

**PHOTO-ENGRAVING**  
**DESIGNERS & ENGRAVERS**  
 PLATES BY EVERY PROCESS SUITABLE FOR ILLUSTRATIVE PURPOSES. REPRODUCED FROM DESIGN SKETCHES, DRAWINGS, &c.  
 ROOM 16, 37 KING ST. W. TORONTO

**ART STAINED GLASS WORKS**  
 - H. Latham & Co. -  
 MANUFACTURERS  
 Ecclesiastic and Domestic **ART GLASS**  
 Of Every Description.  
 LEAD GLAZING AND SAND CUT A SPECIALTY.  
 110 RICHMOND ST. WEST - TORONTO, ONT.

**W. STAHLSCHMIDT & CO.,**  
 PRESTON, ONTARIO,  
 MANUFACTURERS OF  
**Office, School, Church and Lodge Furniture.**

SEND FOR CIRCULARS AND PRICE LISTS.

**GARTH'S PATENT SECTIONAL HOT WATER AND STEAM RADIATOR**  
 PATENTED 1886 IN CANADA AND THE UNITED STATES. THE BEST HOT WATER RADIATOR IN THE MARKET.  
 Quick Circulation; Easily Repaired; Its Capacity Increased at very Little Extra Cost; Does not need a Fancy Cast Iron Top or Marble Slab; in fact, Just the Radiator that Suits the Requirements of the Market.

By the construction of this Radiator, each section has (entirely distinct from each other) a separate and positive circulation within itself, producing not one slow, sluggish, continuous circulation, but as many sharp and constant circulations as there are sections composing the Radiator, thereby insuring a greater heat from a given surface. It has another advantage that will be appreciated by the Trade: the inlet and outlet are both at the same end, and has been arranged that it may be used for Hot Water or Steam without making any change to the connections, or any alterations whatever—a feature possessed by no other Radiator that we are aware of. We also claim that with this Radiator any person in the Trade can make a section, or add sections to increase its capacity, without returning it to the manufacturer. This shows an advantage, particularly in cases outside the city in which it is manufactured.

These Radiators are now fitted up in the following buildings, viz., Hall Post Office, Peterborough Post Office, Picton Custom House, N.S.; Picton Marine Hospital, N. S.; Winnipeg Custom House, Kingston Custom House, Three Rivers Custom House, Point St. Charles Post Office, and many other private dwellings.

MANUFACTURED BY  
**GARTH & CO.,** 536 to 543 Craig St., MONTREAL.  
 SEND FOR PRICE LISTS.

Takes the place of Shingles or Metal.  
 More durable and at half the cost.

**PREPARED ROOFING**  
 Fire and water-proof, adapted to flat or steep roofs.

**ASBESTOS ROOF SHEATHING**  
 FIRE, WATER AND FROST-PROOF.

PRICE LIST.

2 Ply Roof Sheathing, per 100 sq. ft.	\$2 25
3 " " " "	3 00
Tin Caps, 1 ft. to 100 sq. feet.	10

ROOFING CEMENT-PAINT, "Opaline" and "Hyaline," to cover sheathing, 1 1/2 gallons to 100 square feet, in barrel lots.  
 "Opaline," to be applied hot, per gallon. 5 25  
 "Hyaline," to be applied cold. 5 35

All kinds of roofs covered by our Fire and Water-Proof Cement-Paint at \$1.25 and \$1.35 per square, according to kind preferred.

FOR SHINGLES OR METAL OUR ROOFING CEMENT-PAINT IS UNEQUALLED. PRESERVES BOTH WOOD AND IRON, STOPS LEAKS AND DECAY, AND MAKES OLD ROOFS AS GOOD AS NEW.

A SUPERIOR ARTICLE AT A LOW PRICE IS SURE TO BECOME POPULAR.

A SINGLE TRIAL OF OUR ASBESTOS ROOF SHEATHING WILL GUARANTEE ITS FUTURE USE.

**HOW IT IS MADE.**

Its fire and water-proof component parts are combined as follows:—

**3-PLY**—1st. A strong foundation of saturated Asbestos Wool. 2nd. A water-proof layer of Vegetable Gum. 3rd. A sheet each of best saturated roofing felt and Asbestos wool. 4th. Another layer of Vegetable Gum. 5th. Compressed Felt and Wool. All these are subjected to hydraulic pressure and formed into a solid impervious sheet, and when put on coated with fire and water-proof Cement-Paint.

**2-PLY**—Has one layer less of Felt and Wool and Vegetable Gum.

The merits of this Roofing are that it is inexpensive, durable, adapted to steep or flat roofs, portable, convenient, fire-proof, will not mildew, can be used over old shingles or tin, not affected by gases or condensation, easy to preserve by renewal of coating, a splendid sheathing, water, frost, air and vermin proof. Can be applied by unskilled labor.

WE MANUFACTURE UNDER NEWTON'S PATENT, NEW YORK CITY.

Office of New York Board of Fire Underwriters, 115 Broadway, New York, April 15, 1884.

DEAR SIR, — The Insurance men on buildings covered with NEWTON'S Prepared Roofing, painted with one coat of Victoria Cement-Paint, send us, in the same as the regular slate on metal roofs.

Yours truly, JAMES HARRISON, Supt. for New York Board of Underwriters.

16 St. Henri Street, Montreal, April 7, 1888.

VICTORIA ROOFING CO.

DEAR SIR, — We stripped off the old shingles of our warehouse last fall and put on your Patent Asbestos Sheathing and coated it with your Fire and Water-Proof Cement-Paint. It made a fine job, tight and handsome. No icicles stuck to the eaves.

Yours truly, HAMMOND & GRANDALL.

Price, put on by us in Toronto, finished and coated with Victoria Fire and Water-Proof Roofing Cement-Paint, \$4.50 per hundred square feet.

**VICTORIA ROOFING CO.**

SEND FOR CIRCULARS.

**DIRECTIONS FOR APPLYING.**

Sweep the boards of the roof clean of all nails, chips, etc., then commence at the eaves or gutter to lay the roofing; with the lower ends, using ordinary lead nails with thin heads, shingled by tin caps. Then lay the second sheet lap over the first sheet two inches, being sure to pass all laps with the Cement-Paint, then nail as before and so repeat. Use great care in fitting around chimneys, gutters, etc.

Upon flat roofs nails should not be more than one and one-half inches apart from centre of caps, and two inches on steep roofs. The roofing should receive a coat of Cement-Paint the DAY IT IS LAID, unless it gets wet; if caught in a shower will until the Sheathing dries before coating and sanding. The Roofing Cement-Paint should be applied in strips from ridge to eaves, beginning at end of building and working across to the other end. Use all the Cement-Paint the Sheathing will absorb without running, applying the sand as you go. Use no Gravel in any case.

SEE WHAT THE INSURANCE COMPANIES THERE THINK OF IT:

**REFERENCES:**

- Towle & Michaud, 307 Craig Street, Montreal.
- Hammond & Grandall, Montreal.
- Geo. Henderson & Co., 116 Wellington Street, Ottawa.
- Gilmore & Co., Ottawa.
- N. V. C. & H. R. R., J. M. Toucy, General Supt. N. Y. & Erie R. R., S. M. Biscoe, General-Supt. Pennsylvania R. Co., N. Y.
- F. & M. Schaefer Brewing Co., N. Y.
- David Stevenson (Brewing), New York City.
- Old Dominion Steamship Co., N. Y.
- Eagle Manufacturing Co., Davenport, Iowa.
- Huntington Car and Car Wheel Works, Huntington, Pa.
- Leila Iron Works, Jersey City, N. J.
- City Gas Light Co., Norfolk, Va.

66 Adelaide Street East, TORONTO.

**TORONTO**

Telephone No. 1699

Cable address, "PLATE."

**IMPORTING CO.**

55 and 57 Victoria Street,

**TORONTO.**

IMPORTERS OF  
Every kind of ROLLED  
PLATES, and Plain,  
Colored and Ornamental  
WINDOW GLASS.

**BRITISH  
ROUGH-CAST  
MIRROR**

**PLATE GLASS**

PLATE GLASS shipped to and Fixed at any point in the Dominion.

**ART STAINED GLASS** for Churches and Dwellings  
Venetian and Mosaic Work. Designs and Estimates on application.

**H. LONGHURST & CO.,**

16 John St. N. - HAMILTON, ONT.

C. DEMPSEY.

D. D. CHRISTIE.

D. HENDERSON.

**CHRISTIE**

**LIME AND STONE CO.**

HEAD OFFICE: FOOT OF WEST MARKET STREET, TORONTO.

MANUFACTURERS OF

Orey Lime, Guelph White Lime, Dealers in Stone of all kinds,  
Cement, Plaster, Hair, Sewer Pipe, &c.

BRANCH OFFICES: 1088 Yonge St., Foot of Peter St., and Foot of Brock St.

**AIKENHEAD & CROMBIE,**

Cor. King and Yonge Sts. - TORONTO

**BUILDERS' HARDWARE.**

AGENTS FOR

- Hopkins & Dickinson, Bronze Goods, - New York.
  - B. G. Thadde, Iron Stable Fittings, - Brantford.
  - St. Pancras Iron Work, Wrought Iron Stable Fittings, London, Eng.
  - C. Kasper, Patent Oil Cleaner, - Cleveland.
  - Norton Door Check and Spring, - New York.
- Write for Catalogue of above Goods. Estimates given on Special Hardware by any Architect.

**FOOT-POWER MACHINERY.**  
CONSIDERED BY CONTRACTORS AND BUILDERS.  
Machines for ripping, cross-cutting, planing and  
seasoning, forming edges, grooving, rabbeting, cutting  
dados, and turning. Builders use our Hand Circular Rip Saw  
for the greater portion of the ripping in preference to carrying their  
lumber to a mill five minutes' drive from their shops. The same  
is true in regard to scroll sawing, mortising, tenoning, cutting and  
for drawers boxes. Builders using these machines can bid  
lower and save more money from their contracts than by any  
other means.

Send the Following Letters from Builders:  
CLARENCE F. LEE, carpenter and builder, Morrisville, N. Y., 8/17: "I have had one of your  
Hand Circular Rip saws for some months, and am much pleased with it. Have done  
the ripping for 15 houses in that time, which is over forty miles through inch boards. Have ripped  
as high as 8-inch plank. It is also good for rabbeting; having rabbeted all joints  
for 200 windows."  
ALEX. SMITH, Linn, Ohio, says: "A few days ago we had some 100 small drawers  
to make for a drug store (the steam power mill wanted to come each, for making them  
I used your foot-power machinery, and saved above good wages on the job."  
The purchase can have ample time to test them in his own shop and on the work  
he wishes them to do. Descriptive Catalogue and Price List Free.  
W. W. & JOHN BARNES CO., No. 24, N. York St., Rockford, Ill.

**A. R. WILLIAMS - Soho Machine Works - TORONTO**

Exclusive Canadian Agency.

Send for Catalogue. Mention this Paper.

Telephone No. 27. Established 1841

**THOROLD HYDRAULIC CEMENT MILLS**

JOHN BATTLE, Proprietor,

THOROLD, - - - ONTARIO.

OTTAWA, 7th June, 1884.

DEAR SIR,—I duly received your letter of the 1st ultimo, requesting my opinion relative to the Cement  
manufactured at your establishment in Thorold, in reference to which the following is respectfully submitted: For  
the past forty years the natural Hydraulic Cement obtained at Thorold, Province of Ontario, has been used to my  
knowledge, on various extensive public works, and in every instance the result has proved highly satisfactory.  
When properly burned, ground fine, and used fresh from the mill, it will compare favorably with any natural or  
artificial cement that I know of for building or other purposes in a moist position, or for walls that have been built  
a few weeks before water has been let in on them. It is well adapted for concrete foundations, walls, drains,  
cisterns, or indeed, for any hydraulic works; when properly prepared and mixed with two parts of clean sharp  
sand to one of cement, the result will invariably give good satisfaction.

I am, sir, yours very truly,

JOHN BATTLE, Esq.,

Chief Manufacturer, etc., Thorold, Ont.

JOHN PAGE,

Chief Engineer of Canada, Canada.

QUEBEC, MONTREAL, OTTAWA & OCCIDENTAL RAILWAY.

CHIEF ENGINEER'S OFFICE,

MONTREAL, 31st March, 1881.

DEAR SIR,—I have tested with Reiche's Testing Machine the tensile strength of six blocks made from the  
barrel of Thorold Hydraulic Cement which you sent me last summer. The blocks were made of neat cement, and  
were 1 1/4 inches square at the smallest part. Four of them were kept 33 days in air, and only broke under the  
following weights: No. 1, 420 lbs.; No. 2, 470 lbs.; No. 3, 430 lbs.; No. 4, 470 lbs.; averaging 437 lbs. each, or  
194 lbs. per square inch. The remaining two were kept one day in air, the remaining one in water, and broke under  
the following weights: No. 5, 420 lbs.; No. 6, 450 lbs.; averaging 435 lbs. each, or 193 lbs. per square inch.

Yours truly,

P. A. PETERSON,

Chief Engineer, Quebec, Montreal, Ottawa & Occidental Railway.

The THOROLD CEMENT is sold by the following dealers:

Toronto—Edward Terry, 43 George St.  
" Robert Carroll, 60 Adelaide St. West.  
" Joseph Atkinson, Esplanade, foot of  
" George St.

Hamilton—W. A. Freeman, James St.  
" J. P. Gordon, James St.  
London—A. D. Cameron, Burwell St.  
" Bowman & Co., 86 Balthazar St.

**CHARLES BECK,**  
(Successor to A. Pike.)  
— PROPRIETOR OF THE —  
**CELEBRATED RIVERVIEW STONE QUARRIES  
AND LIME KILNS.**  
DEALER IN ALL KINDS OF BUILDING STONE AND LIME.  
Practical Stone Cutter, 25 Years' Experience.  
ORDERS SOLICITED. CORRESPONDENCE IN ENGLISH, GERMAN OR FRENCH  
**C. BECK,** - Guelph, Ont.

**MAGUIRE'S Ventilating  
Self-Flushing and Self-Cleaning Trap.** Sewer Pipe,  
Chimney Tops,  
Fire Brick,  
Fire Clay,  
**PORTLAND  
—AND—  
THOROLD CEMENTS**  
always on hand.

Robert Carroll,  
66 Adelaide St. West,  
TELEPHONE No. 208.

