced men claim that they can tell when they are going to get the bends or be paralyzed while still under compression, in spite of the assertion of other writers and experimenters that all



PLACING LOCK ON STEEL CAISSON FOR COMMERCIAL CABLE BUILDING, BROAD AND NEW STREETS, NEW YORK.

sink five open cofferdams alongside of a 20-storey, nearly completed building, with the result that the building was undermined and was thrown 18 in. out of plumb. It was

forms of caisson disease are contracted during decompression.

Forty-five or 50 lbs. above atmospheric is about the limit in which men have performed actual work, and these high pressures are always attended with great risk and loss of life.

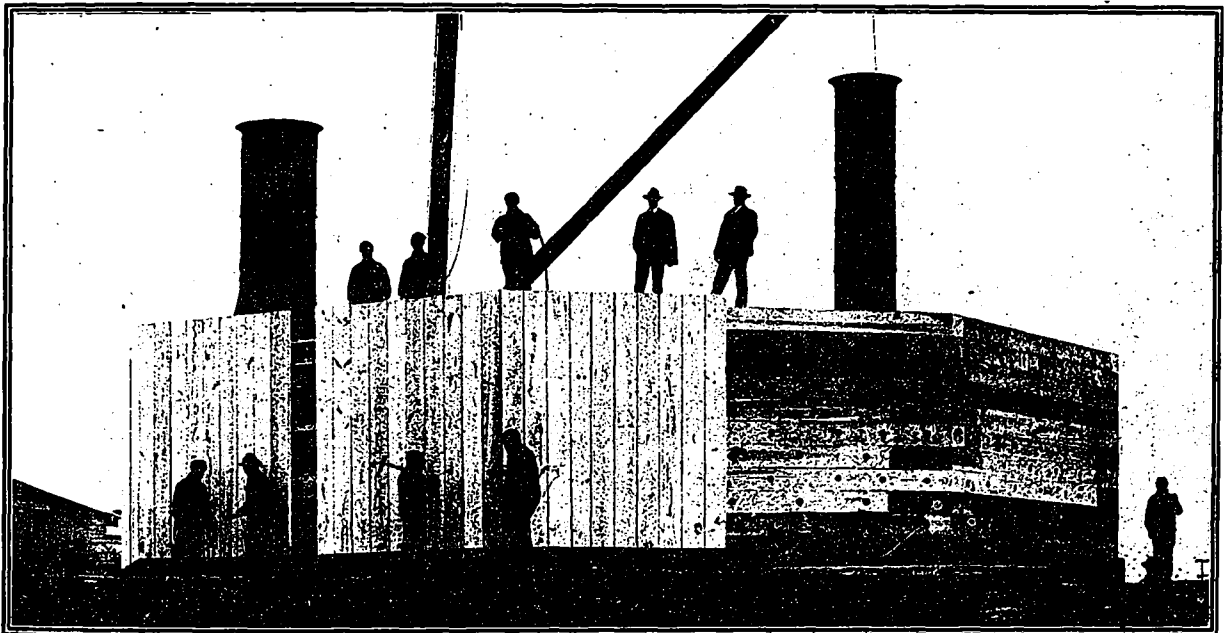
French experimenters have shown that these pressures might be more than doubled safely, under ideal conditions; which, however, have not yet been attained in actual work. One of the chief conditions for thus working under a head of 200 ft. depth is very slow decompression, but it is doubtful if men could do much work under such pressure without running too great a risk.

### THEORIES AS TO ITS CAUSE.

Dr. Jaminet, one of the earliest to write on caisson disease, being the medical expert of the Eads bridge of St. Louis in 1871, came to the conclusion that caisson disease was simply the result of exhaustion from too rapid a tissue change caused by the absorption of excess of oxygen. His remedy consisted of a complete rest,

these theories, and can set down established facts as follows:

1. The more rapidly one enters the higher pressures, the more rapidly the blood is forced from the surface, and the greater is the risk of bursting blood vessels in the head or of fracturing ear drums.
2. The longer one stays in compression and the more work that is done, the greater the danger of being paralyzed or of getting the bends.
3. The quicker the pressure is reduced on leaving the caisson, the greater the danger.
4. I have known many cases where foul air did more damage than fresh air, at a much higher pressure. Undoubtedly tallow candles in the early caissons, and gas in the Brooklyn bridge caissons, did much to knock the men out.
5. It is very dangerous to enter a compressed air chamber with an empty stomach.
6. It is advisable to put on warm clothing and take hot coffee on coming out if there is any danger of getting chilled.



BUILDING CAISSON FOR PIVOT PIER, FORDHAM HEIGHTS, HARLEM RIVER BRIDGE, NEW YORK.

with feet in an elevated position, and a supply of stimulants and nourishment.

A second theory, advanced by Dr. Andrew H. Smith, the surgeon in charge of the caisson work for the New York towers of the Brooklyn bridge, was that the superficial pressure of the air upon the body acts to force the blood from the surface to the center, causing internal congestion. The more rapidly one enters and the longer one stays in compression, the worse this congestion, and the more rapidly one leaves the compression, the greater the danger of the blood not returning to its proper distribution, leaving more or less bubbles of air in the system and causing the bends.

A third theory is given by Dr. Wainwright, of the Waterloo & City Railway, London, and is to the effect that the blood and viscera absorb oxygen, nitrogen and carbonic acid—particularly the latter—and that the physiological result of the carbonic acid gas and the mechanical action of all three gases in escaping through the tissues upon the release of pressure cause the bends.

I am inclined to think that there is much in all of

7. The more energy expended in compression, the greater the danger. We know that the excess of oxygen in the compressed air renders the men very much more active than when in ordinary atmosphere, with a consequently greater fatigue.

8. It is suicidal for anyone with weak lungs, heart or nerves to enter the lock.

9. Even healthy people cannot be sure what effect compression will have on them until they try it.

10. The most reliable remedy is recompression in a hospital lock.

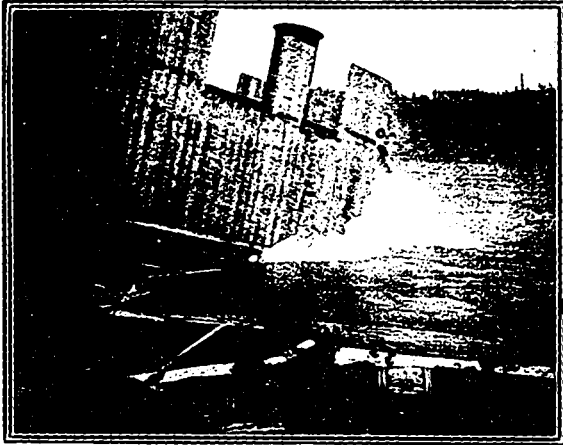
11. Electrical treatment is sometimes efficacious.

12. Most important of all, as much time as possible should be taken in decompression—the more, the safer.

Mr. Hersant, of the Bordeaux harbor works in France, made some very interesting experiments in 1895, in which he kept a man in a pressure of 768 lbs. per sq. in. for one hour taking 45 minutes to reach this pressure and three hours to reduce it.

From the result of experiments, the French doctors

have suggested allowing 20 minutes for each 15 lbs. of pressure for compression and decompression, which would be very hard to enforce for low pressures, as men are accustomed to only take five minutes, or even much



LAUNCHING A CAISSON AT FORDHAM HEIGHTS, NEW YORK.

less, to enter or leave caissons under pressure up to 30 lbs. per sq. in., in addition to atmospheric.

The risk increases so rapidly for every pound over 30 lbs. that men are more cautious as the pressure approaches 45 lbs.

Another authority recommends 4 minutes for each atmospheric (15 lbs.) for decompression below three atmospheres, and 10 minutes for each additional atmosphere above three atmospheres (45 lbs.), but it is safer to stay out of anything above three atmospheres in addition to the normal.

I know from experience that the same remedy will not always have the same effect even on the same man; for instance, after suffering from the bends for several hours, I found that a hot cup of coffee produced a profuse perspiration and relieved the pain, which, however, quickly returned; so a very hot bath was tried, which also banished the pain until the bath room was left behind. Then complete relief was obtained from a few mild electric shocks. The second time I experienced the bends, a bee-line was made for the electric battery, which, however, did no good.

The first attack mentioned was in the leg and I noticed that every additional trip into the lock made the attack more severe; but on the second occasion, the attack this time being in the arm, it was found that by going in and out frequently but very slowly, the pain was reduced each time until it vanished.

Similar experiences make many think that they must "grin and bear it." But recompression in a hospital lock is now considered imperative.

In both of the above cases the pressure did not exceed 25 lbs. per sq. in., and yet I have experienced 35 lbs. many times, and 45 lbs. occasionally, without any ill effects. Like all diseases, a man is immune some days and liable to contract the ailment on others—and he can't tell which day is which!

In sinking caissons in the Harlem river we found that men suffered severely from the bends while passing through the foul silt and just below the bottom of the river, and that when this material had been passed through and the caisson had entered the clean (no sewage mixture) clay the trouble with the bends disappeared, although the pressure was necessarily very much greater.

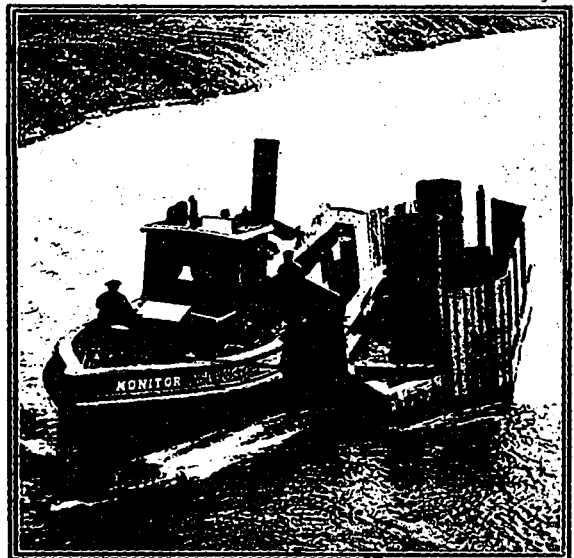
In excavating there is always considerable escape of air under the cutting edge, etc., which, of course, has to be replaced by fresh compressed air which keeps the atmosphere in the working chamber in a fairly good condition; whereas, when concreting, after the concrete has

covered the bottom above the cutting edge the loss of air is very much less, and hence less fresh air is received from the compressor, and the air becomes more and more contaminated as the concrete proceeds and the working chamber contracts, with greater danger of the bends and paralysis. Sometimes old-timers have gone in to uncouple the bolts in the upper sections of the shaft and in a short time have been taken out dead.

In one case, a rubber pipe caught fire and the compressor pumped the stifling fumes of burnt rubber into the working chamber, from which the men were with difficulty rescued.

When blasting in the working chamber, it is usual for the men to go out; but in one case where the working chamber consisted of several compartments the men walked into an adjoining compartment, out of the reach of any flying stones, etc., and after one of the discharges, one of their number was taken out dead.

**GASOLINE AND KEROSENE ENGINES** for water supply and drawbridge service on railroad systems were discussed at the recent railroad bridge superintendents' convention at Washington, and their use was reported to be steadily increasing, the total cost of operation generally proving considerably cheaper than with steam plants, due to the labor item. The discussion indicated that in the majority of cases the cost of coal for steam plants is somewhat cheaper than the gasoline for gasoline engine plants, but the maintenance charges for the latter are uniformly much less than those for steam plants. In certain cases where continuous pumping is necessary throughout the 24 hours, more favorable costs were shown with steam plant operation, but in practically all cases where the operation is intermittent the showing made by the gasoline engine plant is more favorable. This is also true in the operation of drawbridges and turntables, where for quick and efficient service the gasoline engine plant has been shown to have many advantages over steam. In a number of instances, also, satisfactory results were reported with the use of kerosene fuel in the gasoline engines, with material reductions in fuel costs, the engines being merely started with gasoline and when sufficiently heated for proper vaporization of the kerosene switched over to the latter fuel;



TOWING A CAISSON TO POSITION.

the operation with the latter fuel is, in fact, found quite satisfactory with steady loads if some attention is given to the proper cleaning of the igniters and the jacket flow adjusted for less rapid cooling.—ENGINEERING RECORD.



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

CORRESPONDENCE.—The editor will be pleased to receive communications upon subjects of interest to the readers of this journal.

Vol. 2 December, 1908 No. 2

Current Topics

**FOUNDATION WORK** on the new Parliament building to be erected at Regina, involving the driving of 3,000 concrete piles, has been completed. The piles were driven to an average depth of sixteen feet and each one was tested to carry a load of twenty-five tons.

\*\*\*

**THREE RIVERS IS RAPIDLY REBUILDING** her burned district. The new buildings going up are almost without exception three stories in height, and many of them show a vast improvement in design over the structures they are replacing. The streets throughout the newly built portion will be wide and no sign boards will be allowed to stretch out over the sidewalks.

\*\*\*

**CANADA PRODUCED** 2,500,000 barrels of Portland cement in 1907, and imported 1,000,000 barrels more. One-half of all the cement produced in the Dominion is manufactured in the locality of Owen Sound, the daily output in that section being 3,000 barrels. The demand for this material in building the transcontinental railroad has increased the output to the full capacity of the plants during the past year.

\*\*\*

**THE THIRD ANNUAL DINNER** of the Manitoba Association of Architects, which took place at the Royal Alexandra, Winnipeg, on the evening of December 8, was one of the most successful affairs of its kind in the history of the organization. President Hooper presided, and addresses were made by well-known members of the organization and by the representatives of sister societies. The officers of the association, under whose direction the banquet was held are: President, S. Hooper; vice-presidents, Jos. Greenfield and J. Chisholm; treasurer, L. T. Bristow; secretary, W. Percy Over; directors, S. F. Peters, William Finland, J. D. Atchinson, H. Matthews, V. W. Horwood.

**AMONG THE TECHNICAL SCHOOLS** of Spain is the Superior School of Architecture at Barcelona, a municipal institution established for the purpose of developing and maintaining a high standard of design by giving architects and draughtsmen a greater opportunity to educate themselves in their chosen profession.

\*\*\*

**A VALUABLE QUARRY** of white marble and a large deposit of lime has been discovered on Smith Island, ten miles from Prince Rupert. The property is owned by M. Johnson, formerly a Montana railroad contractor, who will establish workshops at Prince Rupert for the purpose of exploiting his holdings.

\*\*\*

**NEW WESTMINSTER, B.C., HAS A NEW FIRM** of architects in the persons of William F. Gardiner and T. D. Sheriff, who have recently entered into partnership and taken up quarters in the Guichen Block. Mr. Gardiner comes from Vancouver where he enjoyed a large practice, being successful in both private work and competition, while Mr. Sheriff has been prominently identified in a professional way in Edinburgh, Scotland, for some time, and during the last five months has been with Mr. A. J. Hill, C.E., of New Westminster.

\*\*\*

**AN AUTOMATIC LIFT BRIDGE**, which is said to be safer and quicker in action and to cost less than any other type of movable bridge, has been invented by L. H. Terrill of Lindsay, Ont. Several engineers, who have seen a working model of the bridge, speak highly of its practicability and simplicity of construction. It is operated by counterbalance weights worked by an ingenious arrangement of "decreasing" pulleys. The present model works on a basis which requires less than three pounds at the crank for every ton of weight raised. This new style of bridge is designed for either power or hand operation, and can be constructed of either wood or steel.

\*\*\*

**THE FIFTH ANNUAL CONVENTION** of the National Association of Cement Users will be held at Cleveland, Ohio, January 11 to 16, 1909. Chicago will also have a cement show to take place sometime the early part of February. It will be the second event of what is to be a regular annual affair in that city. The underlying idea of the Chicago show, say the promoters, is to teach those who know something about cement construction more, and to teach those who know nothing about cement something. A cement show should not be conducted entirely for the purpose of bringing direct business to the exhibitors, but it should be an industrial demonstration that will create universal interest in cement and its innumerable uses.

\*\*\*

**SKYSCRAPERS IN PARIS** were recently made the subject of a bitter attack in the Chamber of Deputies by M. Charthenet, a member from Gironde, who contended that the beautiful lines and symmetry of the city were being destroyed and dishonored. A number of cases were cited where the harmonious ensemble of buildings have been marred by modernly designed structures which rise a number of stories above their neighbors. In order to preserve the uniformity and beauty of architecture for which Paris is known, M. Charthenet said that it would be necessary to repeal or modify the law of 1902 which gave countenance to such structures. When asked for an explanation, M. Dryardin-Beaumez, Minister of Fine Arts, reminded the deputies that such matters belong to the municipal council.

*A SWISS ENGINEER*, named M. Merian, who in 1849 used asphaltum in laying a portion of the road from Travers to Pontalier, is credited with having been the first to introduce this natural resource into the commercial world. The first pavement of this material, however, was not laid until 1854, when a small section of a street in Paris was paved.

\* \* \*

*A 205-MILE TANGENT* is reported to be in operation on the Buenos Ayres & Pacific Railroad. This section of the line, which begins about 158 miles west of Buenos Ayres, formerly had two short curves to pass around a shallow lake, but the latter was drained about one year ago, and the tangent has since been completed directly through the bed of the lake.

\* \* \*

*THE MASTER BUILDERS OF HALIFAX* at a recent meeting refused to grant the union's request for a reduction of the working time from nine to eight hours a day. On the new science college building, which is being erected for the Nova Scotia government, the eight-hour day prevails, but despite this the employers are as a unit in their determination to maintain the nine-hour schedule for the ensuing year.

\* \* \*

*A FOUNDATION* of more than usual thickness is used under some of the roads of Gloucester County, England, according to a paper presented at the International Road Congress by its consulting surveyor, Mr. Robert Phillips. After the roadbed has been formed, 12 inches of cinders, clinkers, broken brick or hard ashes is laid, and traffic turned over it or it is steam-rolled until consolidated. On this is spread 6 inches of broken stone and 1 inch of gravel, watered and rolled until consolidated.

\* \* \*

*THE USE AND IMPORTANCE* of volcanic ash in combination with Portland cement, especially for construction work in salt water, is described in a pamphlet printed in English and issued by a Japanese firm, which has recently been received by the U.S. Department of Commerce and Labor, from Consul George H. Skidmore, of Nagasaki. The advantages claimed for this volcanic ash are that in combination with Portland cement it gives a greater tensile strength than cement mortar alone. It is also claimed that the mortar is denser than cement mortar, and does not permit the percolation of water, thus obviating the injurious action of sea-water salts. This density gives it a superior quality for construction of water reservoirs and reinforced concrete for the protection of iron from oxidation.

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*BRICKS WERE FIRST MADE* in Mesopotamia, according to an exchange, many thousands of years ago. There were no stones to be found in all that great fertile plain, but there was an abundance of clay, and the primitive people discovered that if the moist clay were molded and then laid in the sun to dry, it would harden into durable building blocks. Samples of these early, shapeless, sun-dried brick have been recently found in the ruins of the very ancient city of Bismya in Mesopotamia. There, also, the first brick burned by fire have been found, dating back several thousand years. People had seen that the moist clay under their campfires had become hard and red, and they gave up sun-dried brick for burned ones. For a long while these crude burned brick were square in shape and very large. But about five thousand years ago the Babylonian masons found that it was necessary to break these square brick in half, in order to build evenly, and from that time dates the oblong brick familiar to us to-day.

*AN INTERNATIONAL EXPOSITION* of latest inventions will be held in St. Petersburg from May 4 to June 23, 1909 (Russian calendar, April 21 to June 10, 1909) under the management of the Society of Military, Naval, and Rural Economic Technics of Russia. The Exhibition will comprise six sections, section V. being devoted to improvements in the construction of buildings and plans for municipal buildings. All foreign exhibits will be allowed to enter Russia free of duty under the condition that they will be re-exported within two months after the closing of the Exposition.

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*CLEANING OF BRICK FRONTS* was the interesting subject of a paper recently read before the German Association of Brick and Terra Cotta Manufacturers. The author protested against the use of sand blast, or other method by which the original face of the brick would be taken away. When sand blast is used, and the face of the brick taken off, the cleaned front will show a good appearance only for a very short time, as the brick with the original face removed will be very much more porous than before, and absorb dirt more readily. The use of steel brushes is also very bad, and will not give a first-class job. The best method is cleaning the brick fronts with a solution of muriatic acid. The strength of the solution can be made to one in twelve. When this solution is too strong for the brick, acetic acid should be used. A good soap solution will, as a rule, take off all thick dirt, and the cleaning with acid solution can then be done easily.

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*"MISTAKES ARE SOMETIMES MADE* by inexperienced persons in building the fireplaces which are coming into such favor again," said a builder. "The people find that the fireplace smokes and is susceptible to every vagrant breeze that happens to blow down it. The reason for this is a fault in construction, a disregard of a fundamental law and a principle well known to most builders. The fireplace has not been provided with a proper 'throat' and 'smoke shelf.' Some people have the idea that the bigger the chimney the better will be the draft, and they build the chimney large and of the same size throughout. The throat should be a few inches above the arch of the fireplace and should be comparatively narrow. The part of the chimney wall which juts in to form the throat is called the shelf, and when a wind blows down it provides a shelf against the breeze, so that the smoke does not blow out in the room.

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*A WORLD'S RECORD* for bridge building in a single year, is said to have been established by the Canadian Pacific Railway in the large number of improvements of this nature, undertaken during the past twelve months, at a cost which runs up into the millions. An idea as to the extent of the work that has been carried on this year may be gathered from the fact that between Montreal and Quebec alone forty-four new bridges have been erected or are now in process of completion. In the West the company has not been less active and the long list of new bridges speaks volumes for the company's enterprise in perfecting its system. Of these the large bridge over the Seley River, about half a mile from Lethbridge, stands pre-eminent. It forms part of part of a new loop replacing a section which includes four short bridges. This bridge is nearly a mile long, and for two-thirds of its length is three hundred feet high—a combination of height and length that is rarely met with. Another noteworthy structure is a nine-span steel bridge in British Columbia, that replaces the wooden structure near Mission Junction and the Columbia River bridge at Revelstoke. There are altogether 5,935 bridges on the C.P.R. system, whose combined length is 81.55 miles.

*IN THE ATHABASCA DISTRICT*, according to the geological survey reports, there are 4,700,000,000 tons of pure bitumen—*asphalt* in the crude form. A western writer, who has been investigating the possibilities of this great deposit, declares that in the past twenty years the United States alone has spent \$120,000,000 on asphalt paving. Of the bitumen used in that country 85 per cent. was imported from Trinidad, which supplied about 80,000 tons a year, and it is contended that the Athabasca country would have prospered had it been put forward as a source from which to receive material of this kind. It is further pointed out that the paving industry is only just in its infancy. Thousands of towns of considerable importance still put up with the muddy lane because paving comes too high. The opening up of this vast source of paving material, right at the doors of our cities and towns, would be of incalculable value and benefit. That a railway to Fort McMurray would result in the development of the industry is conceded. There would result such a boom in the paving business in Canada as has not been witnessed before and the industry alone would doubtless go far toward justifying the road.

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*AN INNOVATION* in lighthouse construction, particularly in regard to the comforts provided for the keepers, has just been completed on the eastern end of the Harbor of Refuge Breakwater, Delaware Bay. The approximate cost of the building is \$50,000, and it is the first off shore station with hot and cold water, bath tub and water closet. The basement of the structure is made of iron and contains an engine room, storeroom for oil and a large coal room. The upper stories of the building, except the lantern, are wood, and the building above the basement is hexagonal. The first story is divided into a kitchen and a dining-room. The kitchen is provided with a large pantry and a storeroom, and the dining-room with a large closet and a china cabinet. On the floor above is the principal keeper's room, the bathroom and a living room, and on the third floor two bedrooms, one for each of the assistant keepers. The beacon, a revolving white light with a red sector, burns a gas generated from kerosene in a manner similar to ordinary house gas, and by means of four or five large Welsbach burners, gives an illumination many times more powerful than is generally furnished by a lamp of its size. The signal service includes the most modern devices in lighthouse equipment.

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*A FOUR THOUSAND TON* vertical testing machine is now being constructed by the U.S. Geological Survey for use in its structural material laboratories. The machine, which is to be 85 feet high, is designed to receive columns of a maximum length of 60 feet and transverse dimensions of 60 inches by 72 inches. It will be invaluable for testing columns and stanchions of large size and of obtaining data, which, since the Quebec Bridge disaster, will be more than ever required by engineers. The compressive strain will be obtained from a hydraulic ram, and readings will be obtainable with an accuracy of one-third per cent. for any load between forty and four thousand pounds. The manner in which the United States Government is assisting architects and engineers—and the public as well—in placing means at their disposal for determining the relative merits of different materials and broadening their scope of knowledge, affords a splendid example for the Dominion Government to follow. While it is true that Canadian architects and engineers derive a wholesome benefit from experiments made abroad, the lack of proper facilities at home curbs the initiative along lines of scientific research. One or two well equipped testing laboratories would mean much to this country and it would greatly reflect to the enterprise of the Dominion Government.

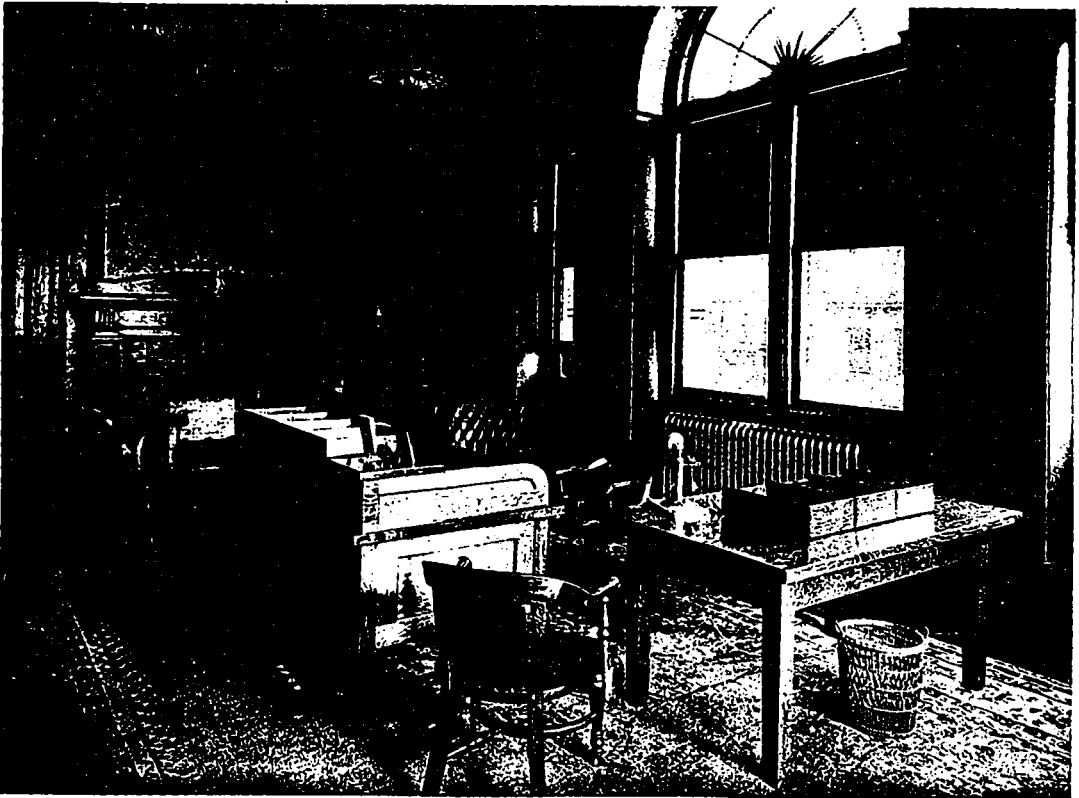
*A NOVEL LIFT BRIDGE* will be built across the Mississippi River at Keithsburg, Ill., for the Iowa Central Railroad, in accordance with the plans of Messrs. Waddell & Harrington, of Kansas City. It will have ten 200-foot spans, two 103-foot spans and twenty-two 57-foot spans, the weight of steel being about 4,000 tons. The usual draw-span will be omitted, but a novel lift-span scheme has been substituted for it. With this arrangement there will be two towers connected to the ends of the spans adjoining that to be lifted. Several of the spans are so arranged that these towers can be placed on them and the intermediate span raised, so that as the channel of the river shifts, provision can be made for raising a span which will permit navigation to be continued.—ENGINEERING RECORD.

