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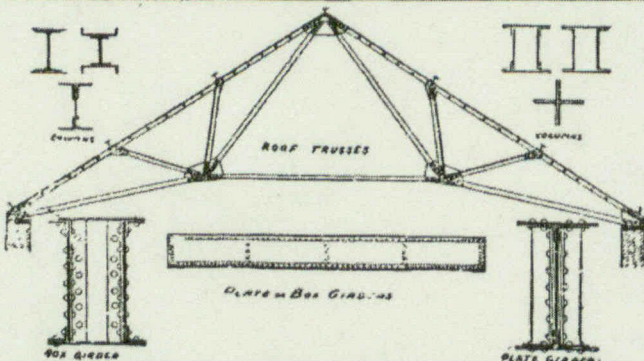
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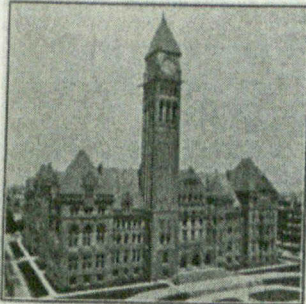
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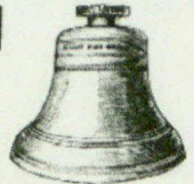
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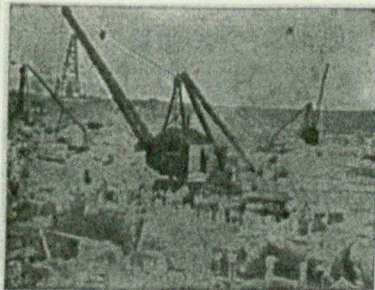
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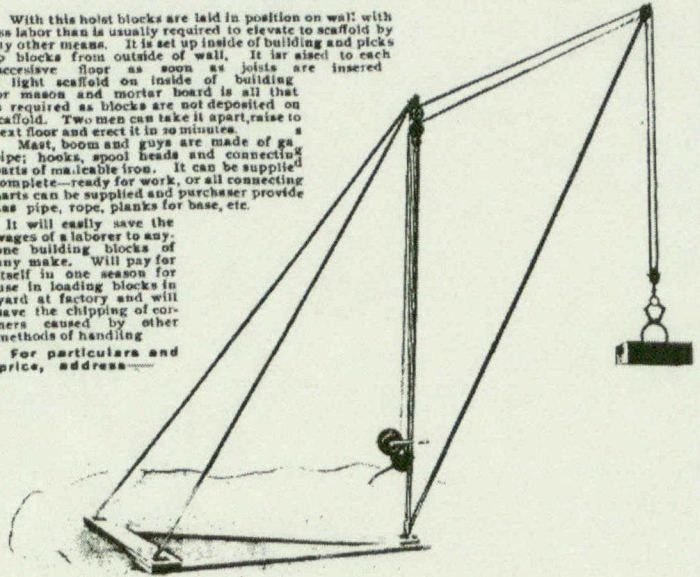
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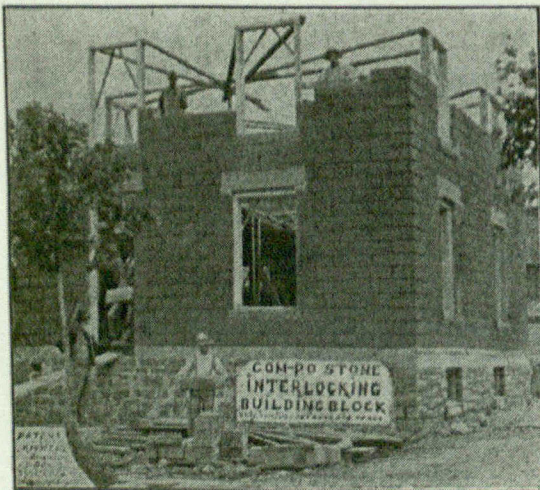
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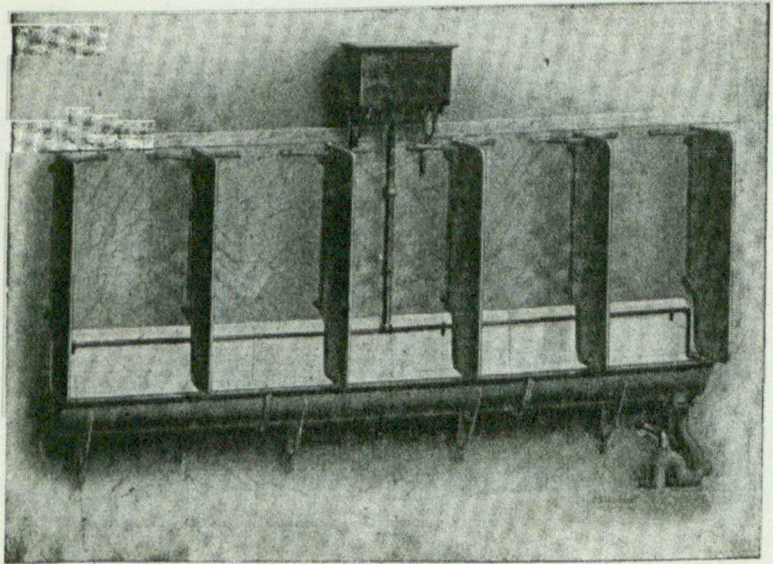
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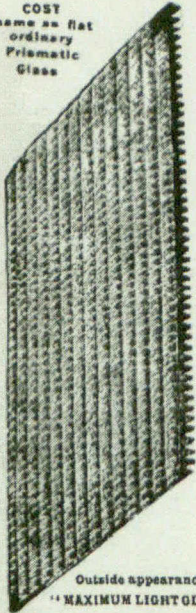
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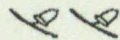
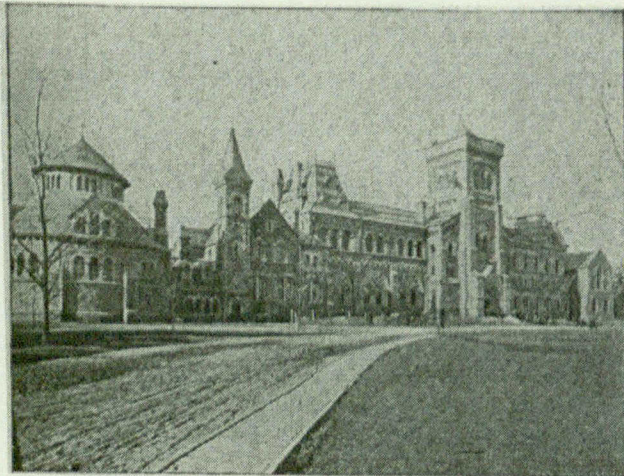
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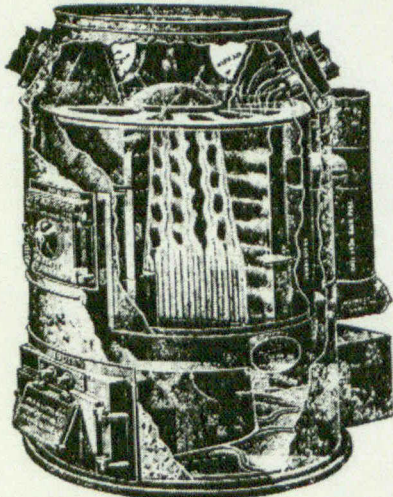


NOTES.

The Dominion Sewer Pipe Company, who erected works in Swansea, Toronto, last year, have already found it necessary to make extensions. Two stories are being added to the present building besides which a new coal and clay house has been built. These additions will give the company 60,000 square feet of drying floor space.

The Calgary Pressed Brick and Sandstone Company, Limited, is the name of a new company lately granted incorporation to carry on operations in the province of Alberta, with headquarters at Calgary. The capital stock of the company will be \$100,000. Messrs. Edward H. Grandall, George A. Sharp, of Calgary, and A. F. McLaren, of Stratford, Ont., are among the promoters.

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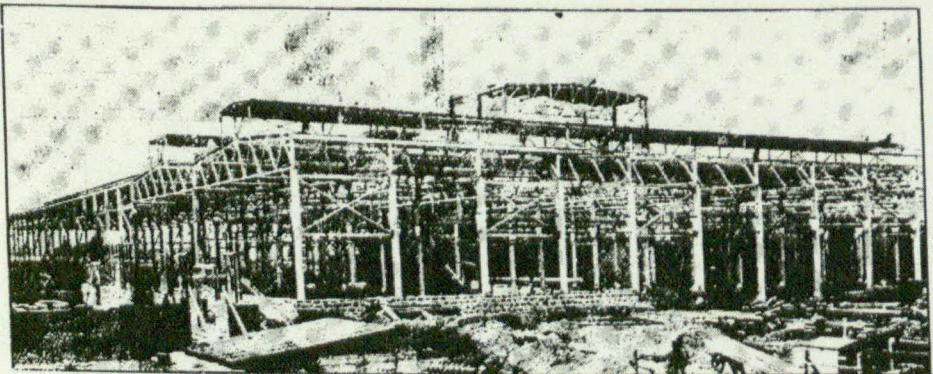
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# The Canadian Architect and Builder

C. H. MORTIMER PUBLISHING COMPANY  
W. A. LANGTON

PUBLISHERS.  
EDITOR.

OFFICES: CONFEDERATION LIFE BUILDING, TORONTO, CANADA.

JUNE, 1906.

VOL. XIX.—No. 222.

## ILLUSTRATIONS ON SHEETS.

Government House, Victoria, B. C.—Mr. F. M. Rattenbury, Architect, Toronto.  
Public Reference Library for Toronto.—Messrs. Wickson & Gregg and A. H. Chapman, Associated Architects, Toronto.  
House of Small Cost in a Country Town; CANADIAN ARCHITECT AND BUILDER Competition, Illustration IV; designed by Mr. S. Douglas Ritchie, Montreal.

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### The Specialization of Architects.

A recent writer complains that amid all the specialization of present conditions of work the architect alone declines, as a rule, to specialize; and he argues that it is for this reason that the architect is ceasing to be an artist and has become a man of business. There is something to be said on this side. That is to say, it is the opportunity to make his work perfect that develops the artist, and it is only by exclusive devotion to one problem or one class of problems that an architect can give his mind to his problem enough to produce real design. Otherwise the stock materials of design, that have served so many purposes, must be tossed up again to put a decent face upon new problems which there is no time to think out. The new problems must, however, be taken up. There are no quiet eddies now in the stream of business. Could something be done by specialization in firms? It will mean larger firms and less profits, but more of a life—and we have only one life.

### Smoke Abatement

We are going to be put to shame soon in this matter by cities in the United States. The journals have long been crying out about the non-execution of the laws against over production of smoke and reforms are now following. That the reforms not only can be brought about but brought about suddenly, is shown by the action of the Mayor of Rochester who decreed that black smoke must cease on the first of June. It ceased on that day; and Rochester since

then has been a bright city. An hour or so of black smoke is allowed early in the morning to get things started; but after that, if the watchers stationed on various high towers see any black smoke, there is trouble for the man who made it. That is the way it is done. There is nothing new or remarkable about it except that it is really done. Other towns have about the same laws and the same facilities for carrying them out. One demonstration of the feasibility of carrying out the law will no doubt produce a sequence of similar results.

### Western Architects Organizing.

The Manitoba Association of Architects was organized on May 25th, about forty architects being present at Manitoba Hall, where the session was held. Only three or four outside architects were present, but the association will supply a long-felt want to correct the abuses and competition craze which has infested Winnipeg.

The following officers were elected: President, S. F. Peters; Vice-president, J. H. G. Russell; 2nd vice-president, C. H. Wheeler; Treasurer, L. O. Bristow; Secretary, Pery Over. Directors: Messrs. S. Hooper, J. Greenfield, J. Chisholm, Atchison and Elliott.

The constitution adopted was similar to that of the Eastern Associations as was also the schedule of fees. A set of rules governing competitions—to govern which is one of the first reasons for associating—was also adopted. The first rule, that \$25,000 should be

the minimum cost of work subject to competition in the ordinary way, shows how necessary it had become that some agreement should be come to in this matter.

Among those present were Messrs. Rugh, Finland, Chivers, Northwood, S. Hooper, J. Hooper, A. Melville, W. Melville, Paul Clemens, E. S. Estlin, C. H. Wheeler, J. Chisholm, J. Greenfield, W. W. Blair, Eade Bros., Pratt, Howard, Jewitt, Horwood, Tuttle, Gould, R. E. Davies and a number of others.

With the organization of the Western Canada Architectural Association, which will be started in July, the western field will be covered fully. Both these new associations will fill two fields that needed such organizations.

#### Lessons from San Francisco.

Most of the talk about San Francisco is not edifying. One is reminded of the saying that "wheresoever the carcase is there will the vultures be gathered together." Nearly every 'expert' who rushes into print seems to do so in a spirit of conscientious hustling; to assert that the evidence is in favor of his material as the earthquake-resisting, fire-proof, covering for steel construction.

The situation is rather like that after the battle of Salamis, when the Greek generals decided by vote which of them was the bravest. Each general had two votes to cast. The result of the ballot, (every one receiving one vote while Themistocles got as many as the total number of generals,) showed that every one had voted for Themistocles as well as himself. It was considered therefore at Themistocles had been the bravest. Similarly we may consider it agreed that the number of testimonies in favour of the steel frame and ME tells at any rate in favour of the steel frame. But for a disinterested opinion which one can read with real profit we must wait for an official report, such as was made after the Baltimore fire by Captain Sewell of the Corps of Military Engineers at Washington.

In the mean time—just to show how different the point of view may be which will be taken by a disinterested observer, whose motive is purely scientific discovery—a Japanese investigation is reported, concluding that there would have been much less damage from the earthquake if there had been good mortar. As people who have overcome difficulties of their own with earthquakes the Japanese are entitled to respect, even if we had no other experience of their scientific exactness.

This opinion has the merit that it opposes no interest. No material is disqualified by the suggestion that it would stand shocks better if laid up in cement mortar—which appears to be the improvement in mortar that is suggested.

The aggregate elasticity of cement extending throughout the height and breadth of a structure is sufficient to take up the movement of a severe earthquake. But the cure must be not only in the use of cement but in its continuous extension. Cement mortar in the beds with vertical joints half empty can be no great improvement; but if all the joints are full, and the cement is continuous throughout the wall; the brick or other material embedded in it being merely a larger form of aggregate; it seems likely, even to ordinary perception, that a considerable movement can pass along the wall without dislocating its parts.

## A TALK ON CEMENT.

### FIRST PART.

In the Report of the Bureau of Mines for Ontario, Vol. XIV., Part 1, there is an admirable account by P. Gillespie of the Cement Industry of Ontario, which will be the basis of this article.

Mr. Gillespie goes at considerable length into the nature, sources of origin and process of manufacture of cement, and describes the plant, the process and the product of each of the nineteen factories in Ontario, of which fifteen are producers of Portland cement and four of natural cement.