Maguire's Tile Drain Trap, particularly adapted for house drainage and overhead sewer ventilation  
The only reliable self-cleaning Trap in the market. Owing to the fact that the outlet C is below the inlet A  
and formed as shown, say liquid or solid matter entering the Trap B, must, when it flows reaches the top of seal D,  
flow over and fall clear into the outlet C, not only increasing the velocity of the flow of the water and solid matter  
through the Trap B by creating a fall from the said Trap, but it is also so shaped that it effectually prevents any  
backwash through the outlet C into the trap B.

**Montreal Terra Cotta Lumber Co.**  
Works at Maisonneuve, Office 86 St. Peter St.  
J. BARSALOU, PRESIDENT.

**Porous Terra Cotta Building Material**  
FOR FIREPROOF BUILDING PURPOSES.

IT is not excelled by any other material and does not crack or fall to pieces on  
the application of cold water when red hot. It is also proof against damp,  
frost, and vermin, and can be sawn, nailed and worked with carpenters' tools.  
Mortar adheres to it without either furring or lathing, and makes the house built  
of it cooler in summer and warmer in winter, and weighs less than half what  
brick does. It is much better in every way than either wood or brick for inside  
walls, partitions, floors, ceilings, furring and roofs, and on the average cheaper  
than either. It has the recommendation of architects and is certain to reduce  
the cost of fire insurance.

Further information will be cheerfully given to parties repairing, building or  
intending to build.

**MONTREAL TERRA COTTA LUMBER CO., LIMITED.**  
MONTREAL, - - - QUEBEC.

**QUEEN CITY GALVANIZING WORKS**

MANUFACTURERS OF  
**WALTERS' PATENT  
METALLIC SHINGLES**  
AND  
**SIDING PLATES.**

WE guarantee every building covered with  
Shingles will give absolute protection from wind,  
rain or snow, and give double the service of the  
same material put on by any other method. They  
are fire-proof, and make the handsomest roof known,  
and easily put on.

Send for particulars.  
**THOS. McDONALD & CO.,**  
Sole Manufacturers in Canada.  
69 TO 75 SHERBOURNE STREET, TORONTO, ONT.



PUBLISHED MONTHLY IN THE INTERESTS OF  
 Architects, Civil and Sanitary Engineers, Plumbers, Decorators, Builders, Contractors, and Manufacturers of and Dealers in Building Materials and Appliances.

VOL. I.—NO. VII.

TORONTO, CANADA, JULY, 1888.

PRICE 20 CENTS  
 \$2.00 Per Year.

**THE**  
**Canadian Architect and Builder**

A JOURNAL OF MODERN CONSTRUCTION METHODS,  
 PUBLISHED MONTHLY IN THE INTEREST OF  
 ARCHITECTS, CIVIL AND SANITARY ENGINEERS, PLUM-  
 BERS, DECORATORS, BUILDERS, CONTRACTORS, AND  
 MANUFACTURERS OF AND DEALERS IN BUILD-  
 ING MATERIALS AND APPLIANCES.

**C. H. MORTIMER, Publisher,**  
 31 King Street West, - TORONTO, CANADA.

**SUBSCRIPTIONS.**

THE CANADIAN ARCHITECT AND BUILDER will be mailed to any address in Canada or the United States for \$2.00 per year. The price to subscribers in foreign countries is \$3.00. Subscriptions are payable in advance. The paper will be discontinued at expiration of term paid for, if so intimated by the subscriber; but where no such understanding exists, it will be continued until instructions to discontinue are received and all arrears are paid.

In ordering change of address give the old as well as the new address. Failure to receive the paper promptly should be reported to this office.

**ADVERTISEMENTS.**

Prices for advertising sent promptly on application. Orders for advertising should reach the office of publication not later than the 15th day of the month, and changes of advertisements not later than the 15th day of the month.

**EDITOR'S ANNOUNCEMENTS.**

Contributions of technical value to the persons in whose interest this journal is published, are cordially invited, and if found to be of sufficient merit, will be paid for. Subscribers are also requested to forward newspaper clippings or written items of interest from their respective localities.

WE are surprised to learn that an Ottawa firm, Messrs. A. K. Miles & Son, has been given the contract for the pedestal of the statue to be erected in Major Hill Park to the memory of Ottawa volunteers who fell in the Northwest. It is a wonder that this contract, like that for the statue itself, was not awarded to a foreigner.

THE majority, probably, of the large buildings in Canadiana cities are without elevators, and a few visits to offices situated on second or third floors is sufficient to make one feel fatigued during the balance of the day. Not only are the elevators too few and far between, but where they are to be found they are adjusted to move at a snail's pace. Elevators of smaller size and greater speed would fulfil public requirements much more satisfactorily than those at present in use.

THE attention of contractors is directed to the advertisement on another page of the Court House Committee of the Toronto City Council asking tenders for the various works required in connection with the erection of the new Court House and City Hall. We are pleased to see that a definite move has been made in this matter, and trust that the figures contained in the tenders will not aggregate an amount which will preclude the advisability of proceeding with the immediate construction of the buildings.

THE Superior Court Judge has granted an injunction restraining the County Judge from proceeding with the enquiry in the case of A. W. Godson, the Toronto contractor. His Lordship decides, and we think the decision a most equitable one, that before the City Council can proceed to order an enquiry into the conduct of an individual, it must prefer against him definite charges of wrong-doing. Before ordering an expensive enquiry to be commenced, the Council should have taken the precaution to ascertain that its proposed action was legal. The citizens should not be called upon so frequently to pay the cost of such mistakes. Enough has been made public since the investigation commenced to render it desirable that the facts relating

to the dealings of Lackie and Godson with the corporation and with each other, should be laid bare. There is a suspicion in some quarters that the interests of the city are sacrificed by some of its well-paid servants in behalf of contractors. If such be the case, the evil cannot too soon be exposed and remedied. Let the Council go about the work in a legal manner, however, and not waste public money in blundering.

AS stated by one of our correspondents last month, a company has been formed at Owen Sound for the manufacture of Portland cement, the necessary materials it is said having been found, to exist in that locality, and successful experiments having been made. Assuming that we are correctly informed, this is an important discovery, and the company that has been formed to take advantage of it, will doubtless find the enterprise highly remunerative. Many thousands of barrels of Portland cement are consumed in Canada each year, the profits on the sale of which go into the pockets of foreign manufacturers. Should the discovery at Owen Sound fulfil the expectations of those engaged in conducting it, this money will be kept in the country, and a new and important Canadian industry will be developed.

THE report reaches us from London, Ont., that the stained glass windows for the sanctuary and transept of St. Peter's Cathedral have been purchased by Bishop Walsh in England. THE CANADIAN ARCHITECT AND BUILDER wishes to enter an emphatic protest against the unpatriotic conduct of those who purchase in foreign markets articles that are produced in equal quality in Canada. We believe we are within the mark when we say that there are manufacturers of stained glass in Canada who are producing an article as perfect in every way as can be bought in Europe. Then, why purchase in Europe? Why did not Bishop Walsh go to Europe for the money to build St. Peter's Cathedral? As long as Canadians are asked to contribute the money for the erection of such structures, the labor and material used in their construction should be Canadian, provided the quality of the native article is equal to that of the imported.

THE selfishness of human nature has been well illustrated by the conduct of the people of this city who have continued to make extravagant use of the city water during the summer months for several years past in the face of the fact that they were knowingly assisting to reduce the water supply to a degree which threatened to result in famine and alarming danger from fire to their own property and that of their neighbors. The City Council has wisely passed a by-law limiting the use of lawn sprinklers to certain hours of the day and evening. In the past these lawn sprinklers have in hundreds of instances been allowed to operate night and day. The next move on the part of the civic authorities should be to increase the city water supply, which is evidently insufficient for the requirements of this populous and rapidly growing city. The proposition to establish a second pumping station and reservoir in the west end of the city is one which we hope to see carried out.

WE are informed that last year Canada imported more than a quarter of a million dollars worth of wall paper. About four-fifths of our total importations in this line came from the United States. This large importation would seem to show that there is considerable room for expansion and improvement on the

part of Canadian wall paper manufacturers, of whom there are three, two in Montreal and one in Toronto. To a representative of the CANADIAN ARCHITECT AND BUILDER, one of the Montreal manufacturers recently stated that owing to American competition, the profits of the Canadian manufacturer were barely sufficient to enable him to keep his factory in operation. Seeing that American manufacturers are compelled to pay a duty which is equal to a fair profit before they can place their goods on the Canadian market, we fail to see why our home manufacturers should not hold their own and even supplant the bulk of the imported hangings by native goods. We don't like to hear men complain that they can't hold their own when the advantage seems on their side. We hope that the capital, intelligence and energy necessary to secure the Canadian market for the Canadian manufacturer will be forthcoming.

PUBLIC opinion has been awakened to a satisfactory degree of late concerning the value of sanitary measures for the prevention of the spread of infectious disease. The provincial and local Boards of Health have done a good work in this direction. No better evidence is wanted of the change which has taken place in public opinion on the subject of sanitation, than the fact reported in the daily papers recently, that a physician in one of our cities had been fined by the police magistrate for neglecting to notify the Medical Health Officer of a case of diphtheria. It is well that the offender in this instance, being a physician and knowing full well the danger, but neglecting to give the warning, should be made an example of, so that no attempt will in future be made, either for the sake of convenience or other reasons, to conceal the existence in a community of infectious disease.

WE have just read the list of duties which the Building Inspector for the Toronto School Board will be expected to perform. They are not few nor easy. In fact they are so many and difficult that no one man will be able to perform them. The School Board should have advertised for an architect instead of a building inspector. All plans and specifications for all new buildings are to be prepared by the newly appointed "Superintendent." While the buildings which have been built have not by any means been what they should be, we may reasonably expect that those constructed in the future will be even more inferior. When men who are supposed to have had some little training as architects have done so badly, it is not to be expected that a man who has had none, or practically none, will be able to do as well. We are utterly unable to understand how it is that nearly all public offices are filled by men without any qualification for their duties. That the appointee to this office might have made a fairly good superintendent is possible; that he will make a good architect is extremely improbable. The main thing to be regretted is that a wrong commencement has been made. If there is to be an architect's office with its staff, as there must be if one half of the work laid down is to be performed, it should be efficient, which can never be under its present head.

WE should very much like to see a larger number of architectural drawings at the Royal Canadian Académie Art Exhibition. That there are not more does not reflect very much credit on Canadian Architects. However, we are inclined to think that there would be more drawings sent in by architects if they

were assured that they would receive decent treatment. In the past, and also at the last exhibition, the architectural drawings have always been put in some out of the way place where no one could see them to advantage. There are some architects capable of making exceedingly good drawings of buildings erected according to their designs. These drawings, while in many respects not as attractive to the public as paintings, are far superior to many of the works hung in prominent positions. When an architect sees a very good drawing of a building placed in a dark and out of the way corner, and at the same time a very indifferent water color placed in a good position, simply because it is a water color, he is inclined to pity the author of the drawing and mentally resolve never to send a drawing of his to be treated in like manner. The architectural drawings at the last exhibition were few, and not representative of the best work of Canadian architects. While it might be said that there were one or two good drawings, it could equally be said that there were one or two which were very indifferent. We hope that the Architectural Guild of Toronto will make an effort to have an exhibition of architectural drawings during the coming winter.

**T**HE foul language used by some workmen whose duties call them inside the dwellings of their employers' customers, has long been a source of very great annoyance. We are pleased to see attention called to the subject by an American contemporary, the *Plumber's Trade Journal*, which shows how the employer of such men is likely to lose much trade on account of their offensive conduct. "For instance," say our contemporary, "a well known plumber on one of the principal thoroughfares and most respectable neighborhoods in the city has a job of overhauling to do; he sends a journeyman and helper to do the work. The journeyman is not at all backward in using the most profane language at every trivial thing, and in fact has become so addicted to the habit that he swears without knowing it. The lady of the house overhears the journeyman unconsciously swearing, and says to herself, 'Well, so that is the style of workman that Mr. Blank sends to do my work.' She pays her plumber bill as usual and Mr. Blank wonders why he gets no more of her work." The above hint is one which employes as well as employers will do well to carry in mind. The swearing habit is a most offensive one to most people. Any workman who has contracted it should seek to get rid of it as speedily as possible. Employers should endeavor to find out what is the conduct of their workmen in this respect. If they find them to be addicted to profanity, or foul language of any kind, they should be warned to discard the habit, and should they not do so, the employer will be consulting his own interests by dismissing them from his service.

**I**T is very gratifying to learn that the Minister of Education for Ontario has been impressed with the value of technical instruction by his recent visit to the technological schools of the United States, and that he has decided to commence work along that line in Ontario. It is his intention we understand to establish at once a Department of Mechanical Engineering in connection with the School of Practical Science in this city. In an interview published in a daily paper the Minister is reported to have said: "A lecturer will immediately be appointed whose duties shall be to give instruction on the theory of all matters relating to mechanical skill and designs, and to afford the students that practical knowledge obtained from dealing with the subjects in the workshops themselves. At present it is not the intention to establish workshops in connection with the school, but the students will have the *privilege* to the leading public works of the city, where they will have an opportunity of observing how crude material is shaped into its various useful designs, and take part in the work if they are so disposed." We are pleased to learn that instruction in architecture is also to form part of the curriculum of the School of Practical Science at an early day. The architectural course will be similar to that at Cornell University, which covers four years and embraces the ancient and modern history of architecture, practical instruction in designing, a course in lighting, heat and ventilating. We are pleased to see that the Minister recognizes that the time has fully arrived when technical instruction should form a part of our public educational system. The young men of the United States owe much to such institutions as Cornell, and we congratulate young Canadians upon the fact that they are to be given the opportunity to acquire in their own country special knowledge which in the past could only be obtained by a visit to foreign schools.

**W**HEN we remember how much of England's industrial greatness is due to the systematic instruction imparted to her people through schools of art and design, we find cause for congratulation in the fact that the Department of Education for Ontario has undertaken to encourage and develop Canadian talent in this direction. In this number of the *CANADIAN ARCHITECT AND BUILDER* we have the pleasure of presenting to the public some samples of industrial drawing and design exhibited at the recent Art School examinations held at the Education Department in this city. Since 1876 the Government of Ontario has given grants of money for art instruction, but only since 1886 has it assumed full control of this important branch of education, under the new act and regulations submitted to the legislation this year by the Hon. Mr. Ross, Minister of Education. Art schools under the inspection of the Department are now in operation in Brockville, Hamilton, Kingston, London, Ottawa, Toronto, and the following institutions are in affiliation with the Department for examination purposes: Wykeham Hall, Toronto; Alma College, St. Thomas; Ontario Ladies College, Whitby; Albert College, Belleville; Helmholtz Ladies' College, London; Academy of Painting and Drawing, London.