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*A SUCCESSFUL DEMONSTRATION* has just been given in Great Britain of a petrol-driven motor fire engine by Messrs. Dennis Brothers, Ltd. It is claimed that the engine can travel at the rate of 30 miles per hour on the level, and 25 miles along average gradients. The motor, which is described by acting Trade Commissioner J. E. Roy of Birmingham, consists of four cylinders of 120 mm. bore by 130 mm. stroke. On arriving at a fire the lever controlling the road gear is thrown into a neutral position, and a special gear, connecting with a Gwynne centrifugal pump, having a capacity of 350 to 400 gallons per minute, is brought into mesh, driving the pump at 1,200 r.p.m. When operated under these conditions the engine is claimed to throw two 7-8 inch or 1 inch jets to a height of 120 feet. At the demonstration a steam fire engine of 300 gallons per minute capacity was invited to compete. The performances of this engine were beaten by the motor-driven appliance, as the latter threw two jets of water slightly higher than the single jet of the steam engine. Messrs. Dennis claim that the pump can throw two jets of water within 14 or 15 seconds after starting the engine. Among other advantages are, no boilers to require attention, no steam to create, and their engine utilizes the pressure from water hydrants instead of allowing it to exhaust itself into a suction tank, as with the ordinary type of steam fire engine.

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*IN COMMENTING* upon the need for better local supervision in the erection of buildings, a Fernie, B.C., paper says: Several recent occurrences, fortunately carrying in their wake no casualties of a serious nature, have shown that building operations have not been carried on along the most approved and safest lines. In the rush to complete structures within a limited, and often times, too limited, space, we fear that conservative methods are not followed. We do not wish to raise a general alarm, nor do we wish to make any sweeping charges as to negligence and loose methods, but surely it is within the province of the City Council to look after such an important matter. The plumbing that is being done, not only at this time, but at all times, especially as it affects sanitary conditions, should be under rigid inspection. This matter has for some time past received careful attention from the older portions of Canada, and surely western towns can afford to profit by the dearly bought experience of older communities. The wiring of houses for electric lights is a most important matter, yet how often do we read that electric light wiring, exposed or not properly insulated, has been the cause of some costly conflagration. The old adage that an ounce of prevention is worth a pound of cure, still holds good, and we trust that Fernie may not have to purchase her experience and wisdom in the above regards in too dear a market.



VIEWS OF BOARD ROOM AND GENERAL MANAGER'S ROOM, CANADIAN GENERAL ELECTRIC COMPANY' BUILDING, TORONTO. DARLING AND PEARSON, ARCHITECTS.



# GENERAL ELECTRIC COMPANY'S NEW BUILDING.---A Highly Commendable Achievement in Commercial Architecture.---Exterior Simple and Dignified in Appearance.---Interior Well Arranged.---Work of Canadian Architects.

**T**HE RECENTLY completed office building of the Canadian General Electric Company, designed by Architects Darling and Pearson, of Toronto, is another notable instance which demonstrates that Canadian architects are quite as capable of solving the problem of combining design, utility of plan and economy in construction, as those to be found in the progressive country at the south.

This building, which is situated on the northeast corner of King and Simcoe streets, Toronto, is without ques-

tion a particularly striking example of commercial architecture. No attempt has been made to carry out any particular style of architecture and because of this the external elevations bespeak the usages of the building. It could more nearly be classified as regards style as a free treatment of the classic, but the authors have wisely left themselves untrammelled by not adhering to any particular style, and the results obtained are of a most dignified and distinctive character.

Passing through the portico one enters the inner vestibule, which is simple in treatment, with groined ceiling overhead. This leads into a handsome, spacious hall with the board room and elevator and staircase on the left, while to the right is placed the general manager's and assistant general manager's offices. Proceeding along the hall one enters the space devoted to the general office staff, a room of dignified proportion, 61 by 92 feet, which occupies two-thirds of the ground floor area.

The public is separated from the clerks by handsome quarter-sawed oak counters placed on either side of a broad passageway which continues from the main entrance hall down through the centre of the building. As these counters are not more than four and a half feet high, the public is enabled to get an uninterrupted view of this portion of the first floor. The front part of this section is divided into offices and the remaining portion, as well as all the floors above, with the exception of a

large space on the second floor which is taken up with offices, is utilized for storage and display purposes. A freight elevator situated at the northeast corner gives ready access to all floors for the receiving and shipping of goods.

Throughout the entire first floor the supporting columns, walls and ceilings, are covered with cement plaster on expanded metal lath, the use of these materials resulting in the rich uniform panelling overhead, and the monolithic appearance imparted to the columns.

Aside from the pleasing effect it gives to the exterior of the building, the window arrangement admits the maximum degree of outside light on all floors.

The frame of the building is of skeleton steel construction and the roof is of concrete reinforced with expanded metal.

Steam heat is supplied to all parts of the structure from a plant which is located in the basement at the rear, while the plumbing fittings and fixtures throughout are of the most modern type.

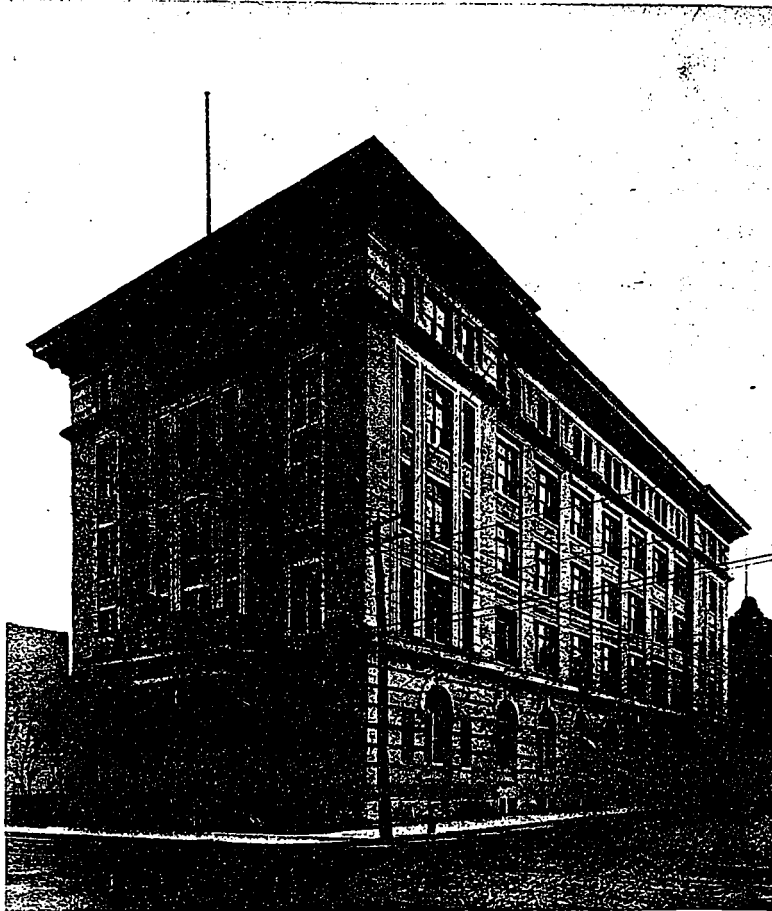
The large chimney at the northwest corner of the building is of special construction, having been built by the Alphonse Custodis Construction Chimney Company of New York, who make an exclusive business of this kind of work, and

who are represented in Canada by Eadie-Douglas Company, of Montreal and Toronto.

The concrete fireproofing of the first floor and the concrete floors in the vault and lavatories was reinforced with "Steelcrete" expanded metal, supplied by the Expanded Metal and Fireproofing Company, of Toronto.

Other contractors who executed the various branches of the work are:

Excavations, Page & Britnell; steel work, ornamental iron work and stairs, Canada Foundry Co.; brick work and masonry, Fred Holmes; rough floors, A. B. Coleman; carpentry and floors, J. C. Scott & Co.; painting, F. E. Phillips; roofing, Douglas Bros.; vault doors, J. & J. Taylor; plastering, W. H. Little; hardware, The Brooks



CANADIAN GENERAL ELECTRIC COMPANY'S BUILDING, CORNER OF KING AND SIMCOE STREETS, TORONTO. DARLING AND PEARSON, ARCHITECTS.



VIEWS SHOWING THE INTERIOR OF GROUND FLOOR LOOKING FROM AND TOWARD MAIN ENTRANCE, CANADIAN GENERAL ELECTRIC COMPANY'S BUILDING. DARLING AND PEARSON, ARCHITECTS.

Sanford Co.; counter, etc. S. Hadley Lumber Co.; elevators, Otis Fensom Co.; boilers, Canada Foundry Co.; plumbing and steamfittings, The Bennett & Wright Co.; fire-doors, Ormsby & Co.; decorating, Elliott & Son; interior fittings, Wm. Eaton; interior finishing, Hughes & Co.; electric wiring, Canadian General Electric Co.; dust proofing concrete floors, J. L. Wood.

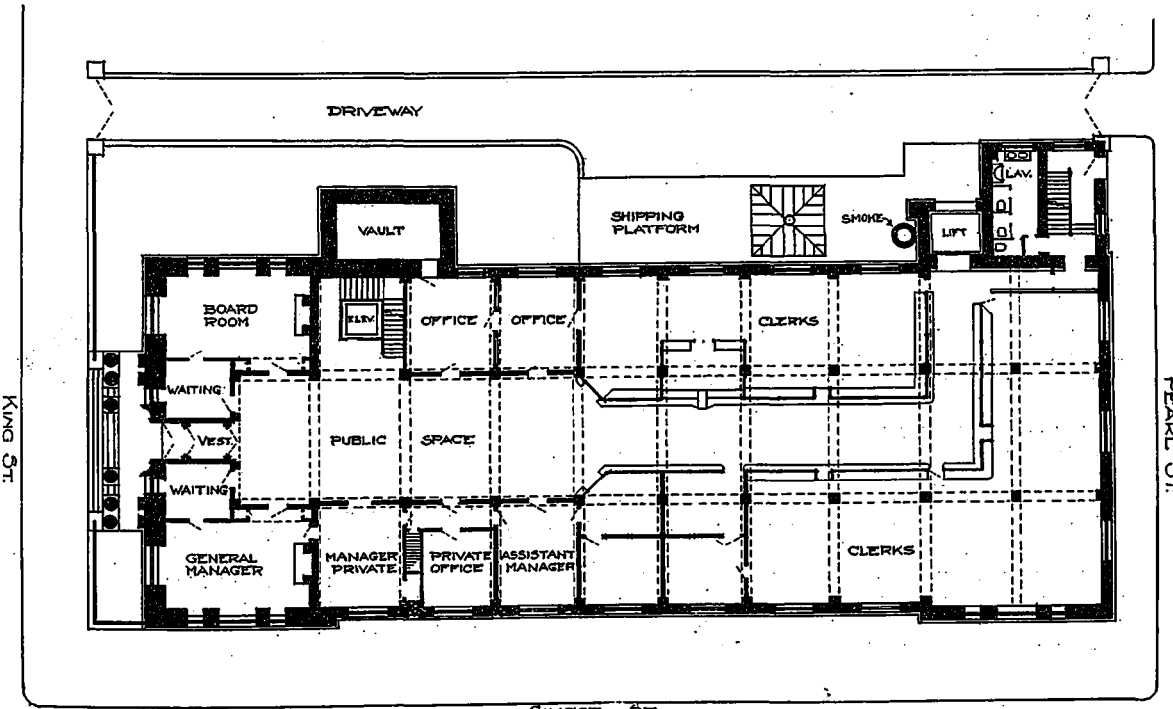
The table in the board room and desk and table in the general manager's office, were furnished by the Library Bureau of Canada, Limited, Ottawa.

**RECOGNIZING** the fact that good roads are absolutely essential if a state or community is to progress. Pennsylvania has enacted laws designed to promote



MAIN ENTRANCE, CANADIAN GENERAL ELECTRIC COMPANY'S BUILDING, TORONTO. DARLING AND PEARSON, ARCHITECTS.

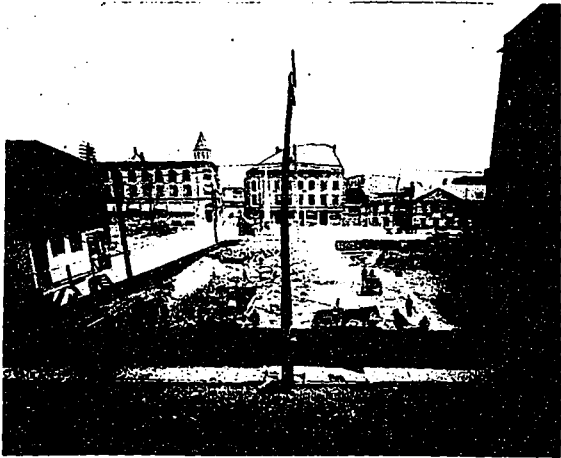
highway improvement by providing appropriations for work of that character. In developing the good roads movement the Highway Department found that concrete had become an exceedingly important factor, owing to its great economy and durability, says Cement Age, New York. This has been shown by practical experience and observation, and matters have reached the point where the state has deemed it necessary to provide plans and specifications for drains, culverts and bridges. The plans are prepared by competent engineers in order that contractors may use concrete intelligently and economically. Good results are certain to follow this policy. It will mean the standardization of important work heretofore conducted on the hit or miss plan.



GROUND FLOOR PLAN, CANADIAN GENERAL ELECTRIC COMPANY'S BUILDING, TORONTO. DARLING AND PEARSON, ARCHITECTS.

# RAPID WORK ON REINFORCED CONCRETE.---Lyman Sons and Company's New Building, Montreal.---Demonstrates Possibilities of Quick Construction in Reinforced Concrete. . . . .

THOSE INTERESTED in reinforced concrete have observed with some attention, the erection of the building at the corner of St. Nicholas and St. Paul streets, in Montreal, for Messrs. Lyman Sons & Co. This building is an example of the rein-



VIEW TAKEN JUNE 1ST, 1908, SHOWING EXCAVATION ALMOST COMPLETED FOR LYMAN SONS AND COMPANY'S NEW REINFORCED CONCRETE BUILDING, MONTREAL. MITCHELL AND CREIGHTON, ARCHITECTS.

forced concrete type, in which no structural steel is used.

At building lines the structure is 113 x 110 feet; the lot is slightly irregular, having only one right angle. In height the building is six stories and a basement. The pent-house rises three stories above the building proper, and from its roof an excellent view of Montreal and the St. Lawrence is obtained.

The columns are laid out on 17 ft. 6 in. centres one way and 18 ft. 6 in. centres the other. Girders span the longer way and beams the shorter, there being one line of beams at the columns and two between, making the beams about 6 feet on centres. This framing obviates the need of a thick slab and thus cuts down the dead load; it also gives a very stiff construction.

The footings, with the exception of those at the party wall, are all pier footings, of the shape of truncated pyramids and have reinforcing steel in both directions in the bottoms. The party wall columns are carried by beam footings.

The columns are rectangular in section, reinforced with round vertical bars, one in each corner and one intermediate in each side, except in the smaller columns, which have only the four corner bars. The columns are all strongly hooped with 1-4 in. square steel.

The steel used in reinforcing the beams, girders and slabs, was the square bar cold twisted. The steel was obtained at one of the local mills and twisted on a special machine of the contractor for the reinforced concrete. (The Ferro Concrete Construction Co.) The bar, before twisting, is the ordinary mild steel bar. The twisting gives a deformed bar with a mechanical grip and a much higher elastic limit and ultimate strength.

The steel bars are all bent without heating, to the required shapes, on the job with special benders. As a rule, there are four longitudinal bars in each beam and each girder. Two of these are usually straight in the

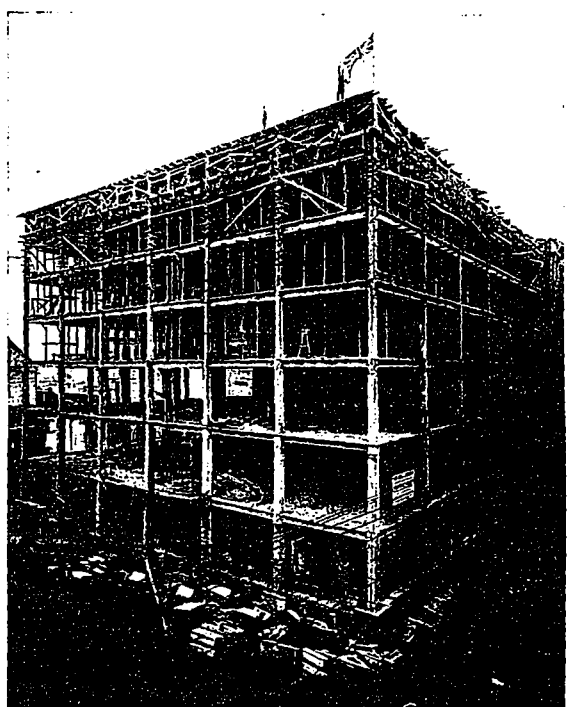
bottom; the other two are bent up, the bends beginning near the quarter points of the span and running to the top of the beam or girder, near the supports. The ends of these bars run over into the adjoining beams. This gives continuity, and adds greatly to the strength and stiffness of the structure. In addition to the longitudinal steel in the beams and girders, U-bars or stirrups of smaller sized steel are inserted vertically at frequent intervals along the entire length. The spacing is, of course, closer at the supports.

The steel in the floor slabs is in long lengths. About one-half of the bars are bent up at the supports.

The hoist for delivering the concrete to the different floors, was placed in one of the elevator openings, near the centre of the building. The mixer was placed in the basement, and delivered directly into the large bucket of the hoist. It was fed by wheelbarrows on a down-grade wheel, from the materials piled on the street in the rear. The hoist bucket dumped automatically into a hopper, placed on the floor, that was being run. Large two-wheeled "buggies" holding about six feet of material, were run under the hopper to be filled with the concrete, and deliver it wherever required on the floor.

Mitchell & Creighton, of Montreal, are the architects. H. C. Hitch is the general contractor, and the Ferro Concrete Construction Company contractors for the reinforced concrete work.

It may be of interest to know that the contractor for



VIEW SHOWING STRUCTURE TWO MONTHS AND A HALF AFTER EXCAVATION WAS MADE, FLOORS, ROOF AND STRUCTURAL WORK COMPLETED, LYMAN SONS AND COMPANY'S BUILDING, MONTREAL. MITCHELL AND CREIGHTON, ARCHITECTS.

the reinforced concrete, have to their credit the tallest reinforced concrete building in the world (the Ingalls Building in Cincinnati).

# PROSPECTIVE CONSTRUCTION

The following information is obtained from our correspondents, from architects, and from local papers. These items appear in our Daily Advance Reports and are herein compiled for the use of subscribers to the monthly issue of "CONSTRUCTION." Should any of our readers desire this information oftener than once a month, upon receipt of request we will be pleased to submit prices for our Daily Service.

## Mills and Factories

**Toronto.**—Architect Leonard Foulds, 43 Victoria St., Toronto, has prepared plans for five factory buildings, and an engine house, to be erected at Weston, Ont., for the Consolidated Chemical Company. The buildings will be two stories in height, of concrete and brick construction, with concrete foundation, felt and gravel roof, concrete floor, pine interior finish, open plumbing, steam heating, electric lighting, sidewalk lifts, plate glass, electric bells, power and equipment. Estimated cost, \$16,000.

**Toronto.**—Messrs. Whyte & Co., Church street, have been awarded the general contract for a laundry building, to be erected on Bathurst street, below College, for the Toilet Laundry Company. The building will be of brick construction, with brick foundation, with pine and concrete floors, pine interior finish, open plumbing, steam heating, electric lighting, fireproof doors, metal lath, plate glass, power and equipments. Estimated cost, \$8,000. Architect, J. M. Cowan prepared the plans for the structure.

**Toronto.**—The Harvey Quilting Company, 35 Pearl street, has taken out a permit for the reconstruction of second north of brick factory on Pearl street, near York street. Estimated cost, \$4,500. Architect, J. Francis Brown, Board of Trade Building.

**Hamilton, Ont.**—The Hamilton Cotton Company has taken out a permit for the erection of an addition to their mills.

**St. Catharines, Ont.**—The Colonial Wood Products Company, Niagara Falls, N.Y., have purchased 20 acres of land at this place for the erection of a pulp mill.

**St. Catharines, Ont.**—The Welland Vale Manufacturing Company's factory has been destroyed by fire. The total loss is estimated at approximately \$50,000, the stock being valued at over \$30,000. Loss practically covered by insurance.

**Pembroke, Ont.**—The Garrie-Brook Manufacturing Company will erect a large cement block factory on Deacon street, for the manufacture of all kinds of gray and malleable iron castings, a number of tools for use in railway construction, and a patent crane.

**Listowel, Ont.**—The by-law granting a loan of \$25,000 to the Morris Plano Company, to assist them in rebuilding their factory, which was recently destroyed by fire, has been carried.

**Welland, Ont.**—The Dane Manufacturing Company, Ottumwa, Iowa, manufacturers of hay stackers, loaders, rakes, mowers, etc., has purchased a site of one hundred acres of land at Welland, Ont.,

on which they will erect a plant to employ two hundred men. The Canadian branch is capitalized at \$200,000.

**Welland, Ont.**—The Tin Plate Company, of Swansea, Wales, with paid-up capital of \$250,000, have signed an agreement to locate a plant at Welland. The company will employ 250 men. The agreement provides that the company commence the erection of the buildings before April 1st. One of the buildings will be 100 by 300 ft., of steel construction. The agreement also provides that the town build 150 houses which will be needed by the workmen.

**Waterford, Ont.**—The R. S. Robinson property, and the Chas. Clouse lot, have been purchased for the erection of a factory for the manufacturing of telephone supplies. Mr. Geo. Doughty will superintend the construction of the building. Mr. Overshiner is president of the company.

**Murillo, Ont.**—McArthur's sawmill and gristmill mill at this place, have been destroyed by fire. Loss not stated.

**Pembroke, Ont.**—The Pembroke Milling Company will at once rebuild their mill which was recently destroyed by fire. Plans for the building have been prepared.

**Port Perry, Ont.**—The expanded Metal Company, 108 King street west, Toronto, have been awarded the general contract for a plant to be erected at Port Perry, Ont., for the Weber Gas Company, Janes Building, Toronto.

**Winger, Ont.**—The Erie Evaporating Company, of Dunnville, Ont., will erect a \$10,000 evaporator at this place. The building will be two stories in height, of brick construction, with cement foundation, felt roof, natural gas heating.

**Rodney, Ont.**—Mr. F. A. McCallum's sawmill at this place has been completely destroyed by fire. Loss estimated at \$5,000, with insurance of \$2,500.

**Sault Ste. Marie, Ont.**—Arrangements are now under way for the construction of a large drydock at this place. The Board of Trade, which has taken the matter up, has been assisted by a grant from the council, and private subscriptions, for the purpose of defraying the expenses of H. Calderwood, Consulting Engineer, Toronto, who has been engaged to recommend a site and advise the promoters in this project. Mr. Calderwood will report to the Board of Trade during Christmas week. President Browne, of the Board of Trade, may be addressed regarding this proposition.

**Peterboro, Ont.**—Mr. Weatherstone has made application to the City Council for the privilege of purchasing a site of one acre of land on which to erect a new one-storey, 100 by 30 ft. factory. Mr. Weatherstone's present plant is at the corner of Simcoe and Water Sts.

**Kingston, Ont.**—The Wormwith Plano Company has applied to the City Council for assistance to re-establish its factory, which was recently destroyed by fire.

**Kingston, Ont.**—The Wormwith Plano Works and the Wholesale grocery of W. G. Craig & Co., have been damaged by fire to the extent of \$120,000. The loss to the plano company is estimated at \$90,000; all the machinery was destroyed. Messrs. Craig & Co. estimate their loss at \$30,000, with insurance of \$26,000.

**Fort William, Ont.**—The Lennox Furnace Company of Marshalltown, Iowa, is contemplating establishing a Canadian branch at either Winnipeg or Fort William.

**Dresden, Ont.**—Mr. Wm. Rudd's carriage factory at this place has been com-

pletely destroyed by fire. Loss not stated.

**Oakville, Ont.**—The Oakville Pop Works have been destroyed by fire, including the building, machinery, and stables in the rear.

**Thorold, Ont.**—The Town Council has made an agreement with the Colonial Wood Products Company, whereby this company will locate a pulp mill at this place. Mr. J. J. Harriman, of Niagara Falls, has been awarded the contract for the erection of the buildings, which it is estimated will cost about \$3,000.

**Thorold, Ont.**—The boiler house at Battle's quarry has been completely wrecked by an explosion.

**Montreal, Que.**—Architects Finley & Spence, Guardian Building, have awarded to Messrs. D. G. Loomis & Sons, 261 St. James street, the contract for the erection of the new bleacher, and finishing building for the Mount Royal Spinning Company, at Cote St. Paul.

**Montreal, Que.**—Architect Eric Mann, 30 St. John street, has awarded the following contracts for the erection of a brick tower, for staircase, elevators and sprinkling tower, for the McClary Mfg. Co., King street: General contractor, Shearer, Brown & Wills, Montreal; elevators, Smith Machine Company, London, Ont.

**Moose River, N.S.**—The Moose River Lumber Company's plant at this place has been badly destroyed by fire, including a large amount of the machinery.

**Amherst, N.S.**—The Rhodes-Curry Company will at once rebuild the car shops which was recently destroyed by fire. The workman of the company will be employed in the erection of the new building.

**Lepreaux, N.B.**—Mr. J. A. Gregory, St. John west, N.B., will erect a two-storey saw mill at Lepreux, to replace the one recently destroyed by fire. The building will be of frame construction, with concrete foundation, shingle roof, arc lights, and will cost \$10,000. Tenders for the building will be received from Jan. 1st, to Feb. 1st, 1909. Architect E. L. Hughes, St. John West, N.B. The machinery equipment will include two 125 h.p. tubular boilers; two 125 h.p. high pressure non-condensing engines; machinery for the manufacture of lumber, including rotary, edger, lath-mill, planer, shingle machines, conveying machinery, hangers, pulleys, belting and shafting. Figures on machinery will be received after Jan. 1. The building will be ready for the machinery Apr. 1.

