PAGES

MISSING

INDEX TO ADVERTISEMENTS

To the "Canadian Architect and Builder."

DIRECTORY OF LEADING STONE AND GRANITE DEALERS

LIGHT BROWN or RED STONE

Sackville Freestone Co., Limited
Sackville, New Brunswick.

—LARGE BLOCK, DIMENSION, SHODDY.
State your requirements and ask for prices before contracting.
C. PICKARD, Managing Director.

Amherst Red Stone Quarry Co.
AMHERST, N.S.
Amherst Red Stone
Samples Sent Free *Hardens with Age*
Correspondence Requested

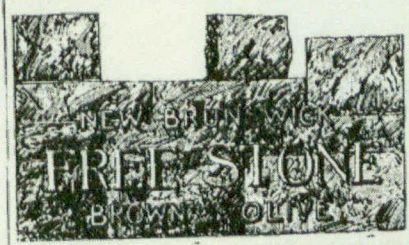
STONE.
Contractors can be supplied with all kinds of stones—Rubble, Coursers, all thicknesses, Footing Stone, Flagging, Crushed Stone, and Grey lime, at Horse Shoe Quarry, St. Marys, Ont., at reasonable prices, in quarry or f.o.b. cars at St. Marys, or destination. Also an analysis of their stone for refining purposes or a flux.
ALEX. DOUGLAS, Pres. GEO. D. LAWRIE, Sec.-Treas.

JOHN KLINE
—DEALER IN—
ROUGH AND DRESSED GRANITE
Heavy blocks a specialty. Street paving and curbing. Also granite for monumental and building purposes. Estimates and samples on application
JOHN KLINE, Granite Dealer, HALIFAX, N.S

GRANITE
Red and Rose Pink
Fine Rich Colours for . . . . .
BUILDING and MONUMENTAL PURPOSES and GRANITE PAVING
can be had at low figures from the
St. Phillipe d'Argenteuil Quarries.
Send for quotations and samples to
JOS. BRUNET
Cote des Neiges, Montreal, Que.

MOAT RED—Sand Stone.
BLACK PASTURE—Buff.
NOVA SCOTIA—Blue Grey.
BATH—Box Ground Grey.
Selling Agents for Canada—
Thos. Samuel & Son,
A. G. MOONEY, Manager.
Telephone Main 2448. 15 Lemoine St., MONTREAL

JAMES BRODIE & CO.
Quarriers and Manufacturers of...
Canadian Quinsy, Ebony and Stanstead Granite
Monumental Building, Curbing, Paving, etc. - Rough Stock a Specialty.
Mount Johnston, Que.



BROWN AND OLIVE
FREE STONE
Any dimensions and finest quality, for BUILDING PURPOSES, from our New Brunswick quarries.
Pulp Stones
SAMPLES ON APPLICATION
WM. HOOD & SON
10 Richmond Sq., MONTREAL

D. ROBERTSON & CO.
LIME AND STONE
Credit Valley Sandstone, Sills, Heads, Coursing and Dimension Stone our Specialties, either dressed or in the rough.
Lime Works at Milton.
Offices, Toronto and Milton.

TO CONTRACTORS AND BUILDERS
Cheapest and best stone on the market for footing, bridge work, dimension of all sizes, sawed blocks, slabs and kerbing
Silex Stone Quarries Co.
SHELBURNE, ONT.

CROOKSTON QUARRIES, Crookston, Hastings Co., Ontario.
LIMESTONE *adapted for all kinds of heavy Masonry.*
Also Sills, Monument Bases, Rubble and Stone for crushing purposes.
Grand Trunk & C. P. R. Sidings.
QUINLAN & ROBERTSON.

CREDIT FORKS STONE CO.

84 Adelaide St. W. - TORONTO

Brown Stone Quarries,
Credit Forks, Ont

Supply the Best . . .

BROWN STONE IN . . CANADA

DIMENSION COURSING
RANDOM SHODDY
HEADS, SILLS RUBBLE

BRIDGE STONE

OFFICE:
34 Adelaide St. W.
TORONTO
Telephone 208

For Prices of Unoccupied Spaces in above Directory, address the CANADIAN ARCHITECT AND BUILDER, Toronto.

The Canadian Architect and Builder

VOL. XV.—No. 179. NOVEMBER, 1902.

ILLUSTRATIONS ON SHEETS.

Two Houses in Toronto.—Eden Smith, Architect.
St. John's Church, Toronto.—Eden Smith, Architect.
Branch of Dominion Bank, Toronto.—Eden Smith, Architect.

ADDITIONAL ILLUSTRATIONS IN ARCHITECTS' EDITION.

Photogravure Plate—Merchants' Bank, Winnipeg, Man.—A. T. Taylor, F.R.I.B.A., Architect.
Photogravure Plate—London & Globe Insurance Company's Building, Montreal.—Hutchison & Wood, Architects.
New Chemistry and Mining Building, School of Practical Science, Toronto.
Shop Front, Main Street, Winnipeg, Man.—Sketched by Percy Over.

CONTENTS

SPECIAL CONTRIBUTORS.

PROF. S. H. CAPPER, R.C.A., Department of Architecture, McGill University, Montreal
MR. W. A. LANGTON, Architect, Toronto.
" EDMUND BURKE, " "
" S. H. TOWNSEND, " "
" FREDERICK G. TODD, Landscape Architect, Montreal
" W. H. ELLIOTT, Toronto.
" J. C. B. HORWOOD, Architect, Toronto.
" A. F. DUNLOP, R.C.A., Architect, Montreal.

Glass as a Fire-Resistant.

A malleable glass is being manufactured at Matthews, Indiana, which is said to be capable of withstanding the greatest possible extremes of heat and cold, including sudden changes from the one to the other. In appearance this glass is said to be much like the ordinary product. It can be made of the thickness of a sheet of paper or as much heavier as desired. The material should prove valuable as ordinary window glass, but especially as a fire-resistant.

Insanitary Buildings.

IT is to be hoped that some definite result may follow the agitation now going on in Toronto to compel the removal of insanitary buildings. York street in that city will serve to illustrate conditions that ought not to be allowed to exist. For years this street, located in the very heart of the business district has been the abode of vice of every kind sheltered in tumble-down buildings, the owners of which reap large returns on their investments and profit largely by the improvements carried out by neighboring property owners. No doubt the local Board of Health has authority to order the removal of buildings which have become dangerous or insanitary. If so, we may hope that the Medical Health officer, who is known to be an energetic official, will now give his attention to the evil.

A Business Opportunity.

THERE would seem to be an opening in Canada for first-class furniture designer. As a result of the rapid increase of wealth in the last few years, there has come a demand for more costly residences and furnishings, and for specially designed furniture. Large orders for special furnishings have recently been given by Canadian architects to United States firms. Most of the furniture now manufactured in Canada is machine made from stock designs purchased in the United States. As a rule these designs have little or no merit, and are duplicated thousands of times so that they are everywhere in evidence. Persons who have the taste for something better and the means wherewith to buy, should in future have their requirements met by Canadian designers and manufacturers.

Esprit de Corps.

IF the profession of architecture is to be held in public respect and if associations of architects are to accomplish any useful purpose some of the members must be more particular than at present in their methods. Esprit de corps is not promoted by the knowledge that fellow architects have approached your clients and asked to be allowed to submit sketches free of cost, even after your plans have been approved and tenders thereon received. Conduct of this kind is unfortunately in evidence and

is one of the greatest stumbling blocks to the advancement of the profession. There cannot be good-fellowship among architects while petty jealousies and disloyalty prevail. Neither can clients whose attention is drawn to these things be expected to hold the profession in highest esteem.

Profitless Contracts.

A Toronto contractor assures us that builders in that city are receiving very small profits from their undertakings. The times are prosperous and plenty of building is being done, but it is claimed that the keenness of competition and high prices of labor and materials are proving an off-set, and standing in the way of proper returns to the contractor. There are said to be about two-hundred building contractors in Toronto at the present time, which is far too large a number even in prosperous times like the present. Some of these men are so anxious to get a large amount of work that they tender at ridiculously low figures and thus lower the standard of prices all round. A much wiser course would be for all tenderers to allow in their estimates for a fair margin of profit, and thus assist in securing for builders their share of the results of the prevailing prosperity. If when the times are good little or no profit can be made, the outlook will be gloomy indeed when hard times shall return.

Smoke as an Explosive.

A lecture was recently given by William McDevitt, Insurance Inspector, before the Fire Insurance Society of Philadelphia, in which the explosive quality of hot smoke was demonstrated. The author explained that in a fire, free carbon rises and mixes with hydrogen; methyl-alcohol, creosote and other gases are also present in smoke. These gases become heated to the point of ignition, and an explosion is the result. Of itself, smoke would explode at a temperature of from 600 to 800 degrees, but frequently the smoke is ignited by sparks or by coming into contact with a flame. Very thick smoke, when ignited, becomes a pillar of flame, and rolls through a room with such force as to shake the walls and make the windows rattle. If sprinkled with water there would be no explosion. Where formerly firemen tried to keep smoke in, under the impression that it smothered the fire, they now immediately break in windows or skylights to let it out. The construction of a central shaft in large stores and other buildings was recommended as one of the best methods of avoiding smoke explosions.

Sewage Disposal on Vessels.

The beauty of the Muskoka Lakes and their value as a health resort have been published far and wide over the continent. As a consequence the number of persons who summer there is steadily increasing year by year. Dr. Bryce, the efficient head of the Provincial Health Department is keenly alive to the necessity of securing the adoption of such sanitary precautions as will maintain as nearly as possible the original purity of the air and water on these lakes. Most of the hotels, including the new Royal Muskoka, are fitted with the septic tank system of sewage disposal described by Dr. Bryce in his admirable paper read before the Ontario Association of Architects last year. Last summer the further step was taken of placing a septic tank on one of the Muskoka Navigation Company's steamers. The experiment is said to have proved entirely successful, all the sewage from the vessel with the exception of the liquids was consumed by the bacteria in the tank. It is probable that next year all the steamers on these lakes will be provided with septic tanks, thus stopping to a large extent the pollution of the water and greatly reducing the possibility of the spread of disease.

C. A. & B. STUDENTS' COMPETITION.

The publishers of the CANADIAN ARCHITECT AND BUILDER invite architectural students in Canada to submit designs in competition for a suburban or town house to cost not more than $2,500.

The building is to be designed for an inside lot having a frontage of 50 feet, situated on the west side of a street running north and south. The adjoining lots on either side have houses on them 30 feet back from the street line and 10 feet from lot line on either side.

Competitors are required to submit two elevations or a perspective, together with plans of basement, ground, first and attic stories, drawn to 1/8 scale in a manner to permit of reproduction within the limits of a double page of the CANADIAN ARCHITECT AND BUILDER, viz., 10x15 inches in size, also details to a larger scale of important or special features of the design. Drawings must be made with PEN and PERFECTLY BLACK INK on WHITE DRAWING PAPER, OR CARDBOARD. NO BRUSH WORK WILL BE ALLOWED.

Competitors should state the materials proposed to be employed in construction.

Drawings for this competition should be signed with a motto only and be accompanied by a sealed envelope bearing the same motto and enclosing the full name and address of the designer and the name and address of his principals. They should be sent FLAT by post or express, charge prepaid, addressed "CANADIAN ARCHITECT AND BUILDER, Toronto, Canada—Student's Competition," and must reach this office not later than noon on Saturday, January 10th, 1903.

The members of the joint Educational Committee of the Toronto Chapter of the Ontario Association of Architects and the Toronto Architectural Eighteen Club have kindly consented to judge the designs submitted in this competition, and their decision will be final.

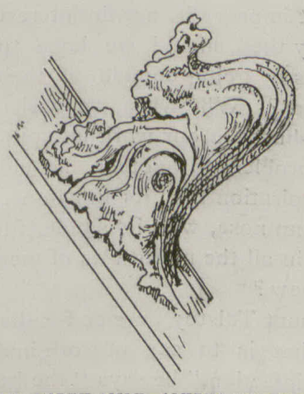
The prizes offered are : First prize, cash $15.00 ; second prize, cash $10.00, third prize one year's subscription to the CANADIAN ARCHITECT AND BUILDER ARCHITECTS' EDITION.

The publishers of the CANADIAN ARCHITECT AND BUILDER reserve the right to publish any of the designs submitted and to withhold the prizes if in the judgment of the jury the designs should not be found worthy of the awards.

Intending competitors are requested to read carefully the conditions of competition, and to strictly comply with the same in every particular.

