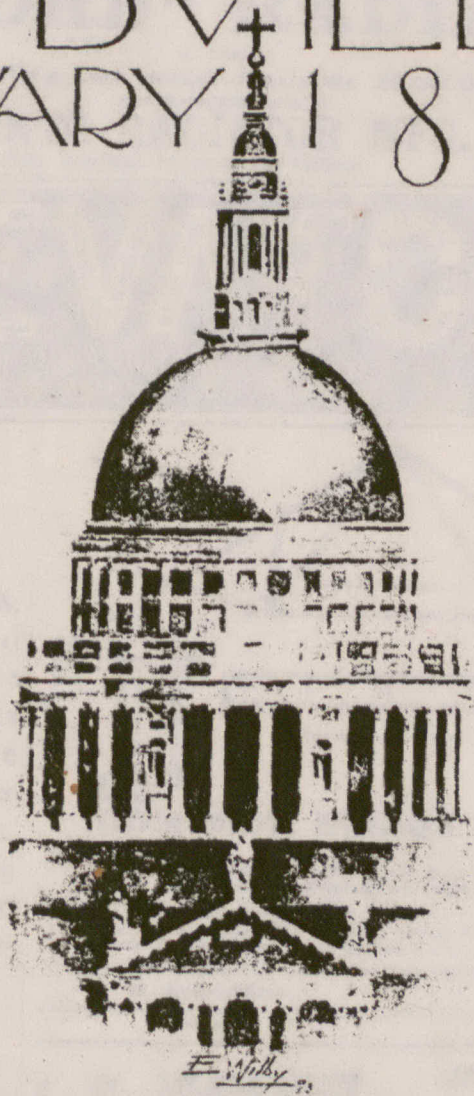


CANADIAN
ARCHITECT
AND BUILDER
JANUARY 1894



TORONTO-CANADA

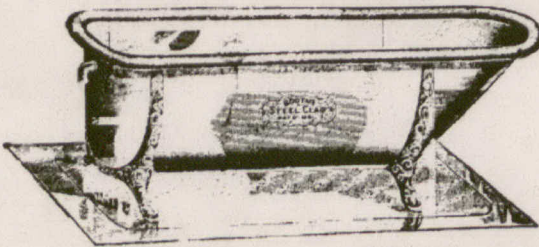
Another Step Forward!

THE OLD-STYLE "BOXED-IN-BATH" MUST GO.

In order to hasten the consummation of the above fact, we are placing on the market a Bath to be known as



STEEL-CLAD No. 2



List Price, each - \$23.00

The material and workmanship in this new line is exactly the same as in our other lines, but as we will make the No. 2 in less variety of styles, we are thus enabled to reduce the price.

WRITE FOR DESCRIPTIVE CIRCULAR.

PLEASE NOTE

—We will still continue to manufacture our regular lines of STEEL-CLAD BATHS, as the No. 2 is not in any way intended to be a substitute for these, but merely enables all parties to have a SANITARY BATH without any more expense than the ordinary boxed Bath.



The Toronto Steel-Clad Bath and Metal Co., Limited

123 Queen Street East

TORONTO.

A. G. BOOTH, Sec.-Treas.

Factories:

TORONTO
DETROIT
NEW YORK
LONDON, ENG.

Agencies:

MONTREAL
QUEBEC, QUE.
ST. JOHN, N. B.
VICTORIA, B. C.
BELLEVILLE, ONT.

CANADIAN
ARCHITECT AND BUILDER



VOL. VII.



1894:


C. H. MORTIMER, Publisher
TORONTO-CANADA

INDEX

	Page		Page		Page
Architect, The Practice and Province of the	157	Device, A Useful	61-x	Students, A Water-color Class for	153
Architectural Practice, Business side of	149	Drills, Electric Percussion and Rotary	141	Students, Architectural	153
Architectural Practice, Ethics of	150	Decoration, House	115	Students' Department	21
Australia, Openings for Trade with	37	Enquiry, An	156	Sample Copies, Free	38
Art Institute, Sackville, N. B.	61	Electric Launch	50	School Buildings, New, in Toronto	61
American Society of Civil Engineers	73	Elevated Railway, Proposed in Montreal	73	Stone, Building, Canadian vs. Foreign	74
Arts and Crafts Association, Hamilton	74	Exhibition, Dominion, at Toronto	74	Strikes in the United States	86
Artistic Sentiment, Growth of in Canada	85	Exposition, Toronto International	52	Students, Suggestions to	98
Alterations, Methods of Making	86	Explosives, Modern	83	Scaffolding, An Unusual Piece of	109
Arbitration	86	Estimates and Quantities	88	Sir John Macdonald, Statue of	122
Architects, Public Appreciation of the Duties of	86	Estimating	88	Slate, How Mined	118
American Institute of Architects	109, 138	Elevator, A New Stone	89, 101, 114	Stones, Creosote	114
Architecture, Public Interest in	110	Enamelling, Cast Iron	136	Shoring	90
Architectural Competitions	144	Fire Proof Construction	134	Stone Channelling	6-viii
Architects, Some Aspects of the Mutual Partnership of	116	Fire Doors, A Test of Foundations	19	St. John's, Nfld., Notes from	9
Air, Measuring	123	Fire Proof Floor Construction, The Wuenschling and Melan Systems	57, 133	Scroll Saw, The Empire	18
Architects, Advice to Young	127	Fire Proof Floors	80	Students, Notice to	23
Arbitration, An Interesting	140	Flooring, Maple	82	Shavings	35, 60, 72
Architecture, Discoveries in	145	Foundation Stones, Ceremonies Attending the Laying of	8-vii	Stewart, The Late Colonel	63
Architecture, The	42	Furnace, Gas, House Heating	116	Students' Negligence	67
Architectural Styles, Current	44	Government Buildings, Methods of Designing	134	Staining, Wood	127
Architecture, The Necessity for a Canadian School of	70	Groins, Centering for	50, 61, 98, 109	Toronto Municipal Buildings	38, 51, 73
Architecture at the Montreal Art Gallery	70	Girder, A Monster	9-vii	Tanks, Water, Cement	12-vii
Architecture, Piers in	5-vii	Howard Park, Repairs to Residence in Hotel, Proposed First-class, for Toronto	10-viii	Toronto Island, Improvement of	38, 49
Building in the Northwest	152	Heating, Points on	8	Trunk Sewer, Toronto	85
Building By-Law, Hamilton	62	Hoisting Machinery	53	Trade Revival	109
Building Conditions	62	Heating Problems	9-ix	Terra Cotta, Porous, Tests of	121
Bicycle, Accommodation for the	97	Heating, Characteristic Features of Hot-Water	153	Tiles	11-x
British Institute, Colonial Products at	110	Iron Construction for Dwellings	110	Toronto Builders' Exchange	2, 39, 88, 99
Building Work, Prices for	111	Ice Carnivals	121	Tiles, Setting and Burning Roof	3
B. C. Institute of Architects	12, 121	Intercommunication Column	23, 43, 54, 67, 78	Toronto Art Students' League	6
Builders' and Employers' League, N. Y.	122	Kiln, Simple way to determine the temperature of	12-viii	Toronto Architectural Club	23
Bricks and Terra Cotta, Buff	137	League for the Adornment of the City of Chicago, Proposed Organization of	160	Toronto Technical School	39
Buildings of the Dominion	14, 113	Landslide at St. Alban's, Que.	73	Trade Papers as Advertising Mediums	6-viii
Brevities, Useful Office	117	Lumber, Kiln-Drying	98	Trade Notes	89
Baillairgé, Mr. Chas.	123	Labor Day	110	Trade Commissions to Architects	80
Bystander, The	139, 151	Lime, A Study in	13	Terra Cotta, Proper use of	150
Buildings, Collapse of	141	Legal Decisions	18, 51, 83, 156	Useful Hints	20, 36, 43, 3-vii:viii, 54, 69, 84, 87, 100, 116, 9-viii, 11-ix, 12-x, 91
Building Papers, Regarding	8-ix	Lien Act, Mechanics', Quebec	59	Union Depot, Toronto, New	49
Building Stones, Notes upon Testing	8-viii	Municipal Advisory Art Committees	150	Will, A Peculiar	85
Building Material, New	8-vii	Meat Curing Establishment, Collingwood	156	Winnipeg, Building Progress in	
Brick and Stone, Roman Construction in	4-viii	Mosaics laid in Gold	3	Wages, On the Adaptation of a Price Book to meet Varying Rates of	77
Brick Masonry, Transverse Strength of	57	Moulding	3	Windows, Geometrical Decorated	117
Battle Cement Works at Thoroid	51	Manufactures and Materials	4	Walls, A Statement in favor of Hollow Brick	147
Building Stones, Canadian, at the World's Fair	10	Mouldings, Early English	15	Whitewash, to Stiek	11-vii
Brick, The Strength of	18	Marble, Producing, from Earthy Limestone	4-vii		
Brickwork, English and Italian	18	Massey Music Hall	74		
Burke, Edmund	22	Masonry, The Effect of Frost on Green	76		
Building Materials in the Northwest	34	Moving a Building, A Notable Case of	78		
Building, Some Points on	47	Marble, Cape Breton	82		
Concrete Construction	150	Mortar, Sand in	87		
Canadian, A Successful Young	155	Masonry, Measuring	96		
Concrete Construction, Its Practical Application	158	Masonry Work	10-vi		
Clay-Working Methods, Improvements in	37	National Association of Builders	21-37		
Church Buildings, Proposal to Tax	37	New York, Building Activity in	49		
Charity, Dispensing of Public	38	Niagara Falls, Utilizing the Power of	110		
City Engineer's Department, Toronto	38	Nails, Wire	118		
Current Architectural Styles, Lecture on	49	Ontario Legislative Buildings	37, 61		
Customs Duties on Building Materials	50	Ontario Association of Architects	21, 22, 24, 40, 51, 144, 149, 150		
Curran Bridge Investigation	62	Ontario Architects' Act	75		
Contractors, Need of Organization of	62	Practical Suggestions for Builders	49, 61		
Church Buildings, Costly	97	Public Works, Day Labor on	61		
Contracting, Risks in	98	Plumbers, non-registered, Legal Standing of	73		
Competition, Chicago Court House	122	Plans, Architectural, Customs Appraisalment of	85, 92		
Concrete and Cement, Uses of	137	Province of Quebec Association of Architects	76, 122, 128, 150		
Contracts, Conditions of	138	Paint from Slate Dust	10-x		
Cast Iron Columns, A Failure of	87	Paving Blocks, Australian Wood, for Canada	105		
Canadian Society of Civil Engineers	2	Perspective Process	108		
C. A. & B. Competition	3, 23, 43, 54, 67, 145	Plaster Decoration, Moresque	120		
Correspondence	4, 22, 42, 48, 55, 64, 79, 82, 87, 100, 101, 112, 125, 142, 154-5	Plumbers' Examination Papers	134		
Cathedral of Holy Trinity, Quebec	5	Plastering, French Ornamental	104		
Canadian Institute of Architects, Proposed	8	Portland Cement, Notes on Recent Additions to our Knowledge of	58		
Central Ontario School of Art and Industrial Design	9	Personal	4, 2-vii, 39, 60, 79, 94, 106, 123, 141, 156		
Canadian City Engineers	13	Plaster, Casting in, from Life	7-ix		
Competitions, New York City Hall	14	Painting Interior Wood Work	6		
Cements, Canadian vs. Foreign	15	Plate Glass Casting	19		
Canadian Contractor's Handbook	17	Patents, Recent Canadian	36, 94, 143		
Competitions	34, 99, 125	Publications	55, 5-viii, 83, 94, 106, 115, 143, 159		
Carving	46, 90	Quebec in 1894	16		
Court Houses at Winnipeg, Man., and Tacoma	53	Royal Institute of British Architects	37, 137		
Color in Art, The Harmony and Functions of	56, 68	Roofing, Dangerous Methods of	50		
Cellars, Waterproof	63	Roofers, Change in Business of	97		
Color Decoration, External for Buildings	146	Roof Trusses	15		
Cast Iron Pipes, Impact Tests under Hydrostatic Pressure	144	Rocks	41		
Clippings, A Simple System of Filing	X-ix	Royal Canadian Academy	51		
Chimneys, Concerning	134	Rough-Casting in Canada	71		
Cement, Canadian, Lime and Clay Products	132	Radation, The Difference in Amount of, Required in Buildings of good and poor Construction	93		
Cornices, Plaster	116				
Competition, London Public Library	113, 126				
Colors in Different Lights, Treatment of	105				
Cornices, Plaster, How to run them	7-vii				
Christ Church Cathedral	89				
Color in Building	91				
Casting in Plaster from Life	7-ix				
Chimneys, Expansion of	106				
Chimney, New, at Toronto Railway Co.'s Power House	112				
Doors, Construction of Hardwood	35				
Design, How to Study	102				