**Chatham, N.B.**—The Canada Iron Corporation, with mines in Gloucester, are looking for a suitable site for a smelter and steel plant. Messrs. J. J. Drummond and F. C. Parsons, of this firm, have visited Chatham, N.B., and the company will in all probability purchase a site and locate plant at this place, if they are offered proper inducements. The building of the smelter would occupy at least a year's time. The channel in the river would need to be dredged to a depth of 25 ft., for the shipping of the ore. The company would also need a site on the waterfront, for the building of a number of pockets, each with a capacity of 5,000 tons.

**Musquash, N.B.**—Two cut-up mills, owned and operated by the Englewood Pulp Company, have been destroyed by fire. The mills had a capacity of 150,000 feet per day. Loss placed at \$22,000, with insurance of \$13,000.

**Moncton, N.B.**—Dr. Hayes and W. Tabor, representing the White Candy Company, St. John, have made a proposition to the City Council whereby the company offers to remove their industry to this place, providing the city will grant

them free light and water for ten years, and guarantee six per cent. bond for \$40,000, redeemable in equal parts in five, ten, fifteen and twenty years.

**Winnipeg, Man.**—Tenders will be called in the near future, for the construction of the Winnipeg Power Company's electrical works at Point du Bois. The amount of \$1,500,000 will be expended on this work next year. Total cost estimated at \$3,500,000.

**Winnipeg, Man.**—The plant of the Prairie City Oil Company on Pine street, near Notre Dame avenue, has been completely destroyed by fire. The loss is estimated at approximately \$40,000, with insurance of \$14,000. The building was a two-storey and basement frame structure. Mr. Lewis is manager of the company, with offices in the Somerset block.

**Vancouver, B.C.**—The Canadian General Electric Company, of Peterboro, Ont., will erect a \$70,000 building next spring on Pender street, West. Plans for the proposed structure, which will be devoted exclusively to the purposes of the company, have been prepared by architects Honeyman & Curtis, Vancouver.

**Vancouver, B.C.**—The factory and planing mill of the Royal City Mills, on False Creek, have been destroyed by fire. The loss is estimated at \$100,000, partly covered by insurance. The saw mill and dry kilns were not damaged. Mr. E. C. Mahoney, manager of the company, states that the structure will be rebuilt as soon as the insurance is adjusted.

**Vancouver, B.C.**—The civic authorities propose to place before the electorate at the January elections a by-law authorizing the installation of a second incinerator, for which City Engineer Clement is preparing a report to be presented to the Board of Works at its next session.

**Saskatoon, Sask.**—The John Deere Company, manufacturers of plows, have secured a site west of the C.N.R. and north of Twenty-third street, on which they will build. The property is 180 by 120 feet.

**Regina, Sask.**—Mr. A. Bean, who has large milling interests in the United States, with headquarters at New Prague, Minn., has purchased a site at this place on which he will erect a plant including an oatmeal mill with capacity of 100 barrels per day, a flour mill with capacity of 500 barrels per day, and a flax and linseed oil mill, with elevator and storage accommodation. The initial investment in connection with the plant will be about \$100,000. Contracts will be let in the near future, and the work of construction will be started in the spring.

**Edmonton, Alta.**—The Edmonton Steam Laundry has been destroyed by fire. Loss estimated at \$22,000, with insurance of \$12,000.

### Gas Plants, Elevators and Warehouses

**London, Ont.**—Mr. John Garvey is contemplating the erection of a four or five-storey warehouse on King street between Clarence and Richmond streets.

**Montreal, Que.**—Architect Eugene Payette, 15 St. James street, has revised plans for the proposed warehouse to be erected for Mr. Carl Rosenberg of the British American Import Company. Tenders will be invited in about Dec. 15th. Estimated cost, \$65,000.

**Montreal, Que.**—John Watterson, 227 Common street, has taken out a permit for the erection of a warehouse on Murray street at cost of \$16,200. Architect, J. T. Hyde; Contractor, H. C. Hitch.

**Montreal, Que.**—Architect J. A. Karch, 17 Place d'Armes Hill, has prepared plans of a warehouse to be erected for the Campbell Mfg. Co.

**Montreal, Que.**—The Otis-Fensom Elevator Company has been awarded the contract for supplying and installing elevators in Lyman's new warehouse on St. Paul street. Architects, Mitchell & Creighton, Inglis Building.

**Winnipeg, Man.**—The T. Eaton Company, Limited, will extend their premises by the erection of a warehouse 100 by 133 feet, which will be connected with the main building by tunnels. Other important extensions to the store are under consideration.

**Oakner, Man.**—The Scottish Co-opera-

tive Society, which has a representative in the Grain Exchange at Winnipeg, will erect an elevator at Oakner, Man.

**Saskatoon, Sask.**—The Cockshutt Plow Company has had plans prepared for a warehouse which they will build here next spring. Mr. F. Cockshutt, Brantford, is the chief promoter. Mr. E. A. Mott is in charge of the business at Winnipeg, and D. J. Taylor of the Regina branch.

**Saskatoon, Sask.**—The Grey Carriage Company and the Mansell Campbell Fanning Machine Company, both of Chatham, Ont., have decided to build a joint warehouse at this place.

**Saskatoon, Sask.**—The John Deere Plow Company has purchased a site at this place on which they will erect a large warehouse.

**Vancouver, B.C.**—Permit has been issued for a warehouse to be erected on Railway street, for Mr. A. C. Flumerfelt. The building, it is estimated, will cost \$25,000.

### Electrical Construction

**Pembroke, Ont.**—A by-law has been passed by the local rate-payers authorizing the expenditure of \$10,000, for electric pumps for the waterworks pump house. A 200 h.p. motor, and the necessary tripping valve for the stand-pipe, will be installed.

**Glencoe, Ont.**—A by-law has been passed by the rate-payers authorizing the installation of an electric plant, to be operated by the municipality.

**Windsor, Ont.**—In all probability a by-law to authorize the expenditure of from \$25,000 to \$30,000 to provide a practically new municipal lighting plant will be presented to the rate payers in January. As an alternative proposition they will be given the opportunity to express themselves on the project of purchasing Niagara power from the Hydro-Electric Commission of the Ontario Government, under the Government scheme.

**Toronto.**—The transforming station, in connection with the new power distribution plant, will be erected on Garrison Common. It is proposed to erect a building that will be in keeping with the general park scheme.

**Winnipeg, Man.**—Tenders, addressed to the Chairman of the Board of Control, will be received at the office of the undersigned up to 5 p.m., Dec. 28, for the construction of the general works and for the supply and erection of various portions of a transmission line between Point du Bois and Winnipeg. Plans, specifications and forms of tender may be obtained at the office of the Power Engineer, Carnegie Library Building, Winnipeg, and at the offices of Messrs. Smith, Kerry & Chace, Confederation Life Building, Toronto, Ont. Individual tenders will be received for: General works at Point du Bois, erection of transmission line, steel towers, electric transmission cable. Tenders may include one or more of the above items, providing they have also tendered for the individual items of such group. M. Peterson, Secretary, Board of Control Office, Winnipeg.

### Bridges, Wharves and Subways

**Toronto.**—At a meeting of the Civic Works Committee it was decided to submit a by-law to the rate-payers for the purpose of authorizing the expenditure of the sum of \$250,000 for the building of a viaduct from Wilton avenue over the Don valley, to Elliott street.

**Toronto.**—Regarding the proposed new Bathurst street bridge it was proposed, at a meeting of the Board of Control, to pay for this structure out of the taxes, in place of submitting by-law to the people. In this case tenders would be called for at once. Estimated cost of bridge, \$135,000.

**Toronto.**—A proposition has been presented to the Railway Board by Mr. Howard G. Kelley, Chief Engineer of the G. T.R., providing for bridges at Bay, Yonge, Church, Jarvis, Sherbourne and Berkeley streets, which coupled with the removal of the York street bridge and the depression of tracks west of Bathurst street, and including the new Union Depot, would effect a saving of about \$5,000,000 in comparison with the cost of the viaduct

scheme, as estimated by him. Mr. Kelley placed the cost of the bridges and incidental work at \$1,446,586, which, with \$1,330,000 for track depression in the West end, and \$2,028,000 for the Union Station, made a total of \$4,854,586 for the bridge scheme.

**Stratford, Ont.**—Plans have been prepared for the erection of a new concrete railroad bridge on the Owen Sound line, near the waterworks at this place. The bridge will in all probability be constructed next year.

**Fort William, Ont.**—Mayor Murphy, J. T. Horn, President of the Board of Trade, and Geo. A. Graham, all of this place, have waited upon Hon. Messrs. Back and Cochrane and presented a resolution asking for the construction of a dam near the outlet of Dog Lake. By a special act at the last session of the Legislature, \$20,000 was set apart for the construction of such a dam, although it was stipulated that the act could not come into force without a proclamation.

**Peterboro, Ont.**—Plans have been prepared for a new bridge to span the Otonabee River, at Smith street. The plans provide for three spans of ninety-four feet each. A by-law will shortly be submitted to the rate-payers for the purpose of authorizing the expenditure of \$49,000 for the erection of this bridge.

**Montreal, Que.**—Mr. Vanier, town engineer of St. Louis, a suburb of Montreal, was instructed to prepare plans and specifications for the new subway, the cost of which will be shared jointly by the C.P.R., the Montreal Street Railway, and the town.

**Sorel, Que.**—A portion of the pier at the mouth of the Richelieu River, has given way and fallen into the river. The damage is estimated at \$75,000.

Tenders will be received at this office up to 4 p.m., Dec. 28th, for the construction of an extension to wharf at St. Alexis, Ha! Ha! Bay, Chicoutimi County, P. Q., according to plans and specifications on file at the offices of A. Decary, Resident Engineer, Post Office, Quebec; J. C. Tache, Resident Engineer, Chicoutimi, P. Q., and at the Department of Public Works, Ottawa.

**St. John, N.B.**—At a meeting of the committee appointed by the council to consider the proposal to build a bridge across the harbor, it was decided to ask the council for authority to employ a practical engineer to prepare estimates and plans and to incur whatever preliminary expenses might be necessary in furthering the project. It is understood that the Government has received estimates from Engineer Hildebrand that the cost of a new bridge across the falls would be about \$450,000, and that repairs could be made to the present structure for \$40,000, which would strengthen it sufficiently to last another twenty-five years.

**St. John, N.B.**—D. C. Clarke has been awarded the contract for the construction of a new wharf at this place to be known as No. 7. Work of construction will be commenced at once.

**Calgary, Alta.**—Tenders will be received up to noon, Dec. 15th, for the construction of a steel bridge to span the Elbow River at Ninth avenue, the structure to be 150 feet long by 33 feet wide, with concrete abutments, and to provide for double street railroad tracks. Tenders to include the removal and re-erection of the present bridge, to a point between St. George's Island and the Mainland, Victor Hill, City Engineer.

**Strathcona, Alta.**—City Engineer McLean has been instructed by the council to prepare plans for a high level bridge over Mill Creek, at the eastern extremity of Whyte avenue, to provide a direct route into Strathcona from the Clover Bar district.

**Edmonton, Alta.**—A deputation consisting of members of the Edmonton and Strathcona City Councils, will ask the Government to construct a bridge across the Saskatchewan River, similar to the one at Medicine Hat.

**New Westminster, B.C.**—The City Council has awarded the following contracts for the construction of the proposed Lulu Island bridge: Canada Foundry Company, superstructure, \$26,831.25;

The International Contract Company, Seattle, substructure, \$29,642.

**Saskatoon, Sask.**—The City of Saskatoon and the Canadian Northern Railway will erect a foot bridge over the company's tracks at Twentieth street.

**Vancouver, B.C.**—The Palmer Land Company has taken out a permit for the erection of a wharf and addition on Westminster avenue at an estimated cost of \$12,000.

**Vancouver, B.C.**—A petition will be presented to the City Council requesting that the construction of the Cambie street bridge over False Creek, be at once proceeded with, in conformance with the by-law passed last January when the sum of \$250,000 for this purpose, was voted.

## Waterworks, Sewers and Canals

**Hamilton, Ont.**—At the meeting of the Sewers Committee, it was decided to ask the Council to submit a by-law to the people, to authorize the expenditure of \$65,000 for the completion of the construction of the East-end disposal works, and to build the Catharine street and Ferguson avenue sewers through the revetment wall.

**Hamilton, Ont.**—Contractor Geo. F. Weub, of Hamilton, has been awarded the contract for the installation of a sewerage system on the mountain at a contract price of \$26,140.

**Stratford, Ont.**—A sewer will be constructed along William street, across James street, and Walnut street, and up to Idington avenue. It is understood that the work will be carried out in the near future.

**Niagara Falls, Ont.**—At a meeting of the City Council it was decided to submit a by-law to the rate-payers on Jan. 4th for the purpose of authorizing the expenditure of \$7,000 for sewer extensions.

**Fort Erie, Ont.**—At a meeting of the Citizens' Club a committee consisting of Mr. J. Fitzgibbon, W. E. Hunt, Capt. George Dean, J. J. Foster, and Rev. A. C. MacIntosh, was appointed to ascertain the cost of installing a municipal waterworks system.

**St. Thomas, Ont.**—A by-law will be submitted to the rate-payers in January for the purpose of authorizing the erection of septic tanks for the city sewage. The by-law will provide for the expenditure of \$40,000 for this purpose.

**St. Catharines, Ont.**—The Board of Trade of this place has decided to co-operate with the Kingston Board in making representation to the Department of Railways and Canals, with a view to having the Welland Canal enlarged and deepened, and the St. Lawrence route improved.

**Belleville, Ont.**—Plans have been prepared by Mr. Henry Carre, C.E., and also by Mr. Lindsay, for a general sewer system for this city. It is estimated that the cost would be about \$75,000. The Board of Trade is interested in the proposition.

**Moncton, N.E.**—The City Water and Light Department Committee purpose shortly to install an additional pumping plant, to comply with the insurance underwriters' request, and are contemplating the installation of an electrical pump.

## Public Buildings

**Toronto.**—At a meeting of the Exhibition Board it was decided to ask the city to expend the sum of \$6,000 in repainting the roof and floor of the manufacturer's building, and also to erect a new transportation building.

**Toronto.**—The Ontario Cabinet has under consideration extensions to the Parliament Buildings. It is proposed to erect a new fire-proof library, and also a delegation hall. Architect Geo. W. Gouinlock, Temple Building, has prepared preliminary plans.

**Ottawa, Ont.**—The Smith Marble and Construction Company, Montreal, has been awarded the contract for marble, mosaic and tile work in the additions to the Parliament Buildings at Ottawa.

**Ottawa.**—The Canadian Government will construct a 300 by 150 building at

the Alaska-Yukon Pacific Exposition, to be held in Seattle, June 1st to Oct. 16th, 1909, inclusive. Wm. Hutchinson, Canadian Exhibition Commissioner, has been notified by the Canadian Government to leave for Seattle to select a site and make arrangements for the construction of the building.

**Mitchell, Ont.**—Contracts have been awarded as follows for the new Carnegie Library building to be erected here. Mason work, John Avery, \$2,067; painting, Louis Wenzel, \$250.

**Fergus, Ont.**—At a public meeting of local liberals it was decided to recommend to the Dominion Government the purchase of the Munro property, on which to erect the new post office building.

**Preston, Ont.**—Andrew Carnegie has made an offer to erect a library building here providing the town will supply a suitable site and guarantee its maintenance. In all probability a \$10,000 building will be erected.

**Montreal, Que.**—Architect L. R. Mont-Brient, 230 St. Andre street, has prepared plans for a new civic building to be located at the corner of Jacques Cartier Square, west of the Chateau de Ramezay. It is proposed that the new building be used to accommodate the Recorders Court, a new central police station and new health offices, and that it be connected with the City Hall by an underground passage. The building will be 126 by 130 feet.

**Montreal, Que.**—The Smith Marble & Construction Company has been awarded the contract for tile and marble for the new Auditorium Hall on Berthelet street.

**Three Rivers, Que.**—Contract for the erection of the market building has been awarded to Mr. Bigras at a cost of about \$40,000. Theo. Daoust, 103 St. Francois Xavier street, Montreal, is the architect.

**Calgary, Alta.**—Tenders will be received up to 4 p.m., Dec. 21st, for the construction of Post Office Fittings, etc., at the Calgary Public Building, according to plans and specifications on file at the office of J. J. O'Gara, architect, Calgary, and at the Department of Public Works, Ottawa.

**Medicine Hat, Alta.**—Tenders will be received up to 4 p.m., Dec. 21st, for the construction of the post office, customs and inland revenue fittings, etc., at Medicine Hat Public Building, according to plans and specifications on file at the office of Mr. W. T. Williams, Supervising Architect, Medicine Hat, Alta., and at the Department of Public Works, Ottawa.

**Kelliker, Sask.**—Mr. C. H. Prest will at once rebuild his hardware store, which was recently destroyed by fire. The new building will be of concrete blocks, with metal roof.

## Business Buildings

**Toronto.**—The T. Eaton Company has taken out a permit for the erection of a two-storey brick and steel addition to departmental store on Yonge street, near Albert street. Estimated cost, \$76,000.

**Toronto.**—The following contracts have been awarded in connection with the \$50,000 garage to be erected at Richmond and Church streets for the McLaughlin Automobile Company of Oshawa: General contract, John Stacey & Gale, 121 Queen street east; plumbing and heating, Fred Armstrong Company, Ltd., 277 Queen street west. The following branches have been sublet: Reinforced concrete work, R. A. Rogers, Yonge street Arcade; cut stone, Canadian Art Stone Company, Price street; Fireproofing, Don Valley Brick Company, 36 Toronto street; tin-smithing, galvanized iron work and roofing, Mr. Dillon, Wickson & Gregg are the architects.

**Toronto.**—The following contracts have been awarded in connection with the \$20,000 store and dye house to be erected at 78-80 King street west, for Messrs. Stockwell, Henderson & Co., 103 King street west: Excavating brick and stone work, H. N. Dancy & Son, 184 Howland avenue; carpentry work, Walker & Robinson, 317 Albany avenue; plastering, Taylor & Nesbit, 18 Havelock street; plumbing and heating, Fiddes & Mogarth, 122 King street east; painting and glazing, J. R.

Robinson, 139 Amelia street; roofing and sheet metal, Robt. Rennie & Son, 378 Berkeley street.

**Toronto.**—Messrs. Heintzman & Company, Ltd., who have recently purchased the J. F. Brown Company's store on Yonge street, are having plans prepared for the necessary alterations to the building.

**Toronto.**—The Vokes Hardware Company has purchased the property at the northwest corner of Queen and Bond sts., on which they will erect a large retail store. The lot has a frontage of 87 feet on Queen street, with depth of 115 feet on Bond street.

**Toronto.**—Architects Denison & Stephenson, 20 King street west, have prepared plans for five stores and dwellings to be erected on Queen street east, corner Howard street, at cost of \$15,000. The buildings will be three stories in height, of brick construction, with concrete foundation, felt and gravel roof, pine and hardwood floors, pine interior finish, open plumbing, steam heating, combination lighting.

**Toronto.**—It is reported that the Steele-Briggs Company, seedsmen, will acquire possession of Nos. 128-134 King street east where they will erect a large new building, to be used for both wholesale and retail purposes.

**Toronto.**—Mr. J. Lancaster, 186 Dundas street, has been awarded the general contract for a store and dwelling to be erected on College street near Delaware avenue, for Chas. McGuire, 1196 Queen st. west. The building will be of brick construction, with stone foundation, felt and gravel roof, open plumbing, combination lighting, hot air heating, pine floors and interior finish.

**Toronto.**—Mr. Geo. Henderson, 103 Yarmouth Road, will erect a Public Hall on Essex street, near Christie street, at cost of \$3,600. The building will be two stories in height, of brick construction, with stone foundation, felt and gravel roof, pine floors and interior finish, open plumbing, hot air heating, combination lighting. Architect, W. S. Thompson.

**London, Ont.**—Tenders will be received up to Dec. 19th, for the installation of a steam heating system in the London Loan Company's building, formerly Odd-fellows' Hall. Plans on file at office of W. G. Murray, Architect.

**St. Thomas, Ont.**—W. R. Darrach has taken out a permit for the erection of the Engineers' Building on Talbot street at an estimated cost of \$26,000.

**Ottawa, Ont.**—Architect J. P. MacLaren, 104 Sparks street, has prepared plans for a garage and carriage show room, to be erected for Mr. W. D. Morris, Cecil Hotel. The building will be three stories in height, 38 by 201 feet, and will be constructed of steel beams with wood joists and flooring, stone foundation, felt and gravel roof. It will be equipped with steam heating and electric lighting, freight elevator and metal ceiling. The contract for the steel has been awarded to the Canadian Agency and Supply Company.

**Pembroke, Ont.**—Mrs. J. W. Munro will rebuild her business block, which was recently destroyed by fire.

**London, Ont.**—Contracts have been awarded as follows for a three-storey and office building, to be erected on Park avenue for the London Loan Company: Mason and cement contractor, Scott Murray, King street; carpenter, Tambling & Jones, 282 Horton street; plasterer, Robert Gash, 13 Kensington street; plumbing, Hunt Plumbing Company, 521 Richmond street; iron work, Fleming & Houghty, 348 Talbot street. Cost of building, \$6,000. Architect, Wm. G. Murray, Masonic Temple, London, Ont.

**Hamilton, Ont.**—F. D. Crerar, K.C., is planning to erect a large building on his property at the corner of James and King William streets.

**Port Burwell, Ont.**—The building and plant of the Weekly News have been destroyed by fire entailing a loss of \$4,000. Mr. C. A. Burnes is the proprietor.

**Montreal, Que.**—The Dominion Steam Ship Line has rented the offices in the Bell Telephone Building, formerly occupied by the Royal Bank. Extensive al-

terations will be made to partitions, office fixtures, etc., for which architects Hutchison & Wood have prepared plans.

**Montreal, Que.**—Mr. Jacob A. Jacobs, 171 St. James street, has purchased at cost of \$155,000, large block of land on St. Catherine street, corner Alexander street on which he will erect a block of stores.

**Montreal, Que.**—L. M. Lefebvre, 246 Rachel street, has taken out a permit for the erection of a building containing a store and dwelling to cost \$12,000.

**Three Rivers, Que.**—Contract for the steel work to be used in the erection of a store for Messrs. Bellefeuille & Cirous, has been awarded to the Phoenix Bridge Company, 33 Colborne street, Montreal.

**Moncton, N.B.**—Mr. R. N. Wyse, Main street, will next spring, erect a large brick business block at the corner of Main and Robinson streets.

**Winnipeg, Man.**—The Canada Permanent Mortgage Corporation has purchased the property known as the old Manitoba Club Building, Garry street, for the purpose of erecting a large office building.

**Vancouver, B.C.**—Dr. H. W. Riggs and Mr. S. Salmon have taken out a permit for a four-storey brick block to be erected on Fender street, between Homer and Hamilton street, at cost of \$40,000. The building will have a frontage of 50 feet.

**Victoria, B.C.**—The B. Wilson Company has taken out a permit for the erection of a two-storey and basement, brick and concrete building on Chatham street. Architects, Hooper & Watkins; contractors, Luney Bros.

**Edmonton, Alta.**—Mr. A. M. Steward, manager of the local branch of the National Trust Company announces that the company proposes to erect next year a large brick block on the site of their present office. The proposed structure will be six stories in height, the first story of stone and the remainder of brick with stone trimmings. Estimated cost between \$50,000 and \$80,000. The building would be equipped with two elevators. Plans for the building are now being prepared.

**Edmonton, Alta.**—Mr. D. W. Macdonald, druggist, will erect a large three-storey brick store and office building on the corner of Jasper avenue and Second street. It is understood that the building will have a frontage of 58 feet and a depth of 150 feet.

### Railway Construction

**London, Ont.**—The Grand Trunk Railway will erect a large station and hotel at this place. It is understood that work on the hotel will be commenced early next spring.

**Hamilton, Ont.**—The Dominion Power and Transmission Company has taken out a permit for the erection of new car barns and shops, to cost, with equipment, \$75,000.

**Fort William, Ont.**—The Canadian Pacific Railway will erect a large coal handling plant at this place on a site purchased from Messrs. P. J. Manion and J. T. Horne. The proposed plant will have an approximate storage capacity of one million tons.

**Ottawa.**—A sub-contract for the construction of a section of the Transcontinental Railway has been awarded to Messrs. Fortin & Gravelle, of Hull, at estimated cost of \$500,000. This section is ten miles in length, and is situated above Fort William.

**Ottawa, Ont.**—Messrs. D. G. Loomis & Sons, 261 St. James street, Montreal, have been awarded the contract for the erection of a baggage and passenger building for the Ottawa Terminal Railway Company.

**Woodstock, Ont.**—It is proposed to construct a radial railway from Woodstock to Guelph, through New Dundee, Plattsville and other towns, connecting at Galt with the T. H. & B. line. The promoters of the scheme, Messrs. Baird and McKee, and other prominent business men in Plattsville, have placed the project with the Central Securities Company of Toronto.

**Dunnville, Ont.**—The by-law granting a bonus of \$15,000 to the Dunnville, Wellandport and Beamsville Electric Railway Company, for a trolley line from Dunn-

ville to connect with the T. H. & B. at either St. Annes or Smithville, has been carried. The contract for the work has been awarded to Wm. Graham, of Toronto.

**Quebec, Que.**—The Canadian Northern Railway has submitted a proposition to the City Council, whereby the company offers to build repair shops in the suburbs of Quebec. The Quebec and Lake St. John Railway, now a branch of the Canadian Northern Railway, is bound by contract to erect shops inside the city limits, but, owing to the fact that there are no grounds suitable for buildings of this kind, the Company wishes to be relieved of this obligation. Limolou is suggested as a site, as this municipality is about to be annexed to Quebec. The proposed shop will cost \$200,000.

### Banks

**Toronto.**—Sir Edward Clouston, general manager of the Bank of Montreal, has stated that a new bank building will be erected at the corner of Yonge and Queen streets, Toronto.

**Toronto.**—The Merchants Bank has purchased the corner lots at the junction of Roncevalles avenue and Dundas street, on which they will erect a branch bank. The property has a frontage of 40 feet on the corner.

**St. Catharines, Ont.**—Contracts have been awarded as follows for alterations to the Imperial Bank building: General contract, Messrs. Newman Bros., St. Catharines; heating, plumbing, and sheet metal work, A. Riddle & Son, St. Catharines; stone work, Canadian Art Stone Company, Price street, Toronto. Architect, A. E. Nicholson, St. Catharines, Ont.

**Victoria, B.C.**—The Royal Bank of Canada will at once erect a new building on Government street. Mr. T. D. Veitch, local manager has been instructed to at once proceed with the arrangements. The plans for the new building call for a three-storey structure of brick and stone construction, the ground floor to be used for banking purposes, while the two upper stories will be fitted up as offices. An elevator will be installed.

**Toronto.**—Architects Gordon & Hellwell, 526 Confederation Life Building, has prepared plans for alterations to Y.M.C.A. building at the corner of Yonge and McGill streets. The work includes carpentry work, structural iron work, plastering, painting and glazing, electrical work and brick work.