The chemical composition of cement is somewhat complicated. It includes lime, magnesia, silica, alumina, oxide of iron, and sulphuric acid; and the exact nature of the processes involved in its hardening is (if we may judge from the fact that the Prussian Government and the German Society of Portland Cement Manufacturers have offered prizes for essays on the subject) not perfectly understood; but the essential ingredients of Portland cement are lime and clay. The marl, which in all but one of the Ontario Portland Cement Companies is the source of the lime, contains all the minor ingredients.

Portland cement, as is generally known, means nothing more than artificial cement. The name was given to it by the first maker, Joseph Aspdin, from its fancied resemblance when hardened to the limestone quarried on the island of Portland on the south coast of England and known as Portland stone.

Natural cement is produced by burning an impure limestone which contains lime, magnesia and clay. These ingredients vary in different parts of the quarry. Some parts are over-limed, some are over-clayed, so that when rock is brought together from different parts of the quarry, though the total result is sufficiently well proportioned, the difficulty in accomplishing a constant and intimate mixture of the ingredients when burned makes the natural cement less likely to develop the strength for which good Portland cement has acquired a reputation.

The difference in strength may be gathered from Mr. Gillespie's statement that a mortar which will develop, in three months, an ultimate tensile strength of 200 pounds to the square inch may be made with 1 of Portland cement to 5 of sand, while a natural cement mortar for the same specification would require to be mixed in about the ratio of 1 of cement to 2 of sand.

This, however, limits rather than bars the use of natural cement. If no great strength is required, natural cement has the advantage of Portland in respect of cheapness. The prices are about \$0.90 a barrel for natural cement, and \$2.50 for Portland. With these prices, and sand at \$1.25 a cubic yard, it will be found that of two foundation walls, built, the one with Portland cement mortar and the other with natural cement mortar, according to the above specifications, that built with natural cement mortar would be the cheaper. A cubic yard of Portland cement mortar would cost \$4.12, while a cubic yard of natural cement mortar would only cost \$3.25.

Natural cement also sets more quickly than Portland cement. The former usually begins to set in five to forty minutes, and attains its permanent set in twenty minutes to two and a half hours. Portland on the

other hand begins to set in three fourths of an hour to three hours, and attains its final set in two and a half to eight hours.

Therefore, if no great strength is required and a rapid setting mortar is desirable, Natural cement may be employed with advantage in the way of economy.

The Portland Cement plants of Ontario, mentioned in this Report are :—

- The Bellville Portland Cement Co., Works, at Point Ann, Ont.; in prospect when the Report was written.
- The Canadian Portland Cement Co., (an amalgamation of the Rathbun Company and the Beaver Cement Company). Works at Marlbank and Strathcona. Brand "Star."
- The Colonial Portland Cement Co., Works at Warton, Ont.; in process construction when the Report was written.
- The Grey and Bruce Portland Co., Works at Brookholm, Ont. Brand "Hercules."
- Hanover Portland Cement Co., Works at Hanover, Ont. Brand "Saugeen."
- The Imperial Portland Cement Co., Works at Owen Sound, Ont. Brand "Imperial."
- The International Portland Cement Co., Works at Hull, Que.; in process of construction when the Report was written.
- The Lakefield Portland Cement Co., Works at Lakefield, Ont. Brand "Monarch."
- The National Portland Cement Co., Works, Durham, Ont. Brand "National."
- The Ontario Portland Cement Co., Works at Blue Lake, Ont. Brand "Giant."
- The Owen Sound Portland Cement Co., Works at Shallow Lake, Ont. Brand "Samson."
- The Raven Lake Portland Cement Co., Works, Raven Lake, Ont. Brand "Raven."
- The Sun Portland Cement Co., Works, Owen Sound, Ont. Brand "Sun."
- The Superior Portland Cement Co., Works, Orangeville, Ont. Brand "Superior."
- The Western Ontario Portland Cement Co., Works at Atwood, Ont.; in prospect when the Report was written.

The Natural Cement plants of Ontario, mentioned in the Report are :—

- The Queenston Cement Works, near Queenston, Ont. producing "Queenston" cement.
- The Estate of John Battle in Thorold, producing "Thorold" cement.
- F. Schwendiman, township of Barton, four miles from Hamilton.
- Toronto Lime Company, Limehouse, Ont. Brand "Ontario."

Coming to the uses of cement we may note in passing a special use mentioned in the Report, which is worth noting. As cement preserves steel, cement is sometimes used as a pigment to preserve from corrosion steel structures that are exposed to the gases of passing locomotives. A paste composed of red lead, cement and japan, is applied in a thickness of one quarter of an inch.

In general however our concern with cement is for construction purposes, either for mortar or concrete.

The use of cement for mortar is one point in which we have advanced beyond former generations in building. The lime mortar which for twenty centuries or more has been used with bricks is an unequal match for them in strength. The compressive strength of lime mortar is about 500 lb. to the square inch. Brick will resist a pressure ten times as great—about 5,000 lb. to the square inch. Portland cement mortar, which develops a compressive strength of about 4,000 lb. to the square inch, comes near to making, with common hard brick, a wall of strength equal throughout.

Neat cement is stronger than any mortar. The addition of sand weakens in proportion to the quantity

added. The following table is given as representing the relative strengths in the average case.

MIXTURE.		RELATIVE STRENGTH.
CEMENT.	SAND.	
1	0	1
1	1	$\frac{2}{3}$
1	2	$\frac{1}{2}$
1	3	$\frac{1}{3}$
1	4	$\frac{1}{4}$

Lime paste is often added to cement mortar for the sake of cheapness, strength, imperviousness, and a desire to obtain a smoothness in working which is not possible with cement alone. Investigation seems to prove that an addition of lime paste not exceeding twenty per cent. of the mortar will not reduce the strength, and in some cases appears to increase it; and it gives the mortar a "body" much desired by the workmen. Beyond the limit given it is not wise to go if strength is the point desired.

The Owen Sound Portland Cement Company, in their brochure on the uses of cement suggest the following: "If it is desired to make water-tight mortar for cisterns and reservoirs, and where absolutely water-tight work is required, the following proportions are recommended.

Portland cement.	Sand.	Lime paste.
1 part	2 parts	$\frac{1}{2}$ part
1 part	3 parts	1 part"

Impervious mortar has been the subject of experiment in the State University, Columbus, Ohio. The following is a summary of the finding:

"The permeability cannot be materially reduced by the application of soap and alum solutions or by finely powdered loam used in the sand, but it can be reduced (1) by the application of one to five coats of cement grout, the reduction amounting to from seventy to ninety eight per cent. of the initial leakage; (2) by a coating of neat cement mortar one quarter of an inch thick; (3) by the mortar surface standing under a head of water containing suspended matter."

The following table is quoted, taken from a circular issued by the Buckeye Portland Cement Company of Harper, Ohio. It gives the amount of cement, sand and lime paste needed to lay one thousand bricks.

MORTAR IN ALL CASES 6 : 1 : 1.

Joint.	Proportion of mortar to brick.	Bus. of sand.	Bbls. of cement.	Bus. of lime.
$\frac{1}{8}$ in.	1 to 9	3.8	.21	.64
$\frac{1}{4}$ in.	1 to 4	9.6	.53	1.6
$\frac{3}{8}$ in.	3 to 10	12.5	.70	2.1
$\frac{1}{2}$ in.	1 to 3	15.2	.83	2.5

The second use of cement, viz. for concrete, and the question of tests and specification, it will be necessary to reserve for our next number.

### THE P.Q.A.A. SKETCHING CLUB VISIT TO SAULT-AU-RECOLLET.

On Saturday, 19th May, the members of the Sketching Club visited Sault-au-Recollet where the old church is of considerable interest. The building itself belongs to the 18th century but the facade has been re-built and re-modelled about 1850. Both the older and the newer work are highly picturesque. There are some charming old cottages in the neighbourhood.

## MCGILL STUDENTS UNION AND MOUNT ROYAL CLUB.

Members of the Sketching Club visited the Students Union and the new building of the Mount Royal Club on Saturday 9th June. This visit provided an exceedingly interesting object lesson in two different ideals in architecture. The Union by Professor Nobbs is typical of the English school of Architecture which finds an inspiration in the varied characters of its materials and in the methods of their application and processes of manipulation. By observing and giving values to these qualities the works and process of nature become the craftsman's standard. In the matter of proportion—purpose efficiently fulfilled is the fountain-head whose influence permeates all and whose stream must never be entirely drained by its surroundings which should only be those natural growths which it feeds. In decoration sentiment pertaining individually to the work is the *motif*; not introduced with rigid formality, empanelled and isolated, but cropping up on all occasions where the disposition to decorate is felt.

The Mount Royal Club is in its general lines at least, the design of Messrs. McKim, Mead and White, and, while not for a moment to be placed in comparison with their work at the Bank of Montreal, is characteristic of United States (and French) ideals. Severely classic throughout, the conventional forms of architecture—orders, columns, antae etc., reign supreme over all. Refinement of proportion, with an eye all the time on the masterpieces of the 'styles' as a standard, is the source relied on for beauty. An excellence, abstract and absolute is the ultimate aim. The desire as regards technique is for polish. The machine with its precision and regularity carries out the idea of the master, eliminating the tendency to err inherent in the craftsman's hand. Material is secondary, and a cornice in plaster, taking as it does the same form as one of wood, may legitimately be painted to appear as if it were actually part of the wood trim, for forms are used for their own sake as being equally beautiful in all materials. Ornament is conventional in character; and sentiment, if introduced at all, is of the guarded and formal sort which is elaborated in pediments and centralized over chimney-pieces. Law and Order are the watchwords of this school, as Liberty and Life are of the other.

The following prizes have been announced as open to the competition of all members of the Sketch Club.

## SUMMER WORK PRIZES.

The work submitted in competition for these prizes is to be delivered to the Secretary not later than Wednesday 31st October, 1906.

All drawings to be the "bona fide" work of the student submitting them, and drawings previously submitted are not eligible this year.

A prize of the value of \$30 in books on Architecture is offered by the P. Q. A. A. for measured drawings of old local work.

A. Plans, Elevations and Section, preferably to the scale of  $\frac{1}{4}$ " to one foot, and not more than six drawings in all, of at least one old building—Farm House, Seigneurie, Civic Building, or Church in the local style of Quebec or the Maritime Provinces, with details of interesting features, internal or external, to a larger scale. Rough measuring sketches to be submitted.

B. Sketches of old furniture, fittings, etc., of artistic or historic interest.

Tracings or blueprints of the winner's principal drawings to be deposited with the Province of Quebec Association of Architects. On receipt and approval of these the prize will be presented.

## BUILDINGS SUGGESTED AS SUBJECTS FOR MEASUREMENT.

The Inland Revenue Office, Place Royale, Montreal; Old Houses in Montreal, at Chateaguay, St. Geneviève, Varennes, Rosemère, etc.

Old Churches at Point-aux-Trembles, Sault-au-Recollet, St. Denis, St. Geneviève; Episcopal Cathedral at Quebec, etc.

2. A prize of the value of \$10.00 in books on Architecture is offered by the P.Q.A.A. for perspective sketches illustrative of old buildings of local character. The sketches to be in any medium the competitor may prefer. The faithful representation of the building to be the first consideration. All competitors are expected to lend such of their drawings as may be asked for to the P.Q.A.A. for reproduction in the Year Book and elsewhere.

3. A prize of the value of \$10.00 in books is offered by Mr. W. S. Maxwell for the best exhibit of 3 sketches done in water colour from nature, studio work not admitted, the subjects to be those in which some building or buildings occupy a place of some importance. Street Architecture or buildings with landscape surroundings are suggested as subjects.

The Committee to adjudicate upon the above competitions consists of Messrs. W. S. Maxwell, P. E. Nobbs, and J. O. Marchand.

SOLTO SMITH, R. CHARBONNEAU,

Joint Secretaries.

5 Beaver Hall Square, Montreal, 1st May, 1906.

## CORRESPONDENCE.

VANCOUVER, B. C., 16 May, 1906.

Editor "CANADIAN ARCHITECT AND BUILDER" Toronto, Ont.

DEAR SIR,—In your description of the Linton Apartment building in the April Number, page 53, you mention the cold storage closets in the pantries. I am curious to know something about the construction of these closets and the insulation of the pipes running to and from them. I, and I am sure, many others of your readers, would be interested to know more about this handsome building and the interior fixtures particularly in the pantries, kitchens and lavatories, and the electric fittings for lights etc.

Another topic of interest would be the percentage paid on Eastern cities upon buildings of different classes when same are built on a percentage basis. Recently I saw it stated that on much of the day work done in the East the builder in charge received  $2\frac{1}{2}$  cents per hour per man employed; this amount seems very small pay for management and the use of staging, plant office work, etc. Possibly it is supplemented by a small percentage on the cost of materials purchased for the work which would be only fair as a builder's experience in buying proper materials at right prices and securing their delivery just at the right time; neither too fast or too slow; is just as valuable as the proper management of men.

Another thing which the builder should be paid for is Employer's Liability Insurance (in case he carries it of course). This costs, in this province, from 2 to 3% on the wages paid, and is usually estimated on the annual pay roll. The rate on the coast here runs from 7 to 12 per cent, exclusive of the cost of insurance, according to the size and character of the building. The percentage basis is found very convenient for jobs such as the renovation and enlarging of old buildings where it is easier to plan the work as it progresses than before its commencement as would be necessary in case it was to be contracted for. Of course much depends upon the honesty and judgment of the builder when this method of building is adopted.

Hoping you will soon have some space to spare for the discussion of the above topics,

Yours truly,  
BUILDER.

OUR ILLUSTRATIONS.

GOVERNMENT HOUSE, VICTORIA, B.C.; MR. F. W. RATTENBURY, ARCHITECT, VICTORIA.

We have been furnished with neither plan of this residence nor information concerning it. The point of special interest, (besides an evidently fine site), is the entrance. The suggestion of the castle at this one point is odd, but has been accomplished with taste. The centralization of the doorway and bay window over, and the off-centre combination with this of the tower and gable, make an interesting and agreeable composition.

PUBLIC REFERENCE LIBRARY FOR TORONTO, MESSRS. WICKSON AND GREGG AND A. H. CHAPMAN, ASSOCIATED ARCHITECTS, TORONTO.

The problem in a library with reading rooms is, briefly—large and undisturbed areas which can be perpetually overlooked without requiring a special staff of attendants for the purpose. The key to the problem, in this case where there are two such areas, is an entrance near the corner. The entrance is at the outer angle between the two reading rooms, and the attendants' desk is in the inner angle. Thus the attendants are able to supervise the entrance and both rooms while discharging their ordinary duties.

The public come in contact with the attendants, or the librarian or the board room, at the point of entering the building, and need not enter the reading rooms at all until they have done all business requiring conversation and are prepared to take a seat and read.

The Secretary's office, where business is done not ending in the use of the reading rooms, has a separate entrance from S. George St. on another floor, with sufficient office room to be contained entirely in that part of the building.