ILLUSTRATIONS.

	No.
Art Institute, Mount Allison Ladies College Sackville, N. B.	IV
Bits from my Sketch-book	I
Brewery Building, Montreal	V
Banco di San Spirito, Rome	V
B. C. Institute of Architects, Portraits of Officers of	X
Church and Presbytery of the Parish of the Sacred Heart, Montreal	IX
C. A. and B. Competition I, II, III, V, Certosa di Pavia, Finesta Sulla, Tacciata Della Chiesa, Italy	VI
Chateau D'Azay-Le-Rideau, France	I
Cottage to cost \$1,000, Design for	VI
Cottage at Valois	VII
Christ Church Cathedral	VII
Fence and gates, Wrought Iron, to Residence of Mr. A. A. Allan, Toronto	XI
Hotel, Small, at Vancouver	VIII
House for Mr. Dubuc, Montreal	XI
Houses for Dr. Campbell, Montreal	X
House, Old, at Brunswick, Germany	II
House, Design for Country or Suburban	IV
House to be erected at Kamloops	XII
Insurance Building, Galt, Design for	XI
Legislative Buildings, New, Victoria, B. C.	VII
Library Building, London,	XII
Mission Church, Brantford	VIII
Mantel, Drawing Room	III
Old Mens' Refuge, Vancouver, B. C.	XI
Orillia Town Hall and Market Buildings	VII
Protestant Orphan Asylum, Montreal, Competitive Design for	VII, X
Residence, Suburban	VI
Residence of Mr. Tuckett, Hamilton	VI
Relief Ornament and Where to Use It	II
Railway Station at Duddswell Junction	IX
Residence for Mr. Hugh Graham, Montreal	X
Residence of Mrs. McNally, Weston	X
Residence of Dr. Charlton	X
Residence of Mr. W. T. McMullin, Woodstock	VII
St. Laurent, Rouen, France	IV
Sketches, Some Wayside	II
State Capital, Olympia, W. T., Competitive Design for	VIII
St. Sepulchre's Round Church, of Cambridge, Sketches from	VIII
Tower of Pallazzo Vecchio, Florence, Italy	XI
Towers and Steeples	I
Union Station, Toronto	IX
Wells Cathedral, West End of Nave	I



AN ADIAN ARCHITECT & BUILDER

FINE & INDUSTRIAL ARTS
DECORATION FURNISHING
CONSTRUCTION SANITATION
ENGINEERING

VOL. VII.—No. 1.

JANUARY, 1894

PRICE 20 CENTS
\$2.00 PER YEAR.

ALL THE BEST BUILDINGS ARE HEATED WITH

“SAFFORD” RADIATORS

— FOR —
Hot Water and Steam Heating.

MANUFACTURED ONLY BY

THE TORONTO RADIATOR MFG. CO., LTD.

Branches: Montreal, Quebec, St. John, Hamilton, Winnipeg and Victoria

- Toronto, Ont.

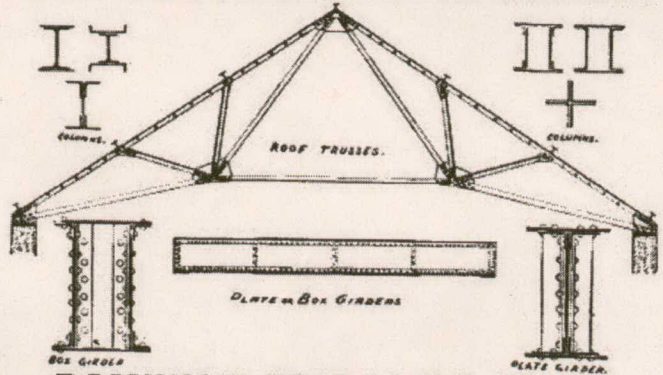


HYDRAULIC FOR FREIGHT AND PASSENGER
ELEVATORS
FAST ELEVATOR VALVES
SCREW GEAR BELT STEAM PUMP SPUR GEAR
PORTABLE WOOD & CEILING HOISTS
SPECIAL STYLES FOR RAILROADS
HAND POWER HANDS AND LIFTS
ELECTRIC ELEVATORS
DIRECT TANK AND PUMPING SYS
SAFETY CARS OF NEW BEAUTIFUL DESIGN

— CANADA. ELEVATOR WORKS. —
LEITCH & TURNBULL, HAMILTON, ONT.

CENTRE-PIECES ORNICES CAPITALS

in plaster of paris, fibrous plaster and paper stucco. The two latter materials are one-fourth the weight of plaster and as low in price. Send for designs and prices of those and many other relief ornaments.



DOMINION BRIDGE CO. (LIMITED)

WE BUILD

Bridges of all designs in both Iron and Steel, Roofs, Telephone Poles, House Girders, and all kinds of Structural Iron Work.

OUR STOCK IN HAND COMPRISES

Steel Beams, Angles, Tees, Channels, Plates, Rolled Edged Flats, Bars, Rivets, Hounds, &c.; Iron Beams, Bars, Squares, Rounds, Turnbuckles, Rivets, &c.

Estimates furnished for Structural Iron Work delivered at building or erected.

J. H. MCGREGOR,

Ontario Agency: 85 York Street, Toronto.
Telephone 2154.

R. B. ROSS,

Montreal Agent: 35 St. Francois—Kearl St.
Bell Telephone 696.

ELLIOTT & SON

Wall Papers
Stained Glass
Relief Ornament
Wood Floors

92 to 96 Bay St.,

- TORONTO



The Great CHURCH LIGHT

Fejn's Patent Reflectors for Gas, Oil, or Electric, give the most powerful, softest, cheapest, and best light known for Churches, Stores, Banks, Theatres, Depots, etc. New and elegant designs. Send size of room, plot circular & estimate. A liberal discount to churches & the trade. Don't be deceived by cheap imitations. L. F. FEJN & Co., 501 Front St., N.Y.

JOHN WHITFIELD,

174 and 176 Front Street East,

SUPPLIES ALL KINDS OF

IRON AND STEEL WORK

FOR BUILDERS, &c.

Telephone No. 2099.

GODFREY ST. V. MORGAN
BARRISTER, SOLICITOR, ETC.
27 Wellington St. East, TORONTO

W. STIVENS HICKS,
Architectural Sculptor and Modeller,
81 VICTORIA STREET, TORONTO.
All kinds of Stone and Wood Carving.

Roofers.

ROBT. RENNIE, Sr., 100 Gerrard St. East. ROBT. RENNIE, Jr., 378 Berkeley St.
R. RENNIE & SON,

TERRA COTTA TILE, SLATE ROOFERS, ETC.
Every description of Roofing Slate always on hand. Galvanized Iron Ridges, Valleys and Flashings supplied.

W. T. STEWART,
SLATE AND FELT ROOFER,
Dealer in and Manufacturer of Roofing Material.
Office, 27 Toronto St., cor. Adelaide, TORONTO.
Telephone No. 998.

Douglas Bros.,
SLATE, TILE AND METAL ROOFERS.
Sheet Metal Work, Metallic Ceilings, Skylights, etc.
124 Adelaide Street West, TORONTO.
Telephone 350.

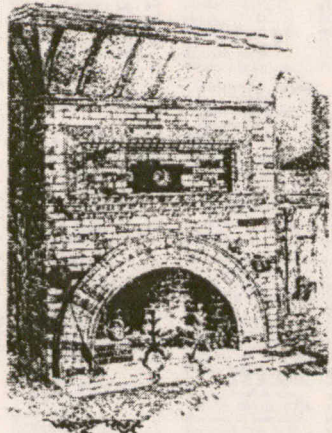
H. WILLIAMS & CO.,
4 Adelaide St. East, TORONTO.
ROOFERS
With Slate, Felt and Gravel; also Williams' Flat Slate Roof—the best. We lay ROCK ASPHALT on cellar bottoms, floors and walks—the best material for this work.

W. D. HUTSON,
56 Cecil Street, TORONTO.
Slate and Terra Cotta Roofing.
ALSO FELT AND GRAVEL ROOFING.
Materials always on hand.

Cut Stone Contractors.

OAKLEY & HOLMES,
CONTRACTORS,
66 and 68 Wellington St. West, TORONTO.
Estimates for Cut Stone, Brickwork, etc.