### Clubs and Societies

**Toronto.**—Architect J. M. Cowan, 65 Adelaide street east, has prepared plans for the erection of a three-storey club building at the corner of Adelaide and Bathurst streets, for St. Mary's club. The building will be of brick and stone construction, with brick foundation, felt and gravel roofing, oak floors and interior finish, open plumbing, combination lighting, and steam heating. Specifications include—structural iron, artificial stone, tile, metal lath, plastic relief work, plate glass, deafening paper, electric bells. Tenders will be called about the first of the year. The structure will cost \$15,000.

**Toronto.**—The West End branch of the Y.V.C.A., 237 Dufferin street, proposes in the near future to erect a new building.

**Toronto.**—Lorne Park, the well known summer resort, about fifteen miles west of Toronto, has been purchased as a site for a country and motor club. The work of preparing the grounds will be commenced at once. The present hotel building will be remodelled as a clubhouse. The committee interested in the deal, consists of W. R. Travers, General Manager of the Farmers' Bank; Richard Cowan, Stock Broker; Chevalier J. Enoch Thompson; C. W. Defoe, Lieut. Col. C. Greville Harston, and others.

**Guelph, Ont.**—A project has been launched for the erection of a Y.M.C.A. building at this place. Mr. W. E. Buckingham has set forth a subscription scheme to raise the sum of \$55,000.

**Ottawa, Ont.**—The Foresters' Hall on Sussex street has been damaged by fire

to the extent of \$5,000. The building is owned by the Government.

**Montreal, Que.**—At the annual meeting of the Royal Montreal Golf Club a proposal will be laid before the meeting regarding the following alterations and improvements to their building: Complete system of waterworks, new quarters for servants, dressing rooms and lockers for members, and the construction of new greens.

**New Westminster, B.C.**—The Young Men's Christian Association is contemplating the erection of a building at this place.

### Asylums and Hospitals

**Toronto.**—A permit has been issued for the erection of a four-storey brick building, at the corner of Avenue road and St. Clair avenue, for the Deaconess Home. Estimated cost, \$125,000. Architects, G. M. Miller & Co., Toronto General Trusts Building.

**Welland, Ont.**—At a meeting of the Town Council, a deputation consisting of Messrs. McAuliffe, A. O. Beatty, W. M. German, M.P., and A. Griffiths, made a request for a grant of \$1,000 towards the erection of the new hospital at this place. It is estimated that the hospital would cost about \$23,000.

**Montreal, Que.**—Messrs. Reid, MacGregor & Reid, general contractors, 1168 St. Hubert street, Montreal, have awarded the following sub-contracts for the erection of the new observation ward for the Alexandra Hospital: Painting and glazing, G. Dumont; electrical work, C. Lapierre, Lindsay Building; roofing, Richardson Simard Co., 8 Prince Arthur street west; plumbing, W. J. Graham, 35 Cathcart street. E. & W. S. Maxwell, 6 Beaver Hall Square, are the architects.

**Verdun, Que.**—The new annex which is being built at the insane asylum at Verdun, a distance of 1-1/2 miles from Montreal, has been damaged by fire to the extent of approximately \$20,000.

**Victoria, B.C.**—A permit has been issued to the Royal Jubilee Hospital, for a chapel to be erected on the hospital grounds off Mt. Tolmie road. The building will be one storey in height, of brick and stone construction, and will cost \$2,500. J. C. M. Keith is the architect.

**Vancouver, B.C.**—At a meeting of the Vancouver Health Committee plans were submitted by the medical health officer for the proposed new isolation hospital. The plans provide for a building to cost approximately \$55,000, exclusive of site.

**New Westminster, B.C.**—The Board of Managers expect to be able to commence construction early next year on the proposed new Royal Columbian Hospital. Architect Sait has been instructed to prepare specifications. The plans provide for a three-storey brick and stone building.

### Churches

**Ottawa.**—Plans have been accepted for the new Congregational Church to be erected at Ottawa South. The building will be of solid brick construction, with stone foundation, and will be 30 by 45 feet. The work of construction will be started in the near future.

**Deer Park, Ont.**—The congregation of Christ's Church will erect a new brick and stone church building at a cost of \$35,000 early next spring. Rev. T. W. Paterson, M.A., is rector of the church.

**London, Ont.**—The congregation of Talbot street Baptist Church will in all probability, either enlarge their present building, or erect a new church. Rev. A. J. Vining is the pastor.

**Sudbury, Ont.**—The congregation of the Presbyterian church is contemplating the erection of a new church. The proposed building will be erected on the site of the present church, and would have seating capacity of seven or eight hundred. Pastor, Rev. Mr. Logie.

**Deseronto, Ont.**—St. Andrew's church, on Tendinga Indian Reserve, near this place, has been destroyed by fire.

**Omagh, Ont.**—Tenders will be received up to Jan. 1st for the tearing down and rebuilding of Omagh Presbyterian Church. Plans and specifications may be seen at



Messrs. Robertson Bros.' store, Omagh, R. A. Jarvis, Sec'y. Boyne P.O., Ont.  
**Black Lake, Que.**—Contracts have been awarded as follows for interior finishing of church building at Black Lake, Que., for the Roman Catholic congregation, viz.: General contract, Pierre Belanger, Black Lake, Que., \$14,055; carving and furnishing, Mr. Jos. St. Hilaire, St. Romuald, Que., \$3,000. Ouellet & Levesque, 115 St. John street, Quebec, Que., are the architects.

**Victoria, B.C.**—The St. Barnabas congregation will erect a new church building to cost approximately \$10,000. The present building will be used as a Sunday School room. Rev. E. G. Miller is rector of the church.

### Residences and Flats

**Toronto.**—Architects Smith & Genung, Bank of Commerce Building, have prepared plans for a three-storey apartment house to be erected at Bellevue and Oxford streets, for Miss H. Sheppard. The building will be of brick construction, with stone foundation, slate roof, open plumbing, steam heating, electric lighting, hardwood floors, Georgia Pine interior finish, fire escapes, metal ceilings, cornice, metal lath, fireproof doors, electric bells.

**Toronto.**—Architects Ellis & Connelly, Manning Chambers, have prepared plans for a residence, garage and stables to be erected in Mimico for Forbes Godfrey, M.D., M.L.A., Mimico. The residence will be of brick construction, with stone foundation, slate roof, oak floors and interior finish, open plumbing, electric lighting, hot water heating, dumb waiter, plastic relief work, electric bells, refrigerator, four mantels. An automatic water pressure plant will be installed. General contractor, Messrs. Bloxham & Saxton, West Toronto. Estimated cost, \$8,000.

**Toronto.**—Architects Ellis & Connelly, Manning Chambers, have prepared plans for a \$20,000 apartment house to be erected at the corner of Church and Charles streets, for Mr. J. A. Cleary. The building will be three stories in height, of brick construction, with stone foundation, felt and gravel roof, hardwood floors and interior finish, open plumbing, electric lighting, and steam heating, electric bells and fire escapes.

**Toronto.**—Architect Leonard Foulds, 43 Victoria street, has prepared plans for a two-storey dwelling to be erected on Sinclair, 193 Keele street, West Toronto. The building will be of concrete and brick construction, with concrete foundation, pine floors, pine interior finish, shingle roof, open plumbing, hot air heating, gas lighting, plate glass and mantels. Estimated cost of building, \$2,000.

**Toronto.**—Mr. S. Shaver, 25 North st., will receive tenders after Nov. 17, for all trades required for a 2 1-2 storey brick residence to be erected at 20 Gloucester street, Toronto, at cost of \$3,000. The building will have brick foundation, felt and gravel and slate roof, hardwood and pine floors and interior finish, open plumbing, hot air heating, combination lighting, staved columns, plastic relief work, electric bells, tile work and two mantels. Architect, Leonard Foulds, 43 Victoria street.

**Toronto.**—Architects Burke, Horwood & Whyte, 28 Toronto street, have prepared plans for an \$8,000 residence to be erected on Whitney avenue, near Glen road, for Mr. Geo. Jackson. The building will be two and one-half stories in height, of brick construction, with brick foundation, slate roof, pine and hardwood interior finish, oak and pine floors, open plumbing, combination lighting, hot water heating, electric bells, tile work and mantels.

**Toronto.**—Architect J. Francis Brown, Board of Trade Building, has prepared plans for a four-storey residence to be erected on Dunvegan, road, for Mrs. J. G. Scott, Alexander Palace, at an estimated cost of \$10,000. The building will be of brick construction, with stone foundation, slate roof, oak floors, hardwood interior finish open plumbing, combination lighting, hot water heating, tile work and electric bells. Work on the building will not be commenced until spring.

**Toronto.**—Architect J. Francis Brown has prepared plans for a two-storey re-

sidence to be erected in North Rosedale, for Mr. Mara, at an estimated cost of \$7,000. The building will be of brick construction, with stone foundation, slate roof, hardwood floors and interior finish, open plumbing, combination lighting, hot water heating, tile work and electric bells.

**Toronto.**—Architect J. Francis Brown has prepared plans for a two-storey residence to be erected on Howard Park road, for Mr. Arthur Dodd, at an estimated cost of \$12,000. The building will be of brick construction, with stone foundation, slate roof, combination lighting, open plumbing, oak floors, hardwood interior finish, tile work and electric bells.

**Toronto.**—The following contracts have been awarded for a two-storey residence to be erected on Starr avenue, near Dunn avenue, for Mr. F. W. Christie, 19 Classic avenue; Masonry, Chas. Wood & Son, 611 Manning avenue; roofing, Wheeler & Bain, 179 King street east; carpentry work, T. B. Manual; plastering, Taylor & Nesbitt; heating, Parkdale Furnace Co., 1378 Queen street west; painting and glazing, G. Shockleton; electrical work, C. S. Anderson; plumbing, Purdy, Mansell Company, 63 Albert street. The building will be of stucco and brick construction, with stone foundation, slate roof, pine floors and interior finish, open plumbing, hot water heating, combination lighting. Architects, Chadwick & Beckett, 20 Toronto street.

**Toronto.**—Architect J. H. Galloway, 77 Victoria street, has prepared plans for a two and one-half storey residence to be erected on Binscarth road, for Mr. Sim, of Markham street. Estimated cost, \$4,500. The building will be of brick construction, with brick foundation, shingle roof, pine and hardwood floors, hardwood interior finish, open plumbing, combination lighting, hot water heating, electric bells and three mantels.

**Toronto.**—Mr. A. G. Saunders, 39 Havelock street, will erect a 2 1-2 storey residence at 37 Havelock street, at cost of \$5,000. The building will be of brick construction, with stone foundation, shingle roof, pine and hardwood floors, open plumbing, combination lighting and electric bells. The owner will do the excavating and brick and stone work, and will sublet contracts for the other branches of the work. Architects, Edwards & Saunders, 18 Toronto street.

**Toronto.**—Architects Symons & Rae, 15 Toronto street, have prepared plans for a two and one-half storey dwelling at the corner of Balmora and Poplar Plains road for Mr. B. S. MacInnes. The building will be of brick construction, with stone foundation, oak floors and interior finish, open plumbing, hot water heating, electric lighting and mantels. Cost of building, \$3,000.

**Toronto.**—Contracts have been awarded as follows for a two and one-half storey residence to be erected on Glen road, Rosedale, for Mr. G. R. MacFarland, viz.: Excavating, brick and stone work, Elgie & Page, 21 Havelock street; painting and glazing, James Kitchener, 418 Spadina avenue; plastering, J. W. Goulding, Davisville, P.O.; tinsmithing A. B. Ormsby Co. Ltd., Queen and George streets; plumbing and heating, J. R. Seager, 799 College street. The building will be of stone construction, with stone foundation, shingle roof, oak floors, pine and hardwood interior finish, open plumbing, hot water heating and electric lighting. Estimated cost, \$9,000. Architects, Bond & Smith, 19 Wellington street west.

**Toronto.**—T. Fussell, 53 Poplar Plains road, has been awarded the contract for the mason work, and Messrs. Woodley Bros., 53 Davenport road, the contract for the carpentry work for the erection of a two and one-half storey residence on Woodlawn avenue, near Yonge street, for Mr. John T. Argett, 199 Yonge street. The building will be of brick construction, with brick foundation, felt and gravel and shingle roof, oak and pine floors and interior finish, open plumbing, combination lighting, hot water heating, telephone system, and four mantels. Architects, Edon Smith & Son.

**Toronto.**—Architects Chapman & McGiffin, 59 Yonge street, have prepared plans for a pair of two and one-half

storey dwellings to be erected at 216 Poplar Plains road, for Mr. E. G. Long. The building will be of brick construction, with brick and concrete foundation, felt and gravel and shingle roof, open plumbing, hot water heating, electric lighting, oak and pine floors and interior finish, ornamental columns, plastic relief work, plate glass, art glass, electric bells, and mantels. The general contract has been awarded to Messrs. J. Berridge & Company.

**Toronto.**—Architect P. H. Finney, 43 Victoria street, has prepared plans for a pair of three-storey stores and dwellings to be erected on the south-west corner of Grace and College streets, for McKinney and Johnson. The building will be of brick construction, with stone foundation, felt and gravel roof, open plumbing, combination lighting, hot air heating, hardwood floors, and hardwood and pine interior finish, metal ceilings, cornice, plate glass, prismatic glass and electric bells. The building will cost \$3,000.

**Toronto.**—Architect P. H. Finney has prepared plans for a two and one-half storey brick residence on Forest Hill road, near Lonsdale avenue, for E. Taylor. The building will have stone foundation, slate roof, oak floors, hardwood interior finish, open plumbing, hot water heating, combination lighting, tile work, electric bells and two mantels. The structure will cost \$6,000.

**Toronto.**—Architect E. G. Wilson, 77 Victoria street, has prepared plans for a pair of semi-detached residences to be erected on Leuty avenue, near Violet avenue, for Mr. Tew, at an estimated cost of \$6,500. The building will be of brick construction, with brick foundation, shingle roof, pine floors and interior finish, open plumbing, hot air heating, combination lighting, tile, plate glass, art glass, refrigerator, electric bells and two mantels. The general contractor is A. R. Price, Belle fair avenue.

**Toronto.**—W. D. Charlton, 140 Close avenue, Toronto, has been awarded the general contract for a \$10,000 apartment house to be erected at the corner of Euclid avenue and Ulster street, Toronto. The building will be of brick construction, with slate roof, hardwood and pine floors and interior finish, open plumbing, combination lighting. E. G. Wilson, 77 Victoria street, is the architect.

**Toronto.**—Architect E. G. Wilson, 77 Victoria street, has prepared plans for a two-storey brick residence to be erected on Heath street, north St. Clair avenue, for Mr. S. B. Hinder, at an estimated cost of \$4,500. The building will have stone foundation, slate roof, open plumbing, hot water heating, combination lighting, hardwood and pine floors and interior finish, tile, plastic relief work, electric bells, and three mantels.

**Toronto.**—Architect J. Hunt Stanford has prepared plans for a two and one-half storey residence to be erected on the west side of Poplar Plains rd. for Mr. H. Hutson at an estimated cost of \$3,500. It will be of brick construction, with stone foundation, slate roof, pine and hardwood floors and interior finish, open plumbing, hot water heating, combination lighting, tile, plate glass, art glass, and electric bells.

**Toronto.**—Architect J. Hunt Stanford has prepared plans for a two-storey dwelling to be erected on Shaw street, north of Bloor street, for Mrs. Scott. The building will be of brick construction, with stone foundation, felt and gravel and shingle roof, pine floors and interior finish, open plumbing, hot air heating, combination lighting, tile plate glass, art glass and electric bells. It will cost \$2,500.

**Toronto.**—Architect J. Hunt Stanford has prepared plans for a two and one-half storey dwelling to be erected on the east side of Paimerson Boulevard, for J. W. Walker, at cost of \$3,500. It will be of brick construction with stone foundation, slate roof, open plumbing, hot water heating, combination lighting, oak and pine floors and interior finish, tile, metal lath, plate glass, art glass, electric bells.

**Toronto.**—Architect J. Hunt Stanford has prepared plans for a two and one-half storey residence to be erected at 350

Palmerston Boulevard, for Mr. J. T. Hutson, at cost of \$4,000. It will be of brick construction, with stone foundation, slate roof, hardwood and pine interior finish, open plumbing, hot water heating, combination lighting, tile, metal lath, ornamental columns, plate glass, art glass, electric bells.

**Toronto.**—Architect J. Hunt Stanford has prepared plans for a two and one-half storey residence to be erected on the east side of Palmerston Boulevard, for Mr. J. W. Walker at a cost of about 3,500. It will be of brick construction, with stone foundation, slate roof, pine and hardwood floors and interior finish, open plumbing, hot water heating, electric and gas lighting, tile, metal lath, plate glass, art glass and electric bells.

**Oakville, Ont.**—Architect J. Hunt Stanford, Yonge street Arcade, Toronto, has prepared plans for a two-storey summer dwelling to be erected at Oakville for Mr. W. V. Ecclestone, at cost of \$3,000. The building will be of frame construction, with pine floors, oak and pine interior finish, felt and gravel and shingle roof, open plumbing, electric lighting, plate glass and electric bells. The general contract has been awarded to Messrs. Farrell & McCarthy, 28 Olive avenue, Toronto.

**Toronto.**—Architect J. M. Cowan, 65 Adelaide street east, has prepared plans for a three-storey apartment building to be erected on McCaul street, Toronto, at cost of \$10,000. The building will be of brick construction, with felt and gravel roof, hardwood floors and interior finish, hot water heating, combination lighting, open plumbing, tile, cornice, electric bells and six mantels. The structure will be equipped with fire-escapes.

**Toronto.**—Mr. Jos. Crang, 720 St. Clair avenue, Toronto, will erect a pair of semi-detached dwellings on the west side of Kendal avenue, near Wells street, at cost of \$5,000. The building will be two and one-half storeys in height, of brick construction, with brick foundation, slate and felt and gravel roof, pine floors, pine interior finish, open plumbing, hot air heating, combination lighting, electric bells and four tile mantels. Architect, J. M. Cowan, 65 Adelaide street east.

**Toronto.**—Architect W. G. Hunt, 255 Westmoreland ave., has completed plans and specifications for a \$3,000 bungalow to be erected at Lorne Park for Mr. F. Kelk, 54 Macdonnell avenue. It will be of brick construction, with brick foundation, shingle roof, pine floors and interior finish, open plumbing, hot air heating, electric lighting, staved columns, ornamental caps, plastic relief work and electric bells.

**Toronto.**—Contracts have been awarded as follows for an apartment house to be erected on King street west, Parkdale, for Mr. Wm. Anderson, 68 Cowan avenue, at cost of \$7,500: Mason work, Nobes Bros., 121 Amella street; heating, Taylor & Reid, 792 Shaw street; painting and glazing, H. Hayden. The building will be of brick construction, with stone foundation, felt and gravel and slate roof, pine floors and interior finish, open plumbing, hot water heating, combination lighting, plate glass, art glass, telephone system, electric bells and three mantels. J. H. Galloway, 77 Victoria street, is the architect.

**Toronto.**—Messrs. J. J. McKinney & J. E. Johnson, 632 College street, Toronto, will receive tenders up to Dec. 17th, for the erection of a pair of three-storey stores and dwellings on the corner of Grace and College streets. The building will be of brick construction, with brick foundation, felt and gravel roof, hardwood floors, pine interior finish, open plumbing, hot air heating, combination lighting, structural iron, artificial stone, tile, skylights, weather strips, staved columns, ornamental columns, plate glass art glass, prismatic glass and electric bells.

**Toronto.**—The following contracts have been awarded for a two and one-half storey residence to be erected on Whitney avenue, near Glen road, for the Rev. C. Jackson, 115 Wellesley Crescent: Mason work, Hamilton & Reid; carpenter work, J. A. Howson, West Toronto; plumbing and heating, Power Bros., 393 Spadina avenue; plastering, Duckworth Bros., 123 Huron street; roofing, A. B.

Ormsby, Queen and George streets; painting and glazing, F. C. Davies, 218 Montrose avenue. The building will be of brick construction, with stone foundation, slate roof, oak and pine floors and interior finish, and will cost \$7,000.

**Toronto.**—Mr. Walter Nash, 79 Gore Vale avenue, who has the general contract for the erection of two semi-detached dwellings on Macpherson avenue, near Avenue road, for Mr. H. S. Mara, 5 Toronto street, has sub-let the following work: Brick, stone and excavating work, J. Roberts, 21 Hickman street; heating, Peerless Furnace Co.; plumbing W. H. Benson, \$81 Queen street west; tinsmithing, W. H. Smith. The building will be of brick construction, with stone foundation, shingle roof, pine floors, pine interior finish, open plumbing, combination lighting, hot air heating, electric bell, mantels, and will cost \$5,000.

**Hamilton, Ont.**—W. Thakker has taken out a permit for two brick houses to be erected on Tom street, between Sophia and Davenport, for Mrs. Mitrella, at an estimated cost of \$3,000.

**Stratford, Ont.**—A permit has been issued John Keyes for two houses, one to be erected on Ontario street, and the other on Ballantyne avenue. W. H. Schenck has also been granted a permit for the erection of a residence on St. Vincent street.

**Brantford, Ont.**—Mr. A. K. Bunnell has taken out a permit for the erection of a brick residence on Dufferin avenue at cost of \$5,000. A permit has also been granted to Mr. Chas. Champion for the erection of a residence at the corner of King and Wellington streets.

**Ottawa, Ont.**—Permits have been granted to J. W. Featherston for the erection of a pair of dwellings on Fourth avenue, at cost of \$4,500; Chas. Rupert for the erection of a double brick veneer dwelling on Mutchmor street at a cost of \$5,000, and H. La Haise for an \$11,000 brick veneer house to be built on Rideau street.

**Ottawa, Ont.**—V. V. Rogers has taken out a permit for the erection of a pair of brick veneer dwellings on Mutchmor street, at a cost of \$5,000. A permit has also been granted to Jas. Trumble for the erection of a brick veneer dwelling on Nelson street, at cost of \$2,300.

**London, Ont.**—Permits have been granted to Geo. Hyatt for a two-storey brick residence on Lorne avenue; J. Fritz Beck for a two-storey brick residence on St. George street; Jas. Wallace for a two and one-half storey brick-veneer residence on St. James street; Chas. Quick for a one and one-half storey brick-veneer residence at 101 Briscoe street; B. A. Fitzmaurice for a brick residence on William street; F. W. Waits for a two-storey brick residence on Quebec street; T. Allison for a brick veneer residence at 13 Regina street; Mrs. Clyde for a one and one-half storey brick-veneer dwelling on Wharmcliffe road.

**Montreal.**—Architect Joseph Perrault, 17 Place d'Armes Hill, has prepared plans for eight flats to be erected on Park avenue for Mr. J. H. Dorion.

**Montreal.**—Alex. MacKay, Oldfield ave. has taken out a permit for the erection of an apartment house, containing twelve dwellings, on Oldfield avenue, at cost of \$12,000. Architect, J. S. Smith.

**Montreal.**—Hilda K. Skelton, 83 Mansfield street, has taken out a permit for the erection of a residence at 102 Crescent street at an estimated cost of \$10,320. Architect, Jas. E. Adamson, Corsine Building.

**Montreal.**—Architect Eric Mann, 30 St. St. John street, has prepared plans for the erection of an apartment house on Pine avenue, for Mr. David Sperber. Estimated cost, \$15,000.

**Montreal.**—Architect L. R. Montbriant, 230a Lafontaine Park, has prepared plans for the erection of an apartment house, containing eighteen flats, on Hutchison street, for Mr. D. Dagenais, 925 Sanguinet street, Montreal. Estimated cost, \$20,000.

**Montreal.**—E. M. Renouf, 260A University street, has taken out a permit for the erection of a \$13,000 residence on Pine avenue. Architects, E. & W. S. Maxwell.

**Montreal.**—Architect Chas. Bernier, 70 St. James street, has awarded the following contracts for the erection of three

flats on Berri street, for Mr. N. Deslauriers: Masonry, Perreault & Andy; brickwork, Jos. Larose; painting, A. Villancourt; plastering, N. Depaite; plumbing, heating and roofing, N. Belanger.

**Winnipeg, Man.**—S. H. Foster has taken out a permit for the erection of a dwelling on the south side of Broadway, between Spence and Balmoral, at an estimated cost of \$5,500.

**Edmonton, Alta.**—E. A. Lankin will erect a row of houses at an estimated cost of \$9,000.

**Calgary, Alta.**—Mr. J. C. Trotter will erect a solid brick apartment house on Fifth avenue, between Fifth and Sixth streets, at cost of \$8,500.

**Vancouver, B.C.**—Messrs. Harris & Gregg have taken out a permit for the erection of a brick addition to an apartment house on Seymour street at an estimated cost of \$8,500.

**Vancouver, B.C.**—Mr. W. W. Stuart has taken out a permit for the erection of a three-storey apartment house at the south-east corner of Georgia and Chilco streets. Estimated cost, \$18,000.

**Vancouver, B.C.**—Mr. F. Bayliss will erect a \$7,000 apartment house on Cornwall street, near Yew street.

## Hotels

**Saskatoon, Sask.**—Messrs. Beaubler and Smyth, proprietors of the Empire Hotel, will erect a brick addition to their hotel, to double the present size. The improvement will be started early in the spring.

**Kingston, Ont.**—The joint committee of the City Council and the Board of Trade has endorsed the proposition submitted by the Kingston Hotel Company, and accepted the proposal for a cash bonus of \$100,000. The Company, which was represented by Dr. Dupuis of Boston, and Mr. V. H. Hilger of Chicago, will be granted exemption for twenty years, from all taxation with the exception of school taxes.

**Vancouver, B.C.**—At a meeting of the building committee, appointed by the trustees of the Seattle Seamen's Friend Society, it was decided to recommend that the society procure a lot on Western avenue, near the present seamen's home, on which to erect a five or six-storey fire-proof hotel. The proposed building would be constructed on the plan of the Mills hotels in New York. It will have about two hundred bedrooms, a gymnasium, reading room, and assembly room.

## Opera Houses and Rinks

**Winnipeg, Man.**—The new Grand Theatre, at the corner of Jarvis and Main streets, has collapsed. The building was just being completed, and had been built at a cost of \$30,000. It was built by a company promoted by W. J. Gilman, of New York.

**Elgin, Man.**—The skating and curling rink at this place has been destroyed by fire.

**Edmonton, Alta.**—Mr. E. R. Sims, manager of the Calgary Amusement Company, will in all probability erect a new theatre building here on First avenue in the near future.

**Edmonton, Alta.**—Plans have been prepared for a two-storey solid brick theatre building, to be erected at Edmonton by the Western Co-operative Corporation, Ltd. The building will be 90 by 80 ft., and will, in all probability, be erected on First street, near the King Edward hotel. The work of construction, it is expected, will be commenced next spring. Mr. E. Storie, formerly in charge of the Edmonton Opera House, will be manager of the new amusement house.

**Saskatoon, Sask.**—G. P. Barrett, Ottawa, is contemplating the erection of a three-storey brick building, 75 by 100 ft. at this place, on Second avenue. The rear part of the building would be used as a playhouse, while the front would be fitted up for rental.

**Edmonton, Alta.**—Mr. Samuel Nankin, proprietor of the Grand Theatre, is having plans prepared for a new theatre building, to be erected on First street. Mr. Nankin will visit the new theatre buildings in the eastern cities in Canada and the United States, and will erect a thoroughly up-to-date house.