In addition to the above, many of the Mechanics' Institutes throughout the Province are giving courses of instruction in mechanical drawing and industrial design, and are sending pupils up for certificates to the regular Art School examinations. We understand that an Art School can be established in any town or village in the province, and each Art School is entitled to receive from the Government a grant of \$400 per annum, whenever fifty persons shall have expressed their desire and willingness to take the course of instruction prescribed by the Department for Art School pupils. We do not know whether or not this fact is as generally known as it should be. If the value of such a course of instruction were generally understood we imagine that few, if any, towns or villages would find it impossible to secure the necessary number of pupils. Persons undertaking to impart this course of instruction must furnish the Department of Education with satisfactory evidence that they possess the necessary qualifications. The holder of an art certificate is legally qualified to teach the subjects named therein in any Art School, High School, Model School or Mechanics Institute. As there are already a large number of persons throughout the province holding certificates, it ought not to be difficult for any Mechanics' Institute desiring to establish an art class, to obtain the services of a duly qualified teacher. In the front rank at the recent Art School examinations was the work of pupils of the Mechanics' Institute at Penetanguishene, Ont., a village of small population, and this fact should encourage many more of these institutions to avail themselves of their privileges in the same direction.

A comparison of the many creditable drawings displayed at the recent Art School Exhibition with the poorly executed and meagre list sent in to the Department some years ago, when a selection was to be made for the Centennial Exhibition, strikingly illustrates the gratifying improvement which has taken place and is going on in this direction. A list of the industries in Canada, in which a knowledge of the various branches of art education is necessary, together with the number of hands employed in those industries, shows that not less than 150,000 persons are employed in the Dominion to whom a knowledge of industrial drawing, modelling, etc., would be valuable. This alone is sufficient to show the value of the work which has been undertaken and carried on thus far with such gratifying results. The work of the pupils of the various Art Schools and Mechanics' Institutes recently on exhibition in this city was inspected by thousands of visitors, to many of whom the talent and skill displayed was a pleasing revelation, and will serve no doubt to vastly increase public interest in and appreciation of this important part of our educational system. The names of the examiners at the recent examinations are: R. Dickson Patterson, artist; E. B. Shuttleworth, Vice-President Ontario Society of Artists; Chas. Fuller, of Messrs. Copp, Clark & Co.; D. B. Dick, architect; Arthur Reading, superintendent of drawing, city schools; Dr. S. P. May, Officer of Academy, Paris, chairman.

For a cherry stain mix together, by stirring one quart of spirits of turpentine, one pint of Japan, one pound of Venetian red ground in oil, and two ounces of dry burnt umber. Apply this with a brush and wipe off with a cloth. Then finish off with one coat of shellac and two coats of varnish.



## CONDITIONS OF THE TORONTO BOARD OF TRADE BUILDING COMPETITION.

**A**LL designs must be made in conformity with the following instructions:

The land belonging to the Board of Trade is an irregularly shaped lot, bounded on the south by Front street, on the west by Yonge street, and on the north and east by party walls without right to light. The size and form of lot is given on the accompanying plan, and also the width of the streets. The sidewalk on both streets is practically level, the difference, if any, being only a few inches. Both streets are to be considered of equal importance. This property is about the centre of the wholesale business of the city, and the buildings in the neighborhood range from 50 to 80 feet in height. The prevailing winds are from the northwest. The soil is heavy clay, and the depth of available drainage is not more than 10 feet below the street line. There is every facility for carrying out the work. The mode of construction must be determined by the competitor, who must bear in mind the amount set apart for the erection of the building. The building may be six stories in height, and may have entrances from both streets. The ground floor is to be designed for offices. Provision is made for a possible large hall, about 1925 square feet; reading room, about 875 square feet; clerk's office, about 300 square feet; Council room, about 250 square feet; secretary's private office, about 100 square feet; grain inspector's room, about 300 square feet; telephone room, wash room, water closet. The accommodation for the purpose of the Board may be placed at the top of the building. The rest of the building is to consist of large and small offices ranging in size from 15 feet by 20 feet, to about 15 feet by 10, and 10 feet high, in suites of various sizes, and so arranged that they can be shut off or thrown together to suit tenants. There are to be two elevators placed together running from the basement to the top. The space under the sidewalk is available, and should be utilized to the best advantage. There are no conditions in regard to occupying space under the sidewalk. The building is to be heated by steam, and proper space is to be provided for boilers, etc., besides proper provision for ventilating the halls, passages, etc. All the principal offices at least must be provided with open grates. Ample provision must be made for public and private closets, sinks, lavatories, coat room, and other closets. It is understood that tenants will furnish portable safes for daily use, and the floors and walls will be made strong enough to carry them, but, besides this, many tenants may require storage rooms for valuable papers, and fire-proof vaults must be provided. These may be grouped in each storey, forming a continuous stack, or otherwise, as may be found most expedient. Suitable accommodation for a restaurant may also be provided.

The following drawings will be furnished by each competitor, and those only will be received and considered, but minor variations of detail and alternative arrangements may be shown on any of the drawings by means of flaps. They must be accompanied by a brief memorandum, copied with a typewriting machine, explaining any points in the design not obvious from the inspection of the drawing: Plans of the different stories and of the basement, two elevations, sections, perspective.

These will be drawn to a uniform scale of one-eighth of an inch to the foot, and finished in line with Indian ink with the drawing pen.

There is to be no brush work except in blacking the windows and the sections of the walls and floors. The lettering and figuring is to be plain and simple, and is to be confined to the names and dimensions of the rooms, written in the middle of each, without explanatory comments, which are to be put by themselves, as has been said, in a separate memorandum. The number of square feet in each room is to be given, as well as its linear dimensions. These drawings are to be made on white drawing paper, trimmed down to a uniform size of 24 inches by thirty-six inches.

If the plans of two stories are identical, one may be omitted; and if two of the stories are symmetrical in plan, half only of either may be shown.

The perspective will be drawn in line only, without shading, and without any accessories, such as sky, plants, figures, etc. The point of sight for the perspective is to be taken at a distance of 275 feet from the angle of the lot, on a line drawn from the angle of the lot through the point of sight as given on the plan already furnished.

The perspective is to be set up on an eight-inch scale plan. The plans of the picture is to touch the corner of the building.

Each drawing, and also the accompanying memorandum, is to be distinguished by a motto or cypher, and no handwriting of any sort is to be put upon either. Any of the competitors may send in a second set of drawings, embodying a different design, if he desires to do so. In this case it must bear a different motto. No competitor is to employ any motto or device which he has ever used on any previous occasion.

A sealed envelope, bearing the same cypher or motto, is to contain the name and address of the writer. The drawings are not to be framed, glazed, or even mounted on card-board, but are to be sent flat in a portfolio, and are to be delivered to Professor Ware, at Columbia College in the City of New York, on or before the 1st October, 1888. He will employ a competent person to throw out from consideration all drawings, or sets of drawings, not made in conformity with these instructions. The remainder he will examine and will select those which he finds best among them, at least two in number, and these he will hand over to the Committee with his comments, and any recommendations he may think it well to make.



MECHANICS' INSTITUTE BUILDING, MONTREAL, QUE.

JAMES WRIGHT, ARCHITECT.

The Committee in consultation with their professional adviser will assume the entire labor and responsibility of making estimates for the work, on the basis of the designs selected by them; if they desire information upon this point, employing a competent surveyor to that end.

The Committee will appoint one of the selected competitors as architect of the building, if they find that in their judgment and that of their adviser, they are warranted in doing so; and will execute an agreement with him for the customary professional compensation for such services. The Committee also reserve the right, in case their choice falls upon an architect whose experience and professional standing do not, in their judgment, warrant them in putting the practical conduct of the work into his hands, or who, by reason of distance, cannot well undertake it, to associate with him some experienced person, to be nominated by himself, subject to the approval of the Committee, upon whose competency in this respect they can rely, paying to each his share of the customary fees for his share of the work. If, as may happen, they find themselves unable to choose, upon the evidence before them, between two or more of these candidates, they will invite the competitors among whom their choice then lies, to present under the instructions of the Committee, such further explanations or drawings as the nature of the questions at issue may require. In case of the successful competitor, all payments will be con-

their professional adviser, will be communicated to all the competitors.

For the convenience of Canadian competitors these drawings may be sent to the care of Secretary of the Board, addressed to Professor Ware; the Secretary will arrange with the United States Customs for their being forwarded to that gentleman.

CALIFORNIA ARCHITECTURE.

In a private letter to the editor of this journal, Mr. Geo. H. Wolfe, publisher of the *California Architect*, says: "There is not so much difference in construction between this place and your own as you would imagine. Our better class of houses are all diagonally boarded. On this is nailed tar paper and then rustic. Our rustic is somewhat similar to your weather boarding principle. Thermometer in this city never gets below 20° above zero, and only in exceptional instances does it get as low as that. How our buildings would stand your climate, of course, is a problem. Nine-

OUR ILLUSTRATIONS.

"CANADIAN ARCHITECT AND BUILDER" COMPETITION —DESIGN BY "WELLINGTON."

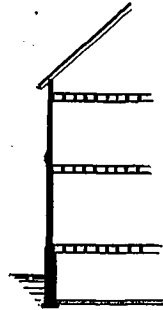
WE should judge that it was the intention of the author of this design to face his house south. If such is the case, the plan would be very much improved if it were reversed, so as to place the rooms now on the west side on the east. The east and street exposure is the most valuable, and yet the author has placed the reception hall, staircase and kitchen on this side of his house, and the dining and parlor on the west. The dining-room should always when possible have an east exposure, and should never be placed on the west side. The parlor, although its position is not very important, should always be placed in the best available one. In this case it has been placed on the west side, away from a street, when it could equally well have been placed on the east side, and next the street. The staircase can go anywhere, but should never be placed where it would be much better to have a room. The inhabi-



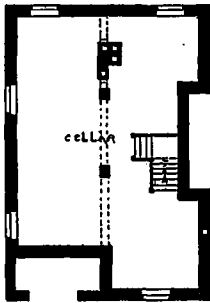
FRONT ELEVATION.



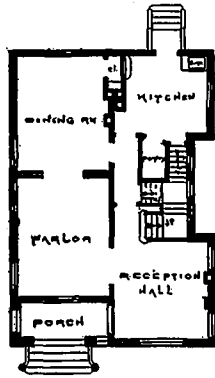
SIDE ELEVATION.



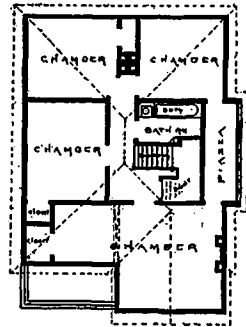
SECTION.



FOUNDATION PLAN.



GROUND FLOOR PLAN.



FIRST FLOOR PLAN.

"CANADIAN ARCHITECT AND BUILDER" COMPETITION FOR \$25,000 TOWN HOUSE—DESIGN SUBMITTED BY "WELLINGTON."

sidered as payments on account of his commissions as architect of the building.

All drawings shall be returned to the competitors as soon as the Committee has made its selection, and they will not be shown to the other competitors nor to the public without the consent of their several authors, previously obtained in writing. Nor shall anything shown in any of the rejected designs or otherwise suggested by the unsuccessful competitors, which is original as to this competition, be adopted and made use of in the building, without the consent of its author, and proper remuneration being made him, the amount thereof to be agreed upon between him and the Committee, and in case of disagreement to be referred to the professional adviser of the Committee, whose decision shall be final not only in regard to the amount to be paid, but in regard to the existence of any such claim.

Any information which the Committee, or any member of the Committee, or their professional adviser, may find proper to communicate to any of the competitors in answer to questions or suggestions, will be made in print, and will be simultaneously communicated to all the rest. Such questions or suggestions must be made before the 15th day of July, 1888, and should be addressed to the Secretary of the Board of Trade of the City of Toronto, Toronto, Canada.

The final action of the Committee, and the report to them of

tents of our buildings are built entirely of wood, chimneys alone excepted. It is not until lately that brick have come into general use for foundations for frame dwellings."

We understand the Secretary of the Toronto Board of Trade has received letters from more than a score of American architects informing him of their intention to enter the competition for the Board of Trade building.

If the University authorities and the Government of Ontario should decide to establish a chair of Architecture in connection with the School of Practical Science, Toronto, we hope to see it filled by a Canadian professor. We have among us architects who have had the training to qualify them to discharge the duties of such a position with honor to themselves and advantage to the students who should look to them for instruction. In the past there has been too much going abroad after men to fill positions of this kind. This country has now reached the stage where native talent may justly claim and should receive proper consideration.

tants of a house do not live in the halls nor in the stairway, but they do live in the rooms, and consequently the rooms should be placed in the better position. The kitchen would have answered every purpose if placed on the west side, thus giving place to the dining room. Then, again, the dining rooms are placed on the most exposed side of the house, where it is most difficult to keep them warm. How would it be possible to keep the dining rooms warm in cold weather, exposed as it is to the Northwest winds. The reception hall is too large and important for a house of this size and value, and moreover, has too many windows. No vestibule has been provided, which is a most serious objection. This climate is much too severe to have but one door closed against it—two is none too many. A vestibule could easily have been secured by narrowing the opening to porch and placing a door close to the joint of window to parlor. Then the little windows at the side of this arch would have been of some service, if enlarged to be of some use. A house of the pretensions of this one should not be without a pantry. There is a small closet through

which service to the dining room can be had, but that alone is of small benefit. It also means that two servants must be kept if anything is to be gained by this arrangement; and we fancy that any one who is able to keep two servants would not care to live in a house if built according to this design. There is a small inside closet in the kitchen and that is all; the pantry accommodation is therefore exceedingly limited. The kitchen is so badly cut up with doors and windows that it would serve its purpose very indifferently. A kitchen door should always be protected by a porch. On the first floor there are four very good bedrooms, three of which have closets. We do not approve of the recess or whatever it may be called out of the first bedroom. This space could be used to much better advantage by rearranging the plan, and bringing the west center bedroom forward to the first. The bath room is fairly good, and has the proper exposure. The basin seems to have been reduced in size to allow of its being set in the angle of the break in the partitions. If the scale of the w. c. and bath is correct, this basin cannot be more than 6 inches in diameter. The piazza is nicely arranged, and of value.