JAMES ISAAC. WILLIAM ISAAC.
ISAAC BROTHERS,
CUT STONE CONTRACTORS,
Office and Yard: Between Scott and Church Streets,
on the Esplanade (south side), TORONTO



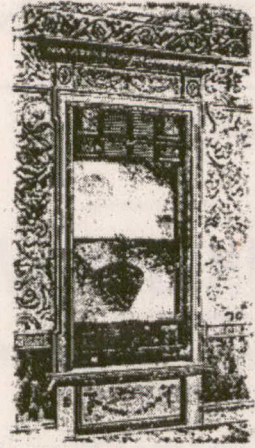
Geo. F. Bostwick
24 West Front Street - TORONTO

Telephone
2585



TUCKER & DILLON,
Sheet Metal Cornice Workers, 22 Adelaide St. W. TORONTO.
Ceiling work a specialty.

WILLER SLIDING BLINDS
(Known as the Canadian Willer)



Architects specify the Canadian Willer as manufactured by
LEE & SEAMAN,
Toronto Blind Factory,
Cor. Queen and Northcote Ave., Toronto.
LEWIS SKAFFE, Montreal Agent.

These are the only Sliding Blinds made in Canada the SAME and EQUAL to the American make. The best and cheapest blind on the market.

Adamant is the Best

DOULTON'S

ENAMELLED · METAL · BATHS

The Handsomest and Best Bath in the Market.
Delivered at any point in Canada.

COMPLETE WITH FITTINGS, \$75.00.

MCRAE & CO.

OTTAWA

F. H. COLMAN, President.

PERCY C. HAMILTON, Sec'y-Treas.

THE COLMAN-HAMILTON COMPANY, LTD.

IMPORTERS AND MANUFACTURERS OF

Annual Capacity:
6,500
CARS.

OFFICE AND WARE:
44 Price Street, Toronto.
Telephone 3763.



Double Strength
CULVERT PIPE,
WATER PIPE,
VITRIFIED
PAVING BRICK,
Fire-Proofing, Fire Brick, Fire
Clay and all Fire Clay
Products.

AGENTS FOR

The United States Fire Clay Co.

The Ohio Sewer Pipe Co.

INDEX TO ADVERTISEMENTS

Architects.
Ontario Directory... III
Quebec Directory... III

Architectural Sculptors and Carvers.
Carnovsky, B. H.... IV
Hicks, W. Stevens... II
Holbrook & Mollington... I
Wagner, Zeidler & Co.... IV

Architectural Iron-Work.
B. Greening Wire Co. VIII
Dominion Bridge Co. I
Meadows, Geo. B.... VIII
Whitfield, John... I

Architects' Supplies.
Hearn & Harrison... IV

Art Woodwork.
Carnovsky, B. H.... IV
Knechtel, S.... III
Otterville Mfg. Co.... III
Wagner, Zeidler & Co. IV

Bricks (Pressed).
Beauville Pressed Brick Co.... IX
Morris, E. D.... VIII
Port Credit Pressed Brick & Terra Cotta Co.... X
Taylor Bros.... X

Builders' Supplies.
Adamant Mfg Co.... VIII
Brenner, Alex.... IV
Currie & Co., W & F.P. III
Maguire Bros.... I
The Colman-Hamilton Co.... II

Drawing Inks.
Higgins & Co., C. M. IX

Dumb Waiters.
King & Son, Warden

Electric and Gas Fixtures.
Raywell, James.... VIII

Elevators.
Fensom, John.... II
Miller Bros. & Toms. XI
Leitch & Turnbull.... I

Engravers.
Can. Photo-Eng. Bureau... IV

Fire Brick and Clay.
Brenner, Alex.... IV
Colman-Hamilton Co. II
Currie & Co. W & F.P. III
M. Nally & Co. W. III
Morris, E. D.... VIII

- J. D. BAKER -

Plaster and Cement,

Architectural Ornaments,

Centre Flowers, etc.

RESIDENCE: SHOP:
38 CATHART ST. REAR 22 UNIVERSITY ST.
MONTREAL MONTREAL

Cements.
Adamant Mfg. Co.... VIII
Brenner, Alex.... IV
Currie & Co., W & F.P. III
Estate of John Barrie, v
McNally & Co., Wm. III
Maguire Br. s.... III
Morris, E. D.... VIII

Church Reflectors.
Frink, I. P.... I

Contractors and Builders.
Turner & Co., G. W. III

Contractors' Plant and Machinery.
Rice Lewis & Son.... IV
Rowe, Geo. III
Seveca Falls Mfg. Co. IV

Cut Stone Contractors.
Isaac Bros.... II
Oakley & Holmes.... II

Chimney Topping.
Brenner, Alex.... IV
Currie & Co., W & F.P. III

Drain Pipe.
Brenner, Alex.... IV
Currie & Co., W & F.P. III
Hamilton and Toronto Sewer Pipe Co.... XI
McNally & Co., W. III
Maguire Bros.... I
The Colman-Hamilton Co.... II

Drawing Inks.
Higgins & Co., C. M. IX

Dumb Waiters.
King & Son, Warden

Electric and Gas Fixtures.
Raywell, James.... VIII

Elevators.
Fensom, John.... II
Miller Bros. & Toms. XI
Leitch & Turnbull.... I

Engravers.
Can. Photo-Eng. Bureau... IV

Fire Brick and Clay.
Brenner, Alex.... IV
Colman-Hamilton Co. II
Currie & Co. W & F.P. III
M. Nally & Co. W. III
Morris, E. D.... VIII

Galvanized Iron Workers.
Tucker & Dillon... II

Grates and Tiles.
Botwick, G. F.... II
Holbrook & Mollington I
Rice Lewis & Son.... IV

Hydraulic Engines.
Guest & C.... VIII

Heating.
Gurney Foundry Co. XII
King & Son, Warden. XI
Miller Bros. & Toms. IX
Robt Engineering Co. IX
Toronto Radiator Mfg Co.... VII

Iron Pipe.
King & Son, Warden. XII

Lime.
Currie & Co., W & F.P. XII
Morris, E. D.... VIII

Lumber.
McRae & Co.... II

Legals.
Denton & Dods.... IV
Morgan, Godfrey St V II

Masons.
Botwick, Geo. F.... II

Metallic Lath.
Botwick Metal Lath Co.... II
B. Greening Wire Co. VIII
Metallic Roofing Co. IX

Mortar Colors and Shingle Stains.
Cahon Samuel,.... IX
Maguire Bros.... I
Muirhead, Andrew.... I

Ornamental Plasterers.
Baker, J. D.... VI
Hynes, W. J.... I

Paints and Varnishes.
Harris Co., The E.... VIII
Muirhead, Andrew.... I

Painters.
Delage, Theo.... III
Gilmer & Casey.... II

Parings.
The Guelph Silica Barytic Stone Co.... IV

Plasterers.
Hynes, W. J.... I

Plate Glass.
Harris Co., The E.... VIII
Hobbs Mfg. Co.... IV
McCausland & Son.... IV

Parquetry Floors.
Elliott & Son.... I

Plumbing Supplies.
Harwell, Jas. S.... VIII
Dominion Sanitary Fixture Co.... II
Malcolm, W. B.... II
Sanitas Mfg. Co.... V
Toronto St. of Glad Bath & Metal Co.... III

Roofing Materials.
Marchant & Co.... III
Metallic Roofing Co. IX

Roofers.
Douglas Bros.... II
Duthie & Sons, G.... II
Husto, W. D.... II
Metallic Roofing Co. IX
Kennie & Son, R.... II
Sawari, W. T.... II
Williams & Co., H.... II

Sanitary Appliances.
Dominion Sanitary Pottery Co.... II
Malcolm, W. B.... II
Sanitas Mfg. Co.... V
Toronto St. of Glad Bath & Metal Co.... III

Shingle Stains.
Cahon, Samuel.... IX

Sliding Blinds.
Lea & Seaman.... II

Stained and Decorative Glass.
Castle & Glass Co.... V
Dominion Glass Co.... V
Drake, W.... V
Elliott & Son.... I
Gibson Bros. Stained Glass Works.... V
Grimson, T. & J. E.... V
Hobbs Mfg. Co.... V
Howood & Sons, H.... V
McCausland & Son.... V
Quenel, Sharpe & Co.... V
Ramsay & Son, A.... V
Spence & Son, I. C.... V

Temperature Regulator.
Toronto Radiator Co. VI

Terra Cotta.
The Raritan Hollow & Porous Brick Co.... VIII

Terra Cotta Pipe-Proofing.
The Raritan Hollow & Porous Brick Co.... VIII

Wall Paper and Ceiling Decorations.
Elliott & Son.... II
Stanton & Co., M.... IX

Wire Manufacturers.
B. Greening Wire Co. VIII
Meadows, Geo. B.... VIII

Wall Plaster.
Adamant Mfg. Co. of America.... VIII
Novels & Co., B. L. XII

Weather Strips.
St. Amour, E.... VI

Architectural..
Sculptors..
Modellers,
Wood Carvers
etc.
Dealers in
Maw & Co's
and Minton &
Co.'s Artistic and
Plain Tiles for Cabinets,
Hearths, Floors, etc.
No. 200 King St. West,
TORONTO.
Telephone 2490.

Holbrook & Mollington

ANDREW MUIRHEAD,
TORONTO
MANUFACTURER OF
VARNISHES
Of every description.
Wood Fillers, Paints & Painters'
Supplies generally.
AGENT FOR
**Samuel Cabot's Celebrated Mortar
Colors and Creosote Stains.**

OFFICE: 82 Bay St.
FACTORY: St. Lawrence St.
Warehouse: 15 and 17 Mincing Lane.

If you want to
SELL ANYTHING
to the wholesale and retail hardware merchants and manufacturers
ANYWHERE
in Canada, you can reach them through the
CANADIAN HARDWARE MERCHANT
J. B. McLEAN CO., LTD.
10 FRONT ST. E. TORONTO.

Maguire's Sewer Gas Preventive, Flushing and Self-Cleaning Trap.



Toronto, Feb. 15th, 1888.

Dear Sir,—This is to certify that I have thoroughly examined "Maguire's Flushing and Self-cleaning Trap." I am satisfied that it is a great improvement on the old "Croydon" and other traps, and of its many advantages. So satisfied am I with this new improvement that I have adopted it for use throughout my works. I recommend its general adoption.
Yours truly,
E. J. LENNOX.

MAGUIRE BROS.
(Successors to Robert Carroll)

84 Adelaide St. West, - Toronto.
Telephone No. 208.

SEWER PIPE, Chimney Tops, Fire Brick, Fire Clay,
Portland and Native Cements.
Samuel Cabot's Celebrated Mortar Colors and Creosote Stains
ALWAYS ON HAND.



ARCHITECTS • CONTRACTORS • ENGINEERS • ETC.

Just Issued—A Second Edition of the

Canadian Contractor's Hand-Book

150 PAGES OF THE MOST VALUABLE INFORMATION
SUBSTANTIALLY BOUND IN CLOTH.

The Canadian Contractor's Hand-Book will be sent to any address in Canada or the United States on receipt of price, \$1.50; to subscribers of the CANADIAN ARCHITECT AND BUILDER, \$1.00.