**Fire Stations and Jails**

**Niagara Falls, Ont.**—A by-law will be submitted to the rate-payers on Jan. 4th next, for the purpose of authorizing the expenditure of \$8,300 for improvements to the three city fire halls at this place.

**Montreal, Que.**—Architect J. A. Godin, 120a LaFontaine Park, has awarded to F. X. Aube, 690 Laval avenue, the contract for the new Police Station, No. 12, at 1394 St. Lawrence Boulevard.

**Montreal, Que.**—At a meeting of the Fire and Light Committee a motion was passed asking the Board of Control to arrange for the erection of a new fire hall in Rideau Ward as soon as possible.

**Quebec, P.Q.**—Tenders, addressed to the Honorable L. A. Taschereau, Minister of Public Works and Labor, will be received at the Parliament Building, Quebec, on Dec. 23rd, for the completion of the new jail of the District of Montreal. Plans and specifications may be seen at the Parliament Buildings, Quebec, and at the office of the Architects, Messrs. Marchand & Bressard, 164 St. James street, Montreal. Alphonse Gagnon, Secretary, Department of Public Works, Quebec, P.Q.

**Montreal, Que.**—At a meeting of the Fire and Light Committee it was proposed to erect two new fire stations, one in Rosemount and the other in Mount Royal Ward. It is expected that funds for these stations will be asked for in the annual estimates.

**Calgary, Alta.**—Plans for the new central fire hall have been completed. The proposed building will, in all probability, be erected on the site of the present Central fire hall, and will cover an area of 75 sq. ft. Estimated cost, \$42,000.

**Merritt, B.C.**—Tenders will be received up to Dec. 13th for the erection and completion of a three cell lock-up, office, etc., at Merritt. Plans and specifications may be seen at the office of the Government Agent, Nicalo. F. C. Gamble, Public Works Engineer, Lands and Works Department, Victoria, B.C.

**Schools and Colleges**

**Toronto.**—The Toronto Board of Education has taken out a permit for a two-storey brick addition to Howard Park avenue school. Estimated cost, \$13,988. Builders, Lucas & Son, 141 Havelock st.

**Toronto.**—The Board of Education, Toronto, has taken out a permit for the erection of a three-storey brick addition to school building on Morse street, near Queen street. Estimated cost, \$17,196. Builders, H. Lucas & Son, 141 Havelock street.

**Toronto.**—The Trustees of Woodgreen Methodist Church have taken out a permit for the erection of a one-storey brick Sunday School building on the west side of Strange street, near Queen street, at cost of \$5,000. Architect, R. W. S. Chadney.

**Toronto.**—At a meeting of the Board of Governors of Toronto University it was decided that only a section of the proposed building for the Faculty of Education, be erected this year. The property committee was instructed to report on the cost of an administration building and lecture room, and the accommodation for 90 high school pupils. The original plans were for a building to accommodate 1,100 pupils in the high and public school departments, and called for an expenditure of \$500,000. The building will be erected on Bloor street, between Spadina avenue and Huron street.

**Toronto.**—Architects Langley & Howland, Continental Life Building, have prepared plans for the erection of an addition to school building in Deer Park, for the North Toronto School Board. The building will be of brick construction, with stone foundation, slate roof, pine floors and interior finish, open plumbing, steam heating, electric lighting, and will cost \$12,000. The work of construction will not be completed until next spring.

**Berlin, Ont.**—At a meeting of the Public School Board, the plans prepared by Architect Chas. Knechtel for the proposed addition to the Margaret avenue School, were submitted. Estimated cost, \$6,700. This addition will be built next year.

**Berlin, Ont.**—The two wings of St. Jerome's College, which were recently des-

troyed by fire, will be rebuilt in the spring. The new structures will be four stories in height, and will be built on the same plan as the present new building.

**Welland, Ont.**—At a meeting of the Town Council a request was received from the Secretary of the School Board asking for the sum of \$15,000 for the purchase of a site and the erection of a new school. A by-law will be submitted to the rate-payers for the purpose of authorizing this expenditure.

**St. Mary's Ont.**—It is proposed to submit a by-law to the rate-payers in January for the purpose of authorizing the expenditure of \$35,000 for the erection of a new public school building. Plans of the proposed building have been prepared.

**Chatham, Ont.**—Architect Harry J. Rill, of Detroit, has prepared plans for the erection of an auditorium building at this place, for the Ursuline Sisters. The building will be two stories in height, of brick construction with cut stone trimmings. The ground dimensions are 100 by 180 ft.

**Davisville, Ont.**—Architects Langley & Howland, Continental Life Building, Toronto, have prepared plans for the erection of an addition to school building at Davisville. The building will be of brick construction with stone trimmings, slate roof, pine floors and interior finish, open plumbing, electric lighting, steam heating. The work of construction will not be commenced until next spring. The structure will cost \$5,000.

**Montreal, Que.**—The Longue Pointe Protestant School on Longue Pointe road, west of Dominion Park, has been destroyed by fire.

**Montreal, Que.**—Architects Gauthier & Daoust have prepared plans for a four-storey school building for higher commercial studies, to be erected at the corner of St. Hubert St. and Place Viger square. The structure will be of brick construction (with stone from the Portneuf quarries). It will be absolutely fireproof and have seven large exits.

**Montreal, Que.**—Architect Chas. Bernier, 70 St. James street, has prepared plans for the erection of a school for the Catholic School Commissioners. Estimated cost, \$60,000.

**Outremont, Que.**—Architect G. A. Monette, 97 St. James street, Montreal, has awarded to following contracts for the erection of the annex to the Catholic School for Boys, in Outremont: Masonry, brickwork and carpentry, L. Houle, plumbing, Wm. Pelletier; heating, Cadieux & Briard; all firms of Montreal.

**St. Come, Que.**—Architects Oullet & Levesque, 115 St. John street, Quebec, have prepared plans for a \$15,000 convent to be erected at this place for the Rev. Elle dut Breton. The building will be three and one-half storeys in height, of frame construction, with stone foundation, galvanized iron roof, hot water heating, open plumbing, plaster interior finish and metal siding.

**Halifax, N.S.**—Tenders will be received at the Holy Heart Seminary up to 3 p.m., Dec. 21st, for the construction and completion of an additional building. The work includes hot water heating, plumbing, and gas fitting. Specifications and all information can be obtained on application at the office of Chas. W. West, Architectural Engineer, Halifax.

**Halifax, N.S.**—Messrs. S. A. Marchall & Sons have been awarded the contract for the erection of the new Chebucto School building in accordance to plans prepared by Architect W. J. Busch, Halifax.

**Winnipeg, Man.**—The Winnipeg Free Kindergarten Association has taken out a permit for the erection of a school on the south side of Alexander street, opposite Chambers street, at cost of \$3,000. Builders, J. McDiarmid Company.

**Victoria, B.C.**—The School Board has authorized Architect E. C. Watkins, of the firm of Hooper & Watkins, to call for tenders for the proposed new school building to be erected on the property bounded by Chambers street, Princess street, and Queens avenue. Separate tenders will be called for the different trades. The estimated cost of the building is \$60,000, and as \$52,000 only has been provided for, contract will not be awarded until provision is made for an additional \$15,000.

**Vancouver, B.C.**—At a meeting of the Board of School Trustees it was decided to submit to the rate-payers of Vancouver in January next, a by-law authorizing the expenditure of \$199,000 for school buildings, improvements, and school sites, including the following: High school in east end, \$45,000; four-room school building in east end, \$25,000; four-room addition to Ninth avenue and Park Drive, \$22,000; school board offices, storeroom and equipment, \$25,000; school desks, \$6,000; heating, Fairview school, \$3,000; high school site in east end, \$27,000; two school sites in south side of city, \$40,000.

**Civic Improvements**

**Toronto.**—The City Engineer has recommended the laying of the following pavements: Asphalt, Herrick street from Bathurst street to Euclid avenue, and on Euclid avenue from Queen street to the north side of Robinson street; bitulithic, Brock avenue from the south side of Middleton street to Dundas street, and on Highland avenue from Schofield avenue to a point 336 feet west; vitrified block, Scott street from Front street to Esplanade street, and on Piper street.

**North Toronto.**—Notice is given that the Municipal Council intends to construct the following local improvement works on sections of undermentioned streets, viz.: (a) Six-inch water main, hydrants, valves, etc., on Bowdoin avenue. (b) Tar and gravel sidewalk, 4 ft. in width, with necessary grading, on Broadway. William J. Douglas, Town Clerk.

**Ottawa, Ont.**—The Board of Control has instructed City Engineer Kerr to prepare an estimate of the cost of laying new pavement on Sparks street, between Bank street and the Post Office.

**Kingston, Ont.**—The City Engineer has submitted a report showing the cost of road paving on sections of the following streets, viz.: Princess street, \$8,568.60; Wellington street, \$8,779.80; Clarence street, \$10,109.40; Brock street, \$4,900.80; King street, \$9,501; Ontario street, \$13,066.80.

**Vancouver, B.C.**—The Board of Works has endorsed the report of the City Engineer, recommending the laying of block pavements on the following streets, viz.: Westminster avenue, cost, \$166,390; Georgia street, from Beatty street to Park bridge, cost, \$232,375; Robson street, from Hamilton street to Seymour street, cost, \$26,250.

**Vancouver, B.C.**—The following works as proposed by City Engineer Clément, have been approved by the civic authorities, viz.: block paving Powell street, at an approximate cost of \$200,000, and cement sidewalks on a number of streets, estimated cost, \$175,000.

**Prince Rupert, B.C.**—It is understood that the Provincial Government will, in the near future, call for tenders for planing of streets and laying of sidewalks in Prince Rupert, for which \$160,000 has been allowed. The sum of \$40,000 is available for sewer construction.

**Miscellaneous**

**Toronto.**—A two-storey frame boat-house on Lake street, near the foot of Yonge street, has been destroyed by fire. The building was owned by the Toronto Canoe Club; the upper storey was occupied by William Van Winckel, boat builder, and the ground floor was used as a storehouse, by the Gasoline Engine Company of West Toronto. A number of rowboats and valuable launches were destroyed. The loss is estimated at \$25,000.

**Toronto.**—At a meeting of the Board of Control it was decided to have the City Engineer report on the advisability of constructing groynes between Indian road and the Humber, for the purpose of forming a new beach.

**Berlin, Ont.**—The Town Council has passed the by-law to raise \$8,000 for the extension of the gas main system. The by-law will be submitted to the rate-payers at the next municipal elections.

**Montreal, Que.**—Architects Saxe & Archibald, 59 Beaver Hall Hill, have awarded to C. E. Deakin, 11 St. Sacrament st., Montreal, the contract for the erection of a stable for Mr. Holden.

**MONTREAL BUILDERS' EXCHANGE Holds Annual Banquet.---Many Architects Present.---Exceptional Growth Demonstrated.**

**A** PART from the social success of the annual banquet of the Montreal Builders' Exchange, which was held at the Windsor Hotel, on the evening of December 10, the toast list and large attendance, demonstrated that this comparatively new organization of builders and contractors has thoroughly established itself among the foremost business organizations that are responsible for the building up and growth of Canada's premier city.

Among those who attended and whose presence bespoke much for the excellent character of the work which the association is doing, were a number of Montreal's leading architects, who expressed their enthusiastic approval of the aims and objects of the Exchange. All spoke in warm terms of the great good the association has already accomplished, and predicted that the spirit of co-operation and better relationship that has already been established between the architect and builder through its agency, will, in the near future, result in immeasurable benefits to all concerned.

Nearly two hundred and fifty members and guests sat down to a sumptuous repast. Principal among the number of distinguished visitors present was Sir Lomer Gouin who, in the course of his speech, made some very significant statements.

Mr. Thomas Forde, president of the Exchange, was in the chair. The menu card departed from the usual joke, but was embellished with quotations from Shakespeare and "other fellows," many of which were timely and appropriate.

The first toast on the list was that of "The Dominion and Our Province," which was answered by Hon. C. J. Doherty, K.C., M.P.

Sir Lomer Gouin thanked the members of the Builders' Exchange for having once again invited him to assist at their annual banquet. He congratulated the association upon having chosen Mr. Quirk for their representative on the Technical Schools Commission. These schools were sure to do good work for the building profession, because they would allow the youth of the province to obtain the best from his energies. They had all thought the time had come for them to give to their sons the means of reaching the highest ranks in the trade or business that they had chosen.

The Prime Minister recalled the efforts that the Provincial Government had made to bring about a better feeling amongst employers and employees. In accordance with the desire of the Builders' Association the Government had proposed a conciliation act when he was Minister of Public Works. Since then the Government had established a Court of Conciliation which had been of the greatest service both to the workman and employees.

Referring to the question of workmen's compensation, he said that the question was likely to come up again. A commission had been appointed to consider the matter, and they had presented a report. Next session he would present a bill to bring a law into effect that would deal with the whole question.

Building contractors, continued Sir Lomer, are considered amongst the principal of the national workers, and we depend on their intelligence and their patriotism to make Montreal one of the most beautiful cities of America. He ventured to prophesy that in fifteen years Montreal would have a population of a million. He advised them to perpetuate their memory by the buildings that they raised.

The Prime Minister also said that there would shortly be another technical school for Quebec, and he hoped that it would be the means of helping the youth of the

province to become better acquainted with the work that was before them.

The toast was also replied to by Mr. Charles A. Wilson, M.P., who was assured that Sir Lomer Gouin and his colleagues would do all that was possible to help the Builders' Association in their work.

Mr. W. T. Castle proposed the toast of the "City of Montreal," and said that the city was the centre not only of finance and industry, but of science, of art and of literature, and they should look upon it as the finest city in the Dominion. In the absence of the Mayor the toast was responded to by Ald. Sadler and Ald. Mount.

"Our Guests" was proposed by Mr. J. N. Arcand and replied to by Mr. D. R. Brown, of the Architects' Association of Quebec, Mr. F. C. Lariviere, Chambre de Commerce; Mr. Farquhar Robertson, Board of Trade, and Mr. Dunlop, of the Architects' Association.

All the arrangements were excellently carried out by the secretary, Mr. J. H. Lauer, who also acted as accompanist and musical director.

**CANADIAN CEMENT AND CONCRETE EXHIBITION.---To be Big Event.---Much Space Contracted For.---Canadian Firms Should Be Represented.**

**T**HAT the Canadian Cement and Concrete Exhibition will be a success beyond all question, has been evidenced by the large number of firms that already, at this early date, have contracted for space. While the promoters of this Exhibition were very sanguine as to the prospects of making it the greatest of its kind ever held in Canada, it was not expected when the announcement was sent out, that so many firms from distant points should express their desire to procure space. One very interesting feature of the contracts that have come in thus far, is the fact that a very large number have come from the United States, which demonstrates very clearly that the people across the line are about to bid more strenuously than before for Canadian business. It further signifies that the American manufacturers of cement and cement machinery, have found in the large number of Exhibitions that have been held in the United States during the past few years, the advertising value of shows of this character.

It behooves every firm interested either in the manufacture of cement, cement machinery or cement tools or concrete reinforcement, in Canada, to see that they are properly and amply represented at this greatest show of its kind ever held in the Dominion of Canada.

While it may appear that there is considerable time in which to make arrangements, it must be remembered that the earlier the application is made, the better space there is available.

The Cement and Concrete Association has been formed solely and absolutely for the promotion of cement and concrete interests in Canada, and the Exhibition is held in connection with their first convention, only as a means of creating interest and attracting a large number of people to the convention, where the vast amount of machinery and appliances exhibited, will tend to open the eyes of the Canadian building public, to a great extent, as regards the material advances that have been made in the use of this new material in building construction.

Applications for space should be addressed to Mr. R. M. Jaffray, 1 Wellington street west, Toronto.

To give a fair idea of the class of firms that have contracted for space we publish the following who are among those who will exhibit at St. Lawrence Arena from March 1 to 6:

Peerless Brick Machine Co., Minneapolis, Minn.; F. M. Jackson Co., Akron, N.Y.; Thorn Cement Co., Toronto; Wadsworth, Howland & Co., Boston, Mass.; Sun Portland Cement Co., Owen Sound, Ont.; Canadian Art Stone Co., Toronto; Roman Stone Co., Toronto; Trussed

Concrete Steel Co., Toronto; Ideal Concrete Machinery Co., London, Ont.; Industrial Chemical Co., Swansea, Toronto; London Concrete Machinery Co., London, Ont.; Mussels, Limited, Montreal; Multiplex Concrete Block Machinery Co., Toledo, O.; Oneida Community Limited, Oneida, N.Y.; Brantford Roofing Co., Brantford; United States Steel Product Export Co., Buffalo; Expanded Metal Co., Toronto; Koehring Machinery Co., Milwaukee, Wis.; The National Portland Cement Co., Durham, Ont.; Morssen & Co., Montreal; Cement Tile Machinery Co., Waterloo, Iowa; Montreal Rolling Mills Co., Montreal.

## BUILDING STATISTICS FOR NOVEMBER.

---Marked Improvement of Past Four Months Continues.---Twelve Cities Reporting Show an Increase of 60.60 per cent. Over Same Month Last Year.---Prospects for 1909 Bright.

THE SUBSTANTIAL improvement in building operations, that has been so marked during the past four months, it is gratifying to note, still continues. The comparative figures supplied CONSTRUCTION from twelve representative cities throughout the Dominion, continue to show some increases that appear almost incredible. That we have again entered upon a period of what may prove to be unprecedented prosperity and growth, is evidenced by the rapidly increasing activity in building operations throughout the entire Dominion. In the following table, which gives comparative figures for twelve cities, and figures only for the month of November, for three cities, there are only four decreases shown. Edmonton, Alta., has but a slight decrease of 5.21 per cent. for the month of November, as compared with the same period of 1907, while in the same city \$2,504,592 was expended in building operations during the first eleven months of 1908, as compared with \$2,239,755 for the same period of 1907.

Regina, Sask., shows the largest decrease (87.01 per cent.), but this falling off can readily be accounted for by the fact that last year's figures were swelled by the issue of a permit for one building which cost \$40,000.

Halifax, N.S., shows the next largest decrease (75.07 per cent.). It will be noted that this city in the comparative table issued last month, showed an increase of 26.90 per cent., with the total valuation of buildings for which permits were issued in October, 1908, of \$36,155. We note that for November of last year the value of buildings erected was \$83,250, which was a very abnormal month, as can be seen by the fact that the aggregate value of buildings erected for the first eleven months of last year was only \$581,086. It may be further noted, with regard to Halifax, that the estimated cost of buildings erected for the first eleven months of this year is \$715,575, which, on the whole, shows a substantial increase over this period for 1907.

Victoria, B.C., which last month showed an increase of 17.73 per cent., is the fourth city which shows a decrease for the month of November, of 9.14 per cent.

On the other hand, the increases shown are remarkable, to say the least. Brandon, Man., shows an increase of 140.15 per cent; Toronto follows with a very substantial increase of 116.19 per cent. It will further be noted that Toronto is far in the lead in the matter of the aggregate value of buildings for which permits were issued (as compared with other Canadian cities) for the same month of both last year and this.

Vancouver, which is second in the value of buildings for which permits were issued during November, shows an increase of 56.68 per cent.

Montreal, which last month showed a decrease of

61.32 per cent., shows an increase for the month of November, of 61.44 per cent.

Again, Winnipeg shows a very healthy increase of 93.42 per cent. over the month of November, 1907.

Fort William shows an increase of 93.42 per cent., and it will further be noted that during the first eleven months of 1908, 312 permits were issued in this city, for buildings to cost \$1,600,710, as compared with 344 permits with an aggregate value of \$799,775 for the same period of 1907. Calgary, Alta., and St. John, N.B., show substantial increases.

In the twelve cities for which comparative figures are given it will be found that the aggregate value of buildings for which permits were issued for November, 1908, is \$2,584,648, as compared with \$1,609,328 for the same cities for November, 1907, showing an increase for the twelve cities of \$975,320, or 60.60 per cent.

Kingston, Ont., has had a very good year, with 393 permits issued for buildings to cost \$170,000 for the first eleven months of 1908 (figures for 1907 not given).

In London, Ont., 259 permits have been issued, for buildings to cost \$823,750, for the first eleven months of 1908 (figures for 1907 not given).

Although comparative figures were not given from St. Thomas, we learn that 136 permits have been issued for the first eleven months of 1908, for buildings to cost \$231,536, which is 70 per cent. increase over the same period of 1907.

Reports as to future prospects from the various cities, tend to show that everything points toward excellent prospects for the coming year. Brandon reports "About \$10,000 worth of building under way. Permits not issued include new fire-hall, new factory for Hughes & Co., new gas plant and several new residences;" Calgary, "Very good, architects busy preparing plans for next year's work;" Edmonton, "Weather conditions have greatly interfered with building operations;" Fort William, "Quite bright;" London, "Very, very good;" Montreal, "Improving;" Regina, "Building operations for 1909 look bright and we expect a busy year;" St. John, N.B., "Fair;" St. Thomas, "Good;" Toronto, "Prospects for new year were never better;" Winnipeg, "Fair;" Vancouver, "Situation is improving."

	Total cost of buildings for Nov., 1908	Total cost of buildings for Nov., 1907.	Increase per cent.	Decrease per cent.
Brandon, Man.....	\$ 10,616	4,420	140.15	
Calgary, Alta.....	61,700	68,860	14.57	
Edmonton, Alta.....	80,505	84,935		5.21
Fort William, Ont.....	30,175	16,600	93.42	
Halifax, N. S.....	20,750	83,250		75.07
Kingston, Ont.....	20,000			
London, Ont.....	67,640			
Montreal, Que.....	279,065	172,240	61.44	
Regina, Sask.....	2,276	71,433		87.01
St. John, N. B.....	17,200	10,400	65.38	
St. Thomas, Ont.....	35,600			
Toronto, Ont.....	1,379,649	638,150	116.19	
Vancouver, B. C.....	346,900	221,400	56.68	
Victoria, B. C.....	104,710	115,200		9.14
Winnipeg, Man.....	244,100	138,409	76.37	
	2,584,648	1,609,328	60.60 p c.	

AT A MEETING of the Cement Section of the Canadian Manufacturers' Association, held within recent date, the following officers were elected for the ensuing year: Chairman—A. W. Thorn, Lehigh Portland Cement Company, Ltd. Vice-Chairman—R. H. McWilliams, National Portland Cement Company, Ltd. Executive Committee—C. A. Lingham, Canadian Portland Cement Company; W. H. Ford, Vulcan Portland Cement Company; W. D. E. Strickland, Lakefield Portland Cement Company; J. G. Lind, Grey & Bruce Portland Cement Company; C. A. Irwin, International Portland Cement Company; G. S. Kilbourn, Owen Sound Portland Cement Company; John A. Colter.

VAGRANT TENDENCIES IN ARCHITECTURE.—A Few Observations on the Growth of Veneering in Construction Work.

WHILE MUCH of it is not entirely new there is to be observed a more persistent following after what might be termed some vagrant tendencies in architecture, especially in connection with modest cost houses. Among these tendencies is a disposition to make frame houses veneered on the outside either with brick one layer thick or with terra cotta or tiling. Last year and this year there has been quite a lot of this in one form and another, so much, in fact, that the subject suggests the need of closer looking into to point out more clearly the merits and limitations of this class of work.

It may be said at the outset that that is false architecture, just like using half-length brick in the facing of a brick wall to give the appearance of a header, and the whole thing is false in that it suggests a brick building in appearance whereas it is only veneered. We find that frequently some of these things we term false ideas prevail in cabinet work, especially in furniture and in mill work. The veneer idea is also frequently a good one and is made use of in the higher grade mill work, including doors, to quite an extent, and it is claimed they are superior to solid wood. These claims are well supported, too, and it is possible that we may develop out of this veneering of frame structures and the facing of the outer wall with brick or tiling some desirable features that will on occasions outweigh the objectionable ones. Anyway people are playing peculiar pranks in architectural ideas. We find concrete walls veneered on the outside with brick to get a better appearance. We find steel frames filled in with face brick and terra cotta and occasionally we find a rough brick wall plastered over with cement or some combination of cement and crushed tile so that it looks like a concrete wall where in fact it is brick. These things are just as false in a certain architectural sense as the idea of building a frame house and facing it on the outside with brick.

It is difficult to account for what it is that leads to the peculiar wanderings of architectural ideas unless it is the desire for something new. We can understand why a man would take an old brick building that has become dingy with age and go over and plaster the outside with cement or something of the kind, but when we see a man building a new brick wall, immediately plastering it over with something, we begin to wonder. Yet an example of this very style of architecture was noted this summer—a somewhat pretentious one, too. Every wall was built of brick—that is, common brick without any facing or pointing of joints, stone trimmings were added and then the body of the wall was plastered over with a mixture of concrete and crushed tile of various colors. It looked had at first, but after the entire structure was completed, which included gray stone and dark green trimmings, and the whole was topped over with red clay roofing tile, the effect was rather pleasing. Also it was discovered that the purpose was simply that of having something new and original in the architectural line as well as a substantial building.

Some modest houses and some more pretentious buildings, and even apartment houses, have been erected just as if they were to be frame structures with bevel siding on the outside. Then the storm sheathing was put on the frame houses and instead of finishing with weather boarding the whole is covered over with brick. This makes a wall from the outside brick face to the inside plastering approximately ten inches, a little over four inches of brick outside, an inch of plank wall, four inches of studding and about three-quarters of an inch of plaster and lath. Now the question is whether this wall will really not stand up as well as any other? If the build-

ing is well framed together the framing will give it strength to stand against almost any storm. The studding space gives a hollow wall effect, and this prevents the moisture from finding its way through the wall. Of course, brick on the outside naturally furnishes better protection against the weather than a thin covering of lumber lapped over like the regulation bevel siding is laid. The inside plastering is done on lath instead of on brick. There, of course, is some danger of fire, but for that matter there is danger of fire in any brick building having joists, floors, etc., made of wood. The outside brick walls furnish some protection against fire from the outside, and, altogether, while the house is not a brick one, it may answer certain purposes and have advantages enough to make it quite popular. It would seem to make a better house than the hollow concrete block house, and it would help out considerably if the subject were carefully investigated and various points brought out, including that of cost as compared to solid brick walls, and to concrete block walls, and as compared to regular frame structures.

In addition to building new houses in this way and also in addition to using brick there is some tendency to use tile and terra cotta on frame buildings. Sometimes an old building is remodelled, especially in the front, and a tile and terra cotta facing put on, this facing being made up of glazed tiling and ornamental terra cotta. It is not new—this idea of making a veneered front and the application of this class of veneer to frame buildings has been in use several years, but it seems to have been coming to the-front more lately than ever before. And when we come to look at it right it is not surprising. Even in brick buildings and steel frame buildings there has been for many years a general practice of making the front and exposed part of special brick or terra cotta, or something to give ornamental effect, and this ornamentation, as it did not extend back into or make properly a part of the sustaining wall, is just as much a veneer in the true sense as it is to fasten on with spike and special holders a thin covering of tiling and ornamental terra cotta to a frame building. The question of most interest about the old thing is, however, one of the future, that is, to just what extent will these things develop?—CLAY WORKER.