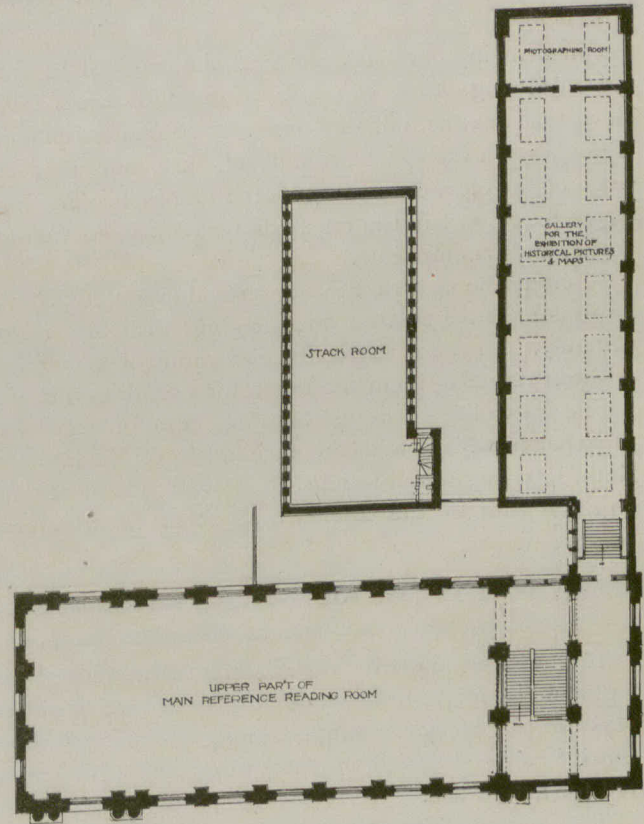
The Secretary's entrance is the entrance also for employees, whose cloak room, sitting room, dining room etc. are on this floor, in the rear. Their work is done (apart from the stackroom) in the two pairs of rooms that stand over and under one another in the angle with a private stair of communication.

The books are brought in by the rear entrance at the unpacking room. Here they are checked by the invoices, entered in the accession books and labelled. The bindery next receives them to stamp the library mark in gold upon the back. Then they go upstairs to be checked again and receive the blind stamp on pages and plates. Finally, in the cataloguing room, the books are classified, catalogued and marked with the shelf number.

All this takes place in little groups of rooms between the stack room and the public rooms. It is not even necessary for the cataloguers to go outside the barrier to make their additions to the card catalogue. This will be contained in double ended drawers which can be pulled in to the cataloguing room or out to the reading room as is required.

It will thus be seen that this plan has the distinguishing mark of a good working plan—that the lines of traffic do not cross one another. It would appear from the plan before us that there is one exception in this respect. The rooms in the basement set apart for special study have no approach shown but by the private stair from the delivery room. This, which might in itself be a matter for little objection, would have in the basement the greater disadvantage that

there is a quiet way out close at hand. In execution all this is being changed. The first part of the stair to the men's lavatory is being enlarged so as to be an approach to the study rooms. These will then be cut off from the lower hall so as to have no other means of access but by this stair. Thus all persons using the study rooms must, (like other readers), pass the delivery desk in coming and going.



PLAN OF UPPER FLOOR.

A reference library is essentially a place for work and the floating population of a circulating library, and the magazine and newspaper readers, are well kept outside of any access to it. The circulating library is a mere branch, and, with the periodical and children's tables, is kept apart in the basement, with an entrance of its own from the street, and with no communication with the rest of the building except that there is a private door for the attendants, connecting the circulating library with the attendants' quarters.

The newspaper room which occupies part of the St. George street wing is not a room for exposing current newspapers, but the place where files of old newspapers are preserved for reference. These, which take their place as historical documents along with maps, drawings, engravings, etc., are among the most valuable records of a country. For the safety of these documents from fire the main dependence is upon the site chosen, away from the crowded part of the city, now-a-days known as the "fire zone". The building itself will have little combustible material in its construction. In a conflagration it might suffer, but apart from that—being apart that is to say, from the region where such a thing might happen—it is expected to be safe in this respect,

The stack room is made as fireproof as possible; with a protected roof, wire-glass windows, metal fittings and a single entrance with a fireproof door. Its sheltered position is also a great advantage.

On the outside we have a facade which has a full measure of the dignity which is the merit of the Renaissance. It has also, of course, the classical character-

istic of being to some extent an abstraction; a form independent of the essential construction, and capable of being rendered in more materials than one. The architects consider that their means will allow of a stone basement, brick walls and a terra cotta cornice. These—though not the white cut stone which alone seems to realize the classical idea—are reasonable and durable building materials that we shall not regard with shame.

Our drawings are reduced from the original  $\frac{1}{8}$  inch scale drawings so as to retain a definite scale. The elevations are one half that scale, or 16 feet to the inch. The plans on the illustration sheets are one half the scale of the elevations, or 32 feet to an inch. The plan of the first floor, in the text, is intermediate to the next stage, and has no scale.

It should be said that in our reproduction of the elevations we have treated the original drawing rather severely. In order to get the elevations on our page, without reducing them too much for usefulness, it was necessary to lift the actual building out of a larger area of paper in which, with the assistance of background tints, lettering and a border, it showed to better advantage than in the abbreviated form in which we present it.

HOUSES OF SMALL COST FOR A COUNTRY TOWN—NO. IV.  
DESIGN BY MR. S. DOUGLAS RITCHIE, MONTREAL.

This design, made for the CANADIAN ARCHITECT AND BUILDER competition of plans for the above problem, was not placed by the judges among the prizewinners; but it is a good design in conception, and easily adapted for actual use.

The leading idea—a large living room extending across the house in one direction—is a good one. So is the simplicity of the general form of the plan. The aspect, facing the east, and a narrow lot which would preclude side windows of importance, were part of the conditions of the competition, benevolently intended to give trouble and let the competitors have an opportunity of showing their good judgement. If, however, there is an opportunity of placing this design upon a lot with sufficient freedom to the south, the living room and the bedrooms above should have south windows. It cannot be too often remarked that in this country all rooms should have south windows, when the site allows it; and all rooms should, if possible, have windows on two walls. South windows, in the winter, make the house warm; and, in summer, they make it cool. But to make the coolness perfect there should be also a window in an adjacent wall, the east or the west; or, where a room runs through the house as this living room, in both east and west walls. Rooms such as one meets with in the country—with one window which will only open at the bottom, and must be propped with a stick, and has but a six inch stick provided, and is so guarded by paper shades and lace curtains nailed across it that there is great difficulty in getting the sash up further, after the host has withdrawn, by inserting the back of the bedroom chair—these bedrooms, as a national production in architecture, are a tribute to our economy and endurance but not to our architectural sense.

Some internal changes are desirable in this plan. The larder, in the middle of the west side, is in about the worst place in the house for summer. The trouble connected with its position might be moderated by

making the window small and covering it with an awning. But, if the larder is out of place on the west wall, the pantry would do there very well, and is not in a good place where it is. So it might be a good thing to move the pantry to the west, increasing its size, (which will always be a gain), so as to leave towards the east only space enough for a coat closet, opening at the foot of the stair. (Fig. 1.)

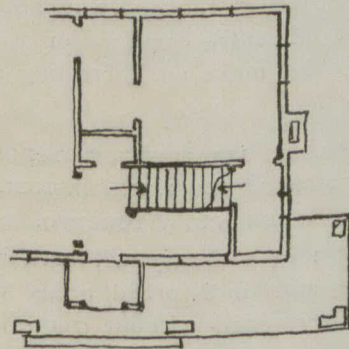


FIG. 1.

It is now necessary to spoil Mr. Ritchie's very nice hall plan by squeezing up his stair so as to get more room under the landing. The steps are evidently 7" x 10", which is handsome. Unfortunately 7½" x 9", which is much less handsome, makes a very comfortable stair; and by its help we could get a larder under the landing which, if the way to the cellar opened out of it—which would be quite in the cottage style—would be roomy enough for the purposes of housekeeping on this scale; and with a north window, it would be badly placed. The way to the cellar from the hall is of course is gone, but that is not a first essential in a no-servant family where the master of the house not only *may* seek the society of the cook but *must*.

Another way would be to block up the rather doubtful archway to the living room by a partition, making an ordinary door in it near the east wall, and starting the stair with winders against the partition. The handsomeness of the hall would then be transferred to the landing; and there would be room under it for a sufficient larder, with the kitchen descent to the cellar separate from it, and a coat closet on the hall side of the larder.

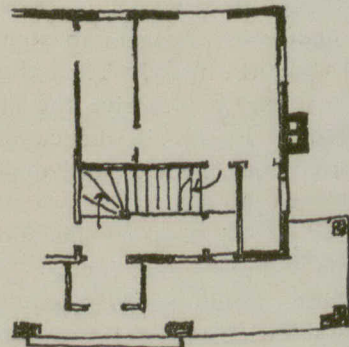


FIG. 2.

All this is more or less murder; and it is a pity to lose the front way down to the furnace, for this would make a very good house for a small family with one servant.

It would perhaps be best to leave the hall alone, except for filling up the archway and having a door instead—placed opposite the stair so as get away from the front door.

Let us, however, still pursue the search for a north-east larder and a pantry with a window in the outer



wall. One begins to tremble before the classic inviolability of this plan; but there is one point in which it is perhaps a little too classic for the kind of house. The verandah need not return at each end in the same manner, and we may project our larder to form a solid end on the north, under an extension of the verandah roof. In this way we leave the hall and cellar passage intact. The spare space at the east end of the pantry would make a cupboard—a most useful adjunct—for the living room.

The verandah is undoubtedly a great feature in the design, but it is not likely to be built with brick arches, as drawn. It is worth noting therefore, as a question, whether the roof is not really the essential element in the effect, and whether the oblong brick piers do not show up in the perspective as being, if not too heavy for the house, at any rate unnecessarily heavy. It is partly a matter of the narrowness of the verandah, (which ought to be wider), and partly a consequence of the severe training to which we have been subjected all our lives, in the matter of skimpy building, which has accustomed our eyes to the smaller diameter of wooden posts in a verandah. Fourteen inch brick piers in this case, with a plate consisting of a pair of joists set apart on the outer edges of the posts, would be substantial beyond the ordinary.

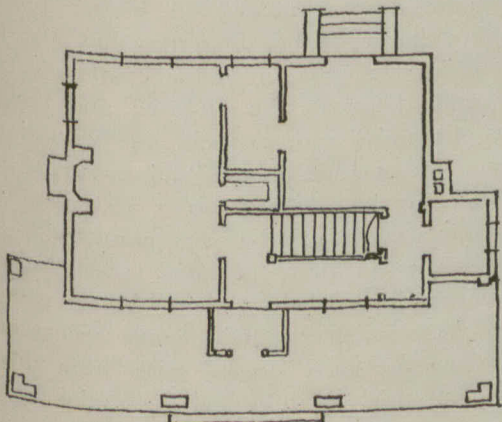


FIG. 3.

One thing the perspective does show:—that the eaves of the house would bear lifting. The attic would be better for it; for, as drawn, there appears to be no more than 4 ft. vertical wall height, inside, at the plate. Another two feet inserted below the attic window sills, which do not appear to be more than 18 in. above the floor, would both help the attic and make a wider verandah roof possible. Even though the relation between the eaves and the apex of the verandah roof were unchanged the eye would acknowledge the extra altitude of the wall, and the building would probably get more of the snap of the elevation. But a verandah half as wide again would not, with the same pitch, rise more than a foot higher on the wall.

The St. Johns Brick Company, Limited, has recently been granted incorporation to purchase and acquire the business of St. Johns Brick Company, manufacturers and dealers in brick, St. Johns, Que. The headquarters of the company will be St. Johns, and the capital \$75,000. Among the promoters are Messrs. Joseph Simard, Ulric Normandin and Alfred Simard.

The expansion of building operations in all parts of the country has so increased the business of W. H. C. Mussen & Company, dealers in railway and contractors' supplies, Montreal, that they have been compelled to extend their premises. They have purchased the large warehouse situated at Nos. 21 and 23 Colborne street, Montreal. This will give them excellent facilities for handling their goods, as the new warehouse faces the canal, and has railway sidings within 100 feet of the goods entrance.

## ILLUMINATION.

By ERNEST C. WHITE, Member Illuminating Engineering Society.\*

In commencing a series of articles on Illumination, it is not the writer's intention to indulge in rhetorical generalities on the universal importance of light. A clear, and, it is hoped, an instructive description of a lighting problem and its solution will be presented in each paper, and it is only as an aid to the more thorough appreciation of these problems that an outline classification of the more important considerations in illuminating work is given below.

It is realized that, to the Architect, the problem of lighting design easily resolves itself into the architecture of fixtures and their supports, plus—some estimate regarding the light sources needed to produce the desired (more often a desirable) illuminating effect. Various rules have been employed to arrive at the number and size of lights; and judgment, good and bad, has been exercised in the disposition of these sources. But judgment is haphazard unless based upon accurate information, and a simple examination will prove the foundation of most "rules" of lighting to be somewhat less reliable than shifting sand.

What is meant by a "16 candle power" lamp? The ordinary incandescent lamp of this rating gives less than 7 candle power in the direction of the tip. The lamp is rated at its maximum candle power, which is in a horizontal direction, the lamp being pendant. Some manufacturer makes a lamp giving about the same total flux of light and equips it regularly with an accurately designed reflector. This is rated as a unit at the maximum candle power in any direction. The direction may be in line with the tip and the candle power may be 50, and a result more suitable to the particular need might be obtained with the ordinary incandescent lamp fitted with the proper accessories. In each case the rating means less than nothing, for it is misleading.

What is a "110 volt" lamp, and where should it be used? If properly made and labeled by the manufacturer, it is a lamp that will give its rated candle power horizontally on a certain consumption of current for about a certain number of hours across a 110 volt circuit. If this lamp is put on a 104 volt circuit it will give only 11.5 candle power and will consume 24% more watts per candle power. The voltage varies in nearly every installation and where the lighting companies do not supply renewals, the dealers stock lamps for the nominal voltage of the circuit. The customer can get nothing else and pays, in many cases, 25% too much for the light produced. I would say "for the light used", but the production and utilization of light are two very different things.

What becomes, then, of the rule that specifies so many lamps of a certain candle power for a room of given dimensions? The discrepancies resulting from unscientific lighting become much more apparent, however, when we begin to investigate the different effects produced by the use of various reflectors, globes, etc., with the same lamp. It is a very common error to suppose that a given quantity of light will produce approximately the same average illumination in a given space, no matter how distributed. This is not true even though the pigment and color of walls and surroundings be the same. The

\*Engineering of Illumination, Aikins Building, Winnipeg.

efficiency of the best ceiling reflection is very much below that produced by reflectors that give a predeterminable distribution. The benefits accruing from the skilful use of accurately made accessories will be illustrated in the succeeding articles of this series.

The above remarks have touched only one form of electric lighting, but like considerations obtain in the use of any illuminant. It is necessary to know the quality and pressure of gas in the mains and to insure known conditions at the outlets. Inverted gas burners have entered the field, with many imperfections it is true, but offering a wealth of possibilities when properly used. Various forms of gasoline vapor and acetylene lighting must be considered in their place. Vacuum tube lighting and Nernst lamps have their peculiar characteristics and efficiencies. The luminous arc has appeared as a formidable competitor with the enclosed arc for some purposes only. Is the architect to take a contractor's advice in such a field as this, or, on the other hand, to protect himself by putting in an abundance of light sources? Is he really alive to the fact that the efficiency of lighting equipment must be measured in its operation?