Messrs. Ouellett & Levesque, architects, of Quebec, have registered a partnership.

A brilliant dark green for front gates or doors can be got by first and second coating on old work with two coats of Prussian blue and at least two of verdigris, to be finally finished with good, clear varnish, when the work, if properly done, will last for years, and cannot be successfully matched with any other greens on the market.



SCREEN, NORTH AISLE—AMIENS CATHEDRAL.

COUNT TOLSTOY ON ART.

Count Leo Tolstoy, in his book entitled "What is Art? makes a contribution to the question which can hardly fail to affect the progress of art in Europe.

Before making his own definition of art he gives a summary of the views of aestheticians for over 200 years, which must have cost him much labour. It is not easy reading and the conclusion he brings us to is that it is not profitable reading, because the object of the aestheticians is to discover the nature of art by the consideration of examples of all kinds — bad as well as good — and devising a definition of art to cover all these productions. The result of these investigations is a general conclusion on the part of the aestheticians that beauty is the object of art: "that art is that which makes beauty manifest, and beauty is that which pleases." Feeling the instability of this definition of beauty, "many aestheticians have asked themselves why a thing pleases," and "have converted the discussion on beauty into a question concerning taste," and there it squanders. There is no explanation of why a thing pleases one man and displeases another. So that the science of aesthetics fails as a science. "It does not define the qualities and laws of art, or of the beautiful (if that be the content of art), or the nature of taste (if taste decides the question of art and its merit), and then, on the basis of such definitions, acknowledge as art those productions which correspond to these laws and reject those that do not come under them."

Tolstoy quarrels with both the system and its result. He objects to the aim and purpose of art being considered to be the pleasure we get from it, as much as he would object to its being considered that the purpose and aim of food is the pleasure derived when consuming it. He proposes to define art first, and then decide what is and what is not good art by judging whether a work conforms or does not conform to the definition.

"In order to correctly define art," he says, "it is necessary, first of all, to cease to consider it as a means of pleasure, and to consider it as one of the conditions of human life. Viewed in this way we cannot fail to observe that art is one of the means of intercourse between man and man." The peculiarity of this means of intercourse he finds to be that whereas by means of words men transmit their thoughts, by means of art they transmit their feelings.

In order to be a true work of art the feelings transmitted must be the artist's own feelings, which he has lived through either in actual experience or by his imagination. It does not matter what the feelings are, whether they are strong or weak, bad or good: "feelings of love for native land, self-devotion and submission to fate or to God expressed in a drama, raptures of lovers described in a novel, feelings of voluptousness expressed in a picture, courage expressed in a triumphal march, merriment evoked by a dance, humour evoked by a funny story, the feeling of quietness transmitted by an evening landscape or by a lullaby, or the feeling of admiration evoked by a beautiful arabesque—it is all art."

He therefore makes the following definition:—"Art is a human activity, consisting in this, that one man consciously, by means of certain external signs, hands on to others feelings he has lived through, and that other people are infected by these feelings, and also experience them."

This is art—the definition seems indisputable—but it is not by any means the whole matter of the treatise. The author reaches this definition in 50 pages but there are nearly 200 beyond. He has still to mark off the classes of work which, though they have been usually considered to be art, do not conform to this definition, and to reject the classes of work which, though they do come under the definition and must be called art, cannot be upheld as serving any useful purpose.

The first of these two heads is of the greater immediate interest to architects.

In order the better to distinguish true art from false, Count Tolstoy traces the course of art from the early centuries of Christianity, when renunciation of the world was the motive of life, and art renounced the transmission of feelings of personal enjoyment; through the Middle Ages when, under the inspiration of the church, pious adoration, the fear of hell and the hope of heaven were the themes of good art; to the time of the Renaissance when the rich and powerful, no longer able to believe in Church religion and incapable of accepting true Christian teaching, stranded without any religious conception of life, involuntarily returned to that pagan view of things which places life's meaning in personal enjoyment. It is here he finds not only a great impoverishment of the subject matter of art but the source of the involved, affected and obscure art which has since grown up.

Art does seem at the time of the Renaissance to have fallen into a whirling gulf from which there is no advance, and the change of motive from religious feeling to pleasure would sufficiently account for it; for the satisfaction of pleasure brings merely satiation, while the satisfaction of religious feeling is a renewal of impulse.

In leaving the way of religious feeling and devoting itself to the satisfaction of easily staled enjoyment, art lost the greatness which belongs to it only when it is comprehensible to every one, and became an amusement of the upper classes; in consequence of which, in the pressure of meeting demands for art which did not spring spontaneously in the artists' inner self, artists have had to devise methods of producing imitations of art.

These methods are those of (1) borrowing, (2) imitating, (3) striking (effects), and (4) interesting.

"The first method consists in borrowing whole subjects, or merely separate features, from former works recognized by every one as good works of art and so re-shaping them with sundry additions that they should have an appearance of novelty." This method in its

adaptation to architecture, requires no comment. We are all familiar with it : indeed it seems as if whole fields of work in modern architecture are founded upon this method, and that a great part of modern architecture is a counterfeit art.

The second method (that of imitating) is shown in literature and the drama by dependence upon realism, in music by the attempt to imitate sounds, in painting by the photographic method. In architecture, imitation is too troublesome to be a temptation.

To imitate by architecture structures which are outside the field of architecture requires at least constructive invention. The temptation in architecture is to imitate itself ; to adapt to one branch forms which are only proper in another. It is this which gives us armouries that look like fortresses and which produced Wemmick's castellated cottage.

In the third method (striking) "the effects consist chiefly in contrast;" in bringing extremes together, and producing variations from the ordinary which strike by their unexpectedness. In painting Count Tolstoy describes the "chief and usual effects" to be "effects of light and depiction of the horrible." In architecture it is the creation of the horrible we have to guard against, and perhaps it is best done by applying the old rule for young writers that the part where one is conscious of effect is the part to score out : in other words not to try for effectiveness at all. Architecture consists not in effects but in idea : effects may strike but it is only the idea that infects.

The fourth method—that of interesting, that is too say of absorbing the mind with matter connected with the work—is the most plausible of all the counterfeits of art, for the interest does reside in the work and it is easy to mistake the excitement of interest for the transmission of feeling ; but as a matter of fact the occupation of the mind in this way rather hinders than assists artistic impression—or, to use a word which expresses Count Tolstoy's doctrine better, artistic infection. It is in this way that—to take an example from architecture—those residences which have a classic hall, a Jacobean dining room, a Gothic library, an English drawing room, and a Rococo boudoir fail to impress one with any feeling for the work as a whole, but to excite rather the somewhat wearying interest that one takes in a museum.

Art then is only real art when it infects the spectator (to confine ourselves now to architecture) with a feeling which is original with the artist. If it is original with the artist it must be new to the beholder, and Tolstoy says, "An art-product is only a genuine art-product when it brings a new feeling (however insignificant) into the current of human life." It is this effort after something new that has led designers to aim at what is striking or interesting. It is a mistake. The path to originality lies in renouncing originality. This is no great paradox when we come to see what it means.

Whoever heard complaints of monotony in the appearance of the human face? The poet may write "a sonnet to his mistress' eyebrow," fifty times and not repeat himself, if he only has fifty mistresses. No artist tries to improve upon the human nose when he paints a face. Ridiculous as the human nose is, its Creator has made it a beautiful object when its proportions are strictly suited to its needs. Striking effects do not improve it, nor do interesting embellishments. Why then should we hope to improve our own creatious by going outside of their functions for our inspiration? Why when we wish to procure the charm of freshness in our work in spite of the similarity of one problem to another, should we seek for any other inspiration than its functions, when we see how the human nose, with its similar functions and its similar form in all the multitudes of men, is nevertheless always new?

Here is Count Tolstoy's recipe for the production of infectious—that is to say of original—art. "The stronger the infection," he says "the better is art, as art, speaking now apart from the subject matter.

"(The fourth quarter of his book is devoted to the condemnation of much of the subject matter mentioned in the quotation from him, in the earlier part of this article, as being art. He considers no art to be good art which does not transmit either the feelings of religious perception or the simplest feelings of common life. And its function as one of the means of human intercouse is to unite men in feeling. Hence he excludes all art that transmits church or patriotic feeling or the feelings pertaining exclusively to the aristocratic and idle rich. These views however cannot be considered in the present article).

To return to the recipe for producing infection. Count Tolstoy says : "the degree of the infectiousness of art depends on three conditions.—(1) On the greater or lesser individuality of the feeling transmitted ; (2) on the greater or lesser clearness with which the feeling is transmitted ; (3) on the sincerity of the artist, i. e. on the greater or lesser force with which the artist himself feels the emotion he transmits."

Now these three conditions may, as the author himself says, be summed up in the last, sincerity ; for if the artist is sincere—as each man is different from everyone else, his feeling will be individual for everyone else ; and, if he be sincere, he will be sure to to be clear.

It is thus that renunciation of originality is the way to originality, for the designer must lose himself in his problem if he is sincere. And the encouragement to do so is that it is only when this imagination is thoroughly infected with his problem that he can express it so as to infect with his feeling those who look upon his work.

W. A. Langton.

ARCHITECTURAL MATTERS IN TORONTO.

The Toronto Chapter of the O.A.A. have decided to establish for the benefit of the members a class on the History of Architecture. The first meeting will be held in the O.A.A. rooms, 94 King Street, West, on the first Monday in December between the hours of 5 and 6 p.m. Under the direction of Mr. W. A. Langton the class will first take up the Norman period, and later the Early English period under the direction of Mr. John Gemmell.

A Committee composed of Messrs. Symons, Wickson and A. H. Gregg has been appointed to take charge of the scientific classes in connection with the educational work to be undertaken jointly with the Toronto Architectural Eighteen Club. Professional teachers will be employed for these classes, which will be of such a character as will prepare students for entrance to the School of Practical Science.

On the evening of the 11th inst. the members of the Toronto Chapter and of the Toronto Architectural Eighteen Club met in the rooms of the Association and discussed with Mr. A. F. Wickson the revision of the city building by-laws.

AN "ART NOUVEAU" HOUSE IN PARIS.

The Parisian who, starting from the Bois de Boulogne or from the Place de l'Etoile, walks along the Avenue Victor Hugo and turns into the Rue Saint-Didier, sees on his left an edifice of very novel aspect. In front, fenced off from the street by an ornamental railing of light construction, there is a court-yard, partly covered, and on the left of this court-yard a building of a character hard to define, but which gives one the idea of a chapel whose distinctive signs are hidden by details thoroughly modern in style. Behind the court-yard and chapel stands a spacious hall, the dome of which dominates all the rest. This hall is fitted up for concerts. Everyone who passes in front of the edifice asks himself: "Whatever can this be? What is this mixture of things so dissimilar—a court-yard, a chapel and a concert hall?" What it has been intended to build at No. 60, Rue Saint-Didier is an edifice of a special kind, comprising two things, namely, a public hall and a patronage. (A patronage is a sort of school where the children and young people who attend it are taught morality and religion.)

This edifice is called the "Ecole Humbert de Romans," after an ancient monk known by his writings on religious art, and particularly on sacred music. It is also a monk, the Pere Lavy, belonging to the Dominican order, who is the originator of this edifice. His idea was that it should be a school of divine art—a sort of religious and popular Conservatoire. Thanks to his great influence among wealthy people in Paris, the Pere Lavy succeeded in collecting about £40,000 for the erection of his academy. What interests us is the structure itself, the architect of which is M. Hector Guimard, who came into prominence as an exponent of the new architecture when he designed the stations of the Paris Metropolitan Railroad.

The edifice in the Rue Saint-Didier had to comprise a concert hall capable of holding from 1,500 to 2,000 persons. It had to have a gallery. On one side there was to be a stage, with a grand organ at the back of it. Besides the hall itself there were to be the necessary subsidiary buildings, such as the cloakrooms, lavatories, vestibules and so forth. The establishment also had to have a janitor's lodge, a chapel 27 metres long by 8 metres in width for the accommodation of the Pere Lavy, and a patronage communicating directly with the hall.

The principal facade, as already stated, is on the Rue Saint-Didier. In front of its central part, however, there is a fairly spacious court-yard, separated from the street by an ornamental iron railing 7ft. high. Entering by the doorway on the right, one first reaches an outer vestibule, in which there is a vestiary, fitted up in such a manner that the garments are hung upon pegs. Two other vestibules lead out of this first one, and the effect is that the hall has wide exits on three of its sides. These vestibules all have a floor in pink imitation marble with a pattern of lilies and golden nenuphars. They are built of stone, iron and cement, like all the lower part of the edifice, and thus are practically fireproof. They communicate with the hall by a continuous row of doors, which arrangement is very convenient and constitutes, moreover, a safeguard in case of fire.