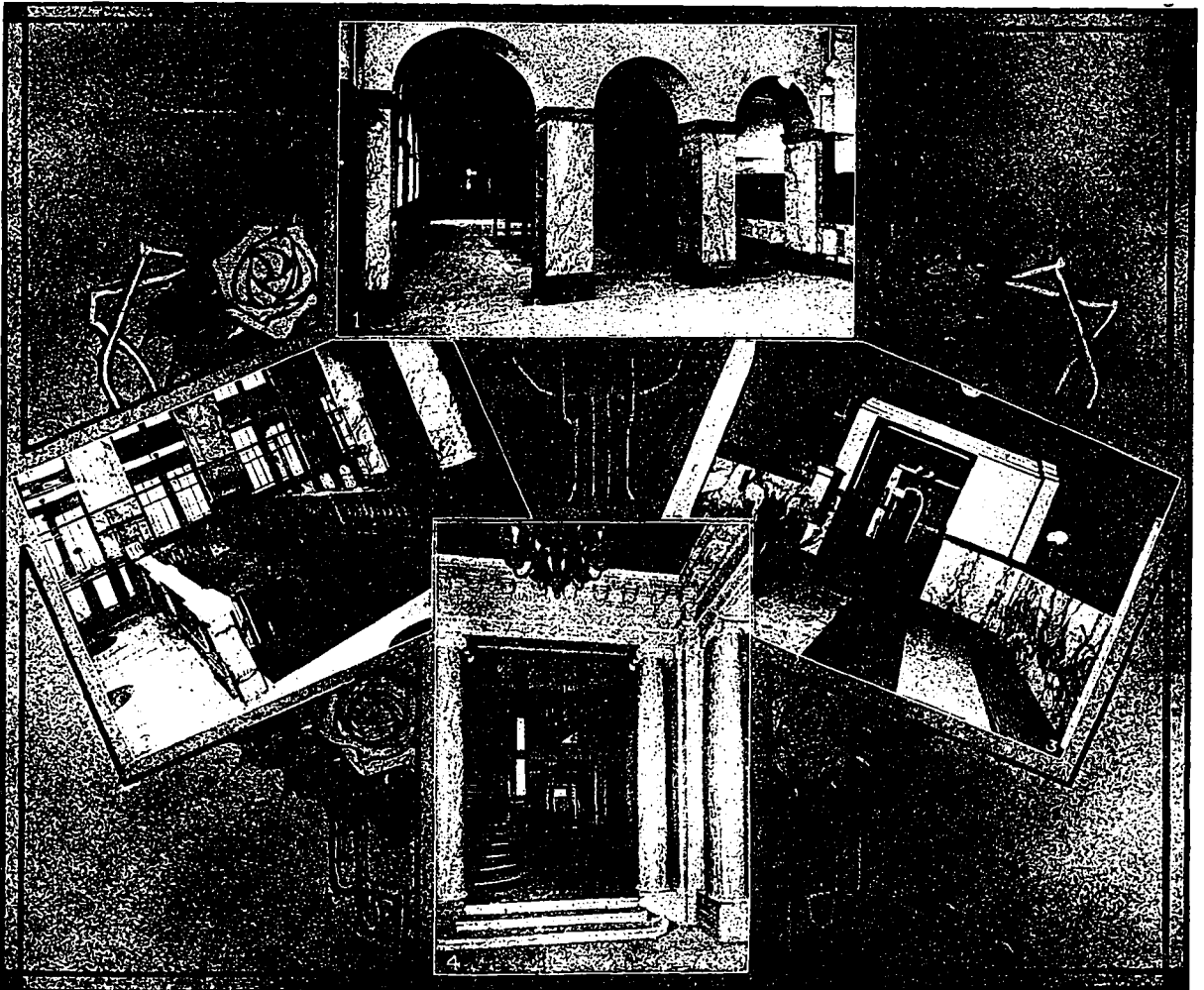
*BUILDING MATERIALS AND FIXTURES* are in demand in China, and Canadian dealers who are seeking foreign market should be able to secure a large portion of the business to be had there. The report of Sir Alexander Hoise, Acting Commercial Attache to H. B. M. Legation at Peking, recently published by the Department of Trade and Commerce, Ottawa, states that building still proceeds on an extensive scale at the great commercial centres of China, and the imported materials and fittings connected therewith continue to increase. Their value is given as £212,152, as compared with £82,670 in 1906, but there are many other articles in the import list required in the building trade, such as asbestos, electrical materials and fittings, felt and felt sheathing, stoves and grates, cement, glue and timber, all of which showed substantial increases. Asbestos rose in value from £6,704 to £8,106, electrical materials and fittings from £150,484 to £189,871, felt and felt sheathing from £4,042 to £5,855; cement in weight from 54,364 to 94,771 tons, and timber (soft wood) increased by over 50,000,000 square feet, with a total import of 220,220,898 square feet. Hardwood also rose from 3,090,573 to 3,215,737 cubic feet. One would have expected that window glass would have increased with other building materials, but it actually fell off by 83,367 boxes, the obvious reason being that the import in 1906 amounted to 277,512 boxes, or more than 100,000 boxes over the 1905 import, which was well ahead of the average of the previous five years.

MARBLE INTERIORS.

HERE IS no material, either natural or artificial, used in building construction that has a more legitimate and aesthetic value than has marble. As with all countries at that period which is characterized by a higher development in building art, Canada is beginning to employ this material quite extensively. Especially is this to be observed in public, semi-public and the better class of business buildings, where marble of both domestic and foreign nature is being widely used

interior of the Traders' Bank Building, with its entrance hall and corridor of Vermont marble and main staircase of Istrian, is something with which hundreds of people are familiar. It is regarded as one of the most striking interiors of its kind to be found anywhere. The extent to which marble has been used in this building can be imagined from the fact that the work cost approximately \$80,000, and both in texture of materials and workmanship it is of the very highest order.

Another particularly good example is the Customs



FOUR MARBLE INTERIORS, TORONTO, EXECUTED BY THE HOIDGE MARBLE COMPANY, TORONTO. 1. CUSTOMS HOUSE. 2. TRADERS BANK BUILDING. 3. CONTINENTAL LIFE BUILDING. 4. ROYAL BANK.

for interior work. When intelligently executed in this capacity, marble produces a richness of effect, strength of character and vigor of beauty which is quite peculiar to itself, and not obtained by the use of other materials.

An idea as to the class of work that is being executed can be seen in the four splendid interiors of Toronto buildings shown in the accompanying group. All of these are marked with a rich and striking individuality, and each shows a variety of marble and character of workmanship that are unsurpassed. The handsomely wrought

House, finished in Grecian and French marbles. This interior is spoken of by experts as a most excellent piece of work, the dado especially being particularly fine.

In the Continental Life Building a most pleasing and vigorous effect has been brought out by the use of Grecian, Skyros and Verde Antique; while in the recently completed Royal Bank Building is to be found an exceptionally fine entrance hall, executed in Canadian marble. The columns and pilasters are graceful monoliths and the general effect and dignity of the whole has

been highly commented upon. Considerable marble work has also been used in the two banking rooms, where the base and counters are finished in Royal Jasper.

It is most gratifying to know in this connection that the above mentioned interiors are representative of Canadian skill and workmanship. All of them were executed by the Hoidge Marble Company, of Toronto, and the highly creditable manner in which they have been installed is perhaps the best attest as to the firm's ability along this line, and the extensive variety of first-class marble which they handle. Their plant is one of the most modernly equipped institutions of its kind in the Dominion and their facilities to promptly carry out marble work for any purpose are the very best. In addition to the most modern types of sawing, cutting and polishing machines, they have an especial moulding machine of their own patent, which gives them an additional advantage in turning out this class of work. Last year the company erected a large addition, which is used jointly for cutting and for storing fine grades and finished marbles; while this year they have built an office on price street, adjoining their factory, to further facilitate their work.

The company has just complete a very fine job in the vestibule and rotunda of the general offices of the electrical development work at Niagara Falls, which was done in Jaune Fleuri, Rouge Jasper and Breche Violette marbles. The rotunda is 18 feet in diameter and the heavy caps and large panels were cut to fit this radius. The door heads are quite heavy and the floor is of marble tile worked out also to this radius in pretty color designs. Another contract which they are just finishing is in the Land Bank and Loan Building, Hamilton, at which place they have also executed the work on Dominion Bank.

Among other buildings in which this firm has done the marble work are: Dominion Bank, Avenue road, Toronto; Farmers Bank, Bay and Adelaide streets, Toronto; Standard Bank, Melville, Ont.; Standard Bank and Bank of Hamilton buildings, Brantford.

The Hoidge Marble Company's aim is to cater to the requirement of the architect, and develop the taste for high class marbles. Their facilities permits them to carry out all specifications in a thorough and artistic manner, assuring the very best results.

As the taste for marble mantels is being revived, the company has installed a number of them in the better class of homes. At present they are engaged on the marble work for the Bank of Nova Scotia at Kingston, Jamaica.

## CALORIFIC WARM AIR FURNACE.

ONE OF THE MANY progressive firms in the Far East, who have, through the excellence of their ware and progressive business methods, established a market in the Far West, is the Record Foundry and Machine Company, of Moncton, N.B., and Montreal, whose Calorific warm air heat producer has established a reputation in the Dominion from coast to coast.

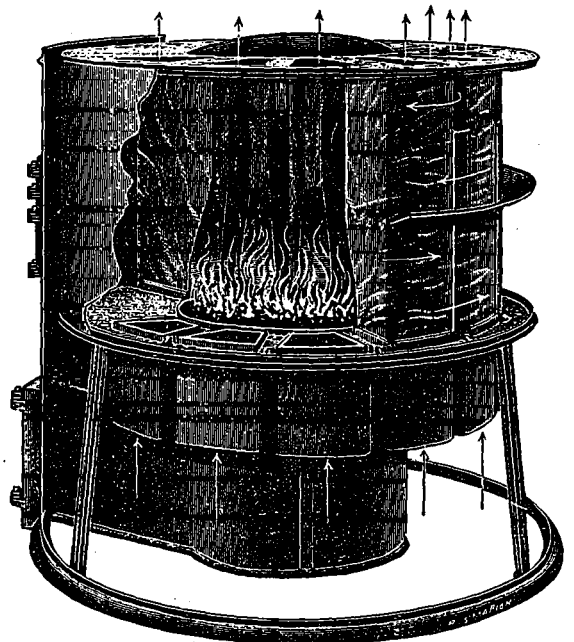
To those who contemplate the installation of warm air furnaces, it will be interesting to note the many individual features of this furnace, one of which is that it has two air courses, either directly up through the hot air columns or between the inner and outer casing, the air taken through the course being warmed by hot air columns, the latter by the radiation from the inner casing, which renders this furnace an extremely powerful heat producer.

The accompanying illustration shows the interior of the combustion chamber, position of hot air columns, and the direction of fire travel. The hot air columns shown above have immense fire surfaces which overhang the fire, this bringing all products of combustion in direct contact with them, as well as completely surrounding them. This arrangement produces a large amount of heating surface to each square foot of grate surface, yet produced in a warm air heater.

The columns are 31 inches high, and with the extensions, are 41 1-2 inches in height, thus assuring a very rapid circulation of air through the warm air columns of the furnace.

The Calorific, it may be stated, is especially noted for its combustible, non-radiation of heat in the cellar and the coolness of the smoke pipe, just enough heat escaping to insure a good draught. It does not require any especial room, as, if properly installed, the volume of heat radiated from it, in the room can be fully controlled in the plan of the installment. Calorific heaters are lined with tin, and the warm air pipes covered with asbestos sheathing.

A most interesting hand-book, known as the "Record Furnace Hand-Book," is issued by this firm, who have branch offices at Quebec, Toronto, Winnipeg, Vancouver, Calgary, and St. John's, Nfld. This book, which may be



SECTIONAL DIAGRAM, SHOWING INTERIOR OF COMBUSTION CHAMBER, POSITION OF HOT AIR COLUMNS AND DIRECTION OF FIRE TRAVEL. RECORD CALORIFIC WARM AIR HEAT PRODUCER.

had upon application by architects, plumbers and steam-fitters, is a most useful work of reference upon the subject of warm air furnace installation.

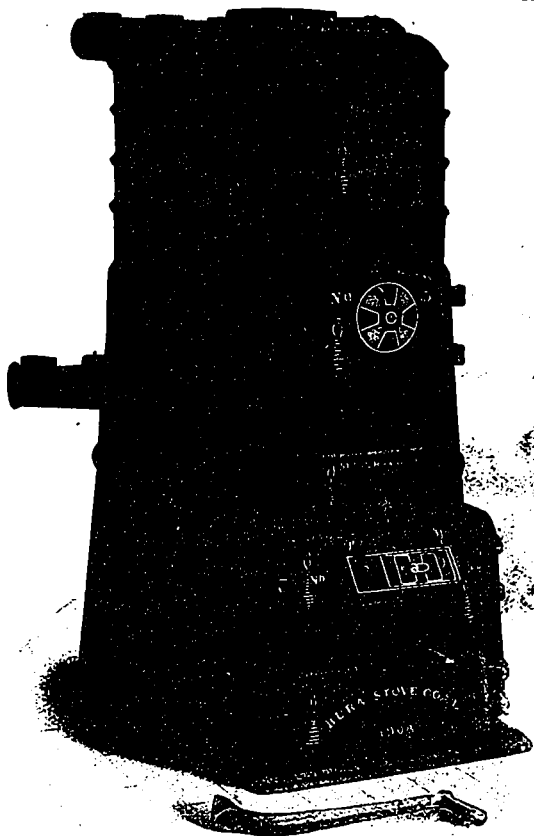
In this book vague statements have been carefully and successfully avoided. It gives clear, definite, positive data and directions, which can be applied to any job of furnace heating or ventilation, by any furnace man who has sufficient ability as a mechanic to properly carry out the work of installation.

It contains, further, a vast amount of information that is invaluable to the architect when specifying warm air heating systems.

Every size and style of the Record Furnace is rated for a definite heating capacity, and a simple, and at the same time a strictly safe and correct rule, is furnished for ascertaining the proper size of Record Furnace to use in heating any given residence or other building. Definite rules and tables are provided to determine the proper size of warm air pipe and warm air register, to use for each room; the proper size of ventilating duct and ventilating register to use for each room, where the system of ventilation is installed; the proper size of cold air duct, ventilating shaft and chimney flue to use with any given job, and, in fact, all information which is neces-



# "IT'S JUST AS GOOD" AS THE DAISY



1908 SERIES

is the talk some people use when they try to sell their boilers, yet, unconsciously they pay a tribute to the DAISY'S WORTH and PRESTIGE.

## There is but One Genuine

that is just as good, and it is the incomparable, unapproachable pioneer of HOT WATER Boilers, 30,000 of which are in active service—its name, need we tell you, is

## THE DAISY

Built on honor—of the best materials money can buy, by superior workmen, under the direction of competent engineers, and at the best plant ever devoted to the production of a Hot Water Boiler.

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Canada's Best Production—It Stands in a Class by Itself  
IMITATED, BUT NEVER RIVALLED

# CLUFF BROTHERS

LOMBARD STREET, TORONTO

Selling Agents: **WARDEN KING, Limited**

sary or helpful for the installation of an adequate, correct and satisfactory warm air heating and ventilating plant.

This hand-book may be had by addressing the above firm at Montreal or Moncton, or any of their branch offices.

### A DESTROYED "FIREPROOF" BUILDING.

IT IS RARELY that we can photographically reproduce such striking evidences of the destructive effects to solid steel and iron of supposedly fireproof structures, when subjected to the fury of intense heat and flames as we do in the accompanying illustrations.

One particular point of timely interest in the illustra-

modern steel building whose members are not properly protected, is attacked by fire, the heat temperature reaches a greater degree than in the older styles of building, except the wooden structure, which generates a severely intense heat and quickly succumbs.

The intense heat which has been recorded in so-called fireproof structures is found to be due to the great strength in our modern construction. The outer walls being held firmly together by the steel frame forms a perfect flue (confining the flames and causing them to increase in intensity), which forces the fire upwards and through the weaker portions until the building is eventually destroyed.

The heat temperature rarely is less than 3800 deg. F. in a building of this class, while the maximum has never been registered.



VIEW OF DESTROYED BUILDING, SHOWING HOLE BURNED FROM BASEMENT TO THE ROOF.

tions, which are of a modern twelve-story office building that was destroyed by fire, not long ago, is the great good that can be obtained from their study, especially so in view of the fact that we are at the present time entering upon what might be called a "fireproof era."

These photos show the warping and twisting effect of the intense heat to which the structural members were subjected, and thorough and complete was the fire in its work. One in particular is most interesting, as it gives a view showing a great hole burned clean through, from the basement to the top of the structure. It was photographed by the artist while standing in the basement and pointing the camera upwards towards the hole in the roof.

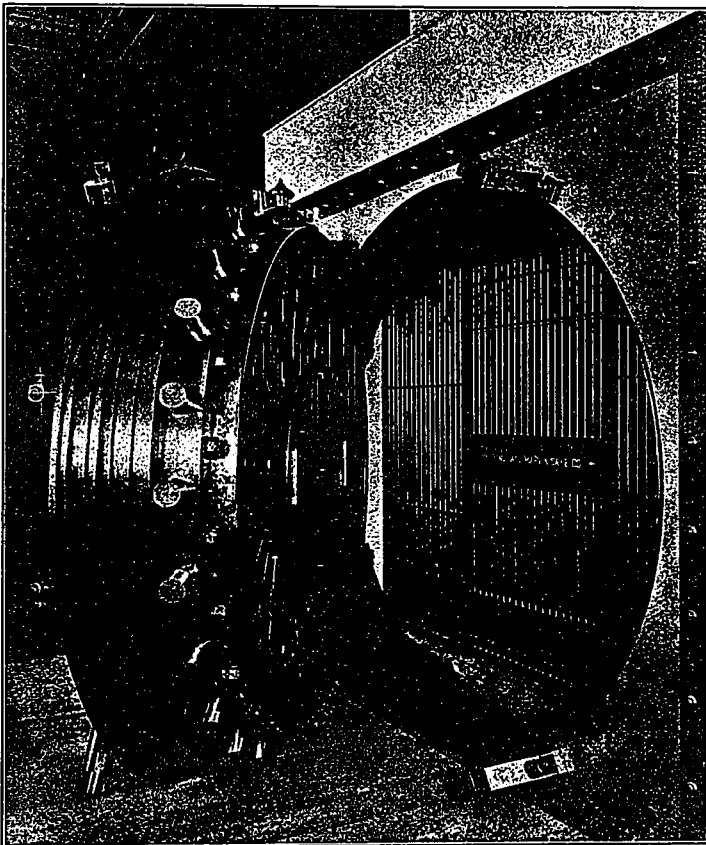
The complete gutting of such a building causes one to ponder as to whether this condition is due to faulty construction or whether a really "fireproof building" is an unknown quantity. This much is certain, that when a

The photographs used in this article were taken specially for the Herring-Hall-Marvin Safe Company, who had installed in the destroyed building twenty-seven of their standard safes. These were used by such well known firms as the Encyclopedia Britannica Company, Collier's Weekly, Brunswick-Balke-Callender Company and many others of the forty-three occupants.

All of the twenty-seven safes were subjected to the terrific fire and heat which destroyed the building, a number of them falling from the tenth and twelfth floor to the basement. Yet despite the severe ordeal through which they passed, and the tremendous shock experienced in a number of instances, the twenty-seven safes when opened showed their contents to be as perfect as though they had not gone through one of the most disastrous fires in history.

The uniform success of the Herring-Hall-Marvin

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**The Herring-Hall-Marvin  
STANDARD BANK VAULT**

The Acme of Perfection In Vault Construction.

**The Herring-Hall-Marvin Co.**

have made more than 5,000 of the bank vaults in use on this Continent.

**Over 500,000 of Their Fire-proof Safes**

are in daily use and many of our best office buildings are equipped with

**HERRING-HALL-MARVIN VAULTS**

**There's a Reason** \_\_\_\_\_

**THE CANADIAN FAIRBANKS CO., LTD.**  
MONTREAL

Toronto St. John, N.B. Winnipeg Calgary Vancouver  
AGENTS FOR CANADA.

safes in the many conflagrations of the past decade, is due to the fact that they are constructed of steel instead of iron, and embody the most perfect fireproof composition known to science. The company is represented in Canada by the Canadian Fairbanks Company, Limited, Montreal, St. John, Toronto, Winnipeg, and Calgary.

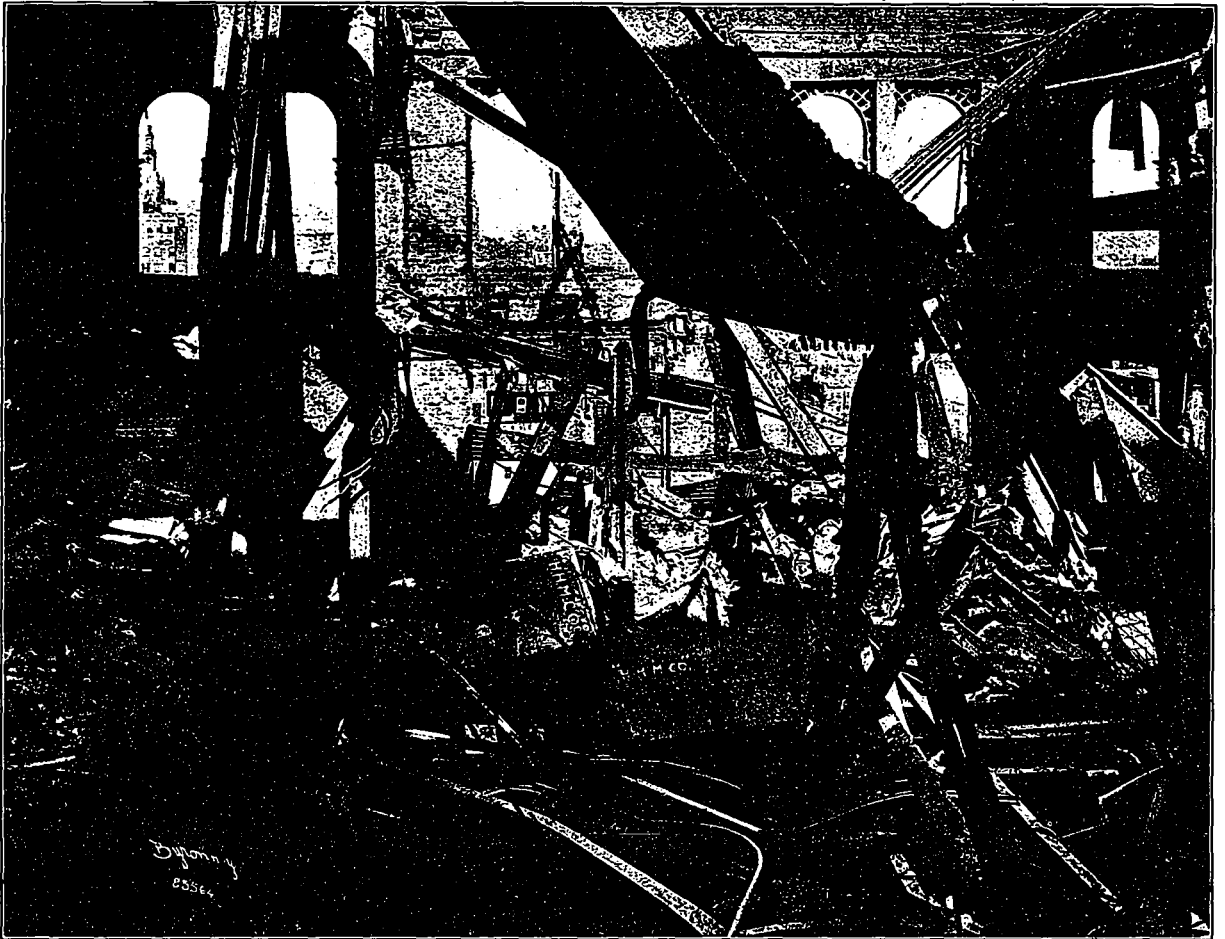
Among some of the recent installations of the Herring-Hall-Marvin safes and vaults, by the Canadian Fairbanks Company, might be mentioned the Molsons Bank, St. Catherine St. Branch, Montreal, which has been equipped with safety deposit vaults; the Dominion Bank of Hamilton, in which safety deposit vaults are now being installed; and the Bank of New Brunswick, which has been equipped with burglar-proof bankers' safes.

In view of the short time which the Canadian Fairbanks Company have been handling these world-renowned

a reason for this. Take for example a good refrigerator, it offers a striking analogy, and probable serves to better illustrate what may be accomplished by scientific house construction than anything else. It is a recognized fact that it is not the thickness of the wood that secures the desirable results, but the method of construction and the use of the right quality of paper, which serves to create "dead air spaces." These "dead air" form an insulation that is more impervious to varying temperatures than any solid body.

In the construction of a building, therefore, the liberal use of tarred felt and paper in providing "dead air" spaces in the wall and floor area—especially where strict attention is paid to close fitting joints, windows and eaves—approaches in principle, at least, the plan of a refrigerator.

It will not only render the building impervious to heat



ANOTHER VIEW OF DESTROYED BUILDING, SHOWING HOW COMPLETELY THE STRUCTURE WAS WRECKED. THE TWO SAFES WHICH ARE SEEN FELL FROM THE UPPER STORIES.

safes and vaults, their success in securing these installations speaks much for both the aggressiveness of the Canadian Fairbanks Company, and the excellent reputation of Herring-Hall-Marvin safes and vaults.

### ROOFING AND BUILDING FELTS.

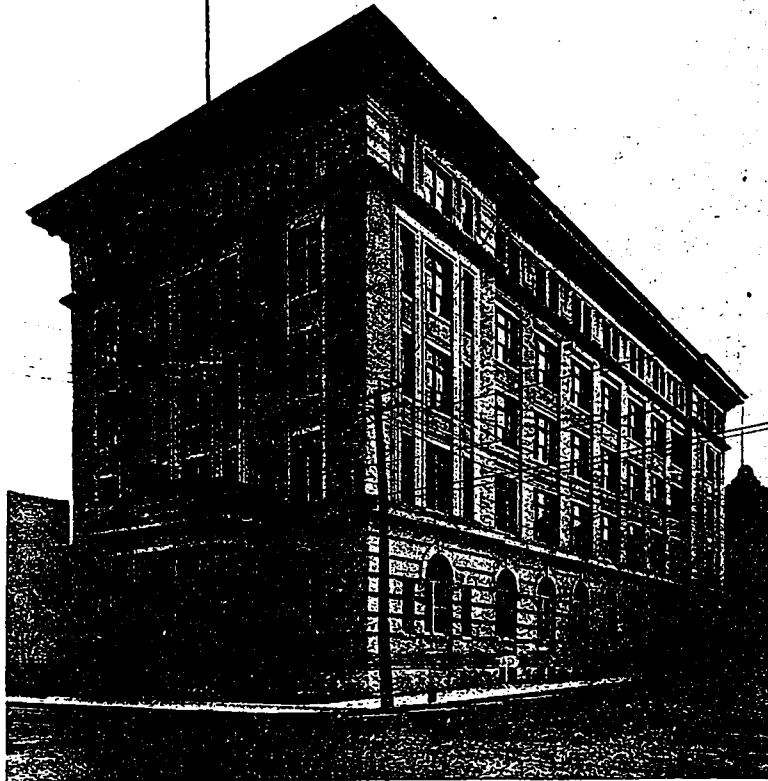
**T**HERE ARE FEW buildings within which it is not desirable to secure an even temperature and to be able to easily maintain it. When one considers the comfort and economy afforded by such a condition, it is quite obvious that good insulation is essentially an important part of every well constructed building.