We are much better pleased with the elevation than with the plan. It is very simple, and, generally speaking, satisfactory. The roof is perfectly simple and the possibility of leaks is reduced to a minimum. The windows to the staircase on both floors are in rather impossible and inconvenient positions. We would advise the author of this plan to study out his plans more carefully. Good elevations will not remedy a bad or inferior plan. He apparently has devoted more thought to his elevations than to his plans, and in so doing has made a very great mistake.

MECHANICS' INSTITUTE BUILDING, MONTREAL, QUE.  
—JAMES WRIGHT, ARCHITECT.

SPECIMENS OF DRAWING AND DESIGN BY PUPILS OF  
ONTARIO ART SCHOOLS.

### THE NEW PARLIAMENT BUILDINGS.

IF the lithographic print which is for sale in the stationary stores is a fair representation, making all due allowance for the badness of the lithograph, of the new Parliament and Departmental Buildings which are now being erected in the park, the question must be asked, why did the Government take the work out of the hands of Canadian architects and give it to a foreigner? The design of this building is so wretchedly bad in the composition that no possible beauty of detail or profuseness of carving can redeem it, granting that the mind which could design such a weak and inartistic composition will be able to give us good work in individual parts, and in the detail. It is now about two years since this work was commenced, and yet the Government have not thought it wise to inform the public as to the description of the building in the erection of which they will be obliged to spend at least two millions of dollars. If the building is anything like the lithograph, we can easily understand why they have not had authentic cuts of the elevations and perspectives made and distributed for the information of those who have to foot the cost. Nor have they, so far as we are aware, placed the elevations or perspectives where they can be seen by the few. We should be only too glad to publish among our illustrations representations of the building or its parts if we were supplied with the drawings. Now that there is a lithograph published which represents the building as one that will, if erected according to the design thus shown, be one of the ugliest and most inartistic buildings erected on this continent, or for that matter, any other continent, during the past ten years, the Government should see that an authoritative cut of the building is published.

It is only a few days ago that we saw the perspective drawing of the design submitted by Messrs. Darling & Curry, and were obliged to admire the beauty of the composition as a whole, as well as of the individual parts. One of the lithographic prints was placed alongside of this drawing, and making all due allowance as between the pictures, one might be said to represent Day, the other Night. That a foreign architect should be appointed to design this most important building in preference to a Canadian, is bad enough, but that a good design by Canadians should be cast aside, and a building erected according to such an inferior one by a foreigner, is worthy of the strongest condemnation. Until Canadians believe in themselves, there will never be any national life worth speaking of, nor will the ablest among our young men remain in their native land. We have had too much talk about a Canadian national spirit, without the action necessary to bring it into vigorous life on the part of our public men and the press. Would it not be much better, for a time at least, to have our belief in Canada and ourselves shown by

acts rather than words? The greatest traitors can talk most patriotically, but it is only the man who is patriotic in his deeds who is truly loyal.

### INSTRUCTION IN ARCHITECTURE.

IF the Minister of Education carries out his intention of appointing a lecturer on Architecture in the School of Technology, he will have made a long step forward for the advancement of architecture in this country—not that we are so deficient in architectural ability as some of our would-be architectural critics would have us believe. If this kind of art is placed on the curriculum of the school, every care should be taken to have it most thoroughly taught by experienced lecturers. We would suggest that at the commencement the course should not be too long, but that it should be made to give architectural students a first-class primary training in construction, the science and history of architecture. It is as impossible to make an architect in a college, as it would be to make a competent seaman and navigator by a theoretical course at a school miles from the sea. The profession will gain immensely by having only educated men in its ranks, and if all are not good architects, they will at least have sufficient training to know good from bad work. There are so many untrained men in the ranks of the architects, and the public are so unable to judge good architecture from bad, that the few good men receive but little recognition, and that only from the cultured few. We should think that some arrangement might be made with the architects now practising to receive into their offices students from the School of Architecture in preference to non-attendants. By this means the profession would feel the benefit of the school, and the students would have the advantage of having all openers for students in architects' offices kept for them in preference to others.

### TORONTO ARCHITECTURAL GUILD.

THE monthly meeting of the Architectural Guild, of Toronto, was held at Lorne Park on Thursday afternoon. The members were most hospitably entertained by Mr. and Mrs. Burke, to whom they are very much indebted for a pleasant afternoon. Notwithstanding that the day was decidedly one of pleasure and quiet enjoyment, there was a large amount of business transacted. There were also animated discussions on many questions of much moment to the advancement of architecture in this country. Much satisfaction was expressed with the intimation of the Minister of Education that he proposed to appoint a lecturer on architecture in the school of technology.

Architectural competitions, unless conducted upon a different and more equitable plan than heretofore will soon have to be abandoned, for the reason that no architect of any standing will have anything to do with them. A competition has just closed at Minneapolis, and this is what the *Northwestern Architect* says of it:—"There has been nothing in this competition to relieve the system from the contempt into which it has fallen among reputable architects. The merits or demerits of the designs submitted had very little to do with the final decision, the fight was between the two firms that everybody knew were to struggle for it, and was merely a matter of wire-pulling, and the most astute wire pullers won. Yet this is the method by which the architects of most of the public buildings in this country have been selected, and, although we believe the selection in this case to have been a good one, we must admit it to be a bad method. Is it any wonder that a majority of our public buildings are no credit to us, that many begin to fall down before they are fairly up, that charges of jobbery and peculation begin to accumulate as the walls go up, and that in most cases the scandal sticks.

### PERSONAL.

Messrs. Knox & Elliott, architects, late of Chicago, have opened an office at 15 Victoria street, Toronto.

Mr. F. Douchler has purchased the business of Mr. S. C. Durris, architect and real estate agent, Victoria, B. C.

We regret to learn that Mr. Richard C. Windeyer, architect, of this city, has lately been incapacitated for his duties by illness.

Mr. A. E. McCall, B. A., has resigned the position of mathematical master in the Bellefleur high school and has gone to Ottawa to take a civil engineer's course.

On the occasion of his recent marriage, Mr. W. C. Phillips was walked upon at his residence, 21 Grosvenor street, by the traveller, salesman and foreman of the Cobban Manufacturing Co., Toronto, and presented with a handsome silver tea service, as a mark of esteem and regard from his employees.

THE CANADIAN ARCHITECT AND BUILDER received a visit last month from Mr. A. P. Randall, of Seattle, W. T., who is re-visiting relatives in Ontario after an absence of fifteen years, during which period he has resided on the Pacific coast. Mr. Randall, who is a builder, is alive to the advantages to be derived from a study of the architectural journals, and before leaving added to his list of such publications the CANADIAN ARCHITECT AND BUILDER.



Architects, Engineers, Builders, Contractors and others are invited to contribute to this department of their experience regarding methods of construction. Also particulars—such as location, character, cost and name of owner, etc.—of any works of construction in progress.

### MANILLA HEMP IN PLASTER.

A WELL-KNOWN firm of architects has for several years ordered the use of manilla hair in all plastering work done for its clients. In order to satisfy the doubt of some of its contractors, they made the following experiment: The test was made with four plates of equal size, one containing manilla hemp, a second Slat hemp, and third jute, and a fourth plasterer's hair (goats) of the finest quality. The test was made by suspending pending weights from the middle of each plate, the ends of which were properly supported. The result was that the plaster mixed with goat's hair broke at 14½ pounds weight, that with jute at 145 pounds, the Slat at 150 pounds, and the manilla at 195 pounds. It should be added that the plaster containing the manilla hemp did not break, it only cracked. Though cracked in the centre, the lower half of the plate containing the manilla when it was suspended, held on to the upper half, and the manilla held it fast, though the observer would almost feel confident that the hairs would break under the strain. The three other plates were broken—that is, the two parts of each plate had severed entirely in contrast with the manilla plastering. The architects felt that their theory had been proven correct.

Another experiment, made two years ago by a member of the same firm of architects, consisted of mixing two barrels of mortar, each containing equal portions, by measure, of sharp sand and Thomaston lime, one of the barrels, however, being mixed with the proper quantity, by measure, of manilla hemp, cut in lengths of 1½ to 2 inches, and the other of goat's hair, the best that could be procured. After mixing thoroughly with the usual quantity of water, the respective mixtures were put in the barrels and stored away in a dry cellar, where they were locked up. They were allowed to remain there for nine months, at the end of which time they were opened and examined. The hair mortar crumbled and broke apart, very little of the hair being visible, showing that the lime had consumed the hair. The other, containing the hemp, however, showed great cohesion, it being with considerable effort that it was pulled apart, the fibres of the hemp permeating the mass and giving little or no evidence of injury done to it by the lime.—*Manufacturer and Builder.*

### ROOF CONSTRUCTION.

IN a southern climate it is not a difficult matter to place on a building a good weather tight roof, but in a northern one it is almost impossible to construct a roof which will remain perfectly watertight all seasons of the year. A roof may not allow one drop of water to penetrate during the summer months, which in winter will leak to a serious extent. The question of watertight roofing under all conditions of climate has now become a difficult one. In the past when our houses were not heated beyond the actual living rooms and water froze in the bedrooms, there was not very much trouble with leaky roofs except under very exceptional circumstances. But now that our homes are heated with water and steam until there is not one single cubic foot of air in the entire house which is not at 65° or more, it is the exception when a roof does not leak less or more during the winter. This occurs through the extremely high temperature of the air underneath the roof, as no matter what the temperature of the house may be, the attic or roof space is still higher. The result of this state of affairs is that the snow on the roof is melted when the temperature of the air outside is below the freezing point, and the water melting therefrom runs down the roof until it reaches the eaves, where it is beyond the influence of the heated air of the house, and consequently freezes, the result being that there is a ridge of ice at the eaves of the house with long icicles hanging down from same. This ridge of ice prevents the water from the melting snow escaping off the roof except over this ridge, and as it keeps freezing it very soon has a dam sufficient to cause the water to back up under the slate and find its way down the face of the walls, or into the house. This ice forms at many points, but more especially at the eaves in the valley and behind chimneys and dormer windows. The temporary leakage is not the only trouble, for the roof is always more or less injured by the ice. The galvanized iron gutters, valleys and flashing are often damaged to such an extent that it is necessary to have them repaired to keep out an ordinary rain-storm, and very often the slate is broken to such an extent that they must be replaced.

To overcome this difficulty it is absolutely necessary that there should be few breaks in the roof. Every gable, dormer window, or chimney but adds to the trouble, and therefore every care should be taken to design houses which can be roofed in a simple and plain manner without unnecessary breaks, which are often put on to add to the design artistically, but which more often than otherwise ruin it. A broad mass of roof very often would redeem an otherwise inferior design. There are far too many houses erected which have not even one small unobtrusive space to rest the eye, tired in the attempt to understand what all the projection points and excrescences mean. Our buildings would gain very much if they were designed with more simplicity and dignity, both artistically and from the strictly utilitarian point of view. This trouble from ice forming on roofs in winter can only be overcome by preventing

the heated air of the house striking the underside of the roof boards. If some means is adopted which will allow of a circulation of cold air underneath the roof boards no ice will be found, and the roof will remain as tight as during the summer months. This circulation can be secured by double boarding the roof and leaving a sufficient space between the boarding to allow of a current of air entering at the eave and escaping at the ridge. By this means the heated air of the house is prevented from coming in contact with the boarding on which the roofing material is laid, and instead, a cold column of air is maintained below this boarding which is continually carrying off any heated air which may escape through the first boarding. But all leaks in roofs are not caused through ice. Bad materials and workmanship has much to do with leaky roofs, and unskill roofers have been trained to do their work properly, there will always be bad roofing where there should be good.

**TORONTO BUILDERS' AND CONTRACTORS' FEDERATED ASSOCIATION.**

At the last monthly meeting of the above Association held on Thursday evening, the 5th inst., after the ordinary business had been transacted the retiring president, Mr. Lloyd Yorker, was presented by Mr. Geo. Moir, President elect, on behalf of the Association, with a handsome gold-headed cane. Mr. Yorker is too well known to call for any lengthy comments here, he having built some of the largest edifices in the city, and being now engaged in the erection of the new Parliament Buildings. He was the first president of the Builders and Contractors' Federal Association, and as such was uniting in his efforts to further not only the interests of the building trade, but also the interests of both the architect and the capitalist.

The peaceful settlement of the troubles last spring and summer were in great measure due to his large experience with workmen; his broad and sensible manner of looking at their side of the question as well as the masters', and his undeviating course in bringing matters to a satisfactory conclusion even in the face of serious loss to himself. The fact that a general strike or lock-out, or in other words a general disaster to the city, was averted during his term of office principally through his instrumentality, is sufficient reason alone for our wishing with the Builders' Association, that although the cane might be quite sufficient to support his bulky form, it may long be to him more for ornament than use.

**PROGRESS OF THE PANAMA CANAL.**

The Panama Star and Herald, of May 19, says:—"The work on the locks is progressing finely. A large amount of work has been done during the three or four months in which the contractors under the lock system have had charge. Excavations have been made, and are being made, to secure the masonry of the head and foot of each lock, while the digging of the canal proper between the ends of the locks is keeping pace with the other work. The one who observes for the first time the construction of the canal, is a very interesting sight to see the large number of men, all actively engaged; the numerous cranes lifting large iron buckets of earth and rock out of the excavations with ease and rapidity; the winches hard at work drawing large and heavy trains of the DeCauville dumping cars out of the work, up steep inclines; the engines working the pumps attached to the drainage wells, which drain the waters of the works; the rock-crushing machines crushing hard rocks into the requisite size for use in making concrete; all these things tell to the spectator the tale of a gigantic undertaking, well handled, and being rapidly pushed to completion.

"The locks number ten, all told, and are located five on the Pacific side, and five on the Atlantic side of the isthmus. Nearly all the latest improved labor-saving machinery adapted to such work is being used on the canals. There are about eight hoisting cranes on each lock (five in all) of four tons hoisting capacity, and with a reach of about ten metres depth, all busily engaged in hoisting large iron buckets of one cubic metre capacity, and unloading them upon flat cars upon trucks running out from the works to select dumping places. For the purpose of carrying the large amount of dirt and rock excavated out of the work there are about five locomotives to each lock and in all some 600 or 700 construction dirt carts.

"In places where they can be used, steam winches, of which there are some sixty or eighty on the entire work, draw up trains of DeCauville cars, fifteen or twenty of them to the train, and each of them of the hoisting capacity of half a cubic metre, running upon small tracks, placed in all directions, and running up and down steep inclined planes out of the works to dump.

"It is estimated that Locks Nos. 1, 3, 4 and 5 will be turned over in three or four months.

"Most of the work now being done is done at the excavations of the heads of the locks, where the masonry will be needed, the work between. It is intended to carry on while the masonry is being erected and the gates, etc., placed in position.