The hall is 29 yds. long and 25 yds. wide. It is formed of a visible structure, springing from the ground at each corner and spreading in curves like the branches of an immense tree, in a way which gives one some what the idea of a corner of a Druidic forest. The main branches, eight in number, support a rather high cupola, pierced, like the sides, with bays filled with pale yellow stained-glass, through which an abundance of light finds its way into the hall. The framework is of steel, but the metal is covered with mahogany in all visible places. What is in reality a thin strip of steel thus has the appearance of a thick beam. The pillars, for example, measure as much as 20 in. by 15 in. at the foot and 11½ in. at the top. The principal rafters also measure 11½ in. each way, and the principal tie-beams begin with 15½ in. and finish with 10 in. on each face. Nevertheless, the tie-beam being 35 ft. long has a light and elegant appearance, owing to the great distance between the supporting points. Three hundred cubic meters of mahogany were used for the framework, and the result is the most elaborate roof ever conceived by a French architect. The mahogany is polished, has a warm red colour, and stands out from voussoirs of the ceiling, which are painted orange colour, shaded gradually lighter in the direction of the spectators. These voussoirs, between the rafters, are in plaster, decorated with antique masks and with trumpeters in the corners. A part of the ornamentation has been done in sheet-iron and forged iron platbands. To the arched buttresses electric lamps are fixed in groups of twelve, having the appearance of branches of strange fruit on foliations of iron.

At the bottom of the hall there is a platform or stage, and a fine organ with forty-four stops, built by Abbey. The case of the instrument is of mahogany, in the same style as the hall. The stage is large enough to hold 100 musicians and 120 choristers.

The hall contains 1,150 numbered seats, but there is so much unoccupied space that an audience of 1,500 or 1,600 could easily be accommodated. The armchairs are roomy, with plenty of space between each row, and they are placed quincunx-wise, in order that everybody may have a clear view of the stage. These chairs have a light cast-iron frame in the form of branches; the seat is of green leather, stamped with curves and volutes. Two staircases lead to the upper floor, which is provided with armchairs similar to those in the hall below. On the left there is a spacious room suitable for use as a lobby or as a promenade. The balcony of this floor is in iron, and it is decorated, like the balustrades of the two staircases, with lyres and musical notes. The acoustic properties of the concert hall are excellent. It vibrates extremely well, and has no annoying echo. It is an ideal hall for stringed instruments and for the voice. It vibrates almost too much for brass instruments, which have to be moderated. M. Camille Saint-Saens gave some valuable hints in this connection, and it was upon his advise that M. Guimard, in order to obtain the requisite sonorousness, planned a proper distance between the ceiling and the roof of the hall, so that they should have a cushion of air between them.

The exterior of the edifice is built of free-stone, with certain parts in millstone, brick and iron. The carving, which is interesting here and there by reasons of its fanciful treatment, has been done from models composed by M. Guimard himself, who also designed all the ornamental tiles.—The Builders' Journal.

COMPETITIONS.

A prize of 3000 lire is offered by the municipality of Venice for the best design submitted for a large gold medal to be awarded to the most important works shown at the International Art Exhibition of 1903 to be held in that city. Competitors are required to submit wax or plaster models to the exact diameter of 120 mm., accompanied by photographic reproductions 40 mm. in diameter, which will be the size of the medal. These must reach, postpaid, the office of the Secretary of the Exhibition not later than the 31st of January next, and must be signed with a motto, and be accompanied by a sealed envelope containing the full name and address of the author. The committee of award consists of the Mayor of Venice, the President and Secretary of the Exhibition and three artists.

SCHOOL OF PRACTICAL SCIENCE ; CHEMISTRY AND MINING BUILDING.

On concrete foundation walls now in place at the head of McCaul Street, Toronto, the Ontario government are proceeding to erect the brown stone and brick building shown in front elevation, in illustration plate, as it will appear from College street. The plan will cover about 262 feet from east to west, with two wings, of which the western will have a depth of about 130 feet and the eastern 102 feet. It will be placed about 30 feet back from the street line. This building is for the accommodation of the Departments of Chemistry and Mining of the School of Practical Science. Students in all departments of the school will thus attend this building for all lectures and laboratory work in Chemistry and Metallurgy, as well as the students in Chemistry and in Mining Engineering. The accommodation provided in this building will also be made to suffice for the classes in Mineralogy and Geology in the Faculty of Arts.

In addition to a sub-basement for pipes, there will be four floors available for purposes of instruction and research. A main corridor runs east and west on each floor, from which access is obtained to rooms on each side as well as to the two wings of the building. Ventilating fans will be provided in the basement which will deliver fresh air, screened from dust, and warmed if necessary by steam coils to 70 degrees Fahrenheit, to the different rooms ; but in winter the main heating will be done by radiators distributed through the building and used as required. The air will also be exhausted by fans in the attic when it is desired to have better ventilation. In this manner the ventilation and heating in each part of the building are separately under control.

The steam coils and radiators while in use will be supplied wholly or partly from the exhaust steam of an engine driving a D. C. dynamo, from which the ventilating fan motors will be supplied, as well as the current for lighting the new and the old building. At other times the usual city service will be used.

The museums for minerals and geological specimens will occupy an area about 50x80 feet in the east wing. In addition to lecture theatres, chemical, mineralogical and assay laboratories, metallurgical furnaces, and work rooms for fossils and minerals, lithology and crystallography, there will be a number of rooms for special purposes, such as calorimetry, gas analysis, toxicology, photography, electrolytic assay, fire-proof and constant temperature rooms.

Next spring the Milling Building of one storey, about 75 feet square, will be begun on ground at present occupied by the old Wycliffe College building, immediately north of the centre of the new building. The Milling Building will be equipped with such appliances as are usual in modern milling laboratories, such as stamp mills, vanners, rolls, separators, leaching plant, etc.

CONDITION OF VENETIAN MONUMENTS.

The Commission for the Inspection of Venice Monuments has presented the following report :—

The Doge's Palace.—The Commission is not aware that anything new threatens its stability, but the weight of the books of the Marciana Library must be removed.

The Procuratie Vecchie.—In this building, which forms the north side of the Piazza of St. Mark, the whole of the internal arrangements have been altered to meet the needs of trade and commerce. Besides which tons on tons of goods, a large part of which consists of glass, are stored there. Consequently cracks have appeared, and though there is no danger of collapse, still work of restoration is urgently needed. Signor Boni said he should like to see the buildings turned into dwelling-houses, thus restoring them in great part to their original use.

The Campanile of S. Stefano.—The upper half of this campanile was rebuilt after the destruction caused by lightning in 1585, but it is precisely this part that now threatens to fall. It is nearly 6 feet out of plumb. Signor Boni has therefore ordered the demolition of the newer upper half.

The Campanile of S. Barnabas.—Near the base of this campanile cracks and bulgings have been discovered. The Commission have, therefore, ordered the cessation of the ringing of its bells and they contemplate immediate repairs.

The Campanile of San Francesco della Vigna.—The Commission finds that this campanile needs strengthening. Its bells, too, have been ordered to be quiet. Signor Boni says it may have been built too near the banks of some old canal.

The Bell Tower of the Arsenal, in which hung the modern "Marangona" that called the workers to their labours, has been condemned to undergo repairs. The bell has been swung to the top-mast of a ship, and meantime does duty there.

The Church of Mater Domini is dark, and low and dismal, and the Commission report it to be in a positively deplorable condition. It will have to be closed and thoroughly overhauled and restored.

The Church of the Maricoli, considered to be one of the most beautiful Renaissance churches in Italy, has been ordered to be closed so that the necessary work may be done to preserve it.

A controversy is going on in the eastern States as to the point at which building operations begin. On the one hand it is contended that the point of commencement is the excavation. Against this C. H. Blackall, a prominent Boston architect, states that in his own experience about 10 years ago the city solicitor had decided that for a building to have been begun it was not sufficient for the excavation to have been made, but that some of the actual permanent construction of the building must be in place.

STRENGTH OF METAL IN CONCRETE CONSTRUCTION.

Summing up the results of a recent series of tests carried out by the Mininstre des Traveaux Publiques of France, to exactly determine the part played by the metal in ferro-concrete constructions, M. Considere states in a report to the French Academy of Science, that concrete-steel submitted to tension acts precisely as ordinary concrete, so long as the tensile stress does not exceed the usual breaking stress of ordinary concrete. Under higher stresses it will support without breaking extensions which, in the case of specimens hardened under water, have been as great as 1/500th the total length; and, in the case of air-hardened concrete, have ranged between 1/2000th and 1/850th of the total length. When the concrete-steel is stretched beyond the usual elastic range of ordinary concrete, the tensile stress on the concrete remains constant up to the ultimate breaking-point, the whole of the additional load being taken up by the metal. When subjected to repeated tensile stresses, however, the fraction of the load carried by the metal tends to augment, and that of the concrete to fall, until ultimately the working stress on the concrete is only 70 per cent. of its original value. If finally, after a series of loadings and unloadings, the maximum load is raised 30 per cent., the concrete again exerts a tensile resistance equal to its primitive value.

EVOLUTION IN DESIGN.

In an article in the Magazine of Art for September on modern decorative art as shown at the Turin Exhibition, Mr. Walter Crane says: "There appears to be a law of evolution working in the arts of design quite as inevitably as in the natural world. Certain germinal motives, derived from forms in nature or art, are combined by the fancy of the designer. A conflict for pre-eminence, a struggle for existence, takes place in the mind of the artist, as his hand records the stages of the evolution of his design, either on paper or in some plastic material. In view of his ultimate purpose—the use and destiny of the design—certain lines, certain forms, prevail over others as the most fitting; the design sheds inessentials and takes final shape. It may closely follow the principle of its inception, or it may, passing through a multitude of complex stages, finally be evolved in some very different shape; but in either case its development proceeds much as the development of a plant from its seed germ to its full completion and flower, always strictly adapted to its environments. I would not say that forms of design, say surface design, are always so strictly adapted, and one must always, of course, allow room for individual caprice and wilful extravagence and the desire for originality. The limits, however, of even these apparently spontaneous impulses are more restricted than might be supposed. Efforts to be new and original sometimes lead to results curiously similar in form to work of former epochs, where the constructive principle in design has been obscured. For instance, I noted in more than one new art restaurant building in the Parc Valentino (near the exhibition buildings) that which, in its general masses and distribution of ornament, in its absence of rectangles or verticals, or constructive feeling, curiously recalled buildings of the late eighteenth century, or what would be called in Hungary 'Maria Therese' type. Extremes meet, and our twentieth century new art touches, in its least consciously artistic form, the rococo decorative confectionery of the palaces of the eighteenth century.

A FIRE TEST FOR ROOFS.

Tests were recently conducted by the British Fire Prevention Committee of a slated roof and ceiling and a flat roof covered with vulcanite roofing and ceiling. The test lasted one hour, the temperature reaching 1,700 degs. Fahr., followed by the application of water for three minutes. Each floor was 100 feet super., and four weeks were allowed for construction and drying. The slates were "American green," measuring 20 in. by 10 in. by 3-16 in. thick, with a 2½ in. lap, and the ridge covered with blue Staffordshire ridging. The laths were of sawn spruce 1¼ in. by ¼ in. Gutters lined with No. 14 gauge (Vielle Montagne) zinc. The Vulcanite roofing was covered with 2½ in. of gravel and sand. The following is a summary of the effect of the fire:—In fifteen minutes the plaster to the ceiling of the slated roof began to fall; in twenty minutes the inside of this roof was well alight; in forty minutes the plastering of the Vulcanite roof began to fall; in forty-one minutes the slates on the other roof began to fall; and in forty-seven minutes the whole of the slate roof collapsed; while in fifty-four minutes the underside of the Vulcanite flat was a sheet of flame, but after sixty minutes the fire had not passed through it, and it was sound enough to walk upon.

NOTES.

The new King Edward Hotel, Toronto, which is rapidly nearing completion, is being elaborately decorated. It is understood that for the figure work in the dining room living models were employed. The furnishings, many of which are being purchased abroad, are also of an artistic and expensive character.

Work is to be begun at once on the rebuilding of the fallen Campanile, at Venice. Expert examination has proven that the foundations are intact and sound and can be utilized with perfect safety. Three hundred thousand dollars have already been subscribed, one-half of the estimated cost of rebuilding.