In order that succeeding examples may be perfectly understood a few remarks on the physiological side of illumination will not be out of place. It is very commonly considered that incandescent lamps are hard on the eyes, and probably no other illuminant has suffered so bad a reputation in this respect. But neither has any other form of lamp been so easy to hang in front of the eyes and in positions impossible for a gas or oil lamp. The bare filament of a 16 candle power incandescent lamp has an intrinsic brilliancy of some 50 candle power per square centimeter, and should never be allowed in the line of direct vision. Not the least among the economies of good lighting, is that obtained by keeping the eye of the observer sensitive to the actual illumination through the avoidance of eye strain, and this is said without reference to the tremendous human economy in eyesight itself.

If the foregoing shall have created any impression that economy in lighting must be obtained at a sacrifice of decorative requirements, this should be corrected. True art may at least conform to essential mechanical requirements, and the limitations imposed by these are not so narrow as might be supposed. In view of this the eminence of some mistakes is remarkable. I will quote the words of Dr. Louis Bell before the Illuminating Engineering Society:

"One does not have far to go to see some horrible examples of inartistic and thoroughly bad illumination. Sometimes this is noticed and remedied; sometimes it is not. The delivery room in the public library in the city of Boston in its early stages was perhaps the most shining example of the malapplication of light that I have seen. In that room the mural paintings are sunk into deep panels, the reason for which I have been unable to discover. That room was originally lighted by two gigantic chandeliers which came down one-third of the way to the floor, and were dotted with incandescents, entirely defeating any object of lighting up the mural paintings and in fact preventing anybody from seeing them. That was finally remedied, but even when it was done, it was not done well. If you will go there to-night you

will find that the lights intended to illuminate the paintings are not so directed that they do it to the best advantage, for the very simple reason that the scheme of decoration which had been adopted for the room, utterly irrespective of the possibility of having paintings there which anybody might want to see, was such that it did not seem wise to put the lights where they would do any particular good. It is that sort of thing which ought to be given a great deal of careful attention. We want to know not only how to get good light for general illumination, but how to use it for particular illumination, as in a case of that kind, with the best benefits possible."

It is true that many artistic features have been "designed", which seem in every way beautiful until their utter uselessness as a support for light sources is understood. But these things are passing. Some day the fixture designer will judge the beauty of his appliance by its purpose, to the same extent that an Architect feels intuitively as well as intelligently the relation between the shape of a beautiful arch or column and its ability to support a load.

#### MONTREAL NOTES.

The special committee of the Province of Quebec Association of Architects which has been appointed to deal with civic improvements has prepared a sketch plan embodying a number of suggestions the general aims of which are, first, a better communication for heavy traffic between the up-town and down-town sections of the city and, second, the formation of a number of fine avenues forming uninterrupted circuits and connecting the principal parks and open spaces. This plan is a tentative scheme prepared with a view to inviting a more thorough and general discussion and consideration of the question. When the details of the projects which meet with most acceptance and are felt to be most urgent have been discussed, the Civic authorities will be invited to take action. It is the purpose of the Committee to increase its influence by adding to its members, as associate members, such influential citizens as they can find desirous of furthering their aims. With a view to extending interest in the subject a meeting was held, on Friday, 1st of June, at the Beaver Hall Square rooms, at which Prof. Nobbs presided, and to which were invited members of the Board of Trade and a number of other influential citizens. Amongst those present were Messrs. H. V. Meredith, John Dougall, L. J. A. Surveyer, H. Godin, J. O. Labrecque and Fortunat Bourbonéire, Professor Cox and ex-alderman Robertson. In its present form the most expensive item of the scheme is the suggested formation of two diagonal roads from about Victoria Square to St. Catharine Street in such a manner that the one going to the right hand and the other to the left they could form a means of arriving at the up-town section without the necessity of climbing the very abrupt and difficult Beaver Hall Hill. It is claimed that such roads could be formed almost entirely through districts consisting of the poorest sort of property, and that the enhanced value they would give to the property traversed would speedily repay their construction. A good prima facie case can be made out for the scheme, and, if any one thinks he can make out a better, now is the time for him to make his suggestions.

There is a considerable inclination just now to experiment with reinforced concrete construction on a large scale. This is of course partly due to the present high rate for fire insurance, which can in this manner be minimised. Contractors who make a specialty of this material are also apt to tempt clients with promises of comparatively small initial cost, which are probably not always fulfilled when contracts are drawn up in black and white. Contracts have however been signed by the Dominion Engineering and Construction Co., of Montreal, to erect of re-enforced concrete a set of buildings for the American Tobacco Co., Ltd. of Canada, on the ground between St. Antoine, Bourgette and Anne streets. Completion in five months is called for.

The contract for the new seven storey building for the Montreal Light Heat & Power Co., at the corner of Craig St. & St. Urban St. has been let to John Quinlan & Co., of Montreal. The facework is to be of Indiana limestone with a base of Standard granite. The fourth, fifth and sixth storeys will be let as offices, the others will be occupied by the company.

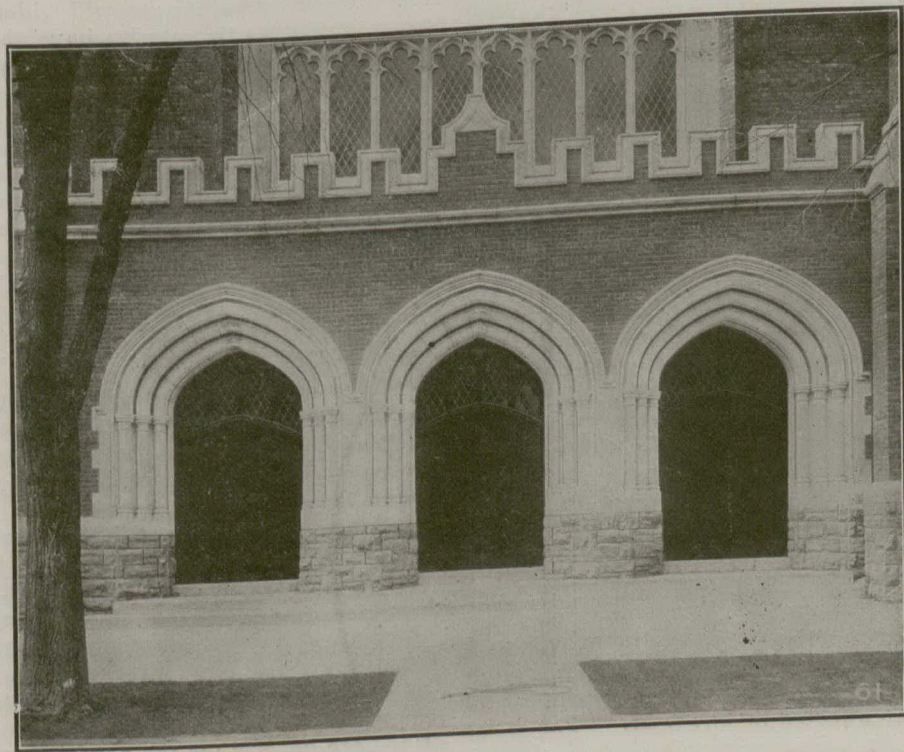
The Year Book for 1906 of the Province of Quebec Association of Architects has now been issued. It includes as last year an account of the constitution, membership and proceedings of the Association, the Library Catalogue, Code for Conduct of Competitions, Statement of the Professional Duties of an Architect. Of these the Code for the Conduct of Competitions is indexed under the surely rather broad title of "Code of Ethics" which would more properly apply to the Statement of the 'Professional Duties of an Architect.' Both these statements, by the way, are well worthy the perusal of all architects and of those who employ them. The new matter contained in this the second issue of the Year Book comprises the Reports of the Quebec section of the Association, the regulations for examinations and the questions set, presumably during 1905, with recommendations as to the books suited for study in Connection therewith, a paper on Reinforced

Concrete read before the Association by A. Loignon in Nov. 1905, an account of the Sketching Club of the Province of Quebec Association of Architects, list of Student Associates, and a statement regarding the forthcoming International Congress. Under this last heading is included an account of the Royal Institute of British Architects not separately classified in the index. This should be of special interest to students of architecture as it includes particulars of the Colonial examinations to qualify for Candidature as Associate R. I. B. A., and also gives information regarding the various medals and studentships in the gift of the Royal Institute which are open for the competition of all British subjects. The reproduction in this Year Book of a number of illustrations of old buildings of the Province of Quebec prepared by members of the Sketching Club is an interesting feature. Whilst this volume is a distinct advance on its predecessor, it might be still further improved by the introduced of more papers read before the Association, such as that of Mr. Loignon's, and by increasing the number of the illustrations.

#### NOVEL SASH BALANCE.

A novel device for balancing the weight of window sashes has appeared in the hardware trade. It is a spring roller held in brackets at the highest point of the sash slide. Two screw-eyes are placed in the top of the sash, to which are connected belts from either end of the roller. The screw eyes can be raised or lowered to equalize the belts on each side. If a different tension is desired, one belt at a time can be taken off and either wound or unwound on the roller. These belts are attached to the eyes by means of hooks fastened to the ends of small brass straps, the belting being connected to the roller by means of other brass straps locked in grooves.

The Mira Brick Company have decided to make extensive improvements to their plant. A new kiln, costing about \$5,000, is to be installed, giving the company an output of 20,000 bricks per day, or about one million five hundred thousand bricks per season.



DETAIL AT ENTRANCE OF CENTRAL METHODIST CHURCH BLOOR STREET EAST TORONTO.—ERECTED IN ROMAN STONE.—  
G. M. MILLER & CO., ARCHITECTS.

## CONCRETE BLOCK.

It is hardly necessary to point out that at the present time the amount of definite information concerning concrete blocks as a structural material is almost nil. Although a great deal of attention has been drawn to them, this publicity has been due mainly to makers of machines for producing the blocks rather than to the makers of the blocks themselves. Accordingly, while all sorts of statements are put forth by men who have more or less knowledge about the subject, the fact remains that an architect or engineer who wishes to find out what is the average safe load that a wall of hollow concrete blocks will carry cannot secure any information on the subject except from a very few tests which prove little. As a result of this uncertainty, we may expect various somewhat startling building regulations, like those in one large city where a wall of concrete blocks can be loaded until its factor of safety is but a small percentage of the factor permitted with any other structural material. This particular regulation is minutely detailed and decorated with numerous technical frills, so that it looks very imposing to the casual reader, but it is safe to say that a fair mud brick made for an adobe hut would pass all its requirements. And if a few samples of this primitive building block passed the requirements, the building laws of this particular city would allow the material to be used in structures up to six stories in height. It is safe to say that no fair building regulations for concrete block construction can be drawn until more information concerning all kinds of blocks is available, for the attempt to prepare them at present will result in but trifling protection to the public or in undue favoritism to some particular type of block.

The uncertainty concerning the strength of such blocks is not surprising when it is considered that they result from dry mixtures, which are very rarely so strong as wet mixtures. The dry mixtures have to be employed on account of the nature of the manufacturing process. The material is made up with only enough water to give it the consistency of moulding sand, and very few engineers will hold that with such a limited amount of water it is possible to develop the full strength of the cement. Accordingly resort is had to curing, or the retaining of the block in a moist state for some time. It is unquestionably true that this curing increases the strength of the concrete by furnishing extraneous water to assist in the hardening process. It may be safely asserted, however, that curing will never produce a concrete so strong as one prepared from a wet mixture, and at the present time it is probable that concrete specialists generally estimate a concrete block is not more than three-fourths as strong as a mass of concrete of the same proportions prepared from a wet mixture. This is a matter of conjecture, however, and until comprehensive experiments are made to determine the facts it is idle to discuss details.

Apart from the questionable subject of strength, however, concrete blocks present no features that are not well known. Dry one-to-four mixtures have been employed for many years in making what the Germans call fine cementware for decorative purposes. When properly made it is durable and attractive, as has been repeatedly shown in work executed in this country. For example, Mr. R. F. Tucker constructed about five years ago a large amount of ornamental work for large building on the St. Lawrence River. The location of the structure is such that the summer temperature is very high and that of winter very low. During the building operations the thermometer readings on the scaffolds in summer were sometimes over 100° while in winter they fell to 40° below zero. Although this range is excessive, the fineness of the surfaces and angles has not been affected in any way. The same thing is true of the wide range of ornamental work done by the Aberthaw Construction Company during a good many years, which is particularly instructive

because it is exposed to the trying climatic conditions of New England.

It is also generally conceded that a dry mixture is not such a good resistant to moisture as a wet mixture. Although in some dry climates, like that of Colorado, it is entirely safe to plaster directly on walls built of concrete blocks, the most experienced users of them in most climates prefer to put the plaster on a furring, just as is done with brickwork. Experiments in plastering directly on a hollow concrete block wall have proved unsuccessful so often that it is a practice to be deprecated. On the other hand, solid concrete walls have proved perfectly safe for plastering. The most interesting experiment of this sort with which *The Engineering Record* is familiar is the house with solid walls built by Mr. Charles A. Matcham several years ago and already described in this journal\*. In many respects this house may be considered typical of good concrete construction. Although the walls have now been exposed during several winters, the plastering has remained unaffected. No report has yet been received of any moisture appearing on the inside surface of the 8-in. curtain walls employed in reinforced concrete buildings although a great many of them are in use. Perhaps one of the best tests to which a concrete wall was ever subjected was given the 12-in. basement walls of the Robert Gair building (*Eng. Record*, March 3, 1905) in Brooklyn a few weeks ago. A large water main in the street on which the building stands burst and flooded the vicinity. The basement remained perfectly dry and the only signs of moisture were at a few bolt holes left when the forms were removed, which had been plugged with cement mortar. On the opposite side of the street the thick brick walls of other buildings leaked like sieves.

Summing up the situation as it appears to the engineer at present, the strength of the concrete building block is not sufficiently well known to enable the architect and engineer to decide definitely how much of a load it will safely bear; it can be used with entire propriety in many places because of the knowledge of dry-mixed concrete that is already available, but it should not be employed under heavy loads until its strength is determined. If well made it will be a durable material under severe weather exposures, but it must not be considered more moisture-proof than ordinary brickwork. As experience in its use and knowledge of its physical properties increase, very likely the range of its use will widen. At the present time, however, those who have the best interests of this important new material at heart will do well to urge its use for the many purposes to which it is eminently adapted and will not try to force it into competition with stone masonry and high-grade brickwork in places where loads are heavy. The hollow concrete block is such a useful addition to our building materials that its future should not be jeopardized in even a slight degree by ascribing to it all the properties of wet concrete cast in molds.—*The Engineering Record*.

## BUILDING ON THE PERCENTAGE BASIS.

More or less discussion has ensued in the past regarding the advantages or disadvantages of conducting building operations upon the percentage basis, and in connection with the subject the following comments, taken from a recent issue of the *Philadelphia North American*, may not be without interest to a large number of our readers:

Investors in real estate, architects and many building contractors are coming to realize that the most economical and satisfactory method of erecting buildings of any size is on the percentage basis instead of on the basis of a lump-sum bid—that is, the builder engages to erect the building or make whatever alterations are desired for the actual cost of the work plus a percentage as compensation for himself. Several of

\* And also in the *CANADIAN ARCHITECT AND BUILDER* for May, 1905.

the large office buildings in Philadelphia have been built on this plan, and the indications are that it will not be long till it completely supersedes the old method of lump-sum bidding.