"To this work of canal building there are now employed about 5,000 laborers on the ten locks and about 1,000 skilled laborers, besides a small, and yet not so very small, army of clerks.

**HAMILTON.**

(Correspondence of THE CANADIAN ARCHITECT AND BUILDER.)

SINCE last report there has not been much change in building matters in this city; in fact there is little or no new building going on. There are a few private buildings in course of erection. Mr. Thomas Laury is erecting a new detached villa, residence on James street south, which will cost about \$12,000 when finished. Mr. Strong, who has sold the site of his fine new eight storey hotel, is about to erect, in fact has commenced the erection of another terrace of a similar class of buildings on Beaudry street. Mr. Strong is quite an enterprising builder, and deserves credit for the taste he displays in getting up his buildings, both as regards exterior design and internal finish; in fact he has been a very successful speculative builder. He has also perfected some very useful improvements in sanitary plumbing and heating.

Owing to a delay in getting the stone, the stone wall on the new city hall has stopped, but the delay will be longer when the building will be fast pushed on to completion.

The price of stock brick, that is to say the run of the kiln here, has been reduced one dollar per thousand. This is no doubt intended as an inducement for those who propose building to come on with their work, and I believe it will have a tendency in that direction. It will also be a good thing for contractors who have work on hand on estimates on the last month's prices.

The bad effect of the strikes by the workmen in the spring is now apparent to all right-thinking men, and none can perceive it so well as the workmen themselves. If they only profit by this year's severe lesson, it will prevent a repetition of such folly in any ensuing year. There is a prospect of work stirring up this fall; in fact there are indications that quite a mass of work may come in now that all hands are ready to settle down to business. I give no building record this month; in fact none has been made, except for a few paltry additions and alterations, which are not worth mentioning.

The Berlin waterworks are expected to be ready for operation by the middle of July, over a mile of pipe being put down each week.

The cast iron water pipes for the Montreal waterworks are being manufactured by the Steel Company of Canada, Acadia Mines, N. S.

A disagreement between capital and labor has resulted in closing down all the Pittsburg window glass factories for an indefinite period.

The Ormslow Brick and Terra Cotta Company has been incorporated with \$50,000 capital stock. Its head offices are at Ottawa.

New Westminster, B. C., cedar is used in Montreal for finishing work in first class residences, and in Ohio for railway carriage purposes.

A sheet of building paper thirty miles long and 3 1/2 inches wide was turned out of the Northumberland Paper mills at Campbellford, Ont., the other day.

Messrs. Harding & Leathome have been awarded the contract for the construction of the Goderich waterworks, at a cost of between \$8,000 and \$9,000.

Mr. John Clark, architect, Chesley, Ont., states that thirteen stores and one hotel are now under way there, and that all the buildings are to be all brick.

Mr. B. Gibson, of Whitley, was the successful tenderer for the contract for extending the Kingston waterworks system. The amount of his tender was \$30,800.

The work of plastering the interior of the new Departmental block has been sub-let by contractor Charlebois to James Strachan, of Ottawa. The amount is about \$20,000.

The construction of the new Halifax dry dock is giving employment to 150 men. A large amount of excavating is being done. The contractor hopes to complete the work this year.

The construction of a spile flume extending 800 feet into the bay, has been found effectual for the purpose of preventing the drifting back to the shore of sewage from the Hamilton sewers.

The owner of the Hastings quarry, where the white marble is found of which it is proposed to construct the Toronto cow house, has offered the stone free to the corporation for the quarrying of it.

Messrs. McLean & Whitehead, Winnipeg, have the contract for building snow sheds for the C. P. R. Co., on the Eastern slope of the Selkirk mountains, and Mr. D. B. Campbell, of Strathroy has a similar contract on the western slope.

Contracts for the construction of a new iron bridge over the Thames at Delaware, Ont., to cost \$12,000, have been let as follows:—Mr. Isaac Crona, two stone piers, \$8,000; Hamilton Bridge Co., iron superstructure, \$5,150.

The Independent Workmen's Association of Hamilton, composed of workmen in the building trades who do not belong to the unions, have elected the following officers:—D. G. Mowat, president; Henry Shelley and J. Fuller, vice-presidents; Geo. Worthington, treasurer; James Plumey, secretary; Jas. Booner, inside sentinel; John Goodall, outside sentinel. Trustees:—J. Burke, J. Fuller and E. Woolter.

At the annual meeting of the Toronto Builders' and Contractors' Federal Association, the following officers were elected:—President, Mr. George Moir; Vice-President, Mr. Frank B. Lockwood; Treasurer, Mr. Wm. Forbes, re-elected; Secretary, Mr. J. Knox, re-elected; Rooms Committee, Messrs. Forbes, Fiddes, Wright, Gibson and Lockwood; Auditors, Messrs. W. Simpson and H. C. Daney.

The route of the proposed Trent Canal is from Waubasheuse, on the Georgian Bay, to Trenton, on the Bay of Quinte, passing through Lake Couchiching, Lake Simcoe, across country to Balsam lake, to Cameron's lake, to Surgeon lake, to Stoney lake, down the Ononabee river, to Rice lake, to Meyer's lake, to Wilson's lake, and thence down the Trent river, to the terminus of Trenton. This route touches Onllia, Fenelon Falls, Lakefield, Peterborough and Campbellford. The Canal Commission will go over the route early in July, and hold meetings in the various places through which it passes, for the purpose of ascertaining what advantages the canal would afford local traffic.

In walls, bricks of any kind, but more particularly fire-brick, if properly laid in sound mortar or cement, will resist all effects of heat for a considerable time; for studs, stone is a very dangerous material, unless it is imbedded on some substance which can carry it when it gets hot. But of all building materials there is none which requires more extra care and delicate treatment than iron. Imagine a straight iron rod, supported, at its ends, and capable, at the ordinary temperature of the atmosphere, of carrying a heavy weight in the middle. Let a strong fire be lighted under it; in a few moments the rod will lose its straightness, first sagging in the middle, then dropping altogether, next fusing and running away. Yet this is a material which many persons call fire-proof, and put to carrying loaded floors which they designated by the same improper epithet. Wherever iron is used it should be protected by terra cotta, good brick work, sound plastering, or if nothing better can be found for the purpose, solid woodwork round it. Woodwork, if solid, will resist for a length of time every possible effect of heat short of actual fire.—*Builders' Trades Journal.*



**PAPER STUCCO, ITS HISTORY AND USES.**

By W. H. ELLIOTT.

PREVIOUS to the introduction of paper stucco, the use of ornament in relief had at all times been considered the most desirable form of decoration for interiors,

but on account of its cost it had been confined almost exclusively to public buildings and the mansions of the wealthy, if we except perhaps the conventional ugly centre flowers and heavy cornices composed of a shapeless bundle of mouldings framing an equally meaningless cove which are to be found in almost every ordinary house. The inclination of the artist towards relief effects was shown in the painted imitations of plaster stucco continually attempted. When neither the real nor the imitation in color was possible, simple wall papers of more or less merit were used with plain white ceilings, or worse still, white walls as well, it being considered, and with some reason, that an absence of design was preferable to an attempt at what was practically beyond the means of many who yet had the taste to avoid the gaudy effects of mediocrity. Decoration of the ceiling was out of the question, as nothing of a satisfactory nature was, or for the matter of that is now, furnished by wallpaper manufacturers; consequently that part of the room which from its position is most rarely interrupted, which presents itself from every standpoint as a whole, which is the longest flat surface in the room, and which, for these reasons, calls for decorative treatment, was absolutely treated with systematic neglect. We need not seek far for systems. Even to-day clever, intelligent decorative artists are rare. We are all familiar with the badly drawn, badly colored ceilings in flat work to be met with even in dwellings of some pretension. Skilled decorators are to be found only in the larger centres of wealth and refinement. As a result, any attempt at meritorious embellishment of the ceiling required a great deal of time and money, both factors which nowadays must be approached with economy.

To overcome these difficulties the inventor of "paper stucco" sought for a substitute (not an imitation) for plaster of paris which should be within the range financially of ordinary decoration and at the same time crowd out the weak imitations in paint which were offered as a substitute. For grand and imposing buildings, no doubt plaster of paris possesses many good and acknowledged qualities; but for general use the objections to it are many. Aside from the score of expense already referred to, its production in an inhabited house is attended with an unendurable amount of dirt and fouling of the adjoining apartments. It is never safe, without special or expensive preparation, to burden an ordinary ceiling with a weight of plaster which may at any time, and indeed frequently does, fall and cause great damage. It is in addition certain to crack and separate with any settlement or shrinkage of the houses.

A different material, therefore, had to be obtained, which, while plastic in its nature, should be without the drawbacks of plaster of paris. After varied experiments to press ornaments out of materials of every kind, the method of producing plastic designs by means of layers of paper fastened together and pressed in moulds was hit upon and improved until we now have the varied and beautiful designs of paper stucco. That this method is the best for producing plastic ornaments of all kinds, and especially ceiling decorations, is proved by the fact that the original invention has now many imitations. For some purposes possibly a firmer pulp or stock can be obtained, such for example as *carton pierre*, which is capable in elastic moulds of more undercut effects, but no material at present in use combines so many advantages as "paper stucco." Not the least among its merits is the capability of shipment to any distance without damage in carriage. We have, then, a material which takes the place of plaster of paris, is free from the many defects of that material, and is cheaper in use even than the painted imitation of stucco. To those who would object to its composition as being only paper, it may be said that if it answers the purpose in view fully and satisfactorily, nothing further need be enquired as to its composition—that paper to-day is superseding many other materials in the greatest variety of uses—that as a matter of fact it is much more expensive pound



for pound than plaster. To compare it therefore as an imitation with plaster as the "genuine stucco," is absurd. Paper car wheels would not be called imitation iron car wheels. Paper boots, pails, bottles and vessels of all kinds are not looked upon as imitations of materials formerly used in the construction of these articles. It is not an imitation, but a substitute, superior to the old. The advantages to the architectural effect of rooms treated in relief ornaments are many. Weakness or faultiness of construction, irregularities, lowness or two great height of ceilings, may be overcome or modified by the proper disposition of ornament in friezes, cornices, mouldings, &c. Other materials for the flat surfaces, such as leathers, velvets, Lincrusta, gain immensely by the framing of mouldings in relief. While special laws govern the colouring of varied surfaces, yet the difficulties in the way of a successful effect, when the design is already provided, are not nearly so great as when both design and color have to be supplied.

### MR. HOVENDEN'S REPLY TO HIS CRITIC.

88 KING ST. WEST,  
TORONTO, July 6, 1888.

EDITOR CANADIAN ARCHITECT AND BUILDER:

IN your valued issue for June, I notice that I am the recipient of a castigation, as well as what purports to be some good advice, at the hands of the editor of the *Painter's Magazine and Coach Painter*, of New York, under the head of "Perverting Facts." Now, sir, if I were not already thoroughly well acquainted with the peculiar idiosyncrasies, family heir-looks of such gentlemen as my respected New York brother of the brush, I should feel disposed to be offended at his remarks, as well as at the tone of his unsolicited advice; but I hasten to assure him that I am only amused, and as one good turn deserves another, I would respectfully advise him:

1st. Never call any man a liar, either in cold type, in writing or orally, on mere assumption, nor until you have the irrefragable proof in your possession, and not even then until after you have measured him up with a "two-foot" rule, and looked him well over in front and rear and on both sides, and made up your mind that your family will not be put to the expense of mourning.

2nd. Never write articles or criticisms on matters and men you are not thoroughly conversant with, and more especially avoid paints, oils, varnishes and painting, for although you may be an adept in the use of the paste pot, brush and scissors, this does not constitute you a *practical painter* by any means, or one qualified to wrestle with the intricacies of the paint and oil trade.

With these few words of advice, which I recommend to his most serious perusal and contemplation, and which, if followed out in the same kindly spirit in which they are given, will serve to prolong his days in the land of the Great Republic, and allow his grey hairs to go down in peace and honor to the grave, I will proceed to consider his random charges. He says first:

"Assertion is not proof. The assumed positiveness in giving the actual proportion of sophisticated barrels to the entire bulk supplied, excites incredulity in the speaker's honesty and sincerity."

I have read and re-read the above quotation from my learned brother's criticism, and have come to the conclusion, after mature consideration, that I am a "genius," for having performed the feat of exciting his incredulity, the more especially as he belongs to a people who are more celebrated for shooting wide of the target of truth than they are for scoring bull's eyes. Know then, oh learned brother, that I have asserted nothing but what I have proven time and again, and to my own satisfaction at least. As car loads of linseed oil pass through my hands pretty frequently, I will therefore assume—with your kind permission—to have a good opportunity of determining the quality of that particular class of goods, as I both sell and use them in large quantities. The "sophisticated" oil matter will therefore have to remain as a question of veracity on one side and incredulity on the other, as between my "unsophisticated" New York brother and myself, as I can't see where he has made out any case, or even succeeded in a poor attempt to disprove my statement.

Touching my remarks on "priming color," any painter with even a moderate knowledge of the trade will agree as to the soundness of the statement that the "odds and ends" of a paint shop are usually "fat," and will not dry hard and firm, no matter what you do with them, and make but a sorry foundation for the subsequent finish; for a thorough good foundation is as necessary to the finish and wearing properties of painting as a good foundation is constructively necessary to the stability of an edifice. His remark that "No one, of course, compels a painter to make up such a priming," may be taken as true, but he must not forget that paint-

ers are human, and like himself, perverse. They religiously follow, in the matter of their trade, that portion of the Episcopal service, to wit: "We have done those things which we ought not to have done, and have left undone those things which we ought to have done," &c.—which was the cause of my pointing out the result, if done in the manner alluded to.

My learned brother admits that "painters are by no means helpless sheep whose fleece are being torn by ravenous wolves." Unintentionally or otherwise, he has pretty accurately figured up the average painter. I have never heard their most intimate friends accuse them of "sheepishness," especially in the matter of making up bills, for which performance they rank next to the plumbers. But painters are pretty much the same the world over—at least, all that I have come across; they are neither better nor honest on his side of the boundary line than they are in Canada, and that is not lavishing a great deal of praise on either side.

As to architects across the line requiring to be "instructed in painting," I most respectfully beg to tender my critic my poor services, *gratis*, for the task, as I believe there would be a large field for missionary work over there if the architects are as sprightly and intelligent as himself. Regarding my poor self, I have to thank him for admitting that I show some symptoms of being a house painter. This is indeed an unlooked-for compliment from him, and very gratifying to me after having worked at the trade for over 38 years now, having served my apprenticeship in his city as a fresco painter, and having worked in nearly every good shop in days gone by from Portland, Maine, to New Orleans, La., and from thence north-westward to this city. Verily, his perspicuity is great and far reaching, and about on a par with his logic.