The authorities of Paris have recently established a scale of architects' fees for municipal work, as follows:—for buildings costing more than $160,000 4 per cent. on the cost; for buildings costing $120,000 to $160,000, 4½ per cent.; for buildings costing from $80,000 to $120,000, 5 per cent; from $40,000 to $80,000, 5½ per cent.; under $40,000, 6 per cent. The right is reserved to increase or diminish the fee as the character of the work may justify.

"I am old-fashioned enough," says Mr. John Slater, Vice-President R.I.B.A., "to think that an architect ought to try to make his building beautiful, and that a protest should be made against what appears to me to be the cult of ugliness which has been growing of late years. There is too great a tendency nowadays to mere eccentricity and originality among the younger men. There have been several buildings erected lately the cleverness—I had almost said the infernal cleverness—of which cannot be denied for one moment; but are they beautiful?"

The restoration of the Madeleine at Paris, which was decided upon about seven years ago, is only now about to be commenced. It is presumed that the recent fall of the Campanile has created alarm for the safety of the structure. It is believed that sufficient data have not been obtained from which to compute an exact estimate of the cost. It has therefore been decided to expend about 40,000 frs. on the erection of a scaffold, which will enable every part of the building to be examined. The structure will be movable, in order that along the four sides of the building the slightest defect in any of the details can be observed. The design for the present building was the work of Vignon, and was adopted because it pleased Napoleon beyond any of its rivals. But a few years before the revolutions two sets of designs for a church on the site were prepared, one by Constant d'Ivry and the second by Couture. The work which is about to be restored was completed sixty years ago.

STANDARD PORTLAND CEMENT TESTS.*

All experiments shall be carried on, as nearly as possible, at a uniform temperature of 65 deg. Fah., except when tests are being made for the purpose of ascertaining the comparative strength of cements required for winter use.

(1) PROPORTIONS.

All proportions shall be determined by weight.

(2) FINENESS OF CEMENT.

For the present, a maximum residue of 10 per cent on the 100 x 100 mesh sieve shall be the test for fineness, and the whole of the cement shall pass a 50 x 50 mesh sieve. The gauge (Stubb's) of the wire shall be No. 35 for the 50 x 50 sieve, and No. 40 for the 100 x 100 sieve. A mechanical sifter, working automatically by jig motion, and thus eliminating personal error, is recommended.

In the case both of hand mixing and sifting with the mechanical mixer, the process shall occupy a definite time, depending upon the weight to be sifted, and the diameter of the sieve. For example, with a weight of 10-oz. of cement, and sieves 8-in. in diameter, the sifting shall be continued 2½ minutes on No. 120 sieve,, 1 minute on No. 100, ¾ minute on No. 60, and ½ minute on No. 50.

The introduction of small weights, such as washers, into the cement, while being sifted, is to be deprecated, as they tend to push an undue proportion of the cement through the mesh, to stretch the wires and to increase to some extent the grinding. Such practice should not be allowed, excepting on works of construction, where there may be a necessity for ordinary rough tests.

The sieves shall be periodically examined with great care, as moisture sometimes collects on the wire, so that when a residue test is made this moisture mixes with the cement, causing a coating on the wires, and often appreciably diminishing the area of the mesh.

The sand for standard tests shall be quartz, crushed so that the whole can pass through a 20 x 20 mesh sieve (wire No. 28 Stubb's gauge), but sufficiently coarse to allow of the whole being retained by a 30 x 30 mesh sieve (wire No. 21 Stubb's gauge).

(3) SPECIFIC GRAVITY.

The specific gravity is for the purpose of determining the degree of calcination of a cement with certainty, and is therefore of great importance. The specific gravity of a Portland cement shall be at least 3.09, and shall not exceed 3.25 for fresh cements, the term "fresh" being understood to apply to such cements as are not more than two months old. The gravimetric system is recommended for the determination of the specific gravity.

Portland cement improves with age, provided it is properly stored and kept in air-tight bags or barrels. Specifications, therefore, should not prescribe only fresh cement.

The following description of the method of carrying out this test is taken from a paper on "Testing of Portland Cement," by Gary, Trans. Amer. Soc. of Civil Engineers, October, 1893:

"The determination of the specific gravity of the cement particles by the volume-meter of Schumann is a well known uniform method. This consists of a glass bottle of about 200 cu. cm. (12.2 cu. in.) capacity, with a calibrated glass tube in its neck. The bottle is nearly filled with oil of turpentine, the tube tightly inserted and filled by a pipette with the same oil to the zero mark of the scale, care being taken that all air bubbles are removed. One hundred gr. (3.5 oz.) of cement is put in through the tube, which is then closed by a cork. When the fluid becomes clear, the height of its top surface is noted on the scale. The weight of the cement divided by its volume, as determined by the scale of readings, gives the specific gravity. To secure precise results, it is necessary that the temperature should remain uniform throughout the experiment, and hence vessels, cement and oil must have been kept in the same room for some considerable time. In hot weather the apparatus can be put into water of a known constant temperature. If 100 gr. of cement are used, a rise of 1 deg. Cent., between the two readings decreases the specific gravity 0.8 per cent."

(4) BLOWING TEST (FOR FREE LIME, ETC.)

The hot bath test for detecting the presence of free lime, etc., shall be carried out in the following manner: Mortar pats, prepared of neat cement and thoroughly worked, shall be troweled upon ground glass plates (carefully cleaned, preferably with acid) about 5 inches long by 2½ wide, and ¼ inch thick, so as to exclude all air and moisture.

The pats shall be about ½-in. thick in the centre, and shall be worked off to sharp edges on the four sides of the plate. They shall then be covered with a damp cloth and allowed to remain in the air until set, after which they shall be placed in vapor in the Faija bath tank, in which the water is to be heated to a temperature of about 130 deg. Fah. After remaining in the vapor for 6 hours, including the time taken to set in air, they are to be immersed in hot water, and allowed to remain there for 18 hours. Upon their removal from the bath, the samples should not be curled up, should not have fine hair cracks nor be distorted, and should not have large expansion cracks. The samples, if separated from the glass, should break with a sharp, crisp ring. If these conditions are satisfactorily fulfilled, it is believed that no free lime is present in a form that will prove detrimental. Cements, when very finely ground, even if slightly overlimed, are not so liable to blow.

(5) TIME OF SETTING.

The time of setting shall be determined by noting the time required for a sample under test to bear a needle of 1/12-inch diameter loaded with one-fourth of a pound, and one-twenty-fourth of an inch in diameter loaded with one pound, the mortar under test being of the consistency of rather stiff plaster or mortar. The percentage of water used shall be stated in the report.

(6) TENSILE AND COMPRESSIVE TESTS.

The strength of Portland cement shall be determined by testing a mixture of cement and quartz sand. The tests shall be made in a uniform manner (both for tension and compression) with briquettes of the same form and same cross section and with the same apparatus.

Neat cement. Neat tests, except where fineness, specific gravity and hot bath blowing tests are also made, are misleading as to the value of a cement. Briquettes of neat cement, in which these characteristics have been determined and found to be satisfactory, shall bear a tensile stress of 250 pounds per square inch at the end of three days; 400 pounds per square inch at the end of seven days, and 500 pounds per square inch at the end of 28 days. All briquettes shall be one day in air, under a damp cloth or in a damp chamber, and submerged in clean water for the remainder of the time periods. Any cement which shows a decrease in strength on or before the 28th day is to be rejected. The decisive tests shall be considered as the average of five briquettes, although for ordinary practice two or more briquettes may be sufficient, and, in the latter case, only the highest test of the group is to be taken as the strength of the cement.

In determining the tensile strength of a briquette, the area of the broken surface shall be measured with great accuracy, as errors sometimes exceeding 10 per cent. are possible unless such measurements are insisted upon.

Sand and Cement. In sand test, the sand and cement must be thoroughly mixed together while dry. After the water has been added, either for neat or sand tests, the mortar shall be thoroughly mixed for a uniform time; suitable periods being two minutes for machine mixing and five minutes for hand mixing.

Briquettes made of one part cement and three parts standard sand, in the manner described hereafter, shall stand 125 lbs. per square inch at the end of seven days, and 200 lbs. at the end of twenty-eight days.

At the end of the same period the minimum compressive strength of a mixture of one part cement to three parts sand shall be 2,000 lbs. per square inch.

[Note. Quick setting cements generally show a lower strength than that specified above.]

The tensile strength of briquettes mixed in the proportion of 3 to 1, or of other sand briquettes, shall not show a decrease either on the twenty-eighth day or subsequently.

In every case the quantity of water used in mixing shall be stated in the report.

The quantity of water to be used in neat tests varies with the kind of cement, fineness, etc., and hence no arbitrary quantity can be specified, the correct method being to bring all mortars to the same degree of plasticity. An apparatus similar to "Vicat's," and consisting of a needle having an area of 0.4 square inches weighted to about 11 oz., may be used.

"The tests are made as follows: A ring, 1½-in. in height and

*Report of special committee submitted to Canadian Society of Civil Engineers, January, 1902.

3-in. in diameter, made of non-absorbing material, is p'aced on a glass plate and filled with the mortar to be tested, the consistency being such that the needle does not entirely pierce it." (Trans. Amer. Soc. Civil Engineers, Oct. 1893.)

A simple method for determining the standard consistency neat cement tests is to mould a ball of mortar in the hands to a plastic state and drop the same about 20 inches on to the table. If the ball of mortar neither flattens appreciably nor cracks, the consistency is satisfactory. This process corresponds practically with the previous method. The water for standard consistency of 3 to 1 sand briquettes shall ordinarily be 10 per cent. of the sand and cement by weight. If the amount of water for standard consistency of neat cement of any particular brand be less than 20 per cent. then the amount of water for standard consistency of 3 to 1 sand briquettes for this particular brand shall be one-half of the amount used in neat tests.

(7) PREPARATION OF BRIQUETTES.

(a) HAND-MADE.

(1) Neat Cement. The moulds shall be slightly oiled on the inner side and placed upon a metal or glass plate. The mixture of cement and water shall then be thoroughly worked together (preferably in a Faija's mixer) for five minutes. The moulds shall then be filled well above the rim, so that the mortar presents a convex surface. With an iron trowel the mixture shall then be patted, commencing at the side, first gently and then harder until it becomes elastic and water appears upon its surface. No after addition of the mixture shall be allowed, as the briquettes must be of uniform density throughout. The superfluous cement shall then be removed and the surface smoothed by means of a knife or sharp-edged trowel. The moulds can only be removed when the cement has hardened sufficiently. The briquettes shall then be placed in a damp chamber (zinc lined) furnished with a lid (also zinc lined) to prevent the irregular drying of the briquettes under varying degrees of temperature. After a period of 24 hours the briquettes shall be laid in water and kept completely submerged during the whole period of hardening. The proportion of water used shall be stated in the report.

(2) Sand and Cemnet. Five pieces of blotting paper soaked in water shall be laid upon a metal or glass plate, and upon each piece of paper there shall be placed a mould, also moistened with water. The cement and sand in their specified proportions shall then be thoroughly mixed together, after which the water shall be added, and the whole thoroughly worked for five minutes. With the mortar thus obtained each should be filled by one application so as to rise in a convex form above the edge of the mould. With an iron trowel the mortar shall then be patted, beginning from the side, first gently, then harder, until it becomes elastic and water appears upon the surface. No additional material must be added, as the briquettes must show a uniform density throughout. Superfluous mortar shall then be taken off by means of a knife or sharp-edged trowel, and the surface smoothed.

The moulds shall then be carefully removed and the briquettes laid in a damp chamber (zinc lined), furnished with a lid (also zinc lined) to prevent irregular drying. After a period of 24 hours the briquettes shall be laid in water and shall be kept completely submerged during the whole period of hardening.

(b) MACHINE-MADE.

(1) If possible, briquettes prepared as above shall be subjected to a uniform specified pressure (say, for example, 20 lbs. per square inch) by means of a ram of the same gauge as the moulds, or,

(2) A Bohme apparatus may be used. In this case, the moulds shall be filled with about 4-10ths of a lb. of mortar, prepared as in (a), and shall be placed in the machine; 150 strokes shall then be applied to the core with a hammer of about 4.4 lbs. in weight (2 kilog). After removing the mould and the core the briquettes shall be smoothed off, taken off the subjacent plate and treated as in (a).

By care in following the instructions given in (a) and (b) it will be found that hand work and machine work will give fairly uniform results. Doubtful cases, however, should be invariably decided by machine-made briquettes.