It is well known that the warmer a house is in the winter the easier it is to keep cool in summer. There is

and cold, and greatly lessen the transmission of sound, but also prevents moisture from wet weather and dampness, occasioned by the heat within striking against the frozen outside surface, from permeating the walls.

However, the right quality of paper and roofing is at all times a prime factor in bringing about this condition, and as to expense, is but a trifle in the total cost of a building. When these materials are carefully selected, and due study is given to the plan of construction and the materials to be used, the results are certain. It means a protection to the building, comfort and economy for the occupants, and a normal temperature at all times.

Prominent among roofings and building papers known for their dependable quality, are the "Black Diamond" brand of felt—made also in two and three ply ready roof-



CANADIAN GENERAL ELECTRIC COMPANY'S BUILDING, CORNER OF KING AND SIMCOE STREETS, TORONTO. DARLING AND PEARSON, ARCHITECTS.

The concrete floors and fireproofing of this building were reinforced with  
**"Steelcrete"**

## EXPANDED METAL

which is adapted to any form of reinforced Concrete work.

Its use insures a strong and durable result and the facility with which it can be handled reduces all construction costs to a minimum. The continuous mechanical bond afforded in all directions provides for the true type of monolithic structure with every unit of mesh carrying a portion of the load.

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**EXPANDED METAL & FIREPROOFING CO., Limited**

100 KING STREET WEST

TORONTO

ings—the "Cyclone" fibre and "Joliette" sheathing, tarred and dry. All of these brands are manufactured and guaranteed by Alex. McArthur & Company, Limited, 85 McGill street, Montreal. Perhaps the best proof as to their merits, is the fact that they have been used for the past twenty-seven years, and to-day are being specified extensively throughout Canada. Architects and builders will find this firm's products of a uniform and durable character, and they will do well to compare their qualities with other materials of a similar nature in specifying roofing and sheathing papers.

## A CONCRETE BLOCK DWELLING.

THE ARTISTIC possibilities of concrete blocks in economic construction of residential structures, is well exemplified in the accompanying illustration. This is one of the many attractive homes of this material which has been erected in Ontario within the past few years, and whose character of construction is seemingly becoming decidedly more popular. It is built entirely of concrete blocks and with its concrete columns and slate roof, results in not only a most satisfactory and substantial structure, but one that is strongly characterized from a standpoint of design. When the cost of this dwelling, which is approximately \$2,400, is taken into consideration, the advantages of concrete blocks for moderate-priced homes is apparent.

In this particular building, the blocks in the foundation are 10 inches thick, while those of the first and second storey are 9 inches and 8 inches respectively.

These are bonded so as to have a two and one-half-inch core opening throughout, thus insuring a dry and even temperature on the interior.

All of the blocks were made on the London Face-Down Adjustable Concrete Block Machine, manufactured by the London Concrete Machinery Company, of London, Ont.

It may be of interest to our readers, who are contemplating attending the convention of the Canadian Cement and Concrete Association to be held at Toronto in the early part of March, to learn that this company is to be one of the Canadian exhibitors, a fact which will give



A \$2,400 RESIDENCE. ALL THE BLOCKS USED WERE MADE ON THE CONCRETE BLOCK MACHINE MANUFACTURED BY THE LONDON CONCRETE MACHINERY COMPANY, LONDON, ONT.

the architects, contractors and public an opportunity of acquainting themselves with the splendid quality of blocks this firm's machine manufactures.

Two good examples in church work of block manufactured by the company's machine, are to be seen in the Hyatt Avenue Methodist Church, London, and the Salem Church, just outside the city, the latter structure having just been completed.

## REMOVAL NOTICE.

BAKER AND JORDAHL, engineers and contractors, Toronto, have removed their offices from the Manning Chambers to the Confederation Life Building.

## RADIATOR VALVES ETC.

IN SPECIFYING valves for any purpose whatsoever, architects will find an inestimable medium of reference in the new revised catalogue of the Kerr Engine Company, Limited, of Walkerville, Ont. The company has within the past few years made a number of important improvements to their valves, and have also added several new styles with which they would like to have the architect familiarize himself.

The many excellent features of this company's valves have obtained for them universal recognition throughout Canada. In design and construction, in materials used and workmanship displayed, they are the very best products of their kind procurable.

In this catalogue, which is illustrated throughout, will be found those valves generally called for, together with descriptive matter and price lists. Of especial interest to architects are the valves for heating work (both hot water and steam) and valve equipment for stand-pipes, sprinklers and fire service systems in factories, warehouses and large buildings. All these valves are tested and guaranteed and are representative of the very best quality of materials and workmanship.

The company's radiator valves are modern in design, perfectly fitted and polished and mounted with the best quality of wood hand wheels. They are handsome in appearance as well as durable, and both the brass disc and composition disc valves have extra full opening, insuring full circulation.

The company were the first to introduce in Canada the quick-opening radiator valve, which it is claimed, is the best valve for hot water on the market today. The valve opens or closes with a quarter of a turn, and its construction is such that there is no obstruction, the full area of the pipe being maintained. A special advantage of this valve is that it can be packed while water is in system, and being simple in construction there is nothing to get out of order.

The Kerr Engine Company also make special valves for special purposes, and will quote prices on application.

A copy of the company's catalogue will be sent to any address upon request.

**FIRST ANNUAL**  
**CEMENT AND CONCRETE**  
**EXHIBITION**

TO BE CONDUCTED BY

**THE CANADIAN CEMENT**  
 AND  
**CONCRETE ASSOCIATION**

**AT THE ST. LAWRENCE ARENA**  
**TORONTO---MARCH 1st to 6th, 1909**

**IN CONNECTION WITH THEIR**  
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This will be the first Exhibition of its kind ever held in Canada and it will give the various interests connected in every branch of the Cement Industry an opportunity to exhibit their products to the thousands of Contractors, Architects and Engineers from every part of Canada, who will be in attendance.

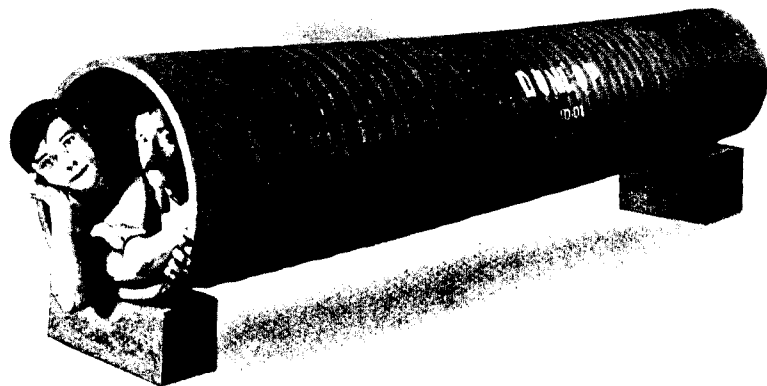
Space will be available for *MANUFACTURERS* of *AND DEALERS* in *CEMENT*, *CEMENT PRODUCTS* of every description, *CEMENT* and *CONCRETE MACHINERY*, *REINFORCING MATERIALS*, *COLORING MIXTURES*, *WATER-PROOFING COMPOUNDS*, *FIRE-PROOFING SYSTEMS*, *AGGREGATES*, and anything connected directly or indirectly with the *CEMENT INDUSTRY*.

**APPLY EARLY AND SECURE**  
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Plans of building, with rules, regulations and application forms  
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**R. M. Jaffray,**  
 Manager Exhibition,  
 TORONTO, CAN.

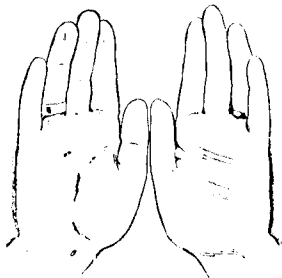
1 Wellington St. West



## It takes a big rubber works to do a job like this.

The above photo' represents a length of suction hose for a steam dredge, made at the Dunlop factory. It is not a special exhibit----merely one of a number of big jobs turned out in the course of a month's operations. The smallest piece of suction hose made during the month was an inch and a half inside diameter.

*The Dunlop Factory is the Best  
Equipped Rubber Works in Canada*



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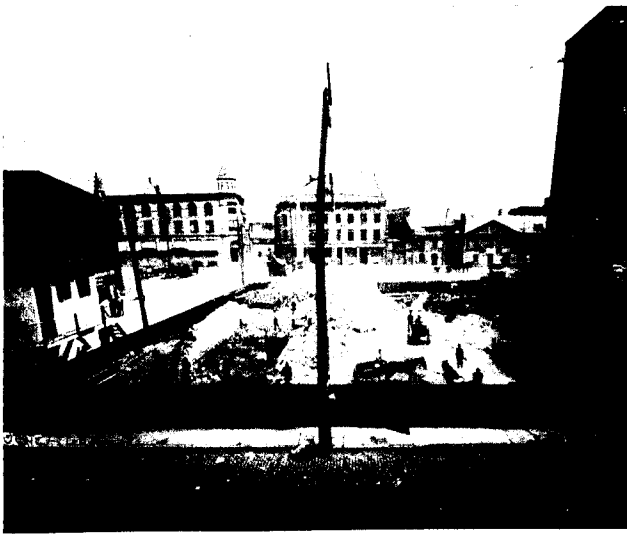
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We also built the largest chimney in the world, at Great Falls, Montana, 506 feet and 50 feet inside diameter at the top.

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## SAVES TIME, MONEY AND FIRE LOSS



View Taken June 1st, 1908, when Excavation was Completed

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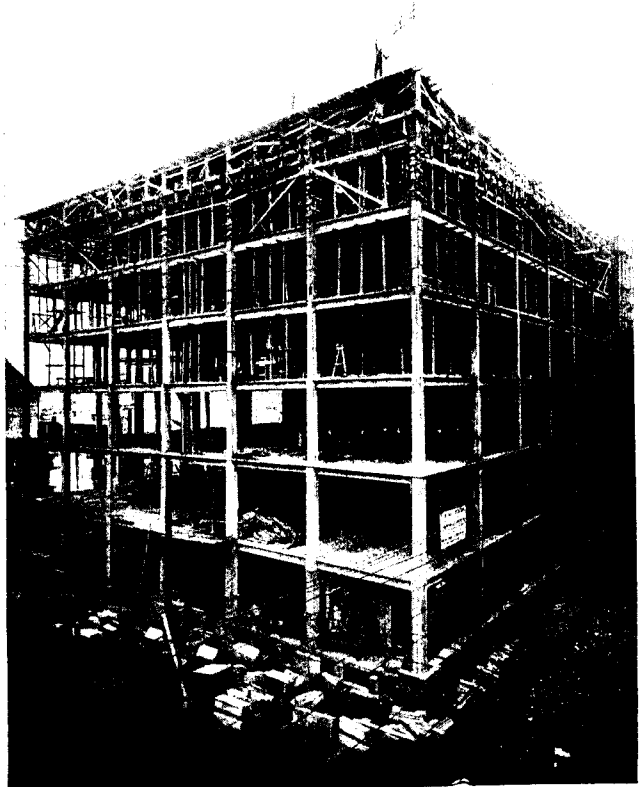
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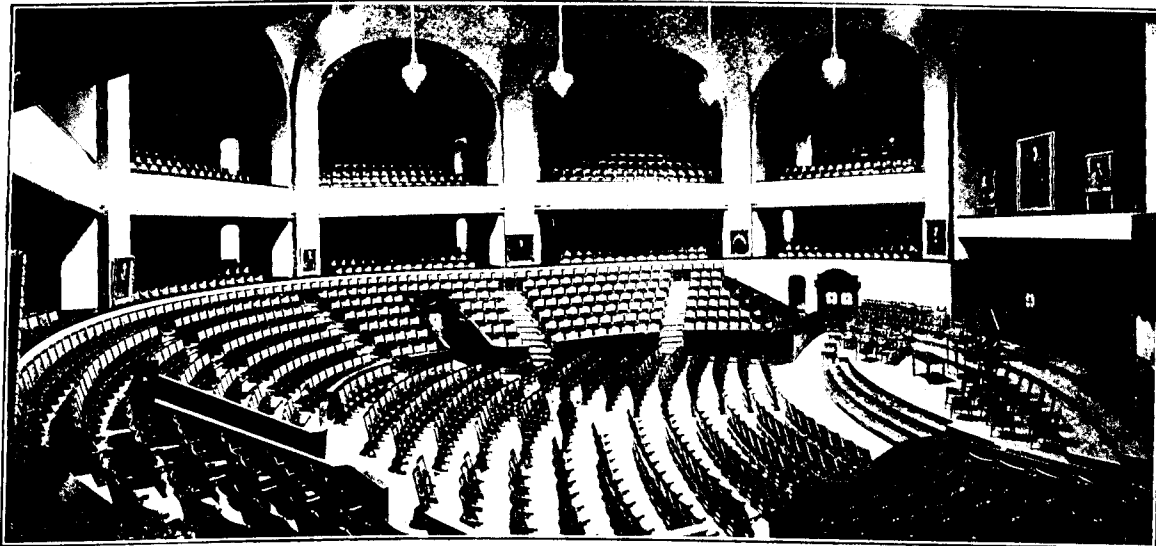
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ESTIMATES CHEERFULLY SUBMITTED



View Taken Two and One-Half Months Later



Interior of Convocation Hall, University of Toronto  
Radiation Installed by **TAYLOR-FORBES COMPANY, Limited.**

“Sovereign” Boilers and Radiators constitute the best available heating system for dwellings and public buildings. The system is being installed in the majority of new important buildings in the larger cities in Canada. The “Sovereign” Hot Water Boiler is specified for dwellings and the “Canadian Steam Boiler” for public buildings. “The Western Jr.” Low Pressure Steam Boiler is recommended for dwellings where soft or steam coal is used.

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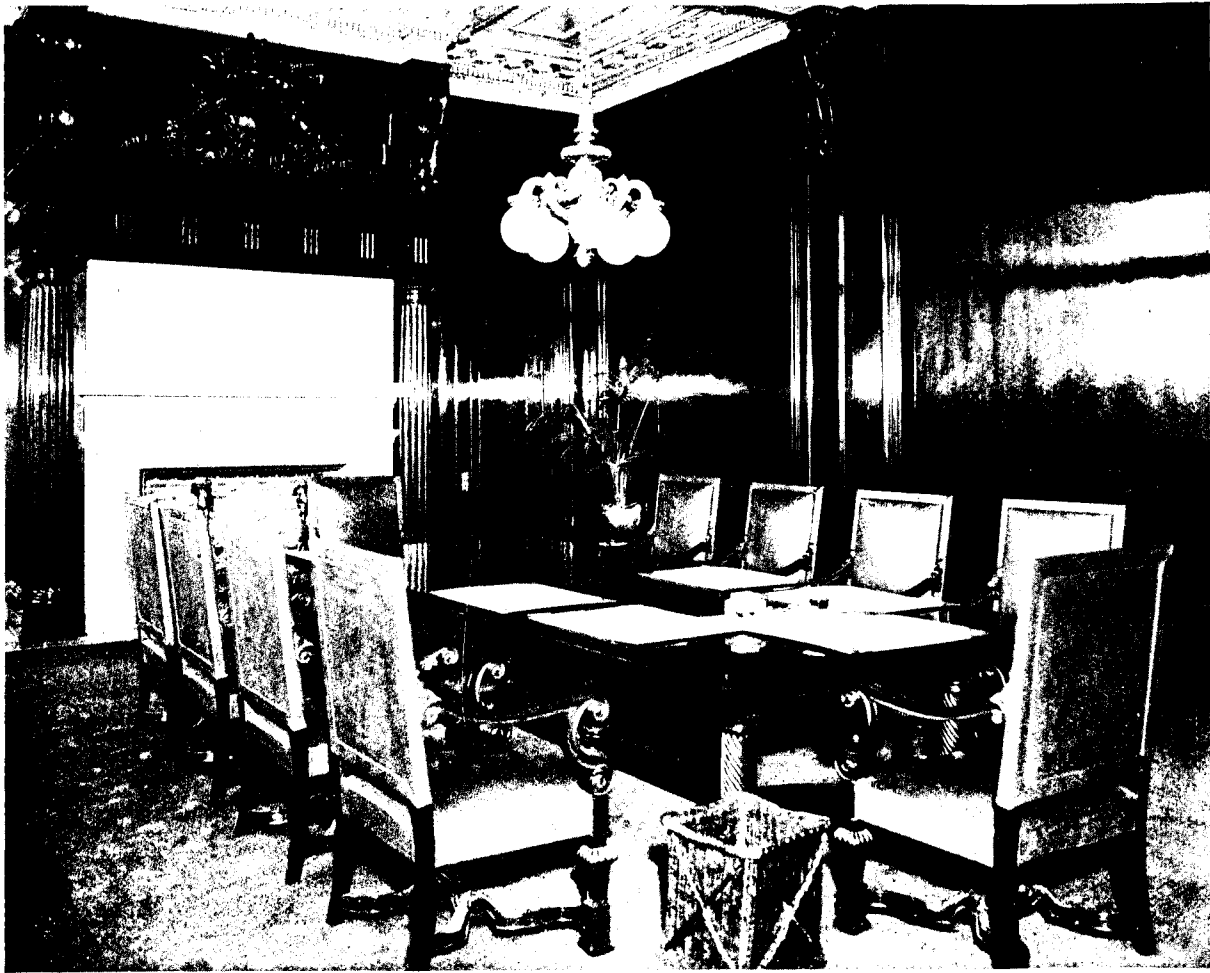
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## One of the Handsomest Examples of Interior Woodwork Ever Executed in Canada



BOARD ROOM, NEW ROYAL BANK BUILDING, MONTREAL.—H. C. Stone, Architect.

### Finished in East India Mahogany

The interior woodwork in this building was executed by us. The paneling in the Board Room, as shown in the above illustration, (each panel being 9 feet wide by 13 feet high) was executed in East India Mahogany.

The furniture in the entire building is of special design, and, with the exception of the chairs in the Board Room, was manufactured and installed by us.

The counter, desk, and movable furniture in the Banking rooms, as well as the desks, cabinets, tables, etc., throughout, are all made of selected mahogany, and were manufactured at our factory.

**We specialize in bank, office, hotel, drug and jewelry store and courthouse fittings, and are prepared to figure on work in any part of Canada, from coast to coast.**

*Send us your specifications and get our figures.*

**Canadian Office and School Furniture Co., Limited**  
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Yes, we have been talking, but results are what count. A glance over this partial list of substantial Buildings which we have recently supplied ought to convince you that we are MAKING GOOD and that the demand for "BEAVER BRAND" Flooring is by no means a local one.

In Toronto and other Ontario Cities and Towns we have not only supplied a very large per cent. of the public buildings but thousands of private dwellings as well.

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Apartment House, 472 Grosvenor St.  
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Lyman & Son Warehouse.  
Apartment House, Park Ave.  
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New Eastern Township Bank.  
New Westmount School.  
Mount Stephen Apartments.  
The Metcalf Apartments.  
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Alliance Bldg.  
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Supreme Court, Parliament Bldgs.  
Royal Mint.  
Roller Skating Rink.

## BELLEVILLE, ONT.

St. Michael's Parish School.  
Armories.  
Roller Rink.  
Quinte Hotel.

## KINGSTON, ONT.

Queen's University.  
New Military Bldgs.  
Roller Rink.  
New Bonded Warehouse.  
New Birch Block.  
Canadian Locomotive Works.

## BROCKVILLE, ONT.

Collegiate Institute.  
Roller Rink.

## CORNWALL, ONT.

Roller Rink.

## PETERBORO, ONT.

Collegiate Institute.  
Armories.  
King Edward Hotel.  
Canadian General Electric Co.  
Southern Hotel.  
Normal School.

## PICTON, ONT.

Globe Hotel.  
Van Dusen Block.

## CALGARY, ALTA.

Holy Cross Hospital.  
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Sherman's Auditorium.  
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High School.  
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Norwood School.

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3rd St. Separate School.  
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Land Titles Bldg.  
Methodist Church.  
Y. M. C. A. Bldg.  
City Hall.

## BRANDON, MAN.

Y. M. C. A. Bldg.  
Borbridge Bldg.  
Brandon Asylum.

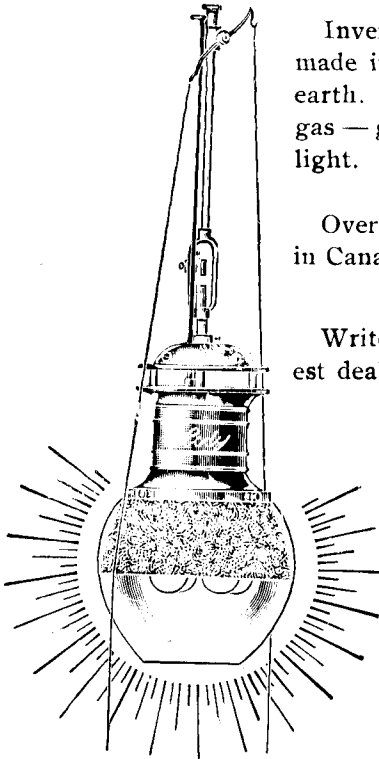
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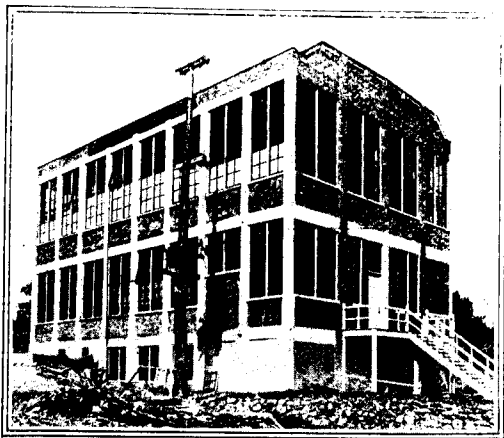
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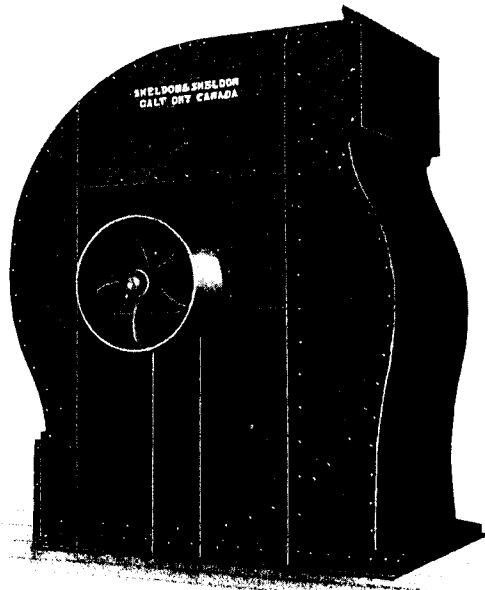
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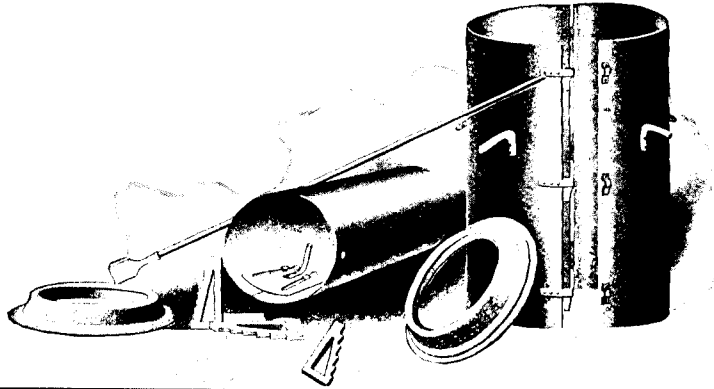


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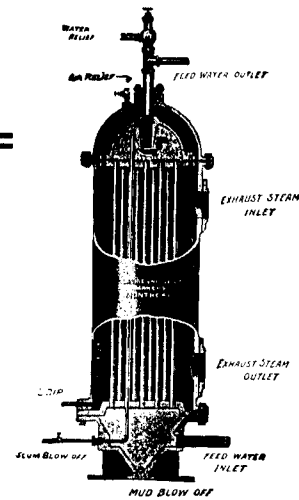
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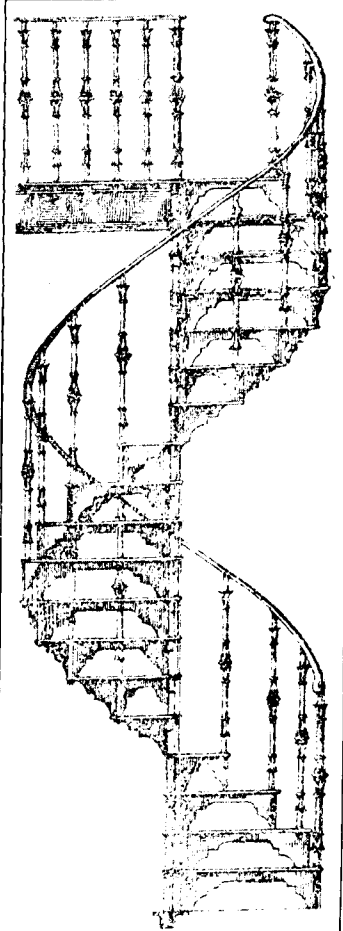
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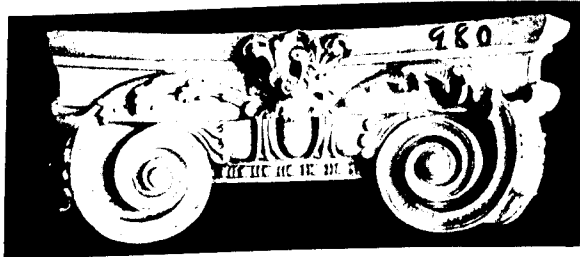
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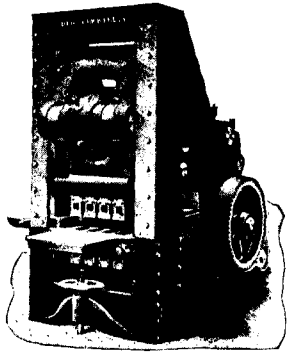
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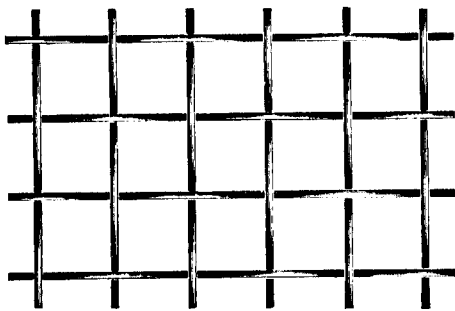
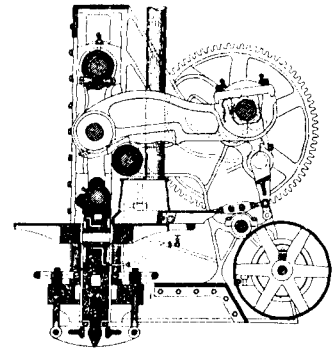
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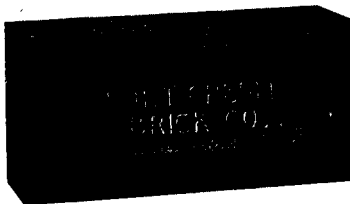
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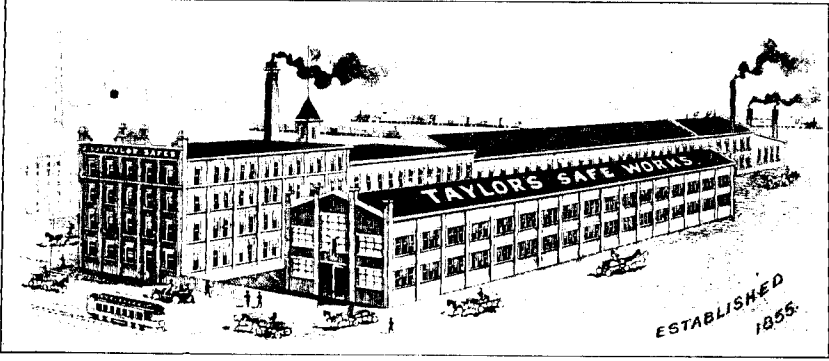
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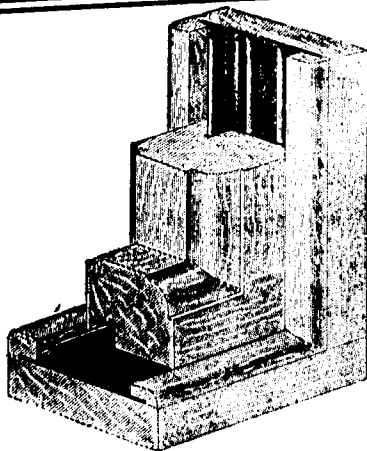
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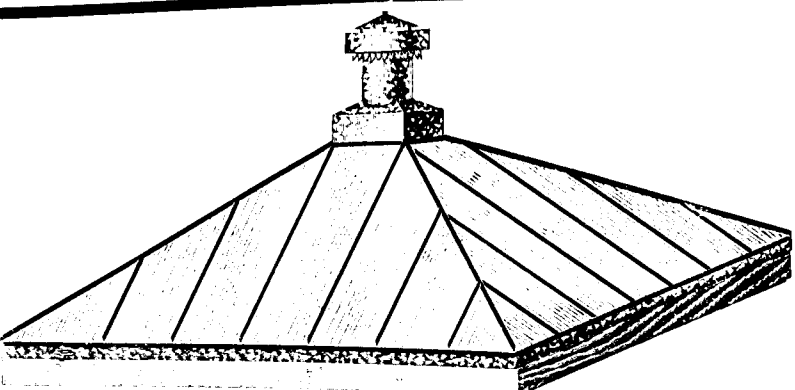
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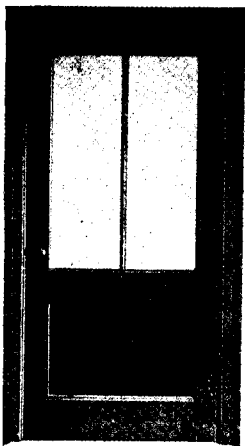
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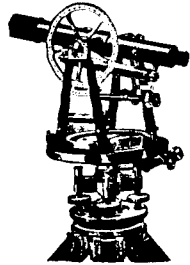
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## CEMENT BLOCK MACHINERY.