There are many advantages both to the owner and builder in this method of building. Though the owner may not know exactly what the building is going to cost him the expenditure of his money is always within his own control and easy of verification at any time. He receives from the builder an itemized account of the cost of material, labor, etc., and he is relieved of the danger of "extras." The work can be carried on so as to best suit his own interests, rather than those of the contractors, and any changes which may suggest themselves during the course of erection can be made without unnecessary expense.

Contractors on the other hand are always assured of a decent profit on their work. They are not harassed by unexpected rises in the price of material or by penalties for delay occasioned by strikes or other causes often totally beyond their control.

In other words, the element of risk inseparable from the lump-sum basis of work is practically eliminated, and a builder is free from all temptation to "skimp" certain parts of the work to compensate him for unlooked-for inroads into his profits encountered in other parts of the work. With him all contracts are on the same basis, all can be treated impartially and the best interests of every contract can be served. This is particularly the case where the contractor makes a specialty of work on the percentage basis and declines all lump-sum contracts. The advantages to the builder of working on the percentage basis are indeed so many that many of the large builders, both here and in other cities, prefer operations of this character, though they are not prepared to refuse to work on the lump-sum basis if the owner so desires it, as is often the case.

It is necessary, however, that the builder should use the proper speed in construction, otherwise the building may cost the owner much more in the end than he could have had it erected for a lump-sum bid.

Many builders however, complain that investors do not, as a general rule, look with favor on the percentage system of work. They desire to be relieved of all risks, evidently taking the view that the risks properly belong to the contractor, and for this reason they prefer to accept a lump-sum bid, which may seem to them to be high, rather than assume risks which their knowledge or experience cannot help them to avoid.

The spectacle of contractors being forced into bankruptcy through contracts from which they had hoped to realize large profits, which occasionally presents itself, is not, it is true, calculated to reassure investors in real estate as to the wisdom of assuming most of the risks of building; yet failures of this kind occur so rarely as to have very little effect on the growing sentiment in favor of cost plus a fixed charge for all kinds of building work.—*Carpentry and Building*.

#### THE DECLINE OF HANDICRAFT.

In a recent meeting of the Leicester Literary and Philosophical Society of London, England, Mr. S. Perkins Pick, F.R.I.B.A., president of the society delivered an address on the decline of artistic handicraft. At this time when architects in general are laboriously striving to pull the world out of the rut of commercialism and instill into every one a love for art, some things contained in Mr. Pick's address are of special moment.

Mr. Pick said that it was generally admitted that the masonry of mediæval times exhibited greater excellence in workmanship, combined with more suitability in design, than that done to-day. The social, political and industrial conditions of those times, however, differed entirely from those of the present. Contracting, in the modern sense of the word, was unknown and there was no competitive system by which the individual was encouraged to shape his policy to suit his own needs

and to disregard his duty to others. Members of the craft were banded together for the common good in their trade guilds. Craftsmen were then of some importance and had complete control of the various matters connected with their trade. Rules were stringent with regard to proficiency and training. Quoting, for example, from a warrant of an old masons' guild, "If incompetence is proved against any mason, he is fined by the guild; a second conviction is followed by a second fine; and a third by expulsion from the guild and the forswearing of the craft for ever."

In those times no one was allowed to enter the craft except through seven years' apprenticeship. Even the number of those who entered was strictly limited, and every master was in duty bound to give personal instruction to his apprentices. The chief object of the guild conditions seemed to have been to insure that only the best class of work should be done. The mediæval apprenticeship customs prevailed in all handicrafts from early days to the end of the eighteenth century, when manufacturing with its specializing in departments generally destroyed that unity which was such a valuable outcome of the old-fashioned methods. Referring to the question of "The Machine and Art," Mr. Pick said that in all probability it was impossible to give that human interest to machine-made articles which the old handicraft articles possessed, but there was not a doubt that men of good taste could enormously improve upon the work generally produced, if their services were requisitioned by those who had the power to direct the process of manufacture, for machine-made goods were not necessarily ugly. It was a most regrettable sign of our times that very few manufacturers or tradesmen tried to make the best and most suitable articles to satisfy their own judgment, but rather aimed at pleasing the public taste, which had become debased by the contemplation of the ugliness which abounded on every side.

#### A NEW METHOD OF SHOW-WINDOW LIGHTING.

A novel method of show-window lighting, which is a radical departure from conventional methods, is constructed in the following way. The windows are entirely of glass, and measure about 8 feet wide by 9 feet deep, with a height of about 8 feet from the bottom of the window to the glass top. About 12 inches below the ceiling of the window there is placed a false ceiling of ribbed glass supported by a slight metal frame work. About this glass are installed sixteen 50-c.p. G. E. units, the bottom of the lamp coming within about 3 inches from the glass. The lamps are provided with Pagoda reflectors and are not frosted. The lamps are wired on 3 switches in each window so that one-third, two-thirds, or all may be used as desired.

The result of this method of illumination is a very completely diffused light throughout the entire space in the window, with a noticeable absence of shadows, and a light very much resembling sun light in brilliancy. The window has excited very favorable comment among engineers who have seen it, who express the opinion that it is the ideal method of show-window illumination.—*Paul H. Jaehning in The Illuminating Engineer*.

Something has been said to the effect that a man who will not sow, even for for a distant harvest, is no wise man. The saying nowhere applies so strongly as to advertising. Good advertising will surely bring results. Every cent expended will eventually come back with accrued interest; but it won't come back immediately. Many people condemn advertising because they don't really understand that like everything else, it is governed by laws and limitations. And one of those limitations is that time is generally required to get the full benefit from its use.—*Ad Sense*.

## SHINGLE STAINS.

It sometimes happens that a well planned house is spoiled in the making by some oversight or makeshift, or an artistic exterior spoiled by the color placed on it, for the reason that the architect may not have specified just what was wanted or has allowed the contractor to use something "just as good", or both architect and builder have been unable to obtain the material wanted.

We have been doing some investigating to see why the colors on so many roofs and gables seem to go to a frazzle and become old before their time. Sometimes a single winter takes the life out of a stained roof and leaves plain, bare wood in spots. Then somebody is blamed because the roof is an eyesore.

A stain should not be paint, the difference being that a stain enters into the material to which it is applied, while a paint remains on the surface. Stains are applied to undressed wood which has not been treated in any way and which presents what might be called a raw surface, while paints are applied to a wood which has been primed or filled, so as to prevent the paint from sinking in. In fine wood finishing when a stain is to be applied to a hard wood in order to show up the grain, the wood is first "filled", then the stain is applied with a brush, but all the superfluous color is rubbed from the surface with a cloth, leaving only such color as has entered into the fibre of the wood. This is not the case with stains applied to shingles or sidings.

Stains consist of two parts, the color, and the vehicle which carries the color, and perfection in one part is as essential to a good stain as perfection in the other.

In many cases the stain for a roof or siding is made by the workman on the job by rule-of-thumb. A certain quantity of cheap adulterated dry color or pigment is mixed with some mineral oil and benzine, and is applied to the wood. The vehicle promptly sinks into the wood, while the coarse color stays on top. We tried this and found that when this alleged "stain" had become perfectly dry and hard, we could scrape all the color from the surface with a dull knife or scraper. The cheap dry colors usually employed have a perceptible grain and feel like fine sand between the fingers, and, in some cases, like coarse sand. These particles of color will not break up or dissolve in the vehicle without grinding, excepting to a very slight degree, and as these particles are of a larger size than the pores of the wood, they have, of necessity, to remain on top while the liquid part only goes into the fibre. It is the old story of a two inch plug not going into a one inch hole, no matter how much lubricant is used.

Therefore, colors for stains must be ground even finer than for paints, and as a stain must not cover up the effect of a wooden surface but simply give it color, the color used must be absolutely pure and without adulteration. Any color adulterant used would simply fill up the fibre of the wood without staining it, and would, to just that extent, destroy the character of the finished surface. Therefore, the purest, strongest colors make the best stains, because the stronger the color the less the quantity required to produce the result.

The fading or the unfading property of a color is by no means a small factor in the making of stains, particularly those to be applied to exposed surfaces, such as roofs or gables. Certain kinds of reds, greens and other colors will be affected by light to an almost imperceptible degree as compared to those which may have the same general appearance, the difference being in

the chemical composition of the color. The color or pigment for a shingle stain must, therefore, be one showing the maximum resistance to sunlight.

Stain for roofs, gables and sidings are used as beautifiers, and it follows that all colors, shades and tones should be soft and harmonious, and that all harsh, heavy and severe effects should be avoided.

As the pigment used in the stain is for the purpose of filling and giving an artistic color effect to the wood, it necessarily follows that the remaining value of a shingle stain is in the vehicle. This vehicle must be thin enough in its consistency to enter readily into the wood fibre; although of thin consistency, it must still have a sufficient degree of body to hold in suspension the coloring matter in a uniform manner; it must have the property of drying with uniformity in the right time, and thoroughly, so that it will not run or bleed; it must have sufficient of the wood-preserving property to prevent the formation of fungus growths and the burrowing of insects, both of which open the way for the entrance of water and ice, and the consequent cracking, warping and final destruction of the wood; and it must have binding property to thoroughly unite and bind together all the elements of vehicle and color in order to produce a homogeneous mixture and a result- ing satisfactory product.

The absence of any one of these properties is practically fatal to the life of the stain and of the wood, and, furthermore, a stain might contain all these properties and yet be lacking in value, due to the percentage of some one or two of the ingredients being too high or too low. It is impossible in this article to go into the details of percentages and materials necessary for the production of a thoroughly practical and effective shingle stain, for even with these details, the mechanical and practical knowledge of method in producing the combination cannot be transmitted, and, furthermore, the chemical properties of the various colors used make it necessary to vary the percentages of the vehicle.

While great care is taken in the selection of a proper paint for a building, both interior and exterior, the selection or making of a stain for the roof and gable, where the exposure is greatest, is often left to the carpenter. The obtaining of a stain with the requisite penetrating and preserving quality, as well as the selection of the colors, is second in importance to no other work about a house. The reason stains are not used in relatively as great quantity in this country as in the United States is owing, primarily, to the indifference which has been shown by the property owners in demanding an article possessed of proper merit, and, secondly, to the poor results which have been obtained from the methods in vogue. Much more outside staining will be done than at present if the results of properly stained and protected wood by the use of proper materials are more frequently seen.

Our investigation proves to us that the making of a high grade stain is a scientific piece of work, that its admixture must be in the hands of thoroughly practical men, that cheap materials make cheap products, and that the off-hand rule-of-thumb substitute is an expensive expedient in the long run.

A gothic roof of reinforced concrete has been built for a church in Belgium under the direction of Messrs. Aronstein and Luder of Brussels. It has a central span of 23 ft. and side spans of 11½ ft. The concrete is covered with mortar and plaster moldings.

**BUILDING IN HAMILTON.**

Thus far the building season of 1906 has been one of great activity in Hamilton. Whilst it may not be ahead of last year in the number of buildings being erected, yet the work of this year is of a superior character, and it is thought that the cost will total an amount equal to, if not greater than that of 1905. There is considerable increase in the cost of building this year, and this has had a tendency to lessen the amount of work done. Still contractors report that they are kept very busy.

Solid brick is the popular style of construction for dwellings, there being very few brick veneer or cement houses erected.

The majority of dwelling houses range in price from \$2,500 to \$5,000, which seems to meet the requirements of persons of moderate means. A pair of semi-detached, two and a half story dwellings, on Main street, built by Mr. George J. White, contractor, afford a fair specimen of this style of house. Each contains nine rooms and all modern conveniences. They are neatly finished throughout and possess all the requirements for cozy homes.

Of residences of a more expensive nature, a fair type is one being built on Ravenscliffe avenue, of which Mr. Stewart McPhie is the architect. This consists of two stories and attic, and is constructed of brick with stucco finish. Mr. E. B. Patterson, who has designed many dwellings this season, gives another good example of this style of building in a modern brick residence being erected on Barton street. Mr. McPhie has

also planned a fine residence for Hannah street to cost about \$15,000. It will be constructed of pressed brick with cut stone trimmings. The Vineyard Hotel, a modern three story brick structure, on Main street, was also planned by the same architect.

Besides the great number of dwellings, there are many stores, office buildings, warehouses and public buildings being erected, also many buildings undergoing extensive alterations. The Twentieth Century Club, on Locke street, has just been completed. It was designed by Messrs. F. J. Rastrick & Sons. It is a two story building, 73 feet in length by 40 feet wide with flat roof, pressed brick front, stone trimmings and galvanized iron cornices. The lower story contains two stories and in the second story are the club rooms.

Several new churches are included in the list of buildings this year. A small church in the east end park, of which Mr. Rastrick is architect has been completed recently. It is a neat building, of Gothic architecture, constructed of brick. St. Andrew's Presbyterian church, whose corner stone was laid a few weeks ago was planned by Messrs. Stewart & Witton. It will be of Gothic architecture and constructed of brick and stone. The site is at the corner of Smith and Barton streets. The first installment of fine church buildings for the Barton street Methodist congregation is the new Sunday school now in course of erection. It was planned by Mr. W. A. Edwards. It will be built of brick at a cost of \$12,000. It is to be followed later by the main church building. One of the finest examples of cement concrete work to be seen in the province is St. Anne's Roman Catholic church on Sherman avenue. It was designed by Mr. Robert Clohecq. He is also the archi-

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tect for St. Patrick's Presbytery building, at the corner of Main street and Victoria avenue. The material for its construction is Bedford Indiana stone. It will cost about \$18,000. The Gospel Tabernacle is of Grecian architecture, constructed of brick with stone trimmings. The interior arrangement is of amphitheatre style. The galleries are carried on plate girders, which are hidden from view. Mr. Charles Mills is the architect.

The new theatre being built on Merrick street was designed by Messrs. Stewart & Witton. It is of Modern French architecture, 128 feet long by 52 feet wide. The lower story is built of stone and the upper portion of brick and stone.

The Wentworth street school building and the patrol station are also being built from plans by these architects. The latter building will be located on May street and will be constructed of brick and stone. The school building will consist of a brick addition comprising eight rooms and will cost \$30,000.

There are some good examples of warehouses and factory buildings in course of erection. A large warehouse on Vine street for Mr. G. Hill was planned by Messrs. Rastrick & Sons. Originally it was intended to have a four storey building, but latter it was decided to make it eight stories. It will be constructed of cement blocks. A three story brick building for the Jackson Visible Typewriter Company has been designed by Messrs. Stewart & Witton. Mr. A. W. Peene is the architect for the Coppley, Noyes and Randall warehouse. It will consist of four stories and basement. Pressed brick is the material. The Otis Fensom Elevator Company have had large additions made to their building at a cost of \$35,000. These consist of a two story machine shop, a wood-working shop and a fire-proof pattern vault of re-inforced concrete. The

Sawyer and Massey Company are also enlarging their premises by the addition of a two-story fire-proof building of re-inforced concrete. Mr. Edwards is the architect. The Eagle Spinning Mills to be erected at the corner of Wilson and Sherman streets were planned by Mr. Charles Mills. These buildings will be of concrete construction throughout and will consist of a three story building, 135 feet long by 106 feet wide, and a warehouse 125 feet by 35 feet.