(8) TESTING MACHINES.

Testing machines shall be of the positive lever automatic type, so arranged as to apply the loads quietly and uniformly at the rate of 200 lbs. per minute.

(9) CLIPS.

The style of clips shall be such as will break the briquette at the line of least section. Clips with adjustable rubber or paper composition rollers are found to work satisfactorily and should be used.

(10) CHEMICAL TESTS.

Chemical tests and full quantitative analyses are strongly recommended; and preference will be given to cements of which analyses are furnished by the manufacturers.

(11) ADULTERATIONS, ETC.

Any cement containing adulteration shall not be accepted as a Portland cement. There are also certain ingredients which should be strictly limited in their amount. If there is found to be more than 2 per cent of sulphuric acid or 3 per cent of magnesia, the cement should be rejected. It is understood that Portland cements only are being specified for. The silica or sand cements are in a class by themselves, need special specifications, and are not intended to be included in the present one.

(12) PACKING.

Cement shall either be packed in paper-lined, air-tight barrels, well constructed and hooped so that, under ordinary conditions of handling, no cement shall sift out, or if in sacks, the texture of the sacks shall be so strong and fine as not to permit of any sifting out or wasting of cement under ordinary conditions of handling. The net amount of cement, deducting the weight of the package, shall be 350 lbs. per barrel.

(13) CERTIFICATE.

The manufacturer shall give a written certificate with each shipment of cement, stating (1) the date of manufacture, (2) the tests and analyses which have been obtained at the manufacturer's laboratory for cement taken from the day's grinding of which this shipment forms a part, (3) that the cement does not contain any adulteration.

RECOMMENDATIONS.

Frost Test on Cement. In case of experimental tests made for the purpose of determining the action of cements when exposed to severe frost, it is recommended that the cements be mixed at a temperature below freezing, with cold water, cold sand, and kept exposed to ordinary winter weather, just as they would be exposed in actual construction of masonry. A description of what is done in this connection should be kept for comparison with other results, and the records of such experiments filed with the secretary of the Canadian Society of Civil Engineers.

It has been observed in hot bath tests that little pustules or eruptions take place on the surface; instances are also given of the glass shattering in the hot bath test without separating from the cement or without any other sign of failure on the part of the cement. Members of the society are requested to observe the causes or reasons therefor and report the same to the secretary of the society.

Inasmuch as small consumers are rarely able to gauge or mix their test specimens with a mechanical mixer, it is advised that where tests are made by hand mixing, due discrimination shall be made in comparing the results with tests made by mechanical mixing. Hand mixing done by an expert will probably agree closely with mechanical mixing, but for ordinary testing the mechanical method will give more uniform results, inasmuch as no skill or dexterity is required to produce approximate uniformity.

Cement testers, where possible, should make long time tests to see whether or not there is any connection between high early tests and future falling off in tensible strength, and whether, when mixed three to one with sand, the same or similar deterioration s observed. These tests should, if possible, be carried on for several years. It would be of the utmost value to the profession to obtain positive data on this point from engineers in charge of municipal university or other laboratories, who are in a position to supply it.

The sudden death is recorded of Mr. Thomas Mowbray, a well known sculptor, of Toronto. Before coming to Canada the deceased executed carvings on some of the most important public buildings of Liverpool, Eng. The Toronto Custom House shows examples of his skill.

Mr. J. O. Marchand who for nine years past has been engaged in the study of Architecture at the Ecole des Beaux Arts in Paris, has returned to Montreal, his native city, and in conjunction with Mr. Stevens Haskell, of New York, has commenced the practice of his profession there. The firm have opened offices in the London and Lancashire Building, St. James Street.

BY THE WAY.

The announcement that a manufacturing company has leased until August first next, the Machinery Hall on the Industrial Exhibition grounds at Toronto, as a storage warehouse, paying therefor a rental of $300 per year and for extra insurance, suggests the enquiry: Why might not the other important exhibition buildings be thus utilized for ten months of every year and made to yield a revenue ?

× × ×

"It is especially easy for a plumber to lose his reputation for good workmanship," said a prominent member of the Guild. "After you have as you suppose put in the very best materials and workmanship, the system has perhaps no sooner gone into use, than lo ! a leak develops, due to a flaw in the tap, and straightway the plumber's work is condemned and his reputation with that particular customer at least has suffered, and through no fault of his own."

× × ×

The fall of the Campanile at Venice serves to confirm the old adage that declares : "It's an ill wind that blows nobody good !" The accident has created a general feeling of alarm regarding the safety of the other famous structures of the city. Investigation has apparently been started none too soon, for it is said that cracks and fissures have been discovered on every hand and the wonder is that the walls of some of the buildings have held together so long. During a recent service in the Church of St. John and St. Paul the capital of a small window column fell from its place and created a panic. The prospect before the builders of Venice is most encouraging.

× × ×

In the Middle Ages many of the principal buildings, devoted to religious uses, were designed by monks. Interest in architecture by the clergy of the Roman church continues to the present, but as a rule the designing of their buildings is entrusted to architects in regular practice. It appears, however, by an announcement in the press that the Rev. Father J. Bouillion, Canon of the Roman Catholic Cathedral at Ottawa, Ont., has prepared and had approved by a religious community in New York plans for a church edifice of colossal proportions, to be called the Nova Sancta Sophia. Accommodation has been provided for 60,000 or 70,000 persons. The structure is to be surmounted by a dome 420 feet above the ground, while the interior is to be enriched with columns of rare marbles and costly mosaics.

PATENT STORE FRONTS.

One of the new inventions, covered by half-a-dozen patents in the U.S. and Canada is the Coulson Corner Posts and Transon Bars. This is of great importance to all architects and builders, and a large number have already been ordered for different points in Canada. The great feature of this invention is that plate glass can be put in from the outside. It has the advantages of least obstruction to light, greatest strength for holding large windows safely, and least danger and trouble in setting or replacing large plate glass.

Instead of a heavy wood frame, "The Coulson" is made of a narrow light piece of soft wood set into a groove, in the back of which the angle of a steel T-bar is sunk and firmly fastened by lag screws. The glass being set and firmly secured by wooden stops the advantage of an all-wood bearing for the heavy plates is secured with the rigidity of the iron T-bar added. The face of the posts and bars, together with the wood stops which make up the outside may be covered with polished brass, sheet aluminum, oxidized nickle plate or copper sheeting, firmly screwed to the wood after the glass is set, presenting a beautifully neat and light appearance of a single metal or wood strip between the several plates of the window.

For artistic windows, for economical and effective displays or advertising this new invention is especially useful and we predict a large sale throughout Canada.

The Metropolitan Plate Glass Insurance Co. of N. Y. made a thorough investigation of the Coulson and they have highly commended its use to all architects and builders. They also stated that the invention was the very best to lessen losses occasioned by handling plate glass.

A visit to the works of the Coulson Co. show a busy section of the city of Columbus, Ohio. They will be pleased to send their illustrated book to all applicants.

THE MERCHANTS' BANK OF CANADA, WINNIPEG.

The extraordinary progress made by this energetic western city prompted the Merchants' Bank to be in the very van of business, and with the fullest faith in the permanence of this progressive movement, decided to erect a substantial 8-storey fire-proof bank and office building, on a splendid site at the corner of Main and Lombard streets.

The designing of this important work was entrusted to Mr. Andrew T. Taylor, F.R.I.B.A., architect, of Montreal, who has designed many bank buildings throughout the Dominion. Most of the ground floor is occupied by the bank, and the other floors are all laid out as offices. The subsoil in Winnipeg is a somewhat soft clay, and as this is probably the heaviest building for its area that has been erected there, special precautions had to be taken with the foundations.

The ground storey is of fine cranelled creamy white Indiana limestone on a plinth of granite ; above that the storeys are of a fine toned red pressed brick from St. Paul, with a great deal of stone dressings, and surmounted by a very elaborate and handsome ornamental copper cornice.

The banking room is handsomely finished in antique oak and marble, and has an ornate and rich elliptical arched ceiling. The floor is of ornamental mosaic, and the large windows afford magnificent light. The vaults are strongly and elaborately built, and nothing has been spared to make the building complete in every respect. Two electric elevators supplied by The Fensom Elevator Co. of Toronto, give rapid service to the offices. The elevator enclosures are of very handsome ornamental design, being of specially designed wrot. metal and finished in antique brass.

The staircase is of iron and marble. The entrance is lined with rich marbles. The staircase goes up to the roof, and as this is the highest building in Winnipeg, a very extended view is obtained of the city and surrounding country. The offices are finely finished in hardwood, with plate glass windows and hardwood floors.

The general contractors were Messrs. Black & Co., of Winnipeg. The bank fittings were executed by the Canadian Office & School Furniture Co., of Preston, from designs by the architect. Mr. Frank Peters, of Winnipeg, and Mr. Robert Wilson, have very efficiently superintended the work.

—THE—

CANADIAN ARCHITECT AND BUILDER

A Monthly Journal of Modern Constructive Methods,

(With a Weekly Intermediate Edition—The CANADIAN CONTRACT RECORD).

PUBLISHED ON THE THIRD WEDNESDAY IN EACH MONTH IN THE INTEREST OF

ARCHITECTS, CIVIL AND SANITARY ENGINEERS, PLUMBERS, DECORATORS, BUILDERS, CONTRACTORS, MANUFACTURERS OF AND DEALERS IN BUILDING MATERIALS AND APPLIANCES.

The C. H. MORTIMER PUBLISHING CO, of Toronto, Limited,
Publishers,
Confederation Life Building, - TORONTO, CANADA.

Telephone Main, 2362.

Branch Offices:

IMPERIAL LIFE INSURANCE BUILDING, MONTREAL.
Bell Telephone 2299.

22 GREAT ST. HELEN'S, LONDON, E.C.

SUBSCRIPTIONS.

THE CANADIAN ARCHITECT AND BUILDER will be mailed to any address in Canada or the United States on the following terms: Architects' Edition, $3.00 per year; Regular Edition, $2.00 per year. The price to foreign subscribers is: Architects' Edition, 16 shillings; Regular Edition, 12 shillings. Subscriptions are payable in advance. The Journal will be discontinued at expiration of term paid for, if so stipulated by the subscriber; but where no such understanding exists, will be continued until instructions to discontinue are received and all arrears of subscription paid.

ADVERTISEMENTS.

Prices for advertisements sent promptly on application. Orders for advertisements should reach the office of publication not later than the 12th, and changes of advertisements not later than the 5th day of the month.

EDITOR'S ANNOUNCEMENTS.

Contributions of value to the persons in whose interest this journal is published are cordially invited. Subscribers are also requested to forward newspaper clippings or written items of interest from their respective localities.

Subscribers who may change their address should give prompt notice of same. In doing so, give both old and new address. Notify the publishers of any irregularity in delivery.

ONTARIO ASSOCIATION OF ARCHITECTS.

OFFICERS FOR 1902.

PRESIDENT -	W. A. LANGTON, Toronto.
1ST VICE-PRESIDENT	JOHN A. PEARSON, Toronto.
2ND VICE-PRESIDENT -	GEORGE W. GOUINLOCK, Toronto.
TREASURER -	W. L. SYMONS, Toronto.
REGISTAR -	W. R. GREGG, 94 King W., Toronto

COUNCIL:

LAWRENCE MUNRO - - - - -	Hamilton.
A. H. GREGG - - - - -	Toronto
EDMUND BURKE - - - - -	Toronto.
C. H. C. WRIGHT - - - - -	Toronto.
A. R. DENISON - - - - -	Toronto.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.

OFFICERS FOR 1902.

PRESIDENT - -	J. VENNE, Montreal.
1ST VICE-PRESIDENT -	W. E. DORAN, Montreal.
2ND VICE-PRESIDENT -	R. P. LEMAY, Quebec.
SECRETARY - -	PROF. S. H. CAPPER, Montreal.
TREASURER - - -	J. S. ARCHIBALD, Montreal.

COUNCIL.

G. E. TANGUAY - - - - -	Quebec.
A. RAZA - - - - - -	Montreal.
A. C. HUTCHISON - - - - -	Montreal.
D. R. BROWN - - - - - -	Montreal.
A. A. COX - - - - - -	Montreal.
S. LESAGE - - - - - -	Montreal.

AUDITORS—C. DUFORT, Montreal; J. H. LEBRON, Quebec.

TORONTO BUILDERS' EXCHANGE.