C. H. MORTIMER, Publisher,

*Branch Office:
64 Temple Building, Montreal.*

Confederation Life Building, TORONTO.



MALCOLM'S Patent Sanitary Wash Basin

This Wash Basin does not give the disagreeable and unhealthy odor that comes from the overflow of all other wash basins in the market. The overflow is from the bottom of the basin, and being trapped at that point, completely stops the smell that would otherwise arise. It is neater and better than any other in the market. Call and see it at our show rooms, 89 and 91 Church Street, Toronto.

W. B. MALCOLM

“Richelieu”

Registered No. 20/4741.

IN consequence of the great popularity of this Closet, we find that imitations are being made and sold as the Richelieu, though decidedly inferior to the genuine article.

The “Richelieu” Closets made by us are stamped as above, in addition to our “*Trade Mark*,” and as the name “Richelieu” is registered in the Department of Agriculture, we shall take immediate action against any one *stamping* the name “Richelieu” on any closet, or *having in possession* closets so stamped that are not of our manufacture.

DOMINION SANITARY POTTERY CO.

Montreal Office: 68 Temple Building.

St. Johns, Que.



Quebec Architects.

J. NELSON, A.R.C.A.,
Architect and Valuator,
Member Province of Quebec Association of Architects.
1742 Notre Dame Street, MONTREAL.
Bell Telephone 9305.

A. C. HUTCHISON, R.C.A.,
Architect and Valuator,
Member Province of Quebec Association of Architects.
181 St. James Street, MONTREAL.
Telephone 858.

J. Z. RESTHER & SON,
ARCHITECTS
Members Province of Quebec Association of Architects.
Office: Imperial Building, MONTREAL.
107 St. James St.,
Telephone 1800.

A. T. Taylor, F.R.L.B.A., R.C.A. C. H. Gordon,
TAYLOR & GORDON,
ARCHITECTS
Members Province of Quebec Association of Architects
Union Buildings, 43 ST. FRANCOIS XAVIER ST.
Telephone 287.

ERIC MANN,
Architect and Valuator,
Member Province of Quebec Association of Architects
30 ST. JOHN STREET, MONTREAL.
Bell Telephone 2566.

THEO. DAoust,
(Formerly of Daoust & Gendron),
Architect and Valuator,
Member Province of Quebec Association of Architects.
Barron Block, 162 St. James St., MONTREAL.
P. O. Drawer 509. Telephone 9201.

J. F. PEACHY,
Architect and Valuator,
Member Province of Quebec Association of Architects.
494 St. John Street, QUEBEC.

ROY & GAUTHIER,
ARCHITECTS
Members Province of Quebec Association of Architects.
180 ST. JAMES STREET, MONTREAL.

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

PERRAULT & LESAGE,
(Joseph Perrault. Simon Lesage.)
Architects and Engineers.
Members Province of Quebec Association of Architects.
17 Place d'Armes Hill, MONTREAL.
Telephone 1869.

M. Perrault A. Mesnard,
PERRAULT & MESNARD,
ARCHITECTS
Members Province of Quebec Association of Architects.
11 & 17 Place d'Armes Hill, MONTREAL.
Telephone 066.

PORTLAND CEMENTS

All the best known brands at from \$1.80 per cask.

ROMAN CEMENT

KEENE'S Coarse, Superfine and Parian CEMENT.

CALCINED PLASTER

We are Agents for the best Nova Scotia makers.

W. McNALLY & CO.



SEWER PIPES

Standard and Scotch,

FIRE BRICKS

FIRE CLAY

FLUE COVERS

CHIMNEY LININGS AND TOPS

Scotch Derricks, Building Sandstones, and all kinds of Builders' and Contractors' Supplies.

The largest stock in Canada of these Goods, and at bottom prices.

MONTREAL.

DUNLOP & HERIOT,
Architects and Valuers,
Member Province of Quebec Association of Architects.
185 St. James Street, MONTREAL.
Telephone 1607.

F. X. BERLINQUET,
Architect and Valuator.
Member Province of Quebec Association of Architects.
209 St. John Street, QUEBEC.

A. RAZA,
Architect and Valuator,
Member Province of Quebec Association of Architects.
3 Place D'Armes Hill, MONTREAL.
Telephone 961.

J. W. Hopkins, R.C.A. E. C. Hopkins,
J. W. & E. C. HOPKINS,
Architects and Valuers,
Members Province of Quebec Association of Architects.
145 St. James Street, MONTREAL.
Telephone 959.

A. G. FOWLER,
Architect and Valuator.
Member Province of Quebec Association of Architects.
158 St. James Street, MONTREAL.
Telephone 2694.

J. H. BERNARD,
Architect and Valuator,
61 St. James Street, MONTREAL.
Telephone 2782.

WRIGHT & SON,
Architects and Valuers,
Members Province of Quebec Association of Architects.
Mechanics' Institute Building, (Room 23) MONTREAL.

G. DE G.-LANGUEDOC,
Architect and Civil Engineer,
Member Province of Quebec Association of Architects.
Office: 180 St. James Street, - MONTREAL.
Telephone No. 1793.

J. A. P. BULMAN,
Architect and Valuator,
156 St. James Street, - MONTREAL.

J. ALCIDE CHAUSSE,
Architect and Superintendent,
153 SHAW STREET, - MONTREAL, QUE.,
and 3124 Notre Dame St., St. Cunegonde, Que.
Telephone 5273.

J. R. RHIND,
Architect and Valuator,
Member Province of Quebec Association of Architects.
Board of Trade Building, MONTREAL.
Telephone 2767.

P. Lortie. A. Lortie.
P. LORTIE & SON,
Architects and Valuers,
1933 Notre Dame Street, MONTREAL.
Telephone 1836.

ALPH. DUBREUIL,
Architect and Valuator,
Member Province of Quebec Association of Architects.
1608 NOTRE DAME ST., - MONTREAL.

L. R. MONTBRIANT,
Architect and Valuator,
Member Province of Quebec Association of Architects.
42 ST. ANDRE STREET, MONTREAL.
Telephone 6793.

DAVID OUELLET,
Architecte et Evaluateur,
Member Province of Quebec Association of Architects.
No. 13, Rue Saint-Jean, H.-V. QUEBEC.
Telephone 314.

H. AUSTIN JONES,
ARCHITECT
(Successor to the late W. H. Hodson.)
204 ST. JAMES STREET, - MONTREAL.

Montreal Contractors.

W. G. TURNER & CO.,
General Contractors and Builders
Room 26, Imperial Building,
107 St. James Street, MONTREAL.
Repairs to Masonry and Cut Stone Work promptly attended to. Telephone 930.

Theo. Delage,
PAINTER,
DECORATOR IN ALL STYLES
Hardware, Oil, Varnish, Wall Paper, Etc.
2979 & 2981 St. Catherine St., MONTREAL.
Telephone 3472.

TO BUILDERS. KING OF WEATHER STRIPS



FOR PRIVATE AND STORE DOORS.
Prevent your sill from wearing; have comfort. No rubber! no felt! no wood to tear, pull out, or warp!
ALL METAL!
Examine before putting any more sills.
Sole Agent for Canada:
E. St. Amour,
242 St. James Street, MONTREAL.

Please mention the CANADIAN ARCHITECT AND BUILDER when corresponding with advertisers.

MERCHANT & CO.'S Metal GRADUATED Tile.

"Spanish" Pattern.

Copper, Steel or Tin. Handsome, Durable, Storm-proof

Patent applied for.

MERCHANT & CO. SOLE MANUFACTURERS
(Incorporated) PHILADELPHIA, NEW YORK. CHICAGO, ILLINOIS, LONDON.

Telephone 2158



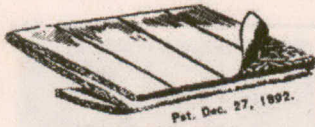
Canadian Photo-Engraving Bureau

MOORE & ALEXANDER
Proprietors

16 ADELAIDE ST. (WEST) TORONTO.

all kinds of
Photo-Engraving
for every purpose.
Fine Half-tone
on COPPER
our specialty
Cuts of—
Buildings, portraits,
Machinery, Landscape,
Book Covers, & Illustrations,
Cartoons, Newspaper cuts
&c. &c. &c.

MC CAUSLAND & SON
MEMORIAL WINDOWS TORONTO ONT
MEDALISTS CHURCH & SECULAR STAINED GLASS
LONDON ESTD 1886
DESIGNS SUBMITTED



CABOT'S SHEATHING "QUILT"
NON-CONDUCTOR AND SOUND-DEADENER FOR Dwellings and Refrigerators
Cold Storage Warehouses, etc.

One thickness is equal to six of Resin-sized paper, and the price is much lower in comparison. It is antiseptic and non-inflammable.
Samples and circular sent on application.
SAMUEL CABOT
Sole Manufacturer, BOSTON, MASS.
Agents: ANDREW MUNNICK, 85 Bay St., Toronto, Ont.
W. H. COTTINGHAM & Co., Montreal, Que.

WAGNER, ZEIDLER & CO.

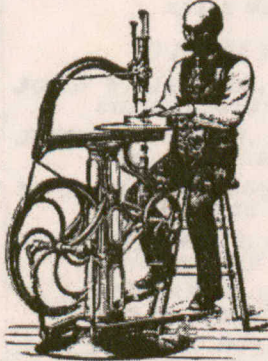


DOMINION EMPORIUM
... FOR ...
INTERIOR ART WOODWORK
... AND ...

Architectural Wood-Carving.
Estimates given for Constructive Carpentry where Interior Woodwork and Carpentry are let together.
Separate estimates given for Carving if desired.

TORONTO JUNCTION.

PATENT FOOT AND HAND POWER MACHINERY



COMPLETE OUTFITS.
CARPENTERS, CABINET-MAKERS and other WOODWORKERS without steam power, can successfully compete with the large shops by using our **LABOR SAVING MACHINERY,** latest and most improved for practical shop use. Many of our machines will pay for themselves on a single job.
Machines sold on trial, if desired. Send for Catalogue and Price List, giving full Descriptions, Testimonials, &c.

The Seneca Falls Mfg. Co.
316 Water St., Seneca Falls, N. Y.

R. Gibson. W. J. Thomas. C. Gibson.
STANDARD STAINED GLASS CO.
 W. T. Thomas, *Manager.*
MEMORIAL WINDOWS
 Art Stained Glass of every description.
SAND CUT A SPECIALTY.
 263 JAMES ST. N., HAMILTON, ONT.