Yours truly,

R. J. HOVENDEN.

### INTERIOR DECORATION.

AS a good example of interior decoration we may refer to that of a sitting-room facing the southeast. The ground of the wall is soft dull blue, that is blue with some green in it and of a softened faded hue, the ornamental figures being of lighter shade, the ceiling is of still lighter blue. The frieze is of brownish olive of the same depth of shade of the dull blue of the main wall ground, with running scroll border in old reds and olive greens separated from main wall by a redwood rail. The woodwork is in a shade of red-wood somewhat fainter. The whole has a restful appearance and is aided by a carpet of peacock blue ground, showing merely as a fillet running through olives, olive green, old blue and terra cotta reds, and by light bronze brown colored shades of windows. We have noted before the importance of taking the hues of the carpet into account when decorating a room. Where the carpet is not already selected the decorator should invariably be consulted on the subject; if already laid it will necessarily influence him in his selection of wall colors.

A northwest parlor has a wall paper in two medium shades of terra cotta pink; the frieze which is nearly two feet deep is in two shades of bronzy old gold, a renaissance design. In another parlor with wall space similarly treated there is a bold floral frieze of bronze green of continuous running pattern. The woodwork in each is the color of natural cherry. The library has a wall of bronze in arabesque design, the frieze ground dark old red, with designs in copper color; the ceiling pale bronze brown. The woodwork is in the warmest shade seen in French walnut. The newels at foot of staircase and hand-rail are of peacock blue; the balusters are ebonized. The woodwork of the bedroom is of a shade of bay green; in the wall paper amber and blue figures appear on a gray green ground; the ceiling is of a creamy hue.

A well decorated drawing-room which we lately inspected has the woodwork in peacock blue; the walls have a paper of conventionalized design in which blue predominates, whilst the doors are painted a yellowish olive green. The ceiling has a light pinkish hue. The ceiling of the dining-room in the same house is similarly tinted, the woodwork is of Indian red color resembling in appearance Japanese lacquer work; the wall paper is an all-over pattern in shades of Indian red, the frieze a yellowish green. Mouldings are in amber, yellow and pale shades.—*Painters Magazine*.

What is commonly called black lead, and used in lead pencils, is not lead at all. It is a carbon formation called graphite or plumbago. In this trade it is sometimes used in oil. It produces a beautiful gray with a metallic lustre, dries quickly, and has a good body. Chemists say that it is not injurious to other colors, and will live forever.

Painters and kalsomners are at present in demand at Deseronto, Ont.

White paint that has become discolored may be nicely cleaned by using a little whiting in the water while washing.

For varnishing fretwork, use white, hard spirit varnish; it requires no size; the application is to be made in a warm room; or fill in the grain of the wood with glue size, and varnish with brown, hard varnish.

A Mr. Myer has just patented in Germany a composition for removing old varnish from objects. It is obtained by mixing 5 parts of 36 per cent. silicate of potash, one of 40 per cent. soda lye, and one of sal ammoniac (hydrochlorate of ammonia.)

Three models of handrailing wreaths and tracing, cut on the "acris-cut sectional system," the invention of architect W. H. Croker, Orillia, Ont., were recently exhibited at an exhibition in Carpenters' Hall, London, England, and were awarded an extra prize.

A new material for decorative purposes called Pearline, consists of a material, apparently tin plate, with the surface so prepared that it reflects the light in broken masses, producing the effect of pearl shell. It is used as a medium for the display of hand painting. For panels, when so treated, it can be used quite effectively.

Oil spots on wall-paper caused by persons leaning their heads against walls may be removed by making the paste of fuller's earth and cold water and laying some gently on the surface to be cleaned, leaving it until dry, when it may be brushed off and the spot will have disappeared. It works best on plain paper, but it does not succeed so well on thoroughly colored.

Prof. Geo. Aitchison, A. R. A., in a recent lecture on "Decoration" said: When a full or deep scheme of color was settled on for decoration, white should be used sparingly, like a jewel, and when a light scheme was used black had the same value, while all pure colors, when employed on a white or very light ground, should be pulverized, or only light tones could be adopted.

To produce the effect of copper color, says the *Painter's Magazine*, take a ground color made of lead, ochre and either burnt sienna or Venetian red producing a warm buff; then get amber and burnt sienna and coat the whole work over with this, wiping on the prominent parts, carefully softening those parts down from the centre outward, leaving no harsh lines or clean patches, but softening all over, producing a metallic effect—being copper.

Italian jasper is a fine marble to imitate. The painter, having prepared a drab ground, oils this, and rules in circular forms of Indian red and bright lake. With a feather dipped in turpentine veins of different tints of orange, green, also grey, composed of white, raw sienna, Prussian blue and ivory black, are put in between these. The olive and grey tints are glazed with white, and the dark with crimson lake. The final touching up is given with very thin white on a feather.

The following are the names of the prize winners in the recent art examinations in connection with the Educational Department of Ontario:—Toronto School of Art—Gold medal, dislie Borrion. Ottawa School of Art—Gold medal, certificate for drawing from antique, O. E. Prudhomme. Bronze medal—Painting from life, F. Checkley. Bronze medal—Drawing from life, Carrie H. Ross. London School of Art—Silver medal—Mechanical course, Wm. Ferguson. Bronze medal—Primary course, Thos. Elliott. Morrisburg High School—Bronze medal—Primary course, Allen C. Smith.

The wide, shallow stairways that we are glad to say are slowly but surely superseding the breakneck flights to be found in all unpretentious houses afford the most delightful scope to those who are capable of making the most of the chances opened up to them. If there is a window on the first landing it should be cut low and a narrow divan placed in front of it, that one may take a breathing-spell by the way. An old eight-day clock may stand in the corner, beyond the window; or if you are not so fortunate as to own a clock of this description, a potted palm will look well. The opposite corner might have a large bracket holding a rather tall figure in a graceful posture. That of the celebrated dethrower would be admirable. A few well chosen pictures are hung at wide intervals along the whole ascent by people of unquestionable taste and judgment.

Herr Schick at Jerusalem has just lighted upon a supposed ditch of the long-contested second wall of the city, and has made other discoveries with reference to Constantine's Church which will compel a rewriting of the guide books. The French school at Mantiner has discovered a large circular building of the Roman period, with Bronze coins and inscribed terra-cotta tablets representing theatre tickets.



### PUBLIC CONFIDENCE IN THE PLUMBER.



IN a paper read at the convention of the National Association of Master Plumbers held at Boston, June 27th, Mr. J. J. Wade, of Chicago, undertook to answer the question: "Does the plumber have the same confidence reposed in him as the family physician? If not, why not?" Mr. Wade's answer is in the negative, and he gives good reasons why the plumber has no right to expect the same amount of confidence to be reposed in him as in the physician. He points out that the physician is compelled to pursue a long course of study, pass many rigid examinations, and by virtue of his ability to cope with disease build up a practice. The accomplishment of all this forms a sufficient foundation upon which to rest public confidence. The case of the plumber is entirely different. "To the apprentice to the plumbing trade, unfortunately, even the rudiments of a common education are almost unknown, and he generally has no one to provide him with the necessary means to obtain this education. When scarcely able to handle the tools, he makes application to the master plumber to 'take him in' to learn the business. The master plumber, perhaps, favors his request and sends him out to assist a journeyman, and thereby acquire what knowledge he can. In some cases he may be placed with a man of intelligence, honor and integrity; but he rarely finds these qualities centered in the ordinary journeyman. Should such be the case, however, and if the boy possesses any good qualities, he will become, after spending the allotted time in probation, an efficient workman, and a good, honest character as well. But such experiences are seldom met with. We are often obliged to place our boys where they are best suited to learn the trade, which may be with a man who has no standard of morality whatever. From the force of association our apprentice imbibes the example of his indolent teacher and in all probability turns out the same reckless, indifferent mechanic who spends the precious time of his employer, not in the endeavor to attain perfection, but in watching the movement of the hour-hand in his journey around the dial. He is not obliged to pass any examination to manifest his ability, and so has to be continually under the supervision of the master or some fatal error will take place which may destroy a whole system of good plumbing."

Mr. Wade suggests the establishment of trade schools as the means to elevate the standard of plumbers and make them worthy of public confidence; also the adoption of legal means to obtain protection from incompetent workmen. In concluding his interesting paper he sums up the situation as follows:

What we want, then, are trade schools, whose pupils will aspire as much confidence, for skill and integrity in their line of business as the physician does in his.

Having considered the "plumber" at all stages, we have arrived at the conclusion that the qualifications necessary for carrying on the plumbing business are:

1. Technical education.
2. A special knowledge of the plumbing trade.
3. That the applicant at the termination of his apprenticeship must undergo an examination in all the branches relating to the trade before a board of experts, thereby proving himself capable of conducting business.
4. He must possess such qualities of character as energy, perseverance, honesty, industry and intelligence.

The electric light plant at Woodstock is under injunction, and as the contract with the gas company has expired the town is in darkness.

The following rule has been adopted by the Health Board of New York city: "The plumbing of all buildings executed under plans approved by the Board of Health after July 1, 1888, must be tested by the plumber in the presence of an Inspector of the Board, by means of the pressure test, the pressure to be applied as directed by the Inspector, and after all openings in the pipes have been securely closed by the master plumber or other person in charge of the work. None of the pipes shall be covered until after such test has been made and they have stood the test to the satisfaction of the Inspector."

### EARTHENWARE DRAINS.

By BENJAMIN KIRK, PLUMBING INSPECTOR, TORONTO.

TO the average builder this has been a matter of some considerable anxiety. The departure from the old system of "go as you please," to the present system of close inspection by city inspectors, has made the duties of the drain layer more difficult to perform inasmuch as greater skill is required to successfully execute the work in accordance with the requirements of the by-law. One of these requirements is that every drain for carrying sewage within the walls of a house or other building must stand a test (the water test is usually called for.)

Pure Portland cement properly worked into the joints with a small trowel should make sure work of the joints. If the joints were first packed with oakum, the same as for cast iron, the joints should be more uniformly filled with cement. I think that much of the difficulty in making earthenware drains water tight, is in not having sufficient cement in the bottom of the joint. Cement which has partly set should not be tempered up for use again, as it loses much of its adhesive power by the process.

The quality of the pipe is another item which contributes materially to the success or failure of the testing process. It should be well glazed, free from flaws and fire cracks, of vitrified fire clay, and the hubs large enough to receive a proper filling of cement in the joints. With fairly good cement, 24 hours ought to be sufficient to allow the cement to set hard enough to stand a fair water test. I have successfully applied it after five hours setting.

Another difficulty to be encountered is the stopping up of the drain to retain the water in the pipes long enough to test them. Various are the methods employed to this end. Some endeavor to stop up the main trap with rags, blue clay and mud, others will leave two or three lengths of pipe loose and stop up the end with cement or plaster of paris (the latter will not stand), and after the test break out the cement, replace the loose pipes and cement up the joints.

When the trap can be filled with blue clay it is the best, but the clay must be well worked and rammed into the trap, then it should be weighted down with something, or the water will raise it, and pass under it out into the sewer. An expansion plug with a rubber ring such as is used for testing soil pipes, might be so made that it could be inserted through a junction and expanded by means of a thumb-screw. This might afterwards be used for the air inlet, or it could be cemented over. It would be as well to have inserted near the front wall what is known as a "drain sentinel," which consists of a pipe having a longitudinal opening in it the full width of the pipe, with a cover secured in its place by bolts at each end. This would be convenient for cleaning or inspecting the drain at any time, and with a plug such as I have described, a test could be conveniently applied at any time. I believe that one of the manufacturers of plumbing supplies in this city is making plugs for testing soil pipes, and if he could sell them I presume that he would make testing plugs for drains also.

Great care is necessary to prevent the joints being broken while the cement is setting. The time consumed in making tests and repairing leaks is another item to be considered when estimating the cost of a drain. This is a serious item in earthenware drains, for, it is difficult to find the leaks, and when found, it requires so much time to repair them owing to the setting of the cement. With cast iron pipe the leaks are easily found, and when found are easily repaired, unless the pipe itself is defective. Again, when drains are left open for four or five days while testing, as is sometimes the case, the banks become loosened and cave in, walls and piers are liable to settle. Although the first cost of earthenware pipe is much less than iron, I think that those who have undergone the experience here narrated, will agree with me that cast iron is the cheapest in the end.

Another trouble with drain laying is the difficulty of getting men who understand the work. The public is not in a position to intelligently discriminate in the selection of drain layers. This might be remedied by licensing drain layers the same as plumbers are licensed. One is just as important as the other. A defective drain is just as efficient in the diffusion of sewer gas through the house as a defective soil pipe. In nearly all cities where plumbing regulations are in vogue drain layers are licensed the same as plumbers, but we are only commencing here, and cannot expect to attain perfection at once.

The Master Plumbers, Toronto, have elected President W. J. Burroughes and Joseph Wright to act as examiners for all applicants for plumbers' licenses on behalf of the city.

The firm of Quintal & Hogue, plumbers, Montreal has been dissolved.

Port Arthur is moving in the direction of establishing a system of lighting by electricity.

The Whitby Gas and Water Company with a capital stock of \$10,000 has been incorporated.

The Holly system of waterworks is being put in at Welland, Ont., at an estimated cost of \$40,000.

City Engineer Bell, of St. Thomas, is looking about for a source from which the city may obtain a supply of pure water.

It is said that the natural gas well in Collingwood has a capacity of 2,000,000 feet a day, enough to supply a town of 20,000 inhabitants.

We are pleased to learn from a Brantford paper of the laudable ambition of the Local Medical Health Officer to make that the cleanest city in America.

Hamilton Local Board of Health is enquiring into the purity of the milk supplied to the residents of the city, and the medical Health officer has gone to New York to investigate the methods in operation there for testing.

The City Engineer of Toronto states that two Plumbing Inspectors are not capable of seeing that the Plumbing by-law is properly observed. There is little doubt that the statement is correct. The Council should increase the number of Inspectors, and thereby secure the proper enforcement of the law.

The Peterborough town buildings have been undergoing sanitary inspection, with the result, according to a local paper, that "the condition in which things were found one would hardly believe without seeing for themselves, and more than one councillor expressed astonishment that the officials were not attacked with typhoid fever long ago." There are many such death traps throughout the land.