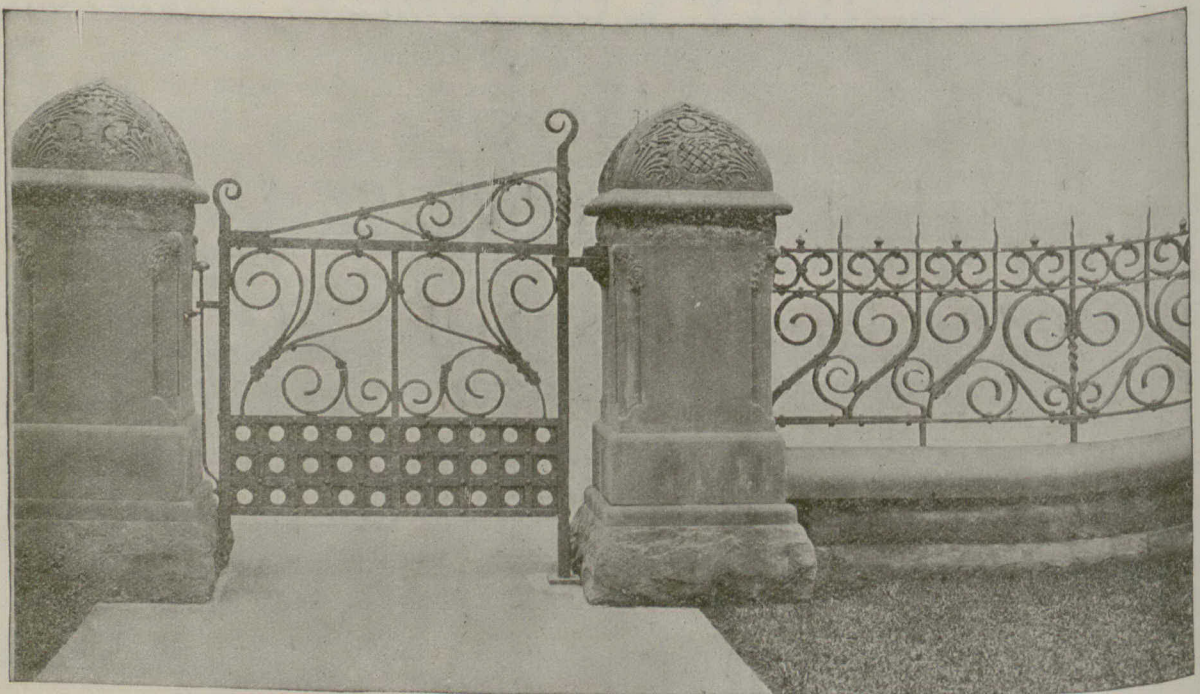
The Bank of Hamilton building is being extensively remodelled according to plans prepared by Mr. Mills. When completed, it will be practically a new structure. The plans call for a nine-storey, fireproof building in the Italian Renaissance style. The two lower stories will be constructed of stone. For the next five, New York hydraulic pressed brick with stone trimmings will be used. The eighth and ninth stories will be of carved stone. The estimated cost is about \$300,000. The Federal Life Assurance building was described in our last issue and requires no further reference.



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**STANDARD SANITARY MANUFACTURING COMPANY,  
TO ERECT A PLANT IN THE EAST.**

The interesting announcement is made that the Standard Sanitary Manufacturing Company, Pittsburg, Pa., manufacturers of the celebrated "Standard" porcelain enameled baths and sanitary goods, will this year erect a large modern plant for the manufacture of these goods in the East. Land has been acquired at East Camden, N. J., directly across the Delaware River from Philadelphia, and a factory, designed upon the same elaborate scale as the great plants at Allegheny, Pa., New Brighton, Pa., and Louisville, Ky., will be constructed. The new works will be completed this year, and will employ in the various departments about 1,000 hands. The cost of the plant will be approximately \$500,000.

The most thorough and elaborate mechanical equipment will be installed in the new factory, in order to facilitate the various processes of manufacture, and produce goods of such noted quality as has long been indicated by the name "Standard" as well as to ensure the prompt execution of contracts. A full line will be manufactured including the various types of bath tubs in all sizes, lavatories in the different designs and sizes, sinks and laundry trays, closet bowls and tanks, urinals, drinking fountains, wash sinks and other articles used in plumbing and sanitary installation.

The erection of a factory in the East was found to be an imperative necessity, owing to the enormous trade which has developed by the company in the large cities of New York, Philadelphia, Boston, Baltimore and other centers. The company's export trade also has grown to such large dimensions that it was found by locating a plant near the seaboard, great savings could be effected in freights as well as raw materials, and deliveries could be made more promptly and satisfactorily. The new plant will therefore be a great convenience to the Eastern trade, as when the factory begins operations the goods can be secured quickly, and delays unavoidable in the case of long shipments will be obviated.

The company was the first concern in the world to successfully attempt the enameling of cast iron sanitary articles with a powder (known as the "Dry Process") instead of applying the preparation in liquid form by the "wet process". Indeed the Standard Sanitary Manufacturing Company was the first concern in America to manufacture enameled baths and sanitary goods successfully at all, and prior to the advent of this company in the field, the public had no faith in the porcelain enameled bath and wash stand. Other manufacturers had attempted to produce these goods, but the enamel would crack and craze, the casting was rough and clumsy in appearance and invariably any enameled goods sent out would be returned. Along in the '70's the Standard Sanitary Manufacturing Company began a series of experiments to learn the secret of the manufacture of perfect

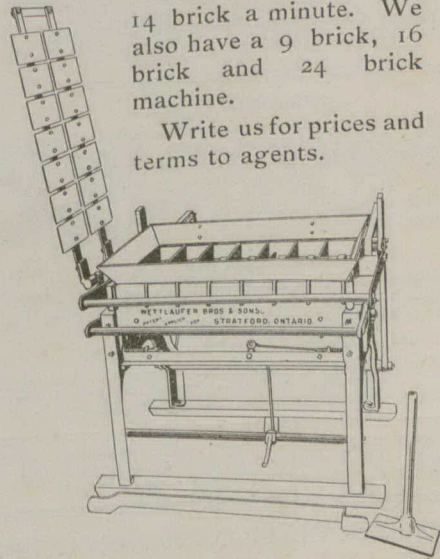
porcelain enameled ware, and by persistent efforts, succeeded in devising means and methods of manufacture that have never been equaled.

While the plant at East Camden will not of course be able to supply the company's eastern trade, the output, will relieve the other factories, and will enable a more satisfactory distribution of the products. So large a business has been developed in the Western States and on the Pacific Coast that at the present time a considerable proportion of the output of the three big factories is sent to that point.

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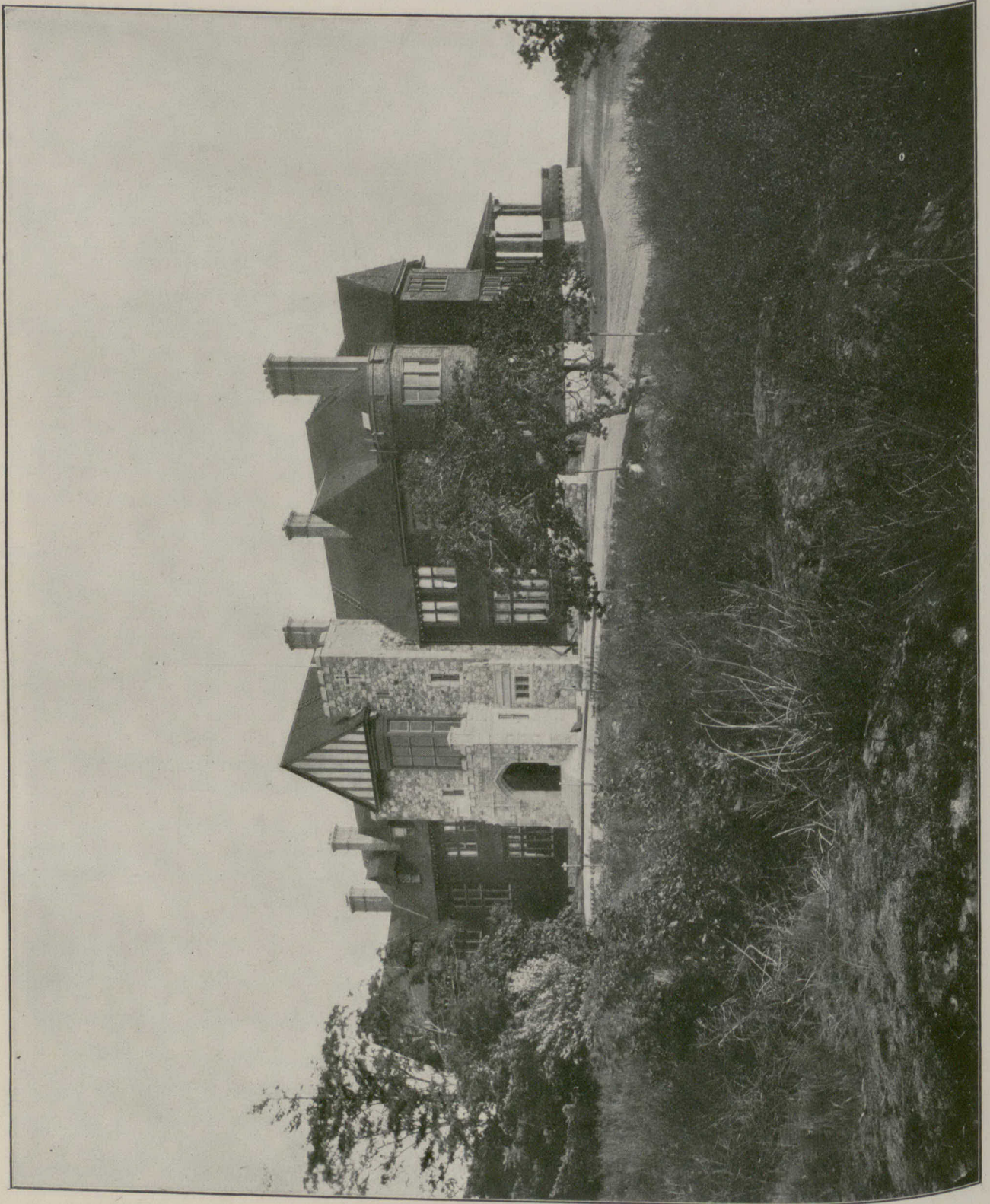
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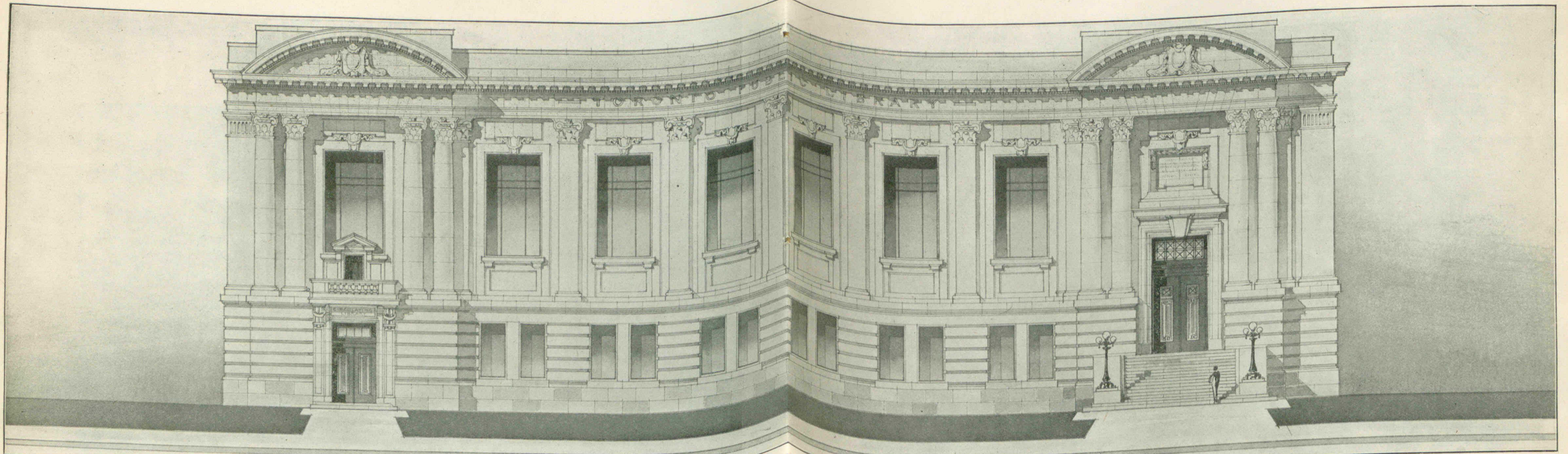
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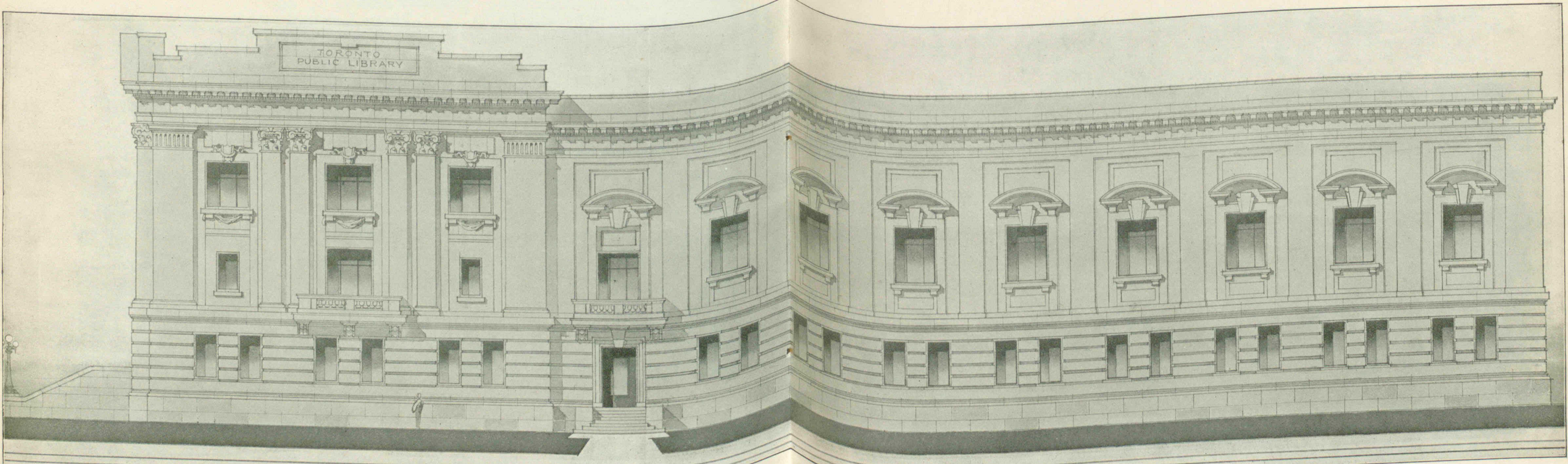
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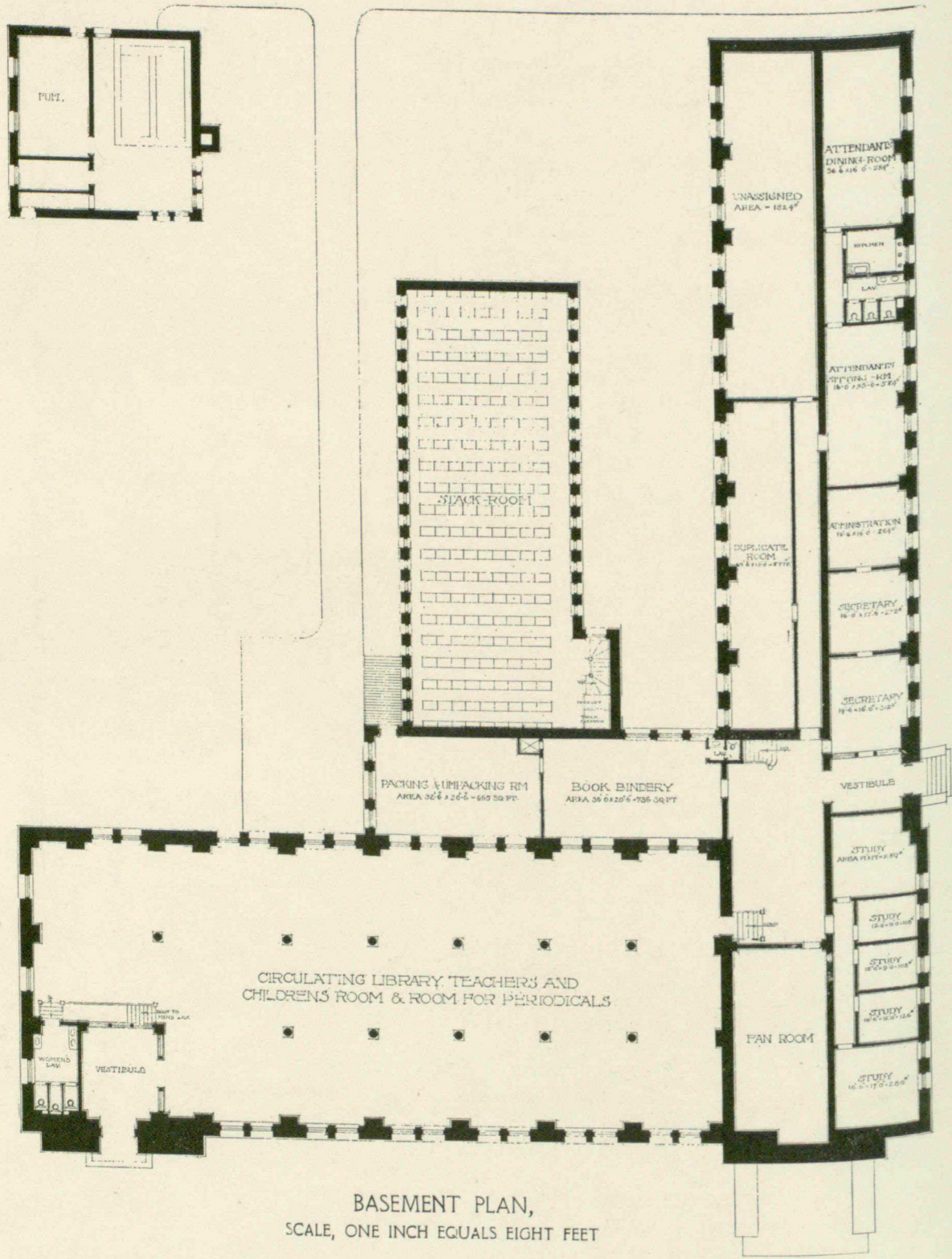