CASTLE & SON
MEMORIALS AND LEADED GLASS

CHURCH BELLS—TUBULAR CHIMES AND BELLS

CHURCH FURNITURE
MEMORIAL BRASSES
FONTS LECTERNS

ADDRESS—20 UNIVERSITY STREET, MONTREAL

S. J. Doonan. S. A. Bradley. A. A. Mackey.
DOMINION GLASS CO.
 ESTABLISHED 1861.
 Manufacturers of
Ecclesiastical & Domestic Art Glass
 OF EVERY DESCRIPTION.
Lead Glazing and Sand Cut a specialty.
 48 TEMPERANCE STREET, TORONTO.
 S. J. Dunton, *Manager.*

J. C. SPENCE & SONS,
ARTISTS IN STAINED GLASS,
 ECCLESIASTICAL AND DOMESTIC.
 Mural Decorations, Art Tiles, Brasses,
 Church Furniture, etc.
BLEURY STREET, MONTREAL.

Stained Glass,
 EMBOSSED GLASS, SAND CUT,
 and LEAD GLAZING.

G. & J. E. GRIMSON,
 411 St. James Street, - MONTREAL

Please mention the CANADIAN ARCHITECT
 AND BUILDER when corresponding with adver-
 tisers.



ART GLASS WORKS

ESTABLISHED 1876,
 Memorial Church Windows,
 Geometrical and Quarry Windows,
 Art Glass for Residences, etc.
 Send for designs and prices to
H. HORWOOD & SONS, PRESCOTT, ONT.,
 and Ogdensburg, N.Y.

Head Office of the "METROPOLITAN" Plate Glass
 Insurance Company
QUESNEL, SHARPE & CO.
 IMPORTERS OF
Plate, Window and Ornamental Glass
 Paints, Oils, Varnish, Wall Papers, etc.
 Manufacturers of Mirrors. Beveling a Specialty.
 1639 and 1641 Notre Dame St.,
 Telephone 2718. MONTREAL.



Art Glass

We have lately added to our staff an experienced artist,
 formerly of London, Eng., and late of New York, and are
 prepared to submit designs and quote prices for all kinds of
Memorial Windows and Leaded Work for
CHURCHES, HALLS, PRIVATE HOUSES,
 &c., &c., &c.,
 Also Wheel Cut, Sand Blast and Embossed Glass, Bevelled and
 Silvered Plate.

A. RAMSAY & SON MONTREAL.
 Established 1846.
GLASS PAINTERS AND STAINERS.
 Manufacturers of White Leads, Colors, Varnishes, &c.

HOBBS ART STAINED GLASS, ECCLESIASTICAL
 AND DOMESTIC
Memorial Windows a Specialty.
MANUFACTURING
 Bent Glass
 Bevelled Glass
 Crystallized Glass
 Fancy Glass of every
 description, white
 or colored.

SHEET GLASS Sand Cutting, old and new system.
PLATE GLASS Mirrors, British, French and German
 with and without frame. **CO.**

Designs and Estimates will be furnished Church Committees, Architects and
 others on the shortest notice. All work guaranteed A. 1.

LONDON - ONTARIO

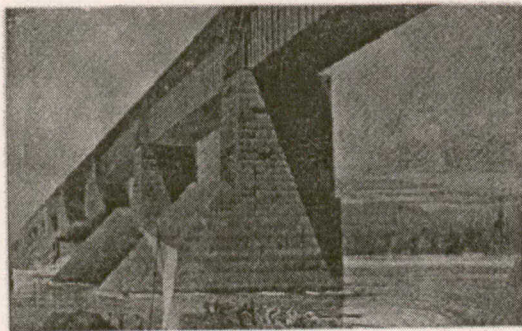


THE
THOROLD CEMENT

MANUFACTURED BY

THE ESTATE OF JOHN BATTLE
 THOROLD, ONTARIO.

VICTORIA TUBULAR BRIDGE OVER THE ST.
 LAWRENCE RIVER.



BUILT WITH THOROLD CEMENT.

TESTIMONIALS FROM

- JOHN PAGE, ESQ.,**
 CHIEF ENGINEER DOMINION OF CANADA.
JOSEPH HOBSON, ESQ.,
 CHIEF ENGINEER G. W. DIVISION, G. T. RAILWAY.
THOS. MONRO, ESQ.,
 ENGINEER IN CHARGE SOULANGES CANAL.
W. G. THOMPSON, ESQ.,
 ENGINEER IN CHARGE NEW WELLAND CANAL.
P. A. PETERSON, ESQ.,
 CHIEF ENGINEER CANADIAN PACIFIC RAILWAY.
J. C. BAILEY, ESQ.,
 CHIEF ENGR NORTHERN PACIFIC JUNCT. R. R.

BAKER'S IMPROVED PLASTER BOARD

*Patented Canada and United States.
European Patents Applied For.*

TO ARCHITECTS AND BUILDERS:

I beg to call your attention to my improvement in Plaster Boards, which overcomes the one serious objection to its use. I refer to its liability to crack at the joinings. Heretofore, in order to remedy this defect as much as possible, it required great care, extra labour and material, adding considerable to its cost, and then it could not be guaranteed.

Plaster Board is acknowledged by all the leading practical men to have many advantages over all other systems of plastering, in fact, but for this defect referred to, to be superior.

I claim this defect has been overcome by a very simple but equally valuable invention, by which means each board is securely fastened to the adjoining board, all the boards being nailed to the ceiling. They are fastened together by my patent coupling strips ready to receive the finishing coat, making the ceilings and walls practically one piece, all cracking or falling off being entirely obviated.

Each board contains 5 x superficial feet x in. thick, representing the lath and two coats of mortar thoroughly dried before being applied, which can be done in about the same time as it takes to apply the laths only, thereby saving about two-thirds of the time required to do ordinary three coat work, which is the only way to do good work in old style plastering, either on wood, wire or metallic lath; then taking the time required for the timber of the building and the air to absorb the enormous amount of water used in the mixing of common plastering, the saving of time and damage to building must be considerable.

ITS ADVANTAGES AND SUPERIORITY:

"It will not fall off."

"It will not crack."

"It will save the time of putting on and drying out two coats."

"It is a non-conductor of heat or cold."

"It will not soak the timber."

"It is more fire proof."

"It is cleaner and more vermin proof."

"It will do away with a lot of vexatious and costly delay."

"It is comparatively cheaper."

Try it and save considerable future annoyance and discomfort.

I refer by permission to the following Architects and Contractors who have either used, specified, or approved of my system:

Architects.

A. C. HUTCHISON.
A. F. DUNLOP.
ALPH. RAZA.
J. W. & E. C. HOPKINS.
E. MAXWELL.
W. McLEA WALBANK.
J. J. BROWNE & SON.

Contractors.

JOHN MORRISON & SON.
W. J. COOK.
J. LEFEBVRE.
H. CONTANT.
S. WHITE.
JOHN McLEAN.
J. DOULL.

Buildings where used.

MONTREAL COURT HOUSE
FIVE COMMISSIONERS' SCHOOLS
RESIDENCE FOR J. B. LEARMONT
STORES, GODFREY ESTATE
STORES, OGLIVIE ESTATE

A. RAZA, ARCHITECT.
A. C. HUTCHISON, ARCHITECT.
E. MAXWELL, ARCHITECT.
W. McLEA WALBANK, ARCHITECT.
A. C. HUTCHISON, ARCHITECT.

For further particulars apply to

J. D. BAKER

-

MONTREAL.

MANUFACTURER OF

ARCHITECTURAL AND DECORATIVE PLASTER WORK.

CANADIAN ARCHITECT AND BUILDER.

VOL. VII.—No. I.

JANUARY, 1894

PRICE 30 CENTS
\$2.00 PER YEAR.

—THE— CANADIAN ARCHITECT AND BUILDER,

A Monthly Journal of Modern Constructive Methods,

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

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

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

C. H. MORTIMER, Publisher,

Confederation Life Building, - TORONTO, CANADA.

Telephone 2362.

64 TEMPLE BUILDING, - MONTREAL.

Bell Telephone 2299.

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 \$2.50. Subscriptions are payable in advance. The paper will be discontinued at expiration of term paid for, if so stipulated by the subscriber; but where no such understanding exists, will be continued until instructions to discontinue are received and all arrearages paid.

ADVERTISEMENTS.

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

EDITOR'S ANNOUNCEMENTS.

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

The "Canadian Architect and Builder" is the official paper of the Architectural Associations of Ontario and Quebec.

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

ONTARIO ASSOCIATION OF ARCHITECTS.

OFFICERS FOR 1893.

PRESIDENT	D. B. DICK, Toronto.
1ST VICE-PRESIDENT	KING ARNOLDI, Ottawa.
2ND VICE-PRESIDENT	JOHN E. BELCHER, Peterboro'.
TREASURER	EDMUND BURKE, Toronto.

COUNCIL:

DAVID EWART	Ottawa.
S. G. CURRY	Toronto.
S. H. TOWNSEND	Toronto.
FRANK DARLING,	Toronto.
W. A. EDWARDS	Hamilton.

REGISTRAR AND LIBRARIAN:

W. A. LANGTON
Canada Life Building, Toronto.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.

OFFICERS FOR 1894.

PRESIDENT	J. NELSON, Montreal.
1ST VICE-PRESIDENT	CHAS. BAILLAIRGE, Quebec.
2ND VICE-PRESIDENT	A. C. HUTCHISON, Montreal.
SECRETARY	JOSEPH HAYNES, Montreal.
TREASURER	J. Z. RESTHER, Montreal.

COUNCIL:

A. T. TAYLOR, F.R.I.B.A., R.C.A.	Montreal.
A. GENDRON,	Montreal.
J. B. BERTRAND	Quebec.
ERIC MANN	Montreal.
J. VENNE	Montreal.
G. TANGUAY	Quebec.

AUDITORS—THEO. DAoust, J. F. PEACHY.

TORONTO BUILDERS' EXCHANGE.

BOARD OF DIRECTORS:

WM. PEARS, President.	J. LISTER NICHOLLS.
WM. PARK, 1st Vice-President.	WM. BOOTH.
GEO. OAKLEY, 2nd Vice-President.	JAS. ISAAC.
DAVID WILLIAMS, Treasurer.	JOHN LOGAN.
WM. J. HILL.	JAS. THOMSON.
JOHN ALDRIDGE.	H. MARTIN.
JAS. CRANG.	

JOHN L. PHILLIPS, Secretary.

At the time of going to press the members of the Ontario Association of Architects are meeting in annual convention in the School of Practical Science, Toronto. A full report of the proceedings will be published in the CANADIAN ARCHITECT AND BUILDER for February.

1894.

THE commencement of a new year, which will be the seventh in the life of this Journal, prompts a few remarks of a personal character, and concerning the professional and business interests with which we stand identified.