BOARD OF DIRECTORS:

JAMES B. THOMSON, President.
JOSEPH RUSSELL, Vice-President.
R. G. KIRBY, 2nd Vice-President.
JOHN L. PHILLIPS, Secretary.
DAVID WILLIAMS, Treasurer.
THOS. CHRISTY.
WM. SMALLWOOD.
A. WELLER.
JOHN HOIDGE.
JAS. CRANG.
JOHN R. LYON.
WM. DAVIDGE.
JOHN M. GANDER.
JAS. CRANG
JOHN VOKES.
WM PEARS.

LONDON BUILDERS' EXCHANGE.

BOARD OF DIRECTORS:

D. C. SIMPSON, President.
JOHN NUTKINS, 1st Vice-President.
JOHN WHITTAKER, 2nd Vice-President.
GEO. S. GOULD, Secretary-Treasurer.
WM. TYTLER.
THOS. JONES.
ED. MARTYN.
GEO. YOUNG
S. STEVELY.

VANCOUVER BUILDERS' EXCHANGE.

BOARD OF DIRECTORS

E. COOK, President.
A. E. CARTER, Secretary.
H. A. BELL, Treasurer.
T. BRADBERY.
C. P. SHINDLER.
K. M. FRASER.
E. G. BAYNES.
D. SAUL

WINNIPEG MASTER CARPENTERS' ASSOCIATION.

BOARD OF DIRECTORS

A. MACDONALD, President.
A. G. AKIN, 1st Vice-President.
A. SUTHERLAND, 2nd Vice-President.
A. MCCORMICK, Secretary.
J. G. LATIMER, Treasurer.

MASON BUILDERS' EXCHANGE.

BOARD OF DIRECTORS:

D. D. WOOD, President.
W. F. LEE, 2nd Vice-President.
EDWARD CASS, Treasurer.
D. T. JACKSON.
J. MALCOM.
A. N. MCCUTCHEON, 1st Vice-President
A. T. DAVIDSON, Secretary.
WILLIAM ALSIP.
ANGUS BROWN.

MONTREAL BUILDERS' EXCHANGE.

BOARD OF DIRECTORS:

C. T. WILLIAMS, President.
C.W. HUGHES, Vice-President.
G. J. SHEPARD, Secretary-Treasurer.
JOHN WIGHTON.
H. R. IVES.
JAMES PATON.
N. T. GAGNON.
JOSEPH LAMARCHE.

CHAMBRE SYNDICATE DE LA CONSTRUCTION.

(French Builders' Exchange.)
8 St. James Street, Montreal.

BOARD OF DIRECTORS.

J. B. GRATTON, President.
G. MENARD, 1st Vice-President
T. CHARPENTIER, JR., 2nd Vice-President.
ALCIDE CHAUSSE, Treasurer.
N. T. GAGNON, Secretary.
FELIX SAURAGEAN.
L. Z. MATHIEN.
H. CONTANT.
E. Z. COTE.
LOUIS PAYETTE.

VICTORIA BUILDERS' EXCHANGE, VICTORIA, B. C.

BOARD OF DIRECTORS:

W. D MCKILLICAN - -	Chairman
E. W. WHITTINGTON - -	Secretary
THOS. CATTERALL - - -	Treasurer

A Russian nobleman is said to have built of paper a house of 16 rooms upon his estate at Savinowka, in Podolia. This house was made in New York, at a cost of 80,000 roubles, and its architect declares that it will outlast a stone building, which is quite creditable when one reflects upon the rapidity with which some of our stonework is disintegrating from the action of rain, frost and heat. Bergen, in Norway, has a church built of paper, capable of seating a thousand people.

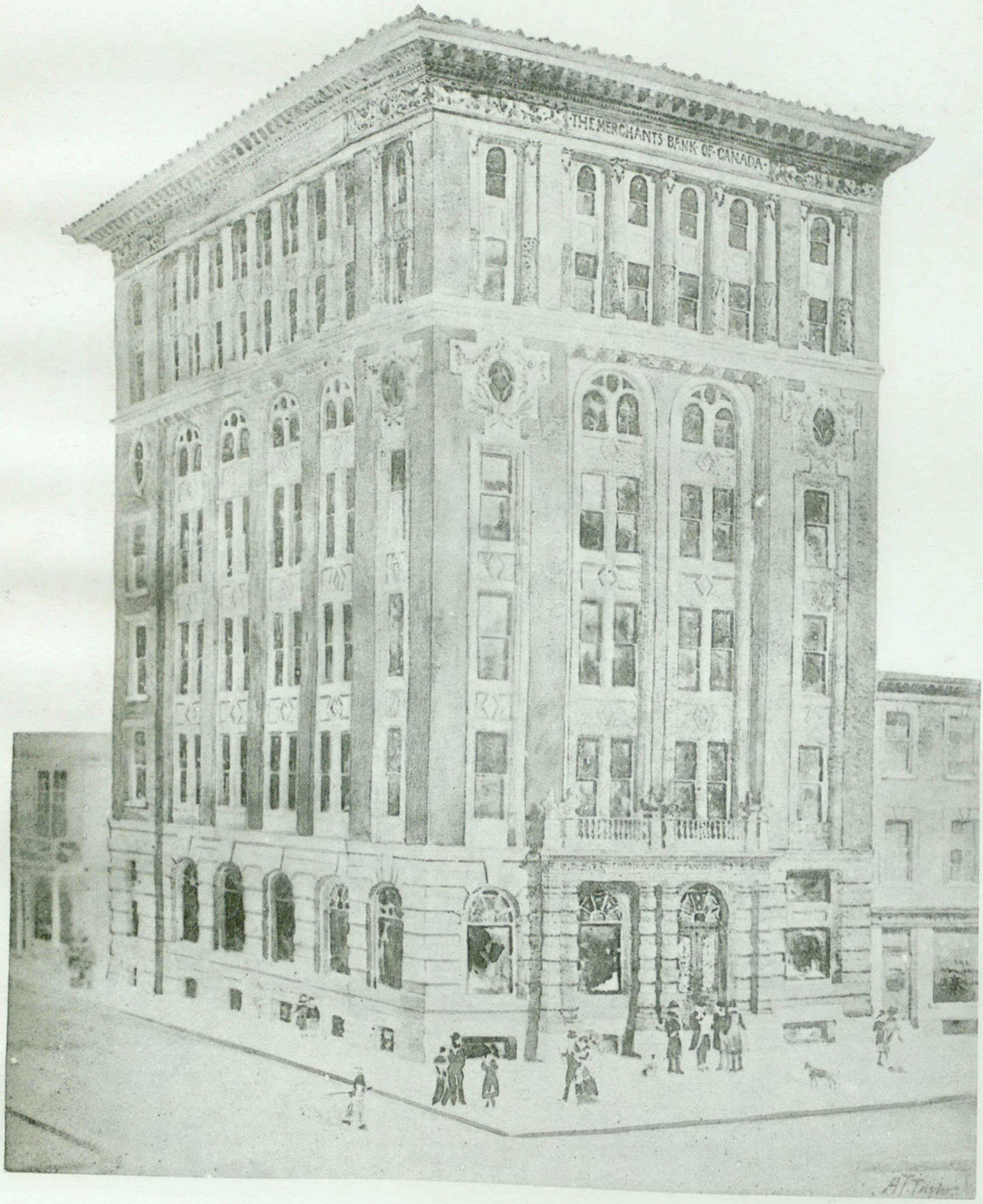
TWO HOUSES, TORONTO, ONT.

EDEN SMITH, ARCHITECT.

SUPPLEMENT TO
CANADIAN ARCHITECT AND BUILDER
NOVEMBER, 1902

ST. JOHN'S CHURCH, TORONTO.
EDEN SMITH, ARCHITECT.

BRANCH OF THE DOMINION BANK, BATHURST AND BLOOR STREETS, TORONTO.
EDEN SMITH, ARCHITECT.



MERCHANTS' BANK, WINNIPEG, MAN.

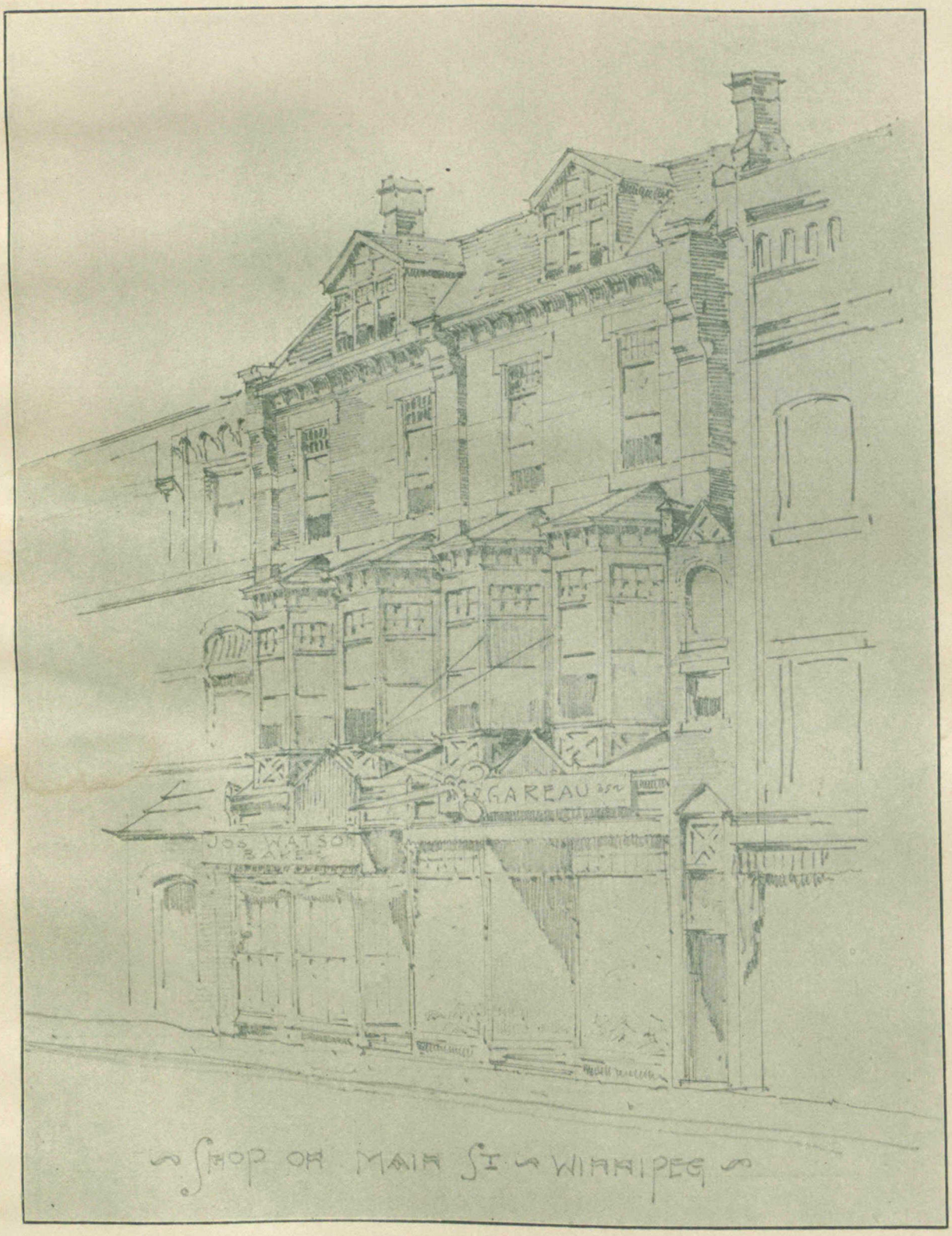
A. T. TAYLOR, F.R.I.B.A., ARCHITECT.

SUPPLEMENT TO
CANADIAN ARCHITECT AND BUILDER
NOVEMBER, 1902

LONDON AND GLOBE INSURANCE BUILDING, MONTREAL.

HUTCHISON & WOOD, ARCHITECTS.