ELEVATION ON ST. GEORGE STREET.

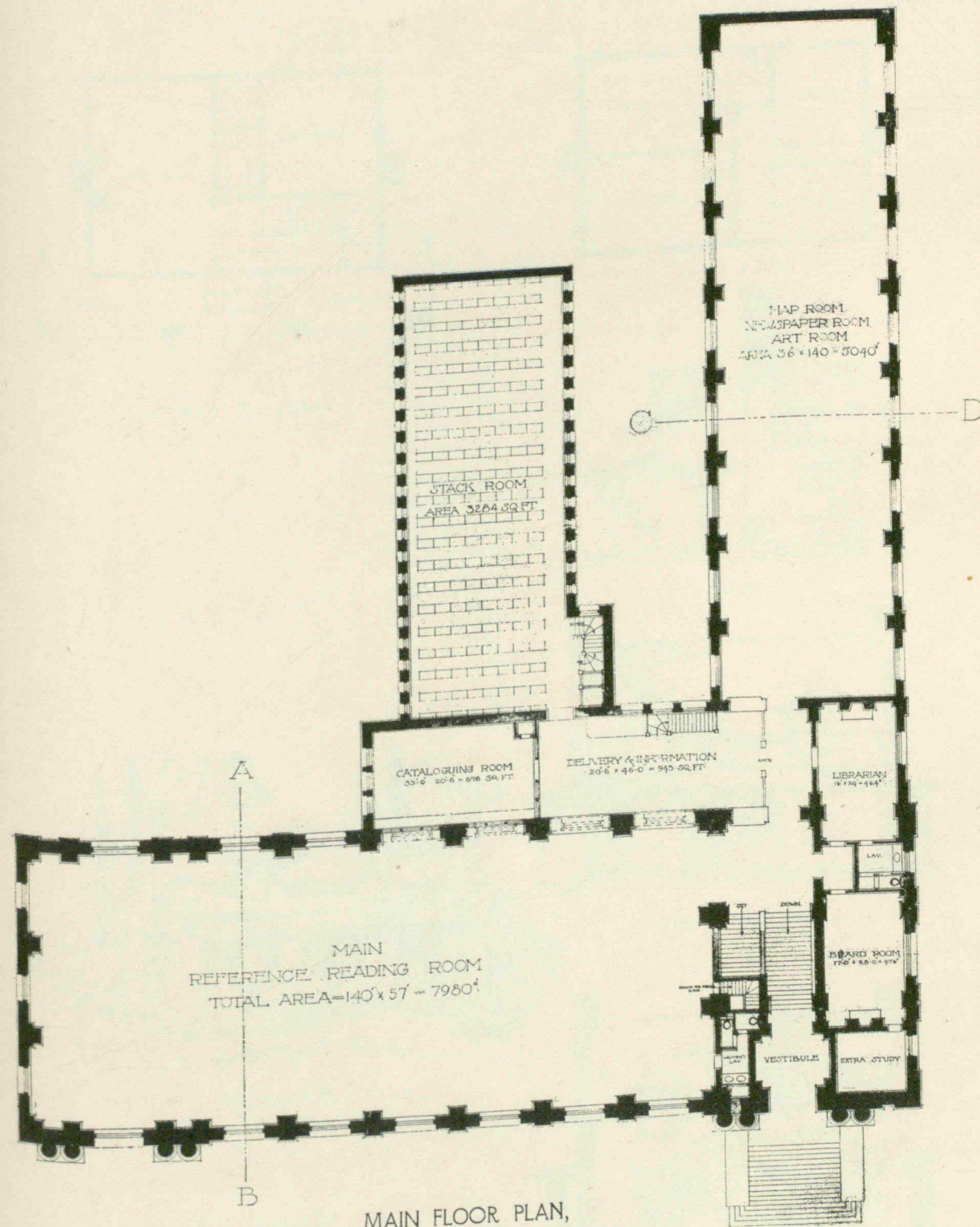
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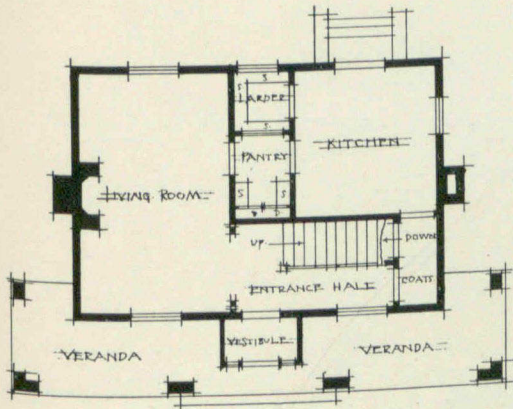


MAIN FLOOR PLAN,  
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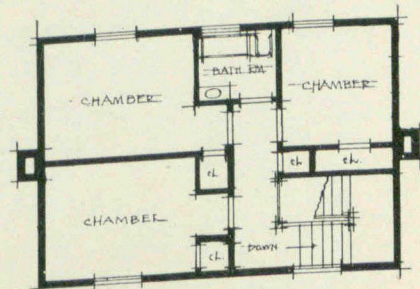
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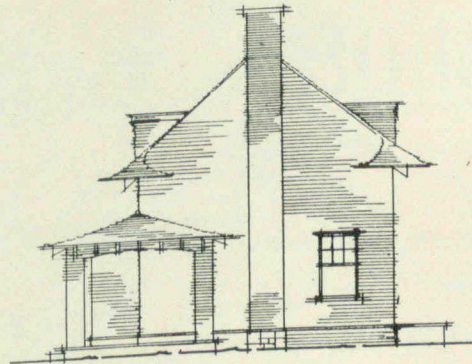
KITCHEN YARD



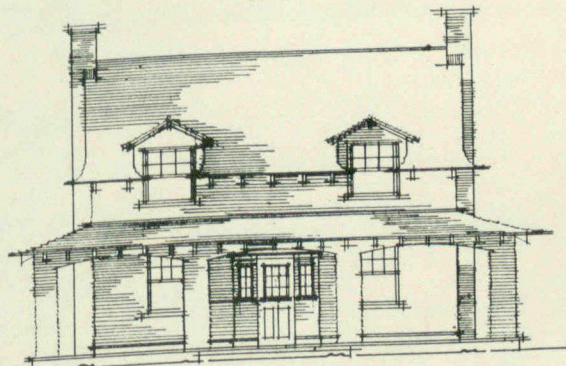
GROUND FL. PLAN



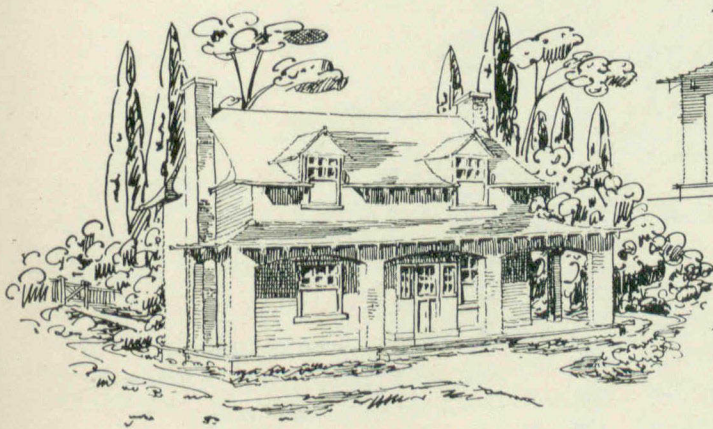
1ST FL. PLAN



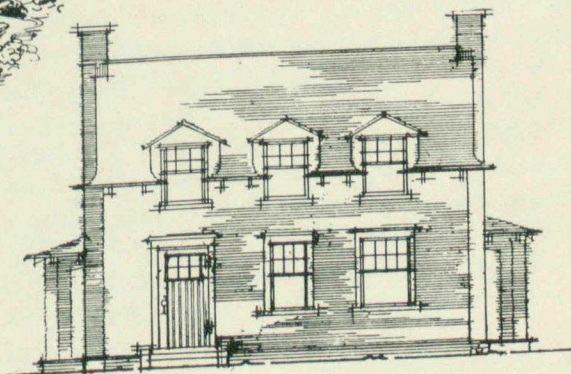
SIDE



FRONT ELEVATION



PERSPECTIVE



REAR ELEVATION

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ILLUSTRATION NO. IV.

DESIGNED BY Mr. S. DOUGLAS RITCHIE, MONTREAL.

**CONTRACTORS' ASSOCIATION.**

The contractors of Quebec City have formed a protective association, and officers have been elected for the different sections as follows:—

- Carpenters—E. Paquet, P. E. Lamonde, E. Morcissette, W. Peters.
  - Masons—G. B. Ginchereau, W. Sharp, P. Larose, J. Giroux.
  - Painters—B. Leonard, B. Vaillancourt, J. A. Marier, Messrs. Simard and Gauthier.
  - Gas Fitters and Plumbers—J. Walker, A. Picard, M. Matte, C. Vezina, Mr. Brousseau.
  - Roofers—P. Dallaire, E. Falardeau, Messrs. Barbeau and L'Heureux.
  - Contractors' Supplies—W. H. Wiggs, L. H. Gaudry.
  - Electricians—R. H. Gale, T. Lonergan.
  - Stonecutters—Eug. Roy, H. Laforce, A. Lefavre, Mr. Bedard.
- Ald. A. Galipeault, advocate, has been retained as legal adviser.

**NEW CONSTRUCTION COMPANY.**

There are few building concerns in Canada at present that pretend to make a specialty of speed in construction, though the demand for rapidity is daily becoming more and more of a requisite among engineers, architects and owners in letting contracts for important works. A company which aims at speed, and what is more guarantees to accomplish it and to work likewise with efficiency and economy, is the Dominion Engineering and Construction Company, Limited, recently organized in Montreal. Its directorate contains some of the best known names in the Canadian building world. Randolph Macdonald, the president, has had a wide experience in large undertakings all over the country, Henry Holgate, the vice-president, stands in the front rank as a hydraulic engineer, Frank B. Gilbreth, the second vice-president, is well known as a handler of large construction

works, Robert A. Ross, the secretary and treasurer, is one of the foremost electrical and mechanical engineers in Canada, and John A. Aylmer has been identified with railway and canal building.

The Company works on the Gilbreth cost-plus-a-fixed-sum-system because it believes that under this principle all temptations to skimp are eliminated. This system as perfected by the Company's second vice-president combines the results of a long practical working experience and a routine worked out to the smallest detail throughout the construction organization. To attain dependable speed in construction has been the goal of the Gilbreth system, and the fact that it has reached that goal led the Engineering Company to adopt it as the foundation principle. The methods in use under the system cannot fail to interest architects, engineers and owners.

In a word this system puts at the disposal of the owner a highly trained building department which he uses to his own best advantage while the contractor acts as his trusted department head. This union of interest results in speed plus efficiency and invariably leads to repeat orders.

The Dominion Engineering and Construction Company has just closed a contract on the Gilbreth System with the Canadian Copper Company, which is erecting an extensive plant and buildings at Copper Cliff incident to the opening of new mines. The Copper Company's first demand was speed in construction and the Engineering Company regards its selection to do the work as a distinct triumph for progressive Canadian methods.

It is rumored that a large cement works is likely to spring up in Edrans, Man., owing to a vein of clay ten feet deep having been found on the farm of T. Seaman. A sample is now in the hands of experts, being tested.