IT will be observed that in this first number of the new year a departure has been made from our usual practice of publishing illustrations of exclusively Canadian buildings. Having been repeatedly requested to reproduce occasionally foreign subjects, it was decided to give up the present number to illustrations of work of this character, and the cover design, for which we are indebted to Mr. Ernest Wilby, was worked out in harmony with this idea. It is our purpose in future to reproduce from time to time such specimens of the work of foreign architects as it is hoped will prove interesting and instructive to our readers.

REGARDING the CANADIAN ARCHITECT AND BUILDER, it can be said that despite some adverse influences, it continues to make steady progress. Additions to the number of its subscribers throughout Canada, and especially the towns and cities of the Northwest, have of late been gratifyingly large. As an index to the esteem in which the ARCHITECT AND BUILDER is held by some of its subscribers, we quote from the letter of an architect in a western Ontario city as follows: "I take all the best architectural publications in the States—six in number—and yours—and not considering price, I think yours the best of the lot for everyday practical work, and for good solid reading." The writer of this letter adds, "Can you suggest anything I can do to help you—if so, it shall be done." It would enhance not a little the interest and prosperity of the Journal, if every architect, builder and contractor who is a subscriber, would evince similar anxiety to individually assist its development. To those who have been negligent in this particular, the present affords a good opportunity to turn over a new leaf.

A strong effort will be put forth to give to the ARCHITECT AND BUILDER during 1894 a greater interest than it has ever had before, and without lessening its value to architects, to make it the source of information of a useful character to master builders and contractors. The co-operation of our readers is invited. Let us know what class of information is most required and we will endeavor to supply it. Especially do we invite requests for information on problems arising out of construction work of any kind; in such cases an earnest effort will be made to throw light on the difficulty. If knowledge of new and improved methods has been acquired let us know about it so that our readers may share the advantage. There has in the past been too little in the nature of exchange of experiences on this line. Let us have more of it in the future, and the result will be beneficial to everybody. Let no reader think he "knows it all"—he doesn't. If he will give others the benefit of what he does know he can depend on receiving equally valuable information in return.

In the advertisement pages of the ARCHITECT AND BUILDER are represented the leading manufacturers and dealers in building materials and appliances. The attention of architects and

builders is constantly being drawn in these pages to improvement in materials, and no progressive architect or builder should fail to examine these announcements with the same degree of attention which he bestows on any other department of the Journal. It is the wide-awake, progressive manufacturer and dealer who advertises, and who is able to place at the disposal of architects and builders the newest and most improved materials, and is consequently most deserving of encouragement and patronage. The successful results achieved in modern buildings are due in no small measure to men of this class.

We have made a certain amount of careful enquiry since the opening of the year, in order to gain what knowledge we might regarding the building outlook for 1894, this being always a subject of paramount importance to the many whose interests are largely dependent upon building enterprise. These enquiries indicate that a fairly active season is in prospect, and that taking the country as a whole the volume of building operations in 1894 will equal if not exceed that of last year. If this should prove to be the case there should be little cause for disappointment in view of the world-wide depression which at present exists. It must be remembered that most Canadian cities with the exception of Toronto were more than usually active in building enterprise last year. This is especially true of Montreal, London, Ottawa and Winnipeg. In Toronto the existence of well-known local causes operated to check development in this line; and yet even in Toronto a considerable amount of the best class of building was done, and all are agreed that so far as that city is concerned if no improvement may be expected as compared with last season, there will be no retrogression. The remodelling of existing buildings which began a year or two ago may be expected to continue for some time to come. This applies not only to buildings used for business purposes, but also to central residential properties. It is learned that there is a brisk demand for modern residences in central localities, and that as fast as houses are modernized they are tenanted. If this fact were impressed on the attention of owners of central property, much of which is now unremunerative because of the lack of accommodation afforded by old style houses, extensive improvements would doubtless follow.

There is another direction in which improvement is demanded and which would tend to enhance considerably building activity in Toronto during the coming season. There is urgent need, as was pointed out by the Mayor in his inaugural address, for large additions to the school accommodation throughout the city. At present the School Board are obliged to rent upwards of thirty rooms to provide for the large number of pupils who for lack of room cannot be admitted to the school buildings. For this temporary accommodation, which is necessarily defective, the School Board pays a rental of about \$7,000 per year. This amount capitalized at 4 per cent. would pay interest on \$175,000. It is estimated that the additional accommodation required could be provided by building additions to the present school buildings at a cost of \$75,000 to \$80,000. The interest on this expenditure would be \$3,000 to \$3,500, or half the sum which must now be paid as rent for inferior accommodation. Thus by enlarging the present schools a saving of upwards of \$3,000 per year might be effected, more satisfactory accommodation provided, and a large sum of money expended which would assist in tiding builders and builders' supply houses over the brief period which will elapse before a decided improvement in conditions shall take place. There is additional reason for proceeding at once with this work in the fact that there is never likely to come a time when it can be carried out at less cost. We hope that the City Council will take cognizance of these facts, and when the estimates of the School Board come up for consideration, vote the amount required to enlarge the schools.

Outside of Toronto indications of considerable activity are already apparent, and as above stated, we believe the season will develop satisfactorily. A certain number of persons, including architects and supply firms, appear to have become suddenly discouraged, and are doing little else than putting on long faces and predicting that things are going to the "bow-wows." Such persons are doing not a little to retard the improved conditions which all are looking for and which there is no reason to suppose will be much longer delayed. Let everybody put a cheerful courage on, and do what is possible to inspire confidence in the future; in this way "good times" will the sooner be brought

about. There is cause for the greatest encouragement in the knowledge of the fact that while Canada is less prosperous than at some former periods in her history, she is to-day experiencing in a lesser degree than any other country on the face of the globe the existing commercial depression, and as a consequence will be among the first of the nations to feel the benefit of the rising tide of returning prosperity. Let us stop croaking and go to work to make the best of the situation, which after all, isn't half so bad as some have pictured it.

We are much gratified by the interest manifested in our students' competition for a Town House, the result of which is announced in another part of this paper. Fifteen designs in all were received in this competition, representing the work of students in the provinces of Ontario, Quebec and British Columbia. The interest which has thus been shown shall encourage us to announce other competitions from time to time in the future.

CANADIAN SOCIETY OF CIVIL ENGINEERS.

The eighth annual meeting of the above Society took place in Montreal on the 10 and 11th inst. There was a good attendance of members. The chair was occupied by the President, Mr. E. P. Hannaford.

The subject of organizing the Society into a close corporation was reported on by a committee, the carrying into effect of the proposal being supported by Mr. Alan Macdougall, of Toronto. It was decided, however, that no present action should be taken.

The treasurer's report showed a very satisfactory state of the finances, and that in all respects the Society was in a flourishing condition.

By invitation of the Montreal Street Railway Management an interesting visit was made to the Company's new power station, and on the evening of the second day the annual dinner was held at the Windsor, the occasion proving to be most enjoyable.

The election of officers resulted as follows: President, P. Alexander Peterson; Vice-Presidents, H. Wallis, P. W. St. George, Montreal, and Alan Macdougall, Toronto; Secretary, Prof. McLeod; Treasurer, K. W. Blackwell; Librarian, W. McNab.

TORONTO BUILDERS' EXCHANGE.

The annual meeting of the Builders' Exchange of Toronto was held in the rooms of the Association, 8 Victoria st., on Monday, January 15th, at 3.30 p. m., the President, Wm. Pears, presiding.

The following were present: Wm. Pears, Jas. Crang, Jno. Aldridge, Mr. Tasker, (rep. the Don Brick Co.) J. Vokes, H. Martin, J. Thompson, Mr. Hewitt, Jr., T. Cannon, Sr., T. Cannon, Jr., Jno. Lucas, Geo. Wright, J. Bedford, Edw. Gearing, Ben. Brick, Jno. Maloney, Jno. Barnard, W. Page, F. B. Lockwood, Jno. Vick, C. S. Boon, Jno. Russell, Geo. Oakley, Wm. Park, Wickett Bros., Curtis & Rowe, Jas. Priestley, Isaac Price, Bayliss & McCurdy and Thos. Aikenhead.

The Treasurer's report, attested by the auditors, showed the finances to be in a satisfactory condition. The Secretary's report showed the membership to comprize the names of 120 firms representing all branches of the building trade and the supply business. The directors report was discussed with much interest. The Lien Law Committee were praised for the satisfactory work accomplished in connection with the amendment to the Lien Act. The president in commenting upon the bill, expressed his opinion that the amendments would tend to put the building trade upon a more satisfactory foundation, and that rash speculation in building would be less likely to occur in the future.

The following officers were elected for 1894:—Wm. Pears, President, re-elected, unanimously; 1st Vice-President, Wm. Park; 2nd Vice-President, Geo. Oakley, re-elected; Treasurer, David Williams, re-elected. The following were elected upon the Board of Directors: Jno. Aldridge, Jas. Thomson, Wm. Booth, Jas. Crang, H. Martin. In addition to the above the Board will be supplemented by one representative from each Trade Section of the Exchange. The auditors for 1894 are Messrs. Geo. Clay and Frederic Holmes.

The President-elect thanked the Exchange for the honor of his re-election, and also congratulated the members upon the satisfactory progress of the Exchange, in spite of dull times.

ILLUSTRATIONS.

C. A. & B. COMPETITION FOR A TOWN HOUSE—DESIGN BY "IGNORAMUS" (MR. J. EUGENE PAYETTE, MONTREAL)

AWARDED FIRST POSITION.

"BITS FROM MY SKETCH BOOK"—BY EUSTACE G. BIRD.

CERTOSA DI PAVIA, FINESTA SULLA, FACCIATA DELLA CHIESA, ITALY.

TOWERS AND STEEPLES—SIR CHRISTOPHER WREN, ARCHITECT.—(REPRODUCED FROM ORIGINAL DRAWINGS BY MR. A. T. TAYLOR, F.R.I.B.A., MONTREAL).

CHATEAU D'AZAY-LE-RIDEAU, FRANCE.

THE WEST END OF NAVE, WELLS' CATHEDRAL.—FROM A DRAWING BY MR. E. WILBY.

The portion of nave shown in this view dates from the earlier part of the 13th Century. The strong Romanesque feeling running through the whole design is quite exceptional in a building of so late a date. It may be seen in the form of the clustered piers, the profile of the arch mouldings, in the continuous mould to triforium arcade, and in the square or octagonal abaci to capitals in place of the more usual circular Early English.

UPPER PART OF MAGDALEN TOWER, MAGDALEN COLLEGE, OXFORD.

"Magadalen College" said Lady Macaulay, "is one of the most remarkable of our academical institutions. Its graceful tower catches afar off the eye of the traveller who comes by road from London. As he approaches he finds that this tower rises from an embattled pile, low and irregular, yet singularly venerable, which, embowered in verdure, overhangs the sluggish waters of the Cherwell."