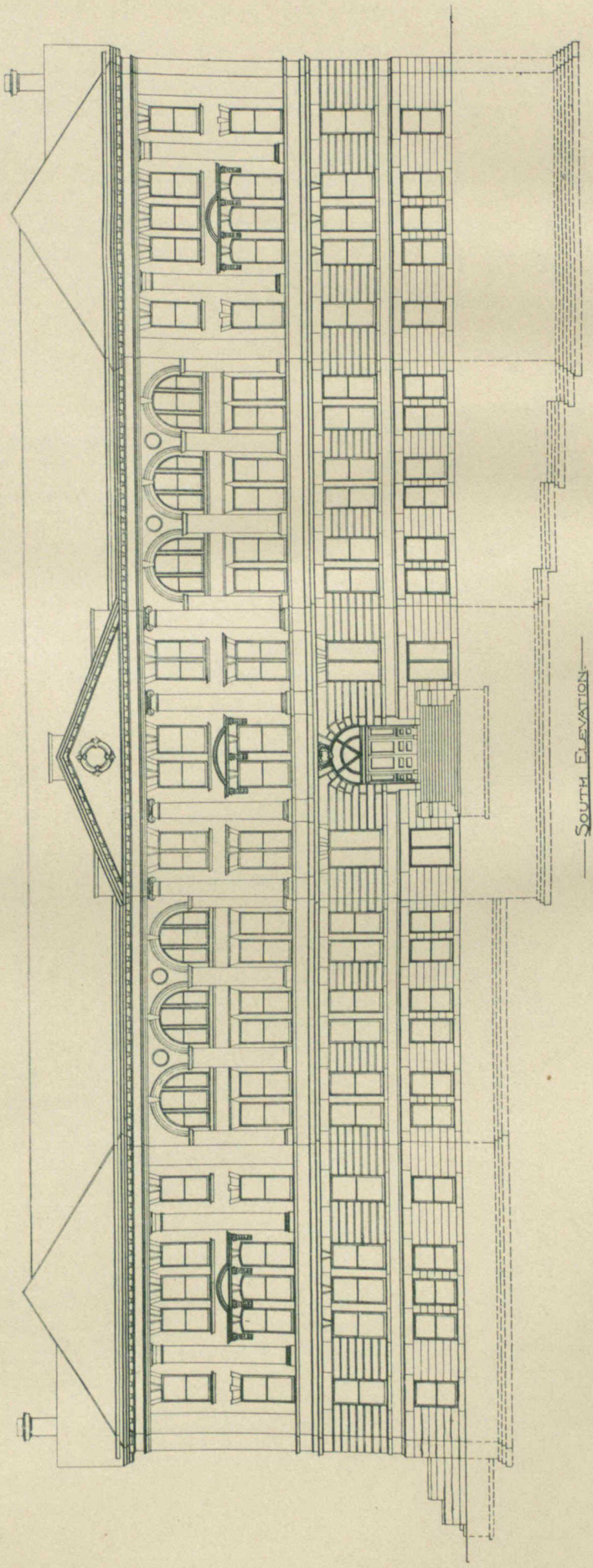
SUPPLEMENT TO
CANADIAN ARCHITECT AND BUILDER
NOVEMBER, 1902



SHOP ON MAIN STREET, WINNIPEG, MAN.

SKETCHED BY PERCY OVER

SUPPLEMENT TO
CANADIAN ARCHITECT AND BUILDER
NOVEMBER, 1902



NEW CHEMISTRY AND MINING BUILDING, SCHOOL OF PRACTICAL SCIENCE, TORONTO.

SUPPLEMENT TO
CANADIAN ARCHITECT AND BUILDER
NOVEMBER, 1902

NOTES.

We mark the weather when its hot,
We talk of cold and rain,
Perhaps all this attention's what
Has made the weather-vane.—Philadelphia Press.

Messrs. Thos. Mowbray & Son, 284 King street east, Toronto, have designed and executed an oak tablet erected in memory of the late Rev. Dr. Scadding, first rector of Holy Trinity Church. It is in fourteenth century decorative Gothic style.

The demolition of the old Parliament Buildings on Front street west, Toronto, removes one of the oldest historical buildings of that city. The structure constituted the third Parliament house for Toronto and was occupied in 1832, being until 1841 the home of the Legislature of Upper Canada. In 1839 it was the court house, in 1846 King's College and Medical School, from 1853 to 1855 it was Toronto University, in 1848-9 an asylum for the insane, from 1849 to to 1851 the Parliament House for the Province of Canada, from 1861 to 1867 military barracks, and from 1867 to 1892 it was occupied by the Legislature of the Province of Ontario.

Regarding the heating methods in vogue in Great Britain, the Contract Journal remarks :—Nowhere, perhaps is the unscientific and wasteful method of heating buildings by means of open grates so general as in this country, and as for ventilating, our only consolation is the knowledge that unscientific methods are more universal. As regards the heating problem, improvement on the now prevailing method is the inevitable outcome of dearer fuel, and it will find a ready solution when economy in fuel consumption becomes an absolute necessity. Until then the conservative and sentimental spirit with which we, individually and as a nation, seem to be unduly imbued, will, no doubt, maintain in vogue a system which involves imparting a maximum amount of heat to exterior walls and chimneys to no useful purpose, and a minimum of heat in the direction required.

The Wadleigh High School, N. Y. City, about completed, has some 800 "Frink" cluster reflectors which are the standard type of the N. Y. Board of Education. The additional fixtures in this building consisting of ceiling coronas with bent glass doors, and arch reflectors were all furnished by this firm. Their catalogue fully illustrates and describes their fixtures and is intended to reach every architect who has occasion to specify lighting fixtures for stores, churches or public buildings.

BRITISH STANDARD FIRE RESISTING RULES.

The British Fire Offices Committee, which represents the whole of the Tariff Fire Insurance Offices, have issued the following rules for standard fire-resisting buildings:—

HEIGHT AND CUBICAL CONTENTS.—1. Height not to exceed 80 ft. measured from the lowest point of the land level or ground line of the site on which the building stands to the level of the highest part of the roof.

2. Cubical contents of any one compartment not to exceed 60,000 cub. ft.

N.B.—In computing the cubical contents of a compartment, the floor area, excluding doorway and window recesses, and the actual height from floor to ceiling are to be measured. Due deduction may be made for a sloping roof.

WALLS AND PARTITIONS.—3. Brick, terra-cotta and (or) cement-concrete composed of broken brick, burnt ballast, furnace slag, clinker or other similar hard and burnt material.

4. No external area or party-wall to be less than 13-in. thick in any part, or if of concrete 20-in.

N.B.—Stone used externally only as ashlaring or fencing, with a backing of brickwork not less than 13-in. thick, and for dressings, sills, stringcourses and cornices allowed.

5. All internal partitions to be of incombustible material, excepting only office enclosures of hard non-resinous wood with or without glazing.

6. If there is any building adjoining, the dividing or party-wall to extend at least 3 ft. above the roof of the fire-resisting building.

FLUES.—7. All flues to be built of brickwork no part of which towards the interior of the building is to be less than 9-in. thick, and all furnace flues to be lined with fire-brick throughout for a distance of at least 20 ft. from the furnace. No timber or woodwork to rest in or be plugged into the brickwork of any flue.

OPENINGS IN WALLS.—8. The total superficial area of openings in each external or area wall of any storey above the ground storey not to exceed one-half of the area of the wall (measured as to height from floor to ceiling of the storey in which the openings occur). All loop-hole or teagle doors and frames and window-frames and sashes to be of iron or other hard metal. All windows above the ground storey to be glazed with glass not less than ¼-in. thick in sections not larger than 2 ft. super., or wired glass not exceeding 1-in. mesh in sections not larger than 4-ft. super.

9. Every window or other opening above the ground storey opposing (whether directly or diagonally) and within 20-ft. of any window, skylight or glazed or other opening in any other building (whether such latter window, skylight or opening be protected or not), or overlooking (whether directly or diagonally) and within 20-ft. of the roof of any building, to be protected by "fireproof" shutters or "fireproof" doors.

FLOORS.—10. Brick arches, terra-cotta, fire-clay or concrete as above described, the floor being in no part less than 6-in. in thickness, and carried on metal joists, girders and columns, or brick walls or piers.

N.B.—Floors of wood not less than 9-in. thick ceiled with plaster on metal lathing and with the floor boards laid on the bearers without intervening space allowed.

11. Wooden flooring laid on concrete allowed provided there is no space between the wood and the concrete. Wooden fillets not exceeding 2 in. deep permitted if bedded flush in the concrete

12. Scuppers to carry off water, the opening of each of which shall not be less in area than 21 in. super., to be provided in the external walls to each floor above the ground storey at intervals of not more than 12 ft.

N. B.—In buildings within the city of London or within the area controlled by the London County Council scuppers are not essential.

ROOFS.—13. Roofs to be entirely of the incombustible materials as described for floors in Rule 10, except that 4in. be substituted for 6in. in thickness.

NOTE.—Glass not less than ¼ in. thick in sections not exceeding 36 in. super., and wired glass not exceeding 1in. mesh in sections not exceeding 144in super., in either case set in metal, shall for the purpose of this rule be deemed incombustible.

Outlets on to roofs rendered necessary to satisfy the requirement of the Factories and Workshops Acts permitted, provided that all doors and frames be of iron or cased in iron plate at least ⅛in. thick, and that they be self-closing.

PROTECTION OF STRUCTURAL METALWORK.—14. All columns or stanchions to be covered with brickwork or porous terra-cotta (at least 2in. thick), or with cement, concrete or plaster at least 1½in. thick, keyed into metal supports and protected by a metal guard up to a height of not less than 4ft. from the floor where cement, concrete or plaster only used.

15. Girders, joists, lintels and all structural metalwork (other than columns and stanchions, but including framework of roofs), where not covered with brickwork, to be completely encased in porous terra-cotta at least 2 in. thick, securely anchored, or cement, concrete or plaster at least 1in. thick keyed into metal supports.

16. Space must be left at the ends of girders and joists to permit of expansion.

LININGS AND CEILINGS.—17. No lining of wood or textile fabric to any part of the walls, partitions, ceilings or roof.

FLOOR OPENINGS.—18. No openings through any floors allowed except as follows:

(a) Holes to admit driving shafts, pipes and iron or earthenware tubes for electric conductors. Shafts to fit closely in metal collars, and all pipes and tubes to be cemented round the full thickness of the floor.

(b) Staircases and hoists of which the enclosures are constructed entirely of brick or cement concrete as above described at least 9-in. thick, with a regulation fireproof door to every opening.

N.B.—Stairs and landings within said enclosures to be constructed of incombustible material.

N.B.—Where the building is within the city of London or in the area controlled by the London County Council, hardwood doors to openings may be allowed instead of fireproof doors.

N.B.—Where the staircases and hoists extend to the top floors they must have a glass roof protected externally with strong wirework, and the enclosing walls must be carried through and 18 in. above the roof of the building.

In factories and workshops in the area controlled by the London County Council a glass roof protected as above is only to be provided in cases where the enclosing walls and staircases are carried through and 18 in. above the roof of the building, and also above the roof of the adjoining premises. Otherwise the roof must comply with the requirements of the London County Council.

(c) Belting and rope races enclosed as for staircases and hoists.

SHAFTING THROUGH WALLS.—19. Shafting where passing through walls to fit closely into wall, or have wall-boxes closed with iron plates not less than ¼ in. thick, leaving no open space.

PIPES AND ELECTRIC CONDUCTORS.—20. All pipes in the building, except water pipes not exceeding 1½ in. in diameter, to be of hard metal. No wooden casing to be used for enclosing electric conductors.

COMMUNICATING COMPARTMENTS.—21. Two or more compartments, each constructed in accordance with these rules, may communicate, whether by double fireproof doors or otherwise provided that their aggregate cubical contents do not exceed 60,000 cub. ft.

22. Two or more such compartments whose aggregate cubical contents exceed 60,000 cub. ft. can only be allowed to communicate across a fire-proof compartment built up from the basement with walls of solid brickwork, and constructed in all other respects in accordance with these rules so far as the same are applicable and having all openings protected by fire-proof doors at least 6 ft. apart.

23. Except as above, no communication allowed between a compartment constructed in accordance with these rules and any other building or compartment.

CONTRACT CONDITIONS.