It is announced that "The Re-inforced Cement Block Company" is about to start operations in Vancouver, B.C., for the manufacture of a new style of cement block invented by local men. The new block is of a sort of dual type, being composed of two sections held together by malleable steel braces, leaving a clear air-space of several inches to insure a completely dry wall under any conditions. Any style of finish can be put upon the face of the block. The Company is to start operations with a fully paid up capital of \$50,000.

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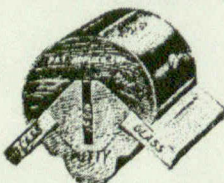
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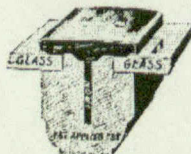
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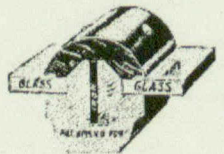


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CONCERNING DRY ROT.

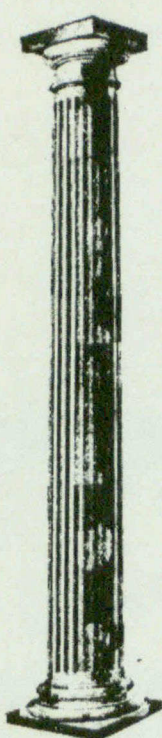
Mr. Harry Hems, of Exeter, who writes on this subject in *The Builders' Journal*, in answer to a request for information as to a preventive, mentions that infection with the dry-rot fungus sometimes takes place in the forest, when felled timber remains stored there for some time. The first evidence of such infection is indicated by the presence of red stripes in the sawn wood. If such wood is thoroughly seasoned the mycelium present in the red stripes is killed. If the seasoning is neglected or imperfectly done, the mycelium, which possesses the power of remaining in a latent condition for some time, commences active growth when the wood is used in any part of a building where it is exposed to dampness, and this in some cases is unavoidable, as when the ends of joists are built into a wall. Under such circumstances, dry-rot eventually appears. On the other hand, the fungus is by no means rare on old beams and boards stored in wood yards, etc., and it is mainly from such sources that spores or portions of the spreading mycelium are introduced into buildings by new wood which has become infected.

Again, when a house that has suffered from dry-rot is being repaired, sufficient care is not exercised in the immediate destruction, by burning of all diseased wood, and portions that are not too much decayed are often stored for repairing purposes. In consequence the air in towns always contains spores of the dry-rot fungus. During the building of a house, the danger arising from the presence of dry-rot may be reduced to a minimum by taking proper precautions. A thorough system of ventilation and the avoidance of damp, stuffy places is of primary importance. The endeavour to exclude dry-rot by hermetically closing all communications with the outer air in the spaces between flooring-boards and joists and similar places, has been practically demonstrated to be an utter failure. In the case of a recently-constructed mansion the expenditure of many thousands of pounds was entailed in rectifying the consequences of such a proceeding. Perhaps the greatest source of danger arises where the ends of joists are built into a wall near the basement of a house, and this is more especially true where there is evidence of red stripe in the wood. As a precaution, the ends of joists should always be treated with creosote.

Coal tar is not recommended, as its power of penetrating into the wood is very limited, and by forming a waterproof coating it prevents the wood from drying.

A frequent cause of trouble is the use of damp, deadening material, or pugging and covering it over with boards before all the moisture has evaporated. Such material should be used as dry as possible, coarse sand being the best for the purpose. The surface of boards coming in contact with deadening material

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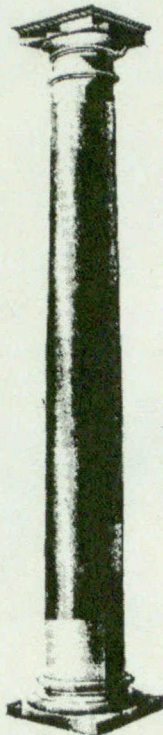


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should first be painted over with methylated spirit containing corrosive sublimate in solution 6 ozs. to 1 gallon. The spirit evaporates, leaving a coating of corrosive sublimate on the boards, which completely destroys any mycelium coming into contact with it. It has been proved that the spores of dry-rot can only germinate in moisture containing some alkali in solution, hence coal-dust, cinders or any kind of humus should never be used for deadening or packing.—*The Architects' Magazine.*

The journeymen plumbers, of London, Ont., who threatened to strike for an increase of five cents an hour, have compromised

on the basis of two and a half cents advance, making the minimum per hour 37½ cents and maximum 47½.

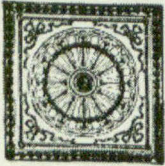
The Standard Paint Company of Canada, Limited, have recently been incorporated with a capital stock of \$150,000. The chief place of business will be Montreal, Que. The promoters include Messrs. Ralph L. Shainwald, New York, Louis C. Ruger, Round Brook, N.J., and D. W. Lockherby, of Montreal.

The contracts for supplies of cement for the city of Hamilton have been secured for the past few years by American manufacturers and the Hamilton rate has been made the basis of contracts with other Canadian cities. Last year, the price delivered in Hamilton, free, was \$1.55½ per barrel of 350 pounds. The consumption by the city was 4,000 tons, and a large additional amount was sold to private parties at the same rate. The duty is 12 cents per hundred weight on cement and 20 per cent. ad valorem on sacks.

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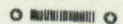
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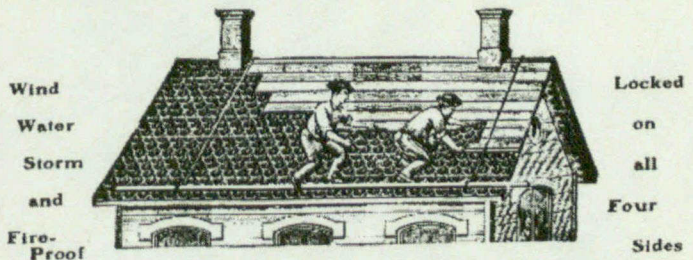
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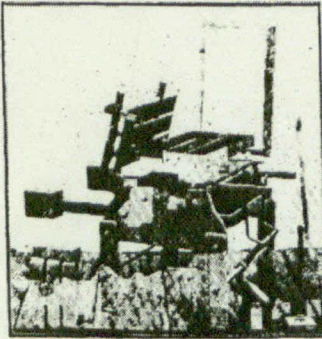
The Standard granite quarries are now running full blast again, the places of the striking granite cutters having been filled with non-union men.

Hooper, Houkes Company, Limited, Winnipeg, are applying for change of firm name to Hooper Marble & Granite Company, Limited.

New machinery has been installed at the works of the Sydney Cement Company, Sydney, N.S., increasing the present capacity of the works to an output of 500 barrels in twenty-four hours.

Mr. William Hayman, of Wm. Hayman & Son, builders, London, Ont., is retiring from the business, which will in future be carried on by his son under the name of H. Hayman.

The Cement Brick Company, of Parry Sound, Ont., have purchased a half of the Bryson property and are erecting necessary buildings for the extension of their plant. A brick machine, with capacity of 20,000 cement bricks per day, is being installed.



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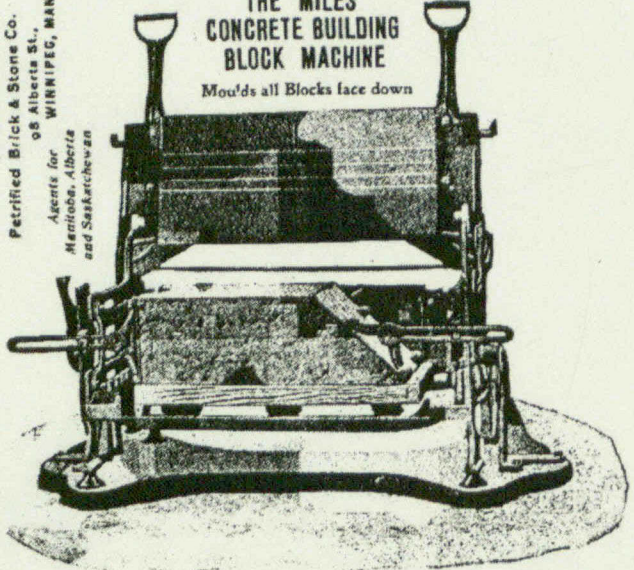
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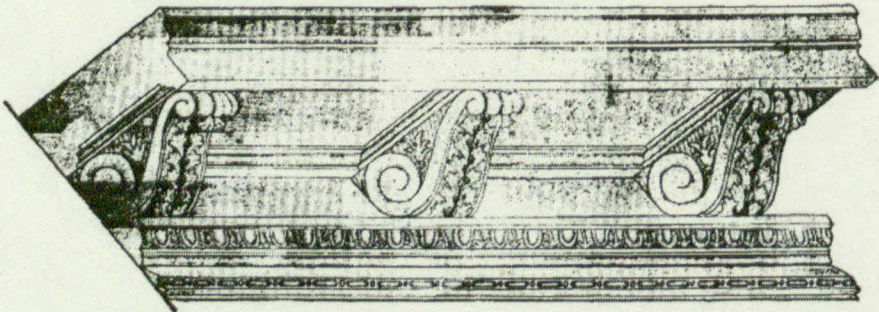
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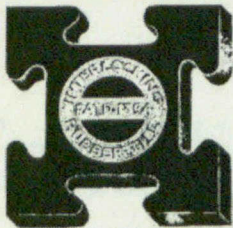
Sandstone deposits have been located on the Upper Saskatchewan River by J. McK. Dickson, of Edmonton, that will prove of incalculable value to Edmonton builders. The stone was located after two years of most persistent and searching prospecting. The find was thoroughly tested, the claims surveyed by Mr. Driscoll, D.L.S., and the quarries are now ready for working. The supply is unlimited. Mr. Dickson states that there are millions of tons of the purest blue-grey sandstone, in beds from forty to one hundred and eighty feet deep. There is not over three feet of earth on the beds and the quarries can be economically worked. The sandstone is superior, architects and builders claim, to any Western stone that has yet been quarried. When taken from the quarry the stone is

soft, a knife cutting it easily. Exposed to the air, this wonderful combination of silicate and lime hardens to flint, and assumes a blue-grey color that is the admiration of builders.

The following students were successful in passing the recent examinations in Architecture at the School of Practical Science, Toronto: First year—Honors J. P. Molesworth. Pass—W. C. Collett. Second year—Pass—C. B. Jackson, G. N. Molesworth. Third year—Honors—A. W. McConnell. Pass—A. G. Creighton, W. N. Daniels.

The Welland Concrete Company has been organized and will engage in the manufacture of cement brick, etc. The company is capitalized at \$20,000, and will have its plant near the T. H. & B. spur at Ridgville, Ont. The following officers have been appointed: President, Geo. Arnold; vice-president, Col. Raymond; secretary, B. J. McCormick; treasurer, Col. Raymond.

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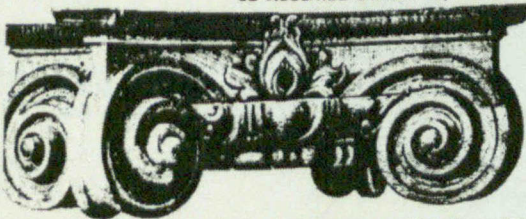
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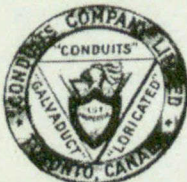
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PERSONAL.

Mr. E. N. Storey, architect, formerly of Kingston, Ont., has opened up architectural offices in Regina, Sask.

Mr. John Britnell, cut stone contractor, 93 Sommerhill avenue, Toronto, and his son Albert, have left for a two months' visit in Europe.

Mr. Barrett, a prominent member of the Toronto Architectural Eighteen Club, has gone to Regina and commenced a practice in that city.

Mr. Jacob Wright, a well known builder and contractor of Toronto, died at the home of his son-in-law, Mr. T. J. Cliffe, 19 Rusholme road, Toronto, early in June. He had reached the age of eighty-five years.

CALGARY LABOR TROUBLES.

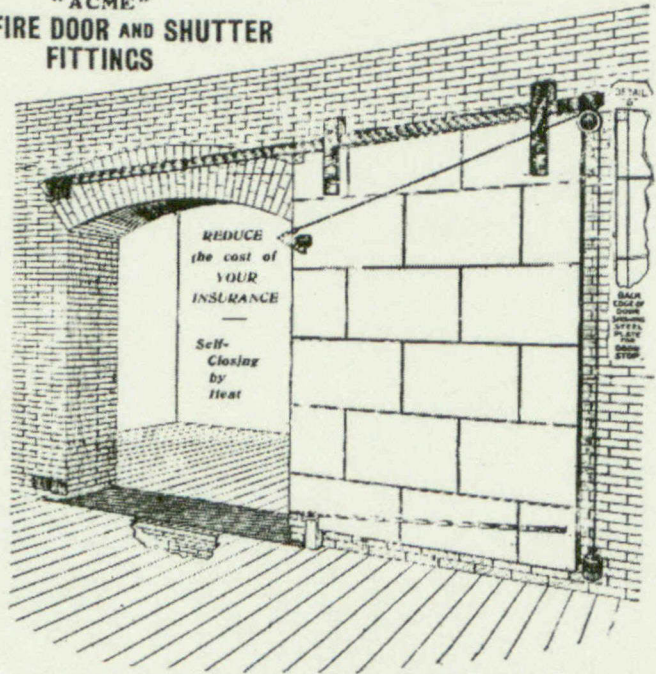
The two strikes, those of stonemasons and bricklayers, which have been troubling Calgary for several weeks have been settled. The former were asking an increase from 55 cents to 60 cents an hour and the latter 55 cents to 65 cents. A compromise has been effected. The stonemasons get what they asked, and the bricklayers get 62 1/2 cents. The agreements have been signed for three years. An arrangement has also been made for a conciliation board in case of difficulties.

NOTES.

The Western Iron Works, Limited, successors to the Myres Iron Fence Company, Limited, Winnipeg, have just opened a new factory in Elmwood, Man. Some of the lines to be manufactured are architectural and ornamental iron work, wire work and iron fencing.

Another active manufacturing plant has begun operations in Hamilton. It is the Diamond Flat Glass Company, at James and Picton streets. The company, which is controlled by head offices at Montreal, is occupying the old plant of the Hamilton Glass Company. Every portion of the new plant has been constructed in the most improved manner. Considerable labor-saving machinery has been installed. The new furnace installed has a capacity of 100 tons. At first about 20 tons of composition will be treated daily. The new machinery has a capacity of about twelve hundred dozen bottles per day. At first only bottles will be manufactured, while at a later date glassware of every description will be turned out. To prevent the closing of the plant in case natural gas might possibly give out, the company have constructed three gas generating tanks, which can be put into operation within a moment's notice.

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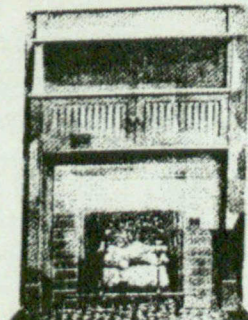
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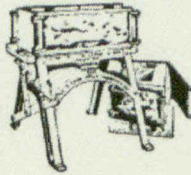
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