The window tracery and other carved work has been carefully restored and a new stone figure of St. Mary placed in the middle pinnacle on the eastern side. The tower is 150 feet high, and contains a "ring" of ten bells. It was built in 1492-1507 A.D; and for simplicity of design and graceful proportions it is unequalled in England.

EUSTACE G. BIRD.

"CANADIAN ARCHITECT AND BUILDER" COMPETITION FOR A TOWN HOUSE.

THE best designs received in this competition have faults which would negative their actual erection without alteration, but there is sufficient merit in them and sufficient evidence of study to fully merit the award of the prizes offered. The three best designs are by "Ignoramus," "Gotham," and "Colonial," the three prizes have been given to them in that order.

"Ignoramus" sends in a design, published in this number, which has the defect of not being essentially a town house, and the further defect of an attic (reached by a stair crossing a window) which, slim as it appears in plan, would be still worse in execution, and it is obvious that he was quite aware of this from the floor lines which he has set against the elevations. But the other floors are good, especially the ground floor, which is very well arranged for comfort and interior effect, and on the whole there is an originality and thought shown.

"Gotham" has a good design also. It is a great question whether it would not be better if turned over so as to get the dining room on the south. The arrangement of the front bedroom is unstudied, and the back stairs rather too close work and too dark for comfort. The style of exterior treatment is very good and simple.

"Colonial" has a very clear drawing. The plan is more complex than those of the first two and has many faults. The main stair is ill planned and could have been right in the same space. The kitchen is too small; the dining room is all doors and windows. The stable is impractical.

The other competitors have been arranged approximately in order but without the same effort at certainty as was made in arranging the relative positions of the first three. The following points with reference to them may be noted:

"Demos," who makes a good fourth, has a rather commonplace plan but an elevation showing considerable merit and feeling for brickwork.

"Peck" has some excellent points, and is none the worse for not having very salient features. All is in fairly good quiet taste. He should black his walls in plan for reproduction on a reduced scale.

"Module" has not fulfilled the conditions. There is not

enough room left on the lot for light on one side and a driveway on the other. The floor plan thus gets a roominess to which it is not entitled. The elevation shows understanding of colonial work.

"Hasty"—The kitchen is too small. The pantry is only a bit of passage. The dining room is 12'6" wide, has a mantel on one side and a radiator on the other. This interference with the passageway on both sides would be a serious inconvenience in so narrow a room. The bedroom floor is not well studied. The exterior is unpretending but not bad.

"1894" has a very good plan, a little ambitious, but without falling into striking defects. The exterior is not pleasing, but is also not commonplace.

"Far" has made an initial mistake in having planned a basement kitchen. In spite of the space thus gained on the ground floor he has not succeeded in giving an impression of space. The elevations show originality, though in a crude stage.

"Scribbler" has a very good straightforward plan, but with all the rooms to the north, and the south occupied by stairs and a long passage. The design is poor.

"Victoria" has a basement kitchen at the extreme front (under the drawing room) and a dining room at the extreme back on a floor above. It would be hard to atone for this to a house-keeper by any other convenience proceeding from this arrangement, and there does not seem to be anything of the kind. The storey thrown over the driveway is a good idea.

"Cosmo"—The elevations (drawn in a scratchy way) are good—much better than the plan, which seems to show inexperience. The stairway is badly placed, right at the front door.

"Gamut," "Jack" and "Enchell" seem hardly up to the competition.

SETTING AND BURNING ROOF TILES.

IN setting plain roofing tiles the first thing to do is to see that the kiln bottom is in proper shape. This should fall from the sides to the center about 1½ inch, that is, it should be 1½ inch lower in the middle than the outer sides; this tends, when the sinking of the goods commences, to bring them together for mutual support. On the other hand, if the kiln bottoms are dead level, the setting is liable to open in firing, and the tiles reel in various directions, causing great waste. In setting plain roof tiles, these should be set in courses, each course covering a certain extent of ground before No. 2 course is set, and not built up in bungs, which is sometimes done. The latter system gives no tie of support; plain tiles in setting should be interlocked; each 10 or 11 tiles, as the case may be, should be set on the header and stretcher principle. This forms another tie to keep from reeling, and every other tile should be reversed, *i.e.*, the plain end of one tile resting against the *nib* of the previous one, leaving a cavity between the tiles for the draught. In setting pin tiles, say 8 or 10 tiles in a bung, divide the number given in equal quantity, and bring them together in a convex form; this gives you heat passage through the centre as well as the angle of the bung, set on the header and stretcher plan, same as the *nib* tile. Firing should be done with great caution; all through the burning special care should be taken until the fire is clear through, which should be done in a steady and progressive manner.

MOSAICS LAID IN GOLD.

The church of St. Mark, in Vencie, is said to contain the finest mosaics in the world. And, indeed, in not many places will they be found laid in such costly beds and with such extravagant profusion. On the walls, the ceilings and cupolas the tiny bits of rare marble are laid in exquisite designs on a bed of gold. Of these there are over 40,000 square feet of surface, the effect of the colored marble, each individual piece surrounded by its thread of gold, impress the beholder with a sense of grandeur and beauty rarely experienced in gazing at the best efforts of the builder's art.

A Michigan paper announces the receipt by a local builder of a large shipment of cedar lumber from Messrs. Geo. Cassidy & Company, Victoria, B. C., and describes the material as follows:—It is absolutely clear, lighter in weight than pine, of beautiful color and texture, and best of all, not more expensive than our best clear dry pine, very little of which is now obtainable at any price. This wood is growing rapidly in public favor for interior finishing, its natural shades and graining, when it is properly filled and oil polished, being equal to the most expensive hardwoods. It also takes the place of baswood and more expensive material for carriage work.

WINNIPEG.

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

There is little or no stir in the building line here at present—not even a rumour about an office building, or new opera house. 'Tis strange, 'tis passing strange, for at this time each year we are entertained with graphic descriptions of costly "sky-scrapers" to be erected the following spring—and as for opera houses, they are without number—designed and fitted up in the most improved style, and second to none, here or elsewhere. The newspapers are always "creditably informed" that the "capital" has been subscribed, and that the work will be proceeded with at once, if not sooner. In spring the snow disappears—carrying with it those visions grand, and with them the hopes of the architects, who then dream of what might have been if their clients—the men of ideas—had only succeeded in dazzling the men of dollars, with the prospect of reaping a golden harvest from the investment of the capital required to carry out their ambitious projects.

Some three years since the Y.M.C.A. purchased an excellent site for their new home at the corner of Portage avenue and Smith street, and they have paid off the major portion of the purchase money. Some of the leading men of the city have promised, as soon as the balance is paid, and the property free of encumbrance, to erect thereon an association building designed "up to date," for it has become a recognized fact that it is a benefit, not only to the young men themselves, but also to the community at large—for the former to have a home to which they are ever welcome, and a place of recreation, where they can enjoyably spend their evenings, and improve themselves spiritually, mentally and physically.

The Hudson's Bay Company, under the management of Mr. Chipman, the Commissioner (who took charge about two years ago) are like the bears in the spring time awakening from their lethargy, and shewing evidence of renewed life—making their influence felt throughout Manitoba and the North-West, while their unprofitable branches are being lopped off. The company, octopus like, stretch forth and take possession of new and promising districts, consequently they have to expend a considerable amount each year providing new buildings in which to carry on their ever increasing business. This necessarily stimulates trade in the country, and is a benefit to all.

Winnipeg should congratulate herself that the Hudson's Bay flats, lying between Main street and the Red River, are no longer to remain the eyesore they have hitherto been, for the proprietors (the Hudson's Bay Co.) have decided to turn them into athletic and racing grounds. This is one of the most laudable enterprises ever undertaken here, and will without doubt prove a great boon to the citizens, for the grounds are in the heart of the city, where everyone can go for a day's enjoyment without cost or fatigue. The grading was commenced last autumn, and this year fences, grand stand, stables and other buildings will be erected.

The Provincial Government provided in the estimates for the current year, the sum of \$45,000 for the erection of a Normal School building, and last spring they applied to the Dominion Government to grant a portion of the old driving park—fronting on Broadway—for a site for the proposed building. The Dominion Government consented to give the site, but afterwards, at the solicitation of the Winnipeg Cricket Club—who, from some misunderstanding, thought their grounds adjoining, and consequently their game would be seriously interfered with—were the building erected there. The Dominion Government reconsidered the matter and declined to convey the land to the Province. It is to be hoped that "the powers that be" will give the matter their favorable consideration, now that W.C.C. have received light, and find that they were making "a mountain out of a mole hill." This site is one of the finest, if not the finest, for the purpose, being next and opposite the Government buildings and in the centre of the fashionable south end, where parents are willing to pay the additional fee required to permit their children to attend the model classes in connection with the Normal School.

Regret has been expressed that in a progressive city such as this, which can boast of excellent ward schools and colleges, that the Normal School should have no home of its own in which to carry on its important work, and complete the links of the chain of our admirable system of education, because, forsooth, the noble game of cricket must not be interfered with.

When old Fort Garry was removed to make way for the onward march of civilization, the arched stone gateway alone remained. With battlements bleached and walls worn by time and tempest, it stands as an object lesson, reminding the passing beholder of the exciting scenes and stirring times which occurred within its massive portals during the early days when this country—now beginning to blossom as a rose—was known as the "Great Lone Land." Among the many suggestions regarding its preservation, one of the best is, that the city purchase the site on which it stands for a public park, the situation and the fine trees making it an excellent property for the purpose. Another suggestion is for the Provincial Government to remove the gateway, and re erect at the entrance of the grounds of either the Government House or the Legislative buildings, which, if acted upon, would combine sentiment with utility. The Historical and Scientific Society of Winnipeg invited in the autumn subscriptions towards a fund for the restoration of this interesting relic of ages passed away. but unfortunately their invitation was not responded to with the outburst of enthusiasm so common in more sentimental countries. We are a plain practical people and little affected by sentiment, especially at this season when paterfamilias is reminded daily that the coal pile is growing beautifully less, and the weather delightfully colder. Should this famed monument historique, which seems to be "nobody's child," crumble to dust, and be lost to coming generations, a blot will ever rest on the fair name of those in

authority, and children yet unborn will rise up and call them—well, not exactly blessed—for their indifference and parsimony in not preserving what will then be known as the lost stones of Fort Garry.

MOULDINGS.

Filler or Listel right-angled mouldings require no description. *The Astragal or Bead.*—To describe this moulding, divide its height into two equal parts, and from the point of division as a centre, describe a semi-circle, which is the contour of the astragal.