Mr. E. R. Jones, superintendent of waterworks, Boston, Mass., recommends the following as a very quick and satisfactory method of thawing house-services if the pipes are straight: Cut the services inside the cellar-wall and put in a 3/4-inch round-way cock; then take fifty feet of 4-16-inch block-in pipe with a funnel attached, into which hot water is poured, while the small pipe is pushed into the service as fast as the ice is thawed.

A limit to the rapidity of filtration has been generally adopted by the London water companies; it is represented by the passage of about 540 gallons of water through each square yard of the upper surface area of the filter in twenty-four hours, or two and a half gallons through each square yard of surface per hour. Water passed through well-constructed filter-beds at a rate not exceeding this becomes under ordinary conditions bright and clear.

Donald McDonald, a Louisville architect, has patented an invention to prevent water from freezing in the pipes. A small tube is taken off from each of the service pipes just behind the faucet. The tubes are then brought together from two valves, one hot water and one cold water. The valves are connected with a glass thermometer in such a way that when the temperature reaches freezing point the water is allowed to run, and as soon as the temperature rises above freezing point the flow instantly ceases.

The process of purifying sewage by passing through it currents of electricity has been patented by William Webster in England. The effect of the current, it is said, is to cause the solid particles held in suspension in the sewage to collect at the surface of the fluid within a few minutes. It is estimated by the inventor that the cost of treating the London sewage by this plan would be about \$125,000 a year. The chemical method, if adopted would involve an annual expenditure of about \$150,000 the electrical plan being therefore the more economical of the two.

"Twenty years ago," says a London newspaper, "no one knew of the association between pulmonary consumption and a damp subsoil; but statistics have fully proved the connection. In fifteen English towns recorded by Mr. Simon the deaths from consumption fell immediately when the subsoil was dried by a system of drainage. In Salisbury the deaths from consumption fell 49 per cent.; in Ely, 47 per cent., and Merthyr Tydvil, which gained least, had its death-rate from consumption lowered by 11 per cent. By statistics we were pointed to the high mortality from consumption in the British army, and especially in the Guards, due to confined air—a mortality which has been so affected by better ventilation of barracks that the consumptive death-rate fell in the Guards from 125 in 10,000 in the year 1858 to 16.9 in the year 1875; that is to say, the deaths from consumption alone in the Guards in 1875 was less than a seventh of the number in 1858."



Architects, Engineers, Builders, Owners and others are invited to send particulars of all kinds of construction work in contemplation, for publication in this department. Please state location, character and cost, and names of person or persons controlling the work.

RAINF. N. W. T.—A new Presbyterian church is to be erected here.

LOCHTATE, QUE.—J. C. Willson & Co. will erect a pulp mill.

LINDAVY, ONT.—Tenders for the new post office are being asked for.

WALLACRURG, ONT.—A \$15,000 bridge is to be built over the Sydenham here.

GALT, ONT.—\$7,000 will be expended this year in improvements on the United Presbyterian church.

LAKEFIELD, ONT.—On July 24th the villagers will vote upon a by-law to provide for a system of waterworks.

KINGSTON, ONT.—Mr. Page, Government engineer, will select a site for the proposed new dry dock in this city.

HOCHELAGA, QUE.—The works of the Canadian Pacific Railway Co. are to be enlarged at an expenditure of \$300,000.

WINDSOR, ONT.—The Windsor Council has voted to issue \$25,000 in debentures for the erection of a new High School.

BODBECK, C. B.—Tenders are wanted up to 15th August for a Court House building. Address J. L. Bethme Bodbeck, C. B.

CALGARY, N. W. T.—A by-law will be submitted to the citizens July 28th to expend \$6,000 on sidewalks and drainage.

VANCOUVER, B. C.—Plans have been prepared for a \$50,000 open house to be erected here by Mr. VanHorne, of the C. P. R.

PEMBROKE, ONT.—The Town Council is considering the subject of constructing a waterworks system at a cost of about \$50,000.

ST. THOMAS, ONT.—The Council will borrow \$30,000 for general improvements, and \$7,000 for additional school accommodation.

PETERBORO, ONT.—It is proposed to spend \$30,000 for a new Collegiate Institute.—The G. T. R. Company will erect a grain elevator here.

SIELEBURNE, ONT.—A by-law for \$20,000 will be submitted to the ratepayers of this place to secure a system of waterworks for fire protection and domestic purposes.

BRANTFORD, ONT.—There is talk of erecting a new armory to cost about \$25,000.—A building for the headquarters of the city waterworks department is projected, to cost \$8,000.

LONDON, ONT.—Plans are being prepared for additions to the insane asylum building to cost \$15,000.—An effort is being made to induce the Grand Trunk Railway Co. to rebuild the car shops in this city.

HAMILTON, ONT.—The city authorities have applied to the Marine Department for permission to lay a conduit pipe of 600 feet along the Burlington Beach, and into deep water in order to supply the filtering basin.

WEST TORONTO JUNCTION.—A new Presbyterian church with a seating capacity of 800, will be built this summer.—A by-law will be submitted to the people asking them to vote money for the establishing of a system of waterworks.

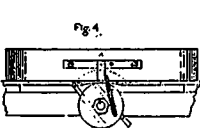
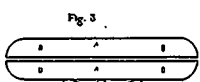
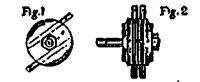
SARNIA, ONT.—Improvements to cost from \$10,000 to \$14,000 will be made to the high school. Besides a new addition, the building will be heated throughout with steam. Mr. S. H. Townshend, architect, of Toronto, has been entrusted with the work.—A new separate school building is to be erected at this place.

HULL, QUE.—Two Catholic churches will be built on the site of the one recently destroyed by fire.—This city will be a good spot for builders for some time to come, as it is expected that fully half a million dollars worth of new structures will be commenced shortly. These will include a Catholic church to cost \$160,000, a convent, a new city hall, etc.

TORONTO, ONT.—The City Council will issue debentures to the amount of \$147,775 for the purpose of providing additional accommodation and increasing the efficiency of the public schools and for improvements to the Collegiate Institute.—A movement is on foot to enlarge the Trinity College buildings.—Some new buildings will be erected on Exhibition grounds.—The following permits have been issued from the City Commissioner's office during the past month:—J. Radford, 2 storey and attic bk. dwelling, Elm Ave., Rosedale, cost \$7,000; G. C. Roach, 3 storey bk. store and dwelling, John street, cost \$3,400; Thos. McCrossan, three a storey and mansard bk. stores, Agnes St., cost \$4,600; W. Hughes, pair s. d. a storey and attic bk. dwellings, Simcoe St., cost \$2,000; Chas. McCabe, pr. s. d. a storey and attic bk. dwellings, cost \$8,000; B. Peasall, pr. s. d. r. c. dwellings, Berkeley St., cost \$3,000; Hon. John O'Donohue, add. storey and mansard, Adelaide and Church sts., cost \$8,000; C. Dorsey, pr. att. 3 storey bk. stores, cost \$7,000; W. McEwan, ten bk. houses, Manning Ave. and Lennox sts., cost \$30,000; Mr. Schubart, 2 storey and attic bk. dwelling, Sussex Ave., cost \$3,500; A. W. Godson three att. 3 storey bk. stores, Queen st., west, cost \$8,000; Elvidge & Milligan, two pairs s. d. a storey and attic bk. dwellings, Manning Ave., cost \$8,000; T. P. O'Callaghan, bk. house, Sutton st., cost \$2,500; E. H. Duggan, 2 storey and attic dwelling, Wilcox st., cost \$5,000; Jas. Harved, 2 storey and attic bk. dwellings, Huron st., cost \$6,000; Geo. Davis, pr. s. d. a storey and attic bk. dwellings, Hayden st., cost \$3,400; Toronto Club, 2 storey bk. club house, corner York and Wellington streets, cost \$59,000.

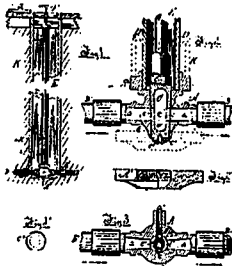


Machinry for Raising Panels for Doors, etc. No. 28,844. George Dixon, St. Thomas, Ont., dated 10th April, 1888.



Claim.—1st. The combination of the cutters K, K and the collars a, b, c, d, substantially as and for the purposes hereinbefore set forth. 2nd. The combination of the bridge B and the guides a, c, substantially as and for the purposes hereinbefore set forth.

Devices for Operating Street Water Cocks. No. 28,852. Frank Moses, Toronto, Ont., dated 10th April, 1888.



Claim.—1st. In a device for operating street water cocks, the combination, with the stop cock and water pipes, of a rod in rigid connection with the valve, adapted to turn therewith and extending therefrom to the street level, and a pipe or tube joined to the valve shell and surrounding said rod, substantially as and for the purpose specified. 2nd. The combination, with the valve shell A and spigot C, of the vertical rod B, rigidly constructed to said spigot, tube D, joined to said shell, and an outer surrounding tube or casing K, whereby close connection is made between stop-cock and street level, for the purpose described. 3rd. The combination, with shell A, spigot C, washer c2 and nut c3, of the cap AT, for the purpose specified.

The Toronto Pressed Brick Co. has been organized, and is making arrangements to manufacture at Milton, Ont., pressed bricks and terra cotta.

A German paper recommends a solution of paraffine in heavy coal tar oil for the purpose of protecting walls exposed to the weather. Papered walls which showed dampness in wet weather gave no traces of it after an external coating of this preparation had been applied. One part of paraffine and two to three parts of coal tar oil is solved in a moderate heat, sufficient oil must be used to prevent the solution from becoming sticky. The vessel containing it must stand in hot water while the paint is being applied, which must be done on hot days when the bricks or stone are thoroughly dry. One coat is sufficient.

PORTLAND CEMENT IN THE BUILDING TRADE.

TORONTO, [June 20th, 1888. Editor CANADIAN ARCHITECT AND BUILDER.

OF late there has been a gradual and almost imperceptible tendency to use a better class of cement in the building trade. Builders are now given a more careful description that durability and perfect soundness in the foundations are amongst the first requisites, and these qualities are only to be obtained by using first-class cements.

There is a particular impression which is extremely erroneous, that a first-class cement, so called, should be quick setting, and the usual mode of testing cements after a short period of immersion in water is liable to make this impression a popular one. It should be marked, however, that these tests can only be relied on and considered as conclusive within certain very narrow limits. It is a positive fact that two cements of very unequal quality will give very similar results with a nine days' test for instance, while the same cements tested after a protracted, immersion in water and long exposure, will show a difference amounting to hundreds of pounds in the tension under which they will break. That property which Portland has of hardening when exposed

to dampness is due to it's power of absorbing and assimilating water, the more water being absorbed the harder the cement gets. In the quick-setting cement, this absorption takes place so rapidly that the outside layers only of cement of concrete attain their full degree of hardness, while the interior portion cannot undergo a uniform process of saturation—hence, a want of homogeneity in the mass of concrete, and a consequent want of stability in the structures in which they are used. In a slow-setting cement this process of absorption is slower, but more uniform, and although it stands at a disadvantage in this one sense, the ultimate results obtained are generally more satisfactory.

As a rule quick setting cements should be avoided, except in light buildings and structures not subject to heavy strains; while moderately slow setting cements, thoroughly well ground and mixed, should be used in the foundations of heavy buildings, abutments for bridges, and all structures generally which are intended to stand heavy strains.

A thoroughly good and sound cement as a rule, will combine these various qualities to a moderate extent, and in this class may be mentioned such cements as Brook's Shoobridge's, Knight, Baven & Sturges', the Nine Elms brand and the Atlas brand of the Union Cement Co., lately placed upon this market by Messrs. T. McRae & Co., of Ottawa.

German cements and second grade English brands, such as Wallend & Johnston's give very satisfactory results in tests made after a short period of immersion in water but prolonged exposure to the action of air and water does not materially increase their power of resistance to severe tests, and their use will eventually become more and more restricted as the class of works undertaken by our builders become more and more high class.

Some Canadian cements are becoming quite popular for certain purposes, but the native clay used in their manufacture does not appear to contain the necessary ingredients to make them stand high tests, and until this defect is remedied, they will scarcely be able to take the place of foreign cements. Adverting their use in such cases as that of the proposed King street subway for instance, where great strains and the effects of repeated vibrations due to the passage of trams will have to be withstood, it is possibly a rash proceeding and certainly one of well intended but misunderstood economy.

L. BACQUE, School of Bridges and Roads, Paris.

NOTICE TO CONTRACTORS.

TENDERS will be received by registered post, addressed to the Chairman of the Committee on Works, up to 2 o'clock p. m. of the 24th day of July, for the

KING STREET SUBWAY MASONRY AND EXCAVATION

Specifications and forms of tender can be obtained at the City Engineer's office, on and after the 17th instant. Copies of drawings may also be obtained on payment of 85.00, which will be returned on receipt of a bona fide tender.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 2 1/2 per cent. on the value of the work tendered for must accompany each and every tender, otherwise it will not be entertained. All tenders must bear the bona fide signature of the contractor and his sureties (see specification), or they will be ruled out as informal.

The Committee do not bind themselves to accept the lowest or any tender.

WM. CARYLE, Chairman Com. on Works,

Committee Room, Toronto, July 10th, 1888.

TO CONTRACTORS.

SEALED Tenders, addressed to the undersigned, endorsed "Tenders for Works," will be received until noon on Monday, the 10th JULY instant, for the construction of the following works:

At the Asylum for Insane, London—Reconstruction of portion of main building injured by fire, new pumping engine and hydrants for fire protection and addition to the bursar's residence.

At the Asylum for Insane, Hamilton—Addition to the medical superintendent's residence and new pumping engine and pipes from engine-house.

At the Reformatory for Boys, Penningtonshene—Duplicate pump at engine-house and new water tanks.

Algoma District—Addition to registry office, Sauli Ste. Marie, Thunder Bay District—Addition to lock-up, Fort William.

Nipissing District—Courtroom and jail at North Bay.

Rainy River District—Additions to courtroom and jailer's residence at Rat Portage.

Plans and specifications can be seen at this department and at the above public institutions and districts, where forms of tender can be procured.

The bona fide signatures of two parties whose will be become securities for the due performance of the contract to be attached to each tender.

Each tender for the works at London, Hamilton, Penningtonshene and North Bay must be accompanied by an accepted bank check payable to the order of the Commissioner of Public Works for Ontario, for the sum of \$800, which will be forfeited if the party tendering declines or fails to enter into a contract based upon such tender when called upon to do so.

Where the party's tender is not accepted the check will be returned.