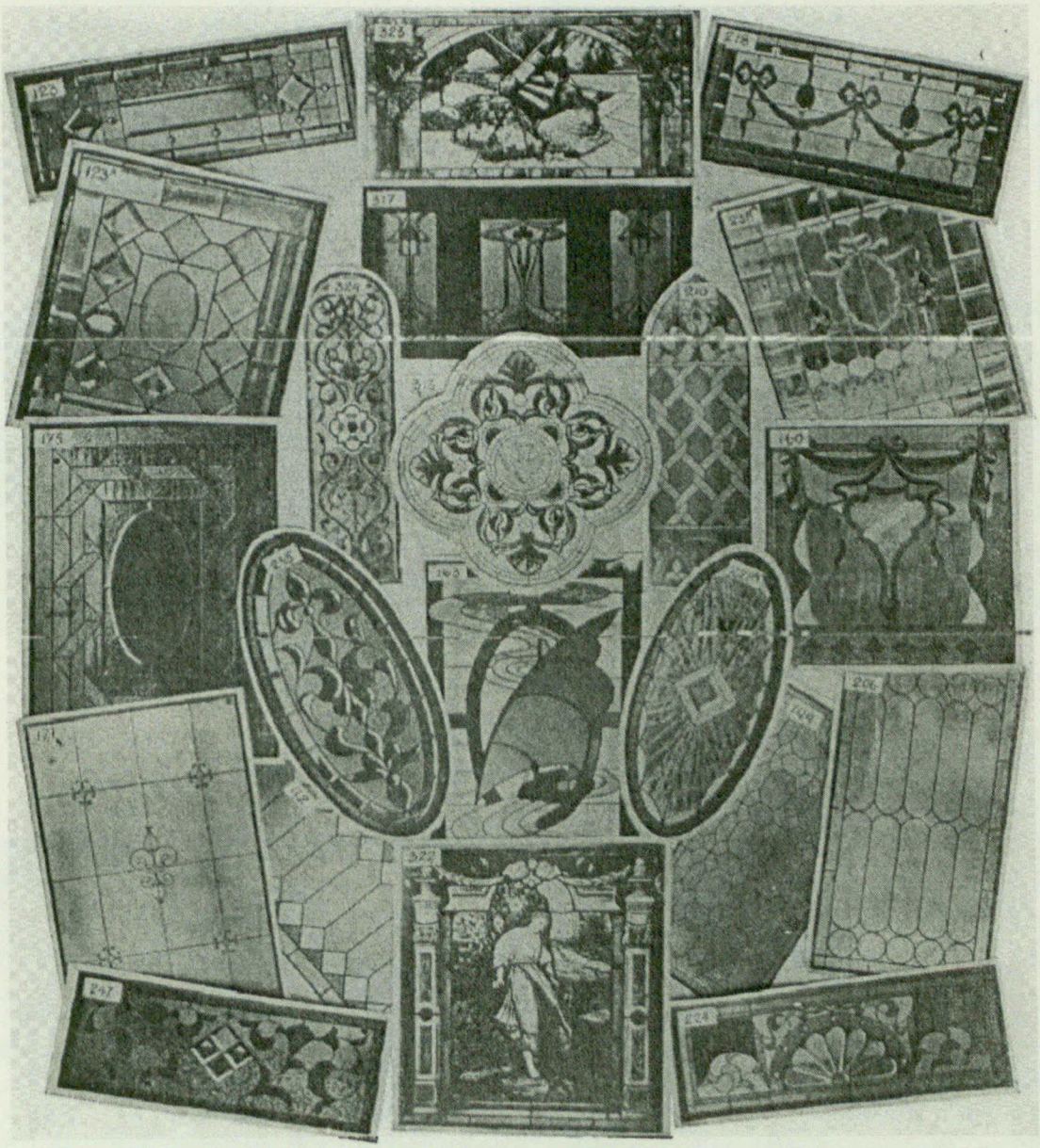
In settling the general clauses of a specification, reliance is too frequently placed upon forms which have served for previous contracts, says The Builder. Although no trouble may previously have arisen, it is not safe to assume that immunity is secured, as the following case may demonstrate. In the specification used by a well known architect in connection with an important building contract, one clause apparently reserved to the architect the right of dealing with all provisional amounts as he might think fit. Similar wording has been employed in several specifications of a like nature, and a feeling of security was thereby engendered. Hence, when the proper time arrived the architect proceeded to issue instructions for the preparation of materials and appliances involving outlay to the value of some thousands of pounds. The building contractor and the firms concerned were equally satisfied in their own minds as to the meaning of the clause in question, but the proprietors suddenly interposed with a claim to decide for themselves as to the disposal of all provisional sums, refusing to recognize all instructions given by the architect. Legal opinion was taken on both sides, and it then appeared that the clause relied upon did not legally confer any power upon the architect unless with the previous consent of the proprietors. Matters then became somewhat unpleasant, and an interesting series of lawsuits at one time appeared to be imminent, but ultimately all differences were amicably adjusted. The example to which we have referred clearly indicates the desirability of looking with caution upon forms of expression whose actual value has not been ascertained with certainty.

The J. F. Pease Furnace Co., of Toronto are sending out a handsome booklet referring exclusively to their combination heating system.

PAGES

MISSING

Luxfer Decorative Glass



PRICE —(Per square foot)—10 75c 112 65c 123 $1.50 123a $1.60 150 $1.60 163 $1.75 171 $1. 0 175 $1.50 206 $1.00 210 65c 218 $1.75 221a $1 00 224 $1.50 235 $2.75 238a $2.00 247 $1.10 313 $1.50 317 $1.50 32 $3.50 323 $3.50 324 $1.25.

Copper Electroglazed in bright, antique or black finish.

LEADED WORK of all kinds.

Write for designs and prices.

Luxfer Prism Co., Limited

98-100 KING STREET WEST, TORONTO

Classified Directory of Montreal Contractors and Dealers in Builders' Supplies

BUILDING MATERIALS

E. F. DARTNELL.
Stone, Pressed and Common Bricks, Mineral Wool, etc.
Telephone 2387. 180 St. James Street.

T. A. MORRISON & CO.,
Milton Pressed Bricks, Limestone and Sandstones, Contractors' Plant, Crushed Stone for Concrete, etc.
204 St. James St., Montreal.

GEO. A. COWAN,
Building Supplies,
Telephone 2463. Office, 50 Temple Building

JAS. W. PYKE & CO.
Importers Structural Material—Iron and Steel
Telephone 312. Merchants Bank Bldg.

Subscribe for the ARCHITECT AND BUILDER.

ROOFERS

D. NICHOLSON & CO, Roofers, 679 St. Paul Street, Montreal. Gravel Roofing a Specialty. —Repairs of all kinds promptly attended to.—
Bell Telephone 1665.

Advertise in the ARCHITECT AND BUILDER

Classified Directory of Toronto Contractors and Dealers in Builders' Supplies

BUILDING MATERIALS

GEORGE RATHBONE, 1 Northcote Ave. Pine, Hemlock and Hardwood Lumber; Lath, Shingles and Cedar Posts; Sawn Veneers. Re-sawing up to 30 inches wide a specialty.

Ontario Lime Association
Manufacturers and Dealers in
Grey Lime, Guelph White Lime,
Ontario Cement, Portland Cements
Plaster Paris, Hair, Fire Brick,
Fire Clay, Sewer Pipe, etc.
Telephone 020. *118 Esplanade St. E., Toronto*

BUILDERS and CONTRACTORS

FREDERIC HOLMES, Contractor
Telephone North 663. 1111 Yonge St., TORONTO.
Estimates given for Cut Stone, Brickwork, Etc.

JAMES ISAAC
Cut Stone Contractor,
20 Dupont Street, Toronto.

MANTELS, GRATES and TILES

Toronto Hardware Mfg. Co.
1100 Queen St. W.
ALSO PLUMBERS' SUPPLIES.

ROOFERS

ROBT. RENNIE & SON,
Terra Cotta Tile,
SLATE AND GRAVEL ROOFERS, &c.
Every description of Roofing Slate always on hand. Galvanized Iron Ridges, Valleys and Flashings supplied.
Telephone 2344. 376 Berkeley St., TORONTO.

H. WILLIAMS & CO.,
23 Toronto St. TORONTO.
ROOFERS
With Slate, Felt and Gravel; also Williams' Flat Slate Roof—the best. We lay ROCK ASPHALT on cellar bottoms, floors and walks—the best material for this work. **Telephone No. 311.**

W. T. STEWART & CO.
Felt and Slate Roofers,
Dealers in Felt, Pitch, Tar, Sheathing Paper, Carpet Paper, and all kinds of Building Paper.
Office: Cor. Adelaide and Bay Sts., TORONTO.
Estimates furnished. Telephone No. 698.

G. DUTHIE & SONS,
Terra Cotta Tile, Slate and Felt Roofers,
Cor. Widmer and Adelaide Sts. TORONTO.
GALVANIZED IRON FURNISHINGS SUPPLIED.
Telephone 1936.

ESTABLISHED 1856
Slate and Felt Roofing.
FORBES ROOFING CO. 153 Bay St

DOUGLAS BROS.

SLATE, TILE AND METAL ROOFERS.
Sheet Metal Work, Metallic Ceilings, Skylights, etc.
24 Adelaide Street West, TORONTO.
Telephone 380,

PIONEER GALVANIZED IRON WORKS
ESTABLISHED 1855.
GEORGE RINGHAM
23 and 25 Edward Street, TORONTO
Copper and Galvanized Iron Cornices, Skylights, Etc., Metal Ceilings
Felt and Slate Roofing, Phone 2572.

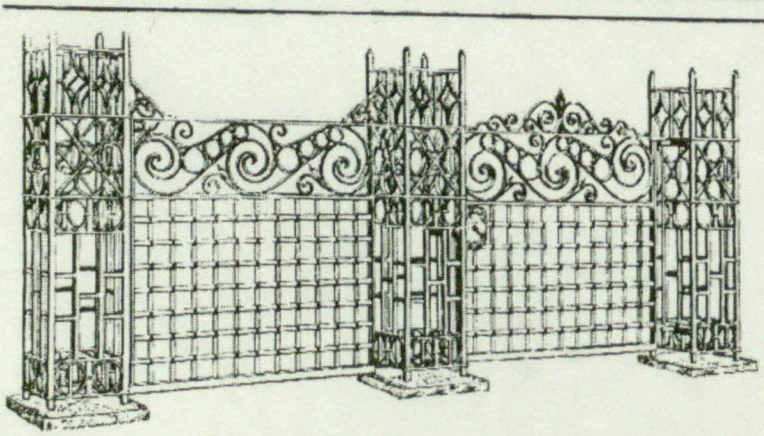
MOVERS

I. WARDELL & SON
450 Spadina Avenue,
Move Frame and Brick Houses and Machinery.

Send for 3rd edition of the Canadian Contractors' Handbook. Price $1.50; $1.00 to subscribers of the Canadian Architect and Builder.

THE C. H. MORTIMER PUBLISHING CO. OF TORONTO, LIMITED.

SPECIFY HOLLYWOOD PAINT



Special Designs in
IRON FENCING

BANK RAILINGS
WROT IRONS
WIRE WORK

THE GEO. B. MEADOWS, Toronto, Wire, Iron and Brass Works Company, Limited
TORONTO, CANADA

Architects.

FRANK DARLING. J. A. PEARSON
DARLING & PEARSON
Architects,
Members of the Ontario Association of Architects.
Imperial Bank Building, Leader Lane - TORONTO

SYMONS & RAE,
ARCHITECTS
15 Toronto St. TORONTO

Henry Langley. *Chas. E. Langley.*
LANGLEY & LANGLEY,
ARCHITECTS
Members of the Ontario Association of Architects.
Canada Life Building, King St. W., TORONTO.

EDMUND BURKE & J. C. B. HORWOOD
ARCHITECTS
Union Loan Building, Toronto St., TORONTO

W. R STRICKLAND,
ARCHITECT
35 Adelaide Street East, - TORONTO.

DAVID ROBERTS,
ARCHITECT
Office, No 17 & 18 Union Block, Cor. Toronto & Adelaide Sts. } TORONTO.

GEO. M. MILLER & CO.
ARCHITECTS
Toronto General Trusts Building - TORONTO

J. C. FORSTER,
ARCHITECT
Member Ontario Association of Architects.
MEIRS BLOCK. - OWEN SOUND.

POWER & SON,
Architects and Building Surveyors,
Merchants' Bank Chambers,
KINGSTON, - ONTARIO

Frederick G. Todd
LANDSCAPE ARCHITECT
Formerly with Messrs. Olmsted, Boston.
Advice, Sketches, Designs, or full Working Plans for Parks, Cemeteries, Country Estates and Home Grounds.
Bell Telephone Building, Montreal
Telephone Main 3856.

PROVINCE OF QUEBEC ARCHITECTS.

A. T. Taylor, F.R.I.B.A., R.C.A.
TAYLOR & GORDON,
ARCHITECTS
43 ST FRANCOIS XAVIER ST., - MONTREAL
Telephone Main 2811.

HUTCHISON & WOOD,
Architects and Valuators,
181 St. James Street, - MONTREAL
Telephone Main 858.

H. STAVELY,
ARCHITECT
Member Province of Quebec Association of Architects
113 St. Peter Street, QUEBEC