Canadian Concrete Machinery Co., Limited, 510 Board of Trade Building, Toronto.  
Canadian Fairbanks Co., Montreal, Toronto, Winnipeg and Vancouver.  
Ideal Concrete Machinery Co., Limited, 221 King St., London, Ont.  
Wettlaufer Bros., Stratford and Mitchell, Ont.

## CEMENT BRICK MACHINERY.

Wettlaufer Bros., Stratford and Mitchell, Ont.

## CEMENT FILLER.

E. F. Dartnell, 157 St. James St., Montreal.

## CEMENT FLOOR PAINTS.

E. F. Dartnell, 157 St. James St., Montreal.

## CEMENT TILE MACHINERY.

Wettlaufer Bros., Stratford and Mitchell, Ont.

## CHIMNEY CONSTRUCTION.

H. Gearing, 15 Toronto St., Toronto.

## COMPO.

W. J. Hynes, 16 Gould St. Toronto.

## CONCRETE CONSTRUCTION (Reinforced).

Expanded Metal & Fire Proofing Co., 100 King St. W., Toronto.  
Metcalf Engineering, Limited, 80 St. Francois Xavier St., Montreal.  
Pitt & Robinson, Manning Chambers, Toronto.  
Trussed Concrete Steel Co., 23 Jordan St., Toronto.

## CONCRETE MIXERS.

Canadian Fairbanks Co., Limited, Montreal, Toronto, Winnipeg and Vancouver.  
E. F. Dartnell, 157 St. James St., Montreal.  
Wettlaufer Bros., Stratford and Mitchell, Ont.

## COLUMNS.

Batts, Limited, 50 Pacific Ave., Toronto Junction.

## CONCRETE STEEL.

Dennis Wire & Iron Co., London, Ont.  
B. Greening Wire Co., Limited, Hamilton and Montreal.  
Expanded Metal & Fireproofing Co., 100 King St. W., Toronto.  
Pitt & Robinson, Manning Chambers, Toronto.  
Trussed Concrete Steel Co., 23 Jordan St., Toronto.

## CONDUITS.

Conduits Co., Limited, Toronto and Montreal.  
Drummond McCall & Co., Montreal and Toronto.

## CONTRACTORS (General).

Metcalf Engineering, Limited, 80 St. Francois Xavier St., Montreal.  
Pitt & Robinson, Manning Chambers, Toronto.

## CONTRACTORS' MACHINERY.

Canadian Concrete Machinery Co., Limited, 510 Board of Trade Building, Toronto.  
Canadian Fairbanks Co., Limited, Montreal, Toronto, Winnipeg and Vancouver.  
Drummond McCall & Co., Montreal.

## CONTRACTORS' SUPPLIES.

Canadian Fairbanks Co., Limited, Montreal, Toronto, Winnipeg and Vancouver.  
Eadie-Douglas Co., 22 St. John St., Montreal.  
Drummond McCall & Co., Montreal and Toronto.  
E. F. Dartnell, 157 St. James St., Montreal.  
David McGill, Merchants Bank Chambers, Montreal.

## CORK BOARD.

Armstrong Cork Co., 521 Coristine Building, Montreal.

## CUT STONE CONTRACTORS.

Stanstead Quarrie Co., Stanstead Junction, Quebec.  
Roman Stone Co., Limited, 100 Marlborough Ave., Toronto.

## DECORATORS.

Deecker & Carlyle, 26 Yonge Street Arcade, Toronto.

## DRAWING MATERIALS.

Eugene Dietzgen Co., Limited, 10 Shuter St., Toronto.

## DOORS.

L. A. De Laplante, East Toronto.

## DRILLS (Brick and Stone).

Canadian Fairbanks Co., Montreal, Toronto, Winnipeg and Vancouver.  
Drummond McCall, & Co., Montreal.

## DRYING APPLIANCES.

Sheldons, Limited, Galt, Ont.

## DUMB WAITERS.

Otis-Fensom Elevator Co., Limited, Traders Bank Building, Toronto.

## ELECTRO-PLATING.

Somerville, Limited, 59 Richmond St. E., Toronto.

## ELEVATORS (Passenger and Freight).

Otis-Fensom Elevator Co., Limited, Traders Bank Building, Toronto.

## ENGINEERS' SUPPLIES.

Canadian Fairbanks Co., Montreal, Toronto, St. John, Winnipeg, Calgary, Vancouver.  
Eugene Dietzgen Co., Limited, 10 Shuter St., Toronto.  
Somerville, Limited, 59 Richmond St. E., Toronto.  
Kerr Engine Co., Walkerville.

## ELECTRIC WIRE AND CABLES.

B. Greening Wire Co., Limited, Hamilton and Montreal.  
James Robertson Co., Limited, Toronto and Montreal.

## EXHAUST FANS.

Sheldons, Limited, Galt, Ont.

# CONSTRUCTION

## EXPANDED METAL.

Expanded Metal and Fireproofing Co., 100 King St. W., Toronto.  
Galt Art Metal Co., Galt, Ont.  
Gaudry & Co., L. H., Coristine Building, Montreal; 76 Peter Street, Quebec; Roy Building, Halifax.  
Metal Shingle & Siding Co., Preston, Ont.  
Trussed Concrete Steel Co., 23 Jordan St., Toronto.

## FIRE BRICK.

E. F. Dartnell, 157 St. James St., Montreal.  
David McGill, Merchants Bank Chambers, Montreal.

## FIREPROOFING.

Don Valley Brick Works, 36 Toronto St., Toronto.  
E. F. Dartnell, 157 St. James St., Montreal.  
Eadie-Douglas Co., 22 St. John St., Montreal.  
Expanded Metal and Fireproofing Co., 100 King St. W., Toronto.  
David McGill, Merchants Bank Chambers, Montreal.  
The Milton Pressed Brick Co., Milton, Ont.; 75 Yonge St., Toronto; 204 St. James St., Montreal.  
Pitt & Robinson, Manning Chambers, Toronto.  
Port Credit Brick Co., 8 West King St., Toronto.  
Trussed Concrete Steel Co., 23 Jordan St., Toronto.

## FIRE ESCAPES.

Gaudry & Co., L. H., Coristine Building, Montreal; 76 Peter Street, Quebec; Roy Building, Halifax.  
Geo. B. Meadows, Co., Limited, 479 Wellington St. W., Toronto.  
Brooks-Sanford Co., Limited, Bay St., Toronto.

## FIRE-PLACE GOODS.

Canada Plate & Window Glass Co., Limited, 49 Richmond St. East, Toronto.  
John Kay Co., Toronto.

## FIREPROOF STEEL DOORS.

A. B. Ormsby, Limited, Queen and George Sts., Toronto, and 677 Notre Dame Ave. West, Winnipeg.  
Gaudry & Co., L. H., Coristine Building, Montreal; 76 Peter Street, Quebec; Roy Building, Halifax.

## FIREPROOF WINDOWS.

Galt Art Metal Co., Galt, Ont.  
Metal Shingle & Siding Co., Preston, Ont.  
A. B. Ormsby, Limited, Queen and George Sts., Toronto, and 677 Notre Dame Ave. West, Winnipeg.

## FLOOR PLATES.

Drummond McCall & Co., Montreal, Toronto.

## FLOORING.

Eadie-Douglas Co., 22 St. John St., Montreal.  
The Seamen Kent Co., Limited, 123 Bay St., Toronto.

## FURNACES AND RANGES.

Cluff Bros., 21-27 Lombard St., Toronto.  
Warden King, Limited, Montreal.  
Dominion Radiator Co., Limited, Toronto, Montreal, Winnipeg.  
Taylor-Forbes Co., Limited, Guelph, Ont.

## FURNITURE.

T. Eaton Co., Toronto.  
Canadian Office & School Furniture Co., Preston, Ont.  
Globe Furniture Co., Walkerville  
John Kay Co., Toronto.

## GALVANIZED IRON WORKS.

Galt Art Metal Co., Galt, Ont.  
A. B. Ormsby, Limited, Queen and George Sts., Toronto, and 677 Notre Dame Ave. West, Winnipeg.  
Metal Shingle & Siding Co., Preston, Ont.

## GAS AND GASOLINE ENGINES.

Canadian Fairbanks Co., Toronto, Montreal, Winnipeg, Vancouver.

## HEATING APPARATUS.

Cluff Bros., 21-27 Lombard St., Toronto.  
Warden King, Limited, Montreal.

Dominion Radiator Co., Limited, Toronto, Montreal, Winnipeg.

Taylor-Forbes Co., Limited, Guelph Ont.

Sheldons, Limited, Galt, Ont.

## HYDRANTS.

Kerr Engine Co., Walkerville.

## INSULATION.

Armstrong Cork Co., 521 Coristine Building, Montreal.

## INTERIOR WOODWORK.

Batts, Limited, 50 Pacific Ave., Toronto Junction.

## IRON STAIRS.

Canadian Ornamental Iron Co., 35 Yonge Street Arcade, Toronto.  
Gaudry & Co., L. H., Coristine Building, Montreal; 76 Peter Street, Quebec; Roy Building, Halifax.  
Geo. B. Meadows, Co., Limited, 479 Wellington St. West, Toronto.

## IRON SUPPLIES.

Kerr Engine Co., Walkerville.

## JOIST HANGERS.

David McGill, Merchants Bank Chambers, Montreal.

## LATH (Metal).

Concrete Engineering and Construction Co., 123 Bay St., Toronto.  
Expanded Metal & Fireproofing Co., 100 King St. W., Toronto.  
Galt Art Metal Co., Galt, Ont.  
Gaudry & Co., L. H., Coristine Building, Montreal; 76 Peter Street, Quebec; Roy Building, Halifax.  
B. Greening Wire Co., Limited, Hamilton and Montreal.  
Metal Shingle & Siding Co., Preston, Ont.

Trussed Concrete Steel Co., 23 Jordan St., Toronto.

## LEADED GLASS.

David McGill, Merchants Bank Chambers, Montreal.

## LIGHTING AND POWER PLANTS.

Canadian Fairbanks Co., Montreal, Toronto, St. John, Winnipeg, Calgary, Vancouver.

## LOCOMOTIVE SUPPLIES.

Canadian Fairbanks Co., Montreal, Toronto, St. John, Winnipeg, Calgary, Vancouver.  
Somerville, Limited, 59 Richmond St. E., Toronto.

## MANTELS.

Canada Plate & Window Glass Co., Limited, 49 Richmond St. E., Toronto.  
Hoidge Marble Co., 100 King St. W., Toronto.  
David McGill, Merchants Bank Chambers, Montreal.

## MARBLE.

E. F. Dartnell, 157 St. James St., Montreal.  
Hoidge Marble Co., Toronto.  
Missisquoi Marble Co., Montreal.

## MARINE SUPPLIES.

Canadian Fairbanks Co., Montreal, Toronto, St. John, Winnipeg, Calgary, Vancouver.  
Somerville, Limited, 59 Richmond St. E., Toronto.

## METAL SHINGLES.

Galt Art Metal Co., Galt, Ont.

## METAL WALLS AND CEILINGS.

Galt Art Metal Co., Galt, Ont.  
Metal Shingle & Siding Co., Preston, Ont.

A. B. Ormsby, Limited, Queen and George Sts., Toronto, and 677 Notre Dame Ave. West, Winnipeg.

## METAL WEATHER STRIPS.

Chamberlain Metal Weather Strip Co., 319 Yonge St., Toronto, and Kingsville, Ont.

## MUNICIPAL SUPPLIES.

Canadian Fairbanks Co.

## ORNAMENTAL IRON WORK.

Canadian Ornamental Iron Co., 35 Yonge Street Arcade Toronto.  
Gaudry & Co., L. H., Coristine Building, Montreal; 76 Peter Street, Quebec; Roy Building, Halifax.  
Geo. B. Meadows Co., Limited, 479 Wellington St. West, Toronto.

## PACKING.

Dunlop Tire & Rubber Co., Limited, Head Office, Booth Ave.; City Office, 13 Temperance St., Toronto.

Gutta Percha & Rubber Mfg. Co., Limited, 47 Yonge St., Toronto.

## PIPE.

Canadian Fairbanks Co., Montreal, Toronto, St. John, Winnipeg, Calgary, Vancouver.

Drummond McCall & Co., Montreal, Toronto.

Gaudry & Co., L. H., Coristine Building, Montreal; 76 Peter Street, Quebec; Roy Building, Halifax.

## PLATE AND WINDOW GLASS.

Canada Plate & Window Glass Co., Limited, 49 Richmond St. E., Toronto.  
Hobbs Mfg. Co., London, Ont.

## PLUMBING FIXTURES.

Somerville Limited, 59 Richmond St. E., Toronto.  
Standard Ideal Co., Limited, Port Hope, Ont.

## PLUMBERS' BRASS GOODS.

Somerville, Limited, 59 Richmond St. E., Toronto.

## PNEUMATIC TOOLS.

Canadian Fairbanks Co., Montreal, Toronto, Winnipeg and Vancouver.

## PORCELAIN ENAMEL BATHS.

Somerville, Limited, 59 Richmond St. E., Toronto.  
Standard Ideal Co., Limited, Port Hope, Ontario.

## POWER PLANTS.

Canadian Fairbanks Co., Montreal, Toronto, Winnipeg and Vancouver.

## PUMPING MACHINERY.

Canadian Fairbanks Co., Montreal, Toronto, Winnipeg and Vancouver.

## RADIATORS.

Cluff Bros., 21-27 Lombard St.  
King Radiator Co., St. Helens Ave., Toronto.

Dominion Radiator Co., Limited, Toronto, Montreal, Winnipeg.  
Warden King, Limited, Montreal.  
Taylor-Forbes Co., Limited, Guelph, Ont.

## RADIATOR VALVES.

Kerr Engine Co., Walkerville.

## RAILWAY SUPPLIES.

Canadian Fairbanks Co., Montreal, Toronto, Winnipeg and Vancouver.  
Drummond McCall & Co., Montreal.

## REINFORCED CONCRETE.

David McGill, Merchants Bank Chambers, Montreal.  
Expanded Metal & Fireproofing Co., 100 King St. W., Toronto.  
Pitt & Robinson, Manning Chambers, Toronto.

Trussed Concrete Steel Co., Limited, 23 Jordan St., Toronto.

## REFRIGERATING MACHINERY.

Linde British Refrigeration Co., Limited, Coristine Building, Montreal.

## REFRIGERATOR INSULATION.

Armstrong Cork Co., 521 Coristine Building, Montreal.

## RELIEF DECORATION.

W. J. Hynes, 16 Gould St., Toronto.

## ROOFING PAPER.

F. W. Bird & Son, Hamilton.  
Canadian Fairbanks Co., Montreal, Toronto, St. John, Winnipeg, Calgary, Vancouver.

Lockerby & McCoomb, 65 Shannon St., Montreal.

The Paterson Manufacturing Co., Limited, Toronto, Montreal and Winnipeg.

## ROOFING TILE.

David McGill, Merchants Bank Chambers, Montreal.

## RUBBER TILING.

Dunlop Tire & Rubber Co. Head Office, Booth Ave.; City Office, 13 Temperance St., Toronto.

Gutta Percha & Rubber Mfg. Co., Limited, 47 Yonge St., Toronto.

## SANITARY PLUMBING APPLIANCES.

Somerville Limited, 59 Richmond St. E., Toronto.  
Standard Ideal Co., Limited, Port Hope, Ont.

## SHEET METAL WORKERS.

Galt Art Metal Co., Galt, Ont.  
Metal Shingle & Siding Co., Preston, Ont.

A. B. Ormsby, Limited, Queen and George Sts., Toronto, and 677 Notre Dame Ave. West, Winnipeg.

This Directory will be rearranged before the issue of the January number. Advertisers who have not already done so will kindly send us in the list of headings they desire to appear under.

**SIDEWALK LIFTS.**.....  
Otis-Fensom Elevator Co., Limited,  
Traders Bank Building, Toronto.

**SPRINKLER SYSTEMS.**  
General Fire Equipment Co., 72  
Queen St. East, Toronto.

**STAFF AND STUCCO WORK.**  
W. J. Hynes, 16 Gould St. Toronto.

**STEEL DOORS.**  
A. B. Ormsby, Limited, Queen and  
George Sts., Toronto, and 677 Notre  
Dame Ave. West, Winnipeg.

**STEAM APPLIANCES.**  
Sheldons, Limited, Galt, Ont.

**STEAM AND HOT WATER HEATING.**  
Cluff Bros., 21-27 Lombard St., To-  
ronto.  
Warden King, Limited, Montreal.  
Dominion Radiator Co., Limited, To-  
ronto.  
Taylor-Forbes Co., Limited, Guelph,  
Ont.

**STEEL CONCRETE CONSTRUCTION.**  
Expanded Metal & Fireproofing Co.,  
100 King St. W., Toronto.  
Metcalf Engineering, Limited, 80 St.  
Francis Xavier St., Montreal.  
Pitt & Robinson, Manning Chambers,  
Toronto.  
Trussed Concrete Steel Co., 23 Jor-  
dan St. Toronto.

**STEEL CASEMENTS.**  
L. H. Gaudry & Co., Limited, Coris-  
tine Building, Montreal.  
David McGill, Merchants Bank  
Chambers, Montreal.

**STRUCTURAL IRON CONTRACTORS.**  
Hamilton Bridge Co., Hamilton.  
Reid & Brown, 63 Esplanade E., To-  
ronto.

**STRUCTURAL STEEL.**  
Gaudry & Co., L. H., Coristine  
Building, Montreal; 76 Peter Street,  
Quebec; Roy Building, Halifax.  
Hamilton Bridge Co., Hamilton.

**TERRA COTTA FIREPROOFING.**  
Eadie-Douglas Co., 22 St. John St.,  
Montreal.  
Don Valley Brick Works, 36 Toronto  
St., Toronto.  
E. F. Dartnell, 157 St. James St.,  
Montreal.  
Francis Hyde & Co., 31 Wellington  
St., Montreal.  
The Milton Pressed Brick Co., Milton,  
Ont.; 75 Yonge St., Toronto; 204  
St. James St., Montreal.  
David McGill, Merchants Bank Cham-  
bers, Montreal.  
National Fireproofing Co., Traders  
Bank, Toronto.

**TILE (Floor and Wall).**  
Canada Plate & Window Glass Co.,  
Limited, 49 Richmond St., East, To-  
ronto.  
David McGill, Merchants Bank Cham-  
bers, Montreal.

**VALVES.**  
Kerr Engine Co., Walkerville.

**VENTILATORS.**  
Wm. Stewart & Co., Saturday Night  
Building, Toronto, Board of Trade,  
Montreal.  
Sheldons, Limited, Galt, Ont.

**WALL HANGINGS.**  
Deecker & Carlyle, 26 Yonge St. Ar-  
cade, Toronto.

**WATER HEATERS.**  
Canadian Fairbanks Co., Montreal,  
Toronto, St. John, Winnipeg, Calgary,  
Vancouver.  
Somerville, Limited, 59 Richmond St  
E., Toronto.  
Drummond McCall Co., Montreal, To-  
ronto.

**WATERWORKS SUPPLIES.**  
Somerville, Limited, 59 Richmond St.  
E., Toronto.  
Canadian Fairbanks Co., Montreal,  
Toronto, Winnipeg and Vancouver.  
Kerr Engine Co., Walkerville.

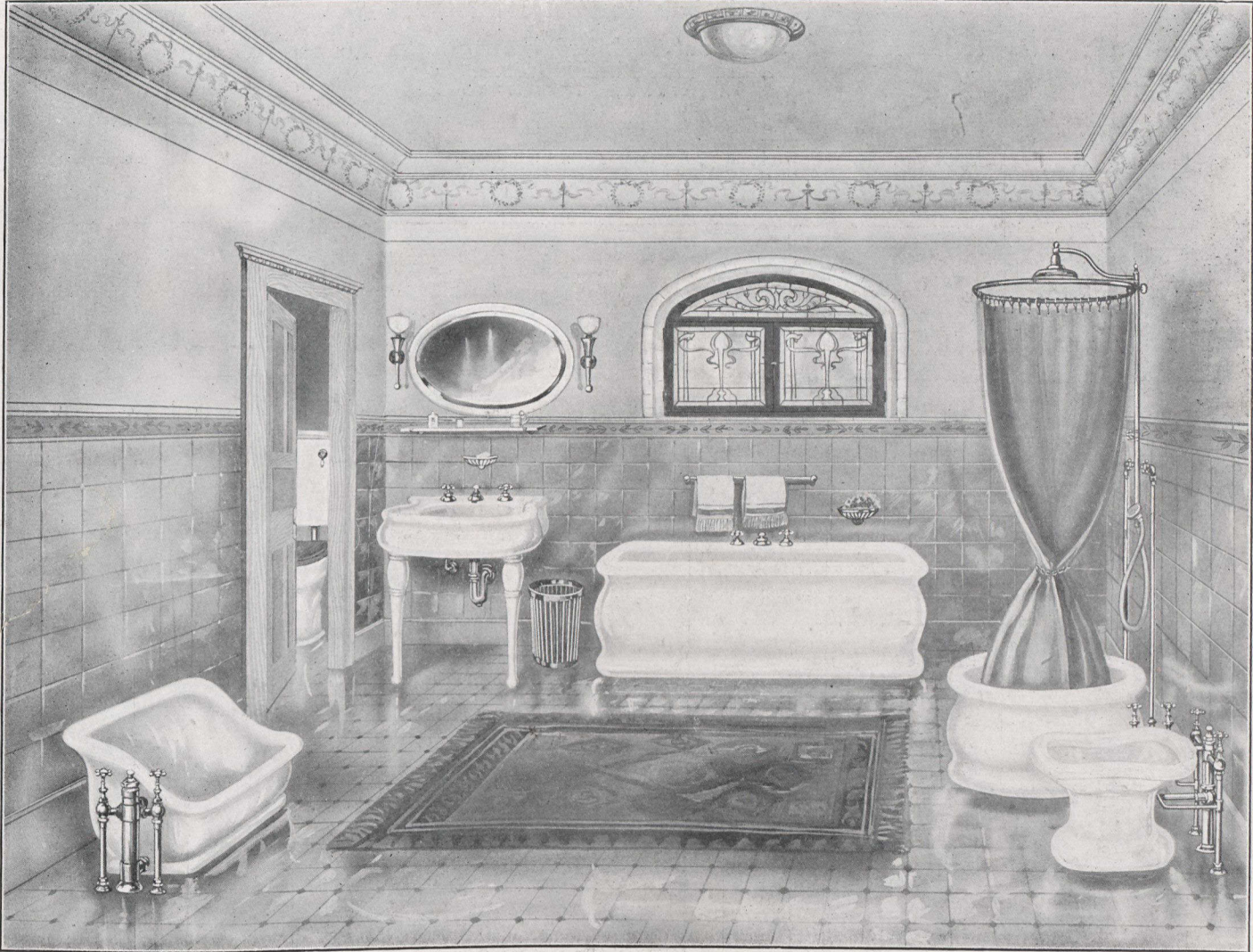
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Wm. Stewart & Co., Toronto and  
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CONSTRUCTION

# "ALEXANDRA" PORCELAIN WARE



BATH ROOM F-B

Approximate Cost of Bath, Shower, Foot Bath,  
Lavatory, Setz Bath, Bidet, Mirror and Furnishings **\$752.15**

**Standard IDEAL Company, Limited**

Head Office and Factories: **PORT HOPE, ONT.**

SALES OFFICES AND SAMPLE ROOMS:

TORONTO,  
50 Colborne Street.

MONTREAL,  
128 West Craig Street.

WINNIPEG,  
156 Lombard Street.

CONSTRUCTION

# "Metropolitan" Raised Rear Vent Syphon Jet Closet

WITH

## Somerville Flush Valve

SILENT AND POSITIVE IN ACTION

Ventilation in Private Bath Rooms Perfect. Disinfectants not required in Public Buildings.

LARGEST WATER SURFACE



Can be Operated with Low or High Tank  
504½ E, PUSH BUTTON ACTION

# SOMERVILLE LIMITED

Manufacturers of

## "GOODS OF QUALITY"

Head Office:—59 Richmond St. E. Brass Plant:—Bloor St. and St. Helen's Ave.

TORONTO

CANADA