The Department will not be bound to accept the lowest or any tender.

C. F. FRASER, Commissioner

Department of Public Works, Ont., Toronto, July 7, 1888.

THE LATE MR. WM. HAY, ARCHITECT.

THE many friends and acquaintances of Mr. Wm. Hay, architect, who resided in Toronto and practised his profession here for a period of twenty years, will regret to hear of his death, which occurred in Scotland about a fortnight ago.

"This gentleman, whose death was announced in our obituary yesterday, was a native of Cruden, and came to Edinburgh as assistant to Mr. John Henderson, architect, in 1844. After being engaged with him some years he became assistant to Sir Gilbert Scott, by whom he was sent to Newfoundland as clerk of works to the new cathedral there.

He took occasion on this visit to make an extensive tour in America, in company with his wife and daughter, and had many meetings with old friends there. For many years Mr. Hay was a prominent Freemason, and for some years was Master of a Lodge in Toronto, and on his return to Scotland became Master of the Lodge St. Andrew, Edinburgh. He held for many years high office in the Grand Lodge and in the Supreme Royal Arch Chapter of Scotland, and was a Knight Templar, and a leading member of the Supreme Council in Scotland.

Mr. Wm. Hay's arrival in Toronto in 1852 introduced here the revival of mediæval architecture, which had already exerted an immense influence on the architecture of Great Britain and other portions of Western Europe. Possessed of a thorough knowledge of both the theoretical and practical parts of architecture, and having good taste, he soon acquired quite a large practice.

Basil's Church, the House of Providence and various private residences, through all of which the mediæval feeling ran. Throughout the Province of Ontario—then Upper Canada—he had quite an extensive practice, both in church and domestic work. Mr. Hay's buildings to-day, after a period of over thirty years, hold their own with the erections now going up by virtue of the truth of the principles which guided him in his work.

At the recent general assembly of the Presbyterian church in Canada Mr. Cumberland presented an overture on Church architecture, which was favorably received. He stated that many churches were being built in rural districts without any well defined plan, and which both from an artistic and utilitarian standpoint, were failures.

BUILDING MATERIALS.

LUMBER.

Table listing various lumber types and prices, including 'CAR OF CARGO LOTS', '1 1/2 inch thicker clear picks, Am. in.', '1 1/2 inch thicker, three upper, Am. in.', etc.

WARD QUOTATIONS.

Table listing various building materials and prices, including 'Mill cut boards and scantling', 'Shipper cut boards, prominent', 'Shipper cut boards, stocks', etc.

Table listing various building materials and prices, including 'undressed', 'dressed', 'Beaded shoring', 'Clapham shoring', etc.

Table listing various building materials and prices, including 'White lead, Can.', 'Red lead, Eng.', 'Green chrome', etc.

Table listing various building materials and prices, including 'Plaster, Calcined, New Brunswick', 'Hair, Plasterers' per bag', 'Cement, Portland, per 100 lbs.', etc.

Table listing various building materials and prices, including 'MONTREAL PRICES', 'Ash, 3 to 4 in., M.', 'Birch, 3 to 4 in., M.', 'Basswood, M.', etc.

Table listing various building materials and prices, including 'Hot-Cut Am. or Can. pattern, 3/4 and 3 inch', 'Am. pattern, 1/2 and 3/4 inch hot-cut', 'Can. Pattern, cold-cut, 1/2 and 3/4 inch', etc.

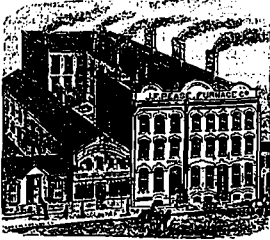
Table listing various building materials and prices, including 'ST. JOHN, N. U.', 'Zimber', 'Spruce deals, Bay Fundy Mills', 'Spruce deals, C. W. Mills', etc.

Advertisement for GRANOLITHIC, featuring the text 'This space belongs to R. FORSYTH, 130 BLEURY STREET, MONTREAL, AGENT FOR CANADA FOR GRANOLITHIC For Sidewalks and Floors. Toronto Office; 14 Toronto Arcade. SEND FOR CIRCULARS.'

Advertisement for Stained Glass, featuring the text 'U.S. BRANCH: Fort Corington, N. Y. CANADA BRANCH: 40 Bleury Street, Montreal. Established 1866. Stained Glass CASTLE & SON. Decorations, Fabrics, etc. -DESIGNS SUBMITTED:-'

Advertisement for J. H. WALKER DESIGNER, featuring the text 'J. H. WALKER DESIGNER AND- Engraver on Wood, Forestry Chambers, Old Post Office Building, corner by 132 St. James St., or by 116 St. Francois Xavier St., Montreal. Fine Art Engraving, Portraits, etc. ESTABLISHED 1850.'

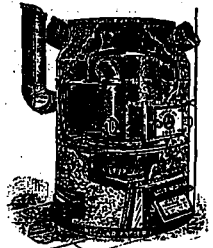
Advertisement for SILICOLITE, featuring the text '"SILICOLITE," (Patent) A CHEAP FIRE AND WATER-PROOF ELASTIC FOR PLASTERING MOUNDS. Is not liable to crack under any strain, and requires no special preparation for painting either in oil or water color. Being a non-conductor of heat, it makes a house cooler in summer and warmer in winter, and its weight is from 1/2 to 20 times less than any other plastering in use. It adheres to any kind of surface, and when applied to stone or brick on outside walls will protect them against the action of frost. It is applied in the usual way of plastering, and can be highly finished on one or two coats either with the ordinary tool or with sand paper. A. J. PIGEON, - No. 30a Richmond Square, Montreal.'



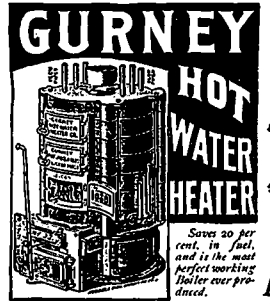
THE CELEBRATED "ECONOMY" Scotch Wrought Steel Plate Furnaces.

The acme of perfection in Sanitary Heating.

Inferred by the medical profession and sanitary authorities as the BEST and MOST FAVORABLE TO HEALTH. The "ECONOMY" does not burn the air, but reproduces the pure external atmosphere warmed only to a proper temperature for respiration.



J. F. PEASE FURNACE CO., 151, 153, 155 Queen St. East, Toronto, Ont., and Syracuse, N. Y., U. S. A.



Saves 20 per cent. in fuel, and is the most perfect working boiler ever produced.

Use for heating our office buildings splendidly. When it was being put in we frankly admit we had serious doubts if a heater which appeared so small for the duty required of it would really unacceptably warm, and this, too, without any furring of the fire.

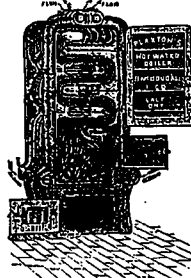
HOT WATER HEATING FOR GREEN HOUSE, PUBLIC BUILDING and PRIVATE RESIDENCE.

We have placed over 2000 of our Boilers during the past three years, and have heard nothing but praise and satisfaction. NOISELESS IN OPERATION, NO DANGER OF EXPLOSION, EVEN TEMPERATURE OF HEAT.

A RECENT TESTIMONIAL: E. & C. GURNEY CO., TORONTO. Ifoodstock, Feb. 10, 1888.

THE E. & C. GURNEY CO., Ltd.

TORONTO - HAMILTON - MONTREAL - WINNIPEG. GURNEY HOT WATER HEATER CO., Boston. For sale by all the leading Fitters. Send for our book of testimonials, and illustrated description.

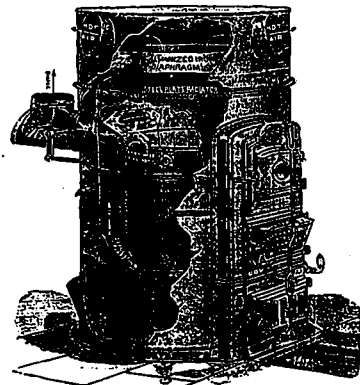


THE PLAXTON HOT WATER BOILER

Most Direct Heating Surface. Greatest fire Travel, consequently more Heat utilized from fuel. Easiest Cleaned and Managed, and Cheapest Boiler made when forging points are taken into consideration.

Intending purchasers should consult us before purchasing. MANUFACTURED AND SUPPLIED TO THE TRADE BY R. McDougall & Co., GALT, ONTARIO.

J. M. WILLIAMS & CO.



HAMILTON, ONT. MANUFACTURERS OF THE ANTHONY STEEL PLATE FURNACES

THEY ARE Entirely free from gases and dust. Easily managed. Economical and durable.

THIS SPACE BELONGS TO PETER LYALL, BUILDER AND CONTRACTOR.

Dealer in Building Materials, MONTREAL, QUÉBEC.



TENDERS

City & County Buildings

Tenders addressed to the undersigned will be received through registered post up to noon on MONDAY, AUG. 6th, 1888.

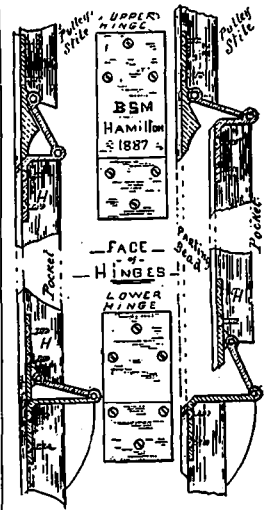
- For the following works required in connection with the erection of the new Court House and City Hall for the City of Toronto and County of York, viz:-(1) Masonry, Rubble, Cut Stone, Brickwork, etc. (2) Copper and Galvanized Ironwork. (3) Steam Heating, Plumbing, etc. (4) Painting and Glazing. (5) Plastering. (6) Wrought and Cast Ironwork. (7) Roofing.

PROVISION AS TO STONE TO BE USED.

The Council have decided that the building must be constructed of either of the following kinds of stone:-(a) Hungerford white marble. (b) Queenston greystone, with New Brunswick brownstone trimmings. (c) Pilee Island stone, with New Brunswick brownstone trimmings. (d) Credit Valley greystone, with Credit Valley brownstone trimmings. Kingston red sandstone may be substituted for New Brunswick brownstone or Credit Valley brownstone.

Readers of this journal will confer a favor on the publisher by mentioning "THE CANADIAN ARCHITECT AND BUILDER" when corresponding with manufacturers and dealers with reference to articles advertised in these columns.

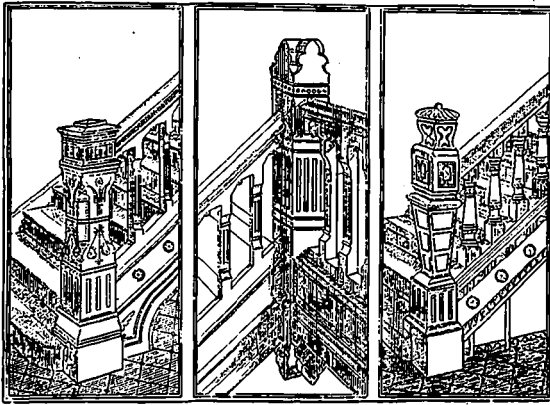
YOUNG'S IMPROVED PULLEY STILE HINGE For Box Frame Windows.



WITH the above hinges the ordinary double hung window sashes can be taken out of the frame for cleaning, etc., without disturbing the stops or parting beads, and are the result of long experience, to insure strength and perfect action. The parting beads are cut to mitre, and slide in with the pockets of the sash, to clear the edge of sash-thus the sash recedes in at one side, and clearing the opposite parting bead is taken out, the pulley boxes are in the pockets of the sash, and the hinges are held in a lock plate on inside of sash by means of a bolt on the end of the line, which is released and run on to the pulley box in taking out the sash. The attention of architects and builders is called to these hinges. For further information and prices apply to the inventor,

J. H. YOUNG, 117 KING ST. WEST, - HAMILTON, ONT. AGENTS WANTED.

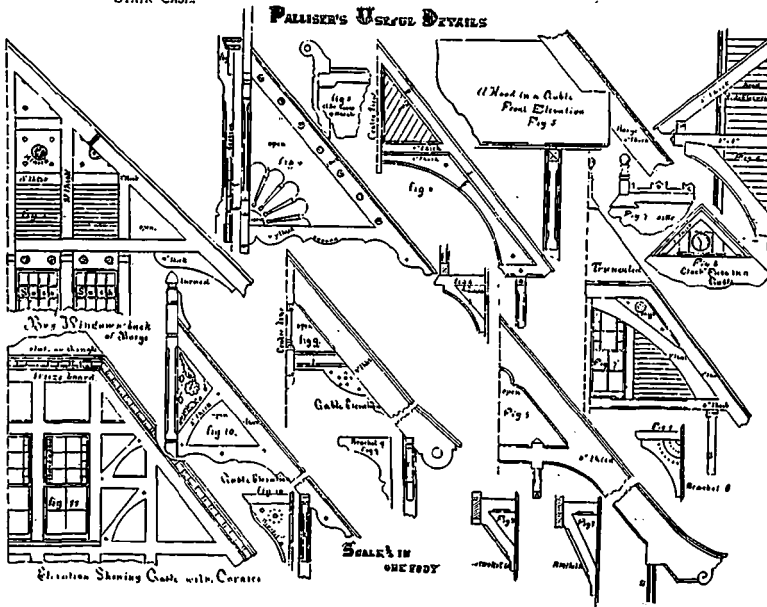
JOHN JONES, Chairman Court House Committee. City Hall, Toronto, July 9th, 1888.



STAIR CASE.



WROUGHT IRON FENCE DESIGN.



PALLISER'S USEFUL DETAILS



WALL PAPER DESIGN.

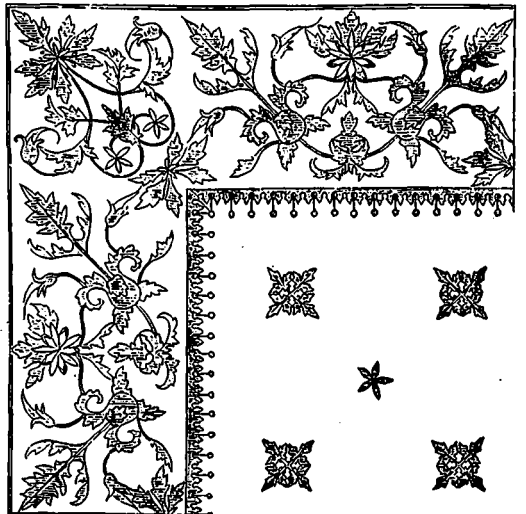


TABLE COVER DESIGN.