Doric Annulets.—The left-hand figure shows the Roman, and the right-hand figure the Grecian form of this building. To describe the latter, proceed thus: Divide the height *b a* into four equal parts, and make the projection equal to three of them. The vertical divisions give the lines of the under side of the annulets, and the height of each annulet, *c c*, is equal to one-fifth of the projection; the upper surface of *c* is at right angles to the lines of slope.

Listel and Fascia.—(Roman). Divide the whole height into four equal parts, make the listel equal to two of these, and its projection equal to two. With the third vertical division as a center, describe a quadrant. (Grecian.)

—Divide the height into four equal parts, make the fillet equal to one of them, and its projection equal to three-fourths of its height.

Cavette or Hollow.—In Roman architecture this moulding is a circular quadrant; in Grecian architecture it is an elliptical quadrant, which may be described by any of the methods given in the first part of the work.

Ovolo or Quarter-round.—This is a convex moulding, the reverse of the cavetto, but described in the same manner.

Cyma Recta.—A curve of double curvature, like former, and formed in same manner.

Trochilus of Scolia.—A hollow moulding, which, in Roman architecture is formed of two unequal circular arcs, thus: Divide the height into ten equal parts, and at the sixth division draw a horizontal line. From the seventh division as a center, and with seven divisions as radius, describe from the lower part of the moulding and arc, cutting the above horizontal line, and join the center and the point of intersection by a line which bisects; and from the point of bisection as a center, with half the length of the line as radius, describe an arc to form the upper part of the curve. There are many other methods of drawing this moulding. The Grecian trochilus is an elliptical or parabolic curve, the proportions of which are shown by the divisions of the dotted lines.

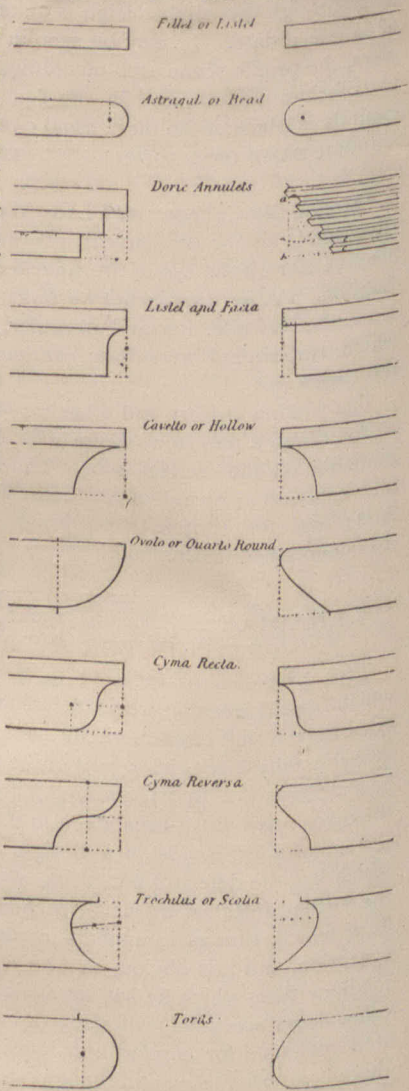
The Torus.—The Roman moulding is semi-cylindrical, and its contour is of course a semicircle. The Grecian moulding is either elliptical or parabolic; and although this and the other Greek mouldings may be drawn, as we have said, by one or other of the methods of drawing ellipses and parabolas, described in the first part of the work, and by other methods about to be illustrated, it is much better to become accustomed to sketch them by the eye, first setting off their projections, as shown in this plate, by the divisions of the dotted lines.

PERSONAL.

Mr. John Day, architect, Guelph, Ont., has recently returned from a visit to Kansas City.

F. G. Beckett, who for several years was a student of architecture in Toronto and at Cornell University, has entered upon the practice of his profession in Toronto.

Mr. Henry James, chief architect of the Militia Department at Ottawa, died at his residence in that city on the 28th of November, at the age of 55 years. Mr. James entered the Department of Public Works in 1878, and was appointed chief architect of the Militia Department in 1886. Prior to that time he practiced as a civil engineer.



CATHEDRAL OF THE HOLY TRINITY, QUEBEC.*

BY H. STAVELEY.

IN the Quebec *Gazette* of 8th Sept., 1796, appears an account of a great fire, which ten days before had devastated a large part of the upper town, and in the course of which the church and convent of the Order of Recollects were destroyed. The site upon which these buildings stood is that which is bounded towards the north by St. Anne street, towards the south by St. Lewis street, towards the west by Garden street, and on the east by the Parade Grounds, or Place D'Armes.

After the fire the government took possession of the property, and had the ruins of the former buildings levelled to the ground. Three years subsequently the Right Rev. Jacob Mountain, D. D., first Bishop of Quebec, induced King George III at his own cost to build the "Cathedral Church of the Holy Trinity," upon the site above designated. On the 11th November, 1799, a commission was appointed by Letters Patent, consisting of the Lord Bishop of Quebec, the Chief Justice of Lower Canada, the Rector of Quebec, and the Attorney General, for the purpose of building this church.

Plans and specifications were obtained, and Capt. Robe, of the Royal Artillery, was appointed superintendent of the work. For these services we learn that he received £300 in all probability sterling, or say \$1,458. As the expenditure totalled about \$80,000, we must conclude that the architect was moved by higher motives than those of the "Tariff" to perform the duties, which, after a lapse of nearly 100 years, one is willing to admit were well done. Possibly, however, the Captain's income was not altogether dependent upon the exercise of his architectural talent. Capt. Robe's own record tells us that he was materially assisted by Capt. Hill, of the Royal Artillery, to whom he gives credit for the "general plan." "The detailed plans of the several parts," however, he says, were drawn by himself. Further on we are told, that throughout, "I (Capt. Robe), had continually the aid of Capt. Hall's judgment and good taste." The unselfishness of Capt. Robe's statements makes one feel an admiration for him which is increased as we further hear from him in what manner he obtained the thoughts and inspiration which enabled him to produce the church, whose quiet dignity, pleasing proportions, and chaste architectural detail have combined to endear it to all whose happiness it is to worship within its walls; to such, it is, as many have expressed it, "a dear old church."

Following Captain Robe's description we learn that the dimensions of the church were taken from those of the Church of St. Martin's-in-the-Fields, London, and which is illustrated in Gibb's Book of Architecture, published in the year 1728. The east and west ends are ornamented with pilasters of the Ionic according to Palladio, and supporting a modillion cornice and pediment, but without a frieze. This idea was taken from the Pantheon at Rome, so executed, and was done to give more boldness to the pilasters for the intended height of the building. The pilasters project less than Palladio's rule directs, owing to the Point aux Trembles stone which, in the then state of the quarries, could not be got in masses large enough, without an "enormous expense." The pediments are surmounted with oblate vases, which at the angles of the building serve as flues for the stoves within the church. As the vases are not now on either pediments or at the angles of the building, it must be supposed that for some good reason they have been removed; as regards those which served as flues, they have been replaced with very everyday square chimney tops.

The tower, 24 feet square, contains 8 bells, which were placed therein in 1830 at a cost of \$2,800—defrayed by subscription.

The whole designs within the church are of the ancient Ionic order, but from the proportions of different approved masters, according to their situation. The Venetian window at the east end is the Ionic of Vitruvius, according to Vignola. The pulpit (long since replaced by the one now in use) is the Ionic of Alberti, and is described as follows: "The ancient oaken pulpit placed in the centre, was in form a twelve-sided polygon, and was reached on either side by staircases entered from the front, and meeting in a platform in rear. Directly in front of and attached to the pulpit, was the reading desk with a door on each side, and in front of this the clerk's desk"—verily a three-decker of "ye olden tymes." As evidencing how time changes all things earthly, it may be noted that the pulpit now in use will most likely soon give place to a more elegant one, in memory of the late revered Bishop Williams, or if the memorial should take another form, than that of a new pulpit, the position of the latter must perforce be changed in view of the recent decision to place choir seats in the chancel, in consequence of which the pulpit will now be placed towards the north side of the nave.

Capt. Robe also informs us that the organ (long since departed) is a design of his own, and that the fret work of the great arch, over the nave, 41 feet from the floor, is his own, being an imitation of ancient stucco work, but deeming plaster to be an unsuitable material for this climate, had adopted wood—taking his idea from the common mode of ceiling rooms in

Quebec, with board and batten, but aiming at a better effect, had crossed the battens diagonally.

The columns and entablature between nave and aisles, and supporting the arched roof, are of Ionic from Palladio, as correctly followed as wood work would admit.

The floors and pews, the bishop's throne, the gallery fronts, the chancel rails, etc., are all of oak. The columns are of pitch pine encased with "other wood," many times painted. The arched ceiling is entirely of pine, also painted. The chancel is semi-circular inside, on a radius of 18 feet. On the wall within the chancel to the south side of the altar are the "Ten Commandments," in two large tablets, having broad gilt cable borders. On the north side are two similar tablets, containing the Apostles' Creed and the Lord's Prayer.

The Bishop's throne is situated on the south side of the chancel, with the font immediately opposite thereto. Stalls are provided for the Dean, Archdeacon and Canons of the Cathedral to the number of eight seats, and as before intimated, in a few days choir seats for 24 persons will be placed in front of the clergy stalls, half on the north side and half on the south side of the chancel.

In the centre aisle there are about fifteen massive oaken benches used by the children of the Orphan Homes; they are movable, and in case of funerals and processions, are taken away, and the central aisle or passage is left clear for its full width of ten feet.

The records shew that the masons began laying the foundations on the 11th August, 1800. Service was performed in the church on the 4th August, 1804. Considering the size of the building—135 feet long, 73 feet wide and 40 feet high to eaves of roof—and its generally plain character, it may be gathered that no extraordinary speed was attained in its erection, but as substantiality and a due and proper regard for procuring dry, well seasoned wood, were in those days esteemed of more value than now, we may suppose that the length of time occupied in building the church was more a matter of choice than of necessity.

Beneath the chancel floor repose the mortal remains of Charles, Duke of Richmond, Lenox and Autuguy, who died at Richmond, in Upper Canada, on the 29th of August, 1819, marked by a brass plate sunk in the floor, and the Right Reverend Jacob Mountain, D. D., first Bishop of Quebec, who died in the year 1825.

Throughout this venerable edifice are many handsome mural tablets in memory of distinguished persons, including those above mentioned; also Bishop Stuart, Lieut.-General Hunter, Lieut.-Governor of Upper Canada, 1805; Hon. John Stewart, Hon. Carleton Thomas Moncton, son of Viscount Galway; Rev. G. V. Housman, for twenty-nine years rector of Quebec, and about twenty others, all most interesting to examine, bringing to mind as they do, men and events of the century now drawing to its close, and of men who figured prominently in the ancient city in days of yore.

Stained glass windows of more or less merit also keep fresh in memory many citizens whose good deeds are worthy of commemoration. Foremost among these is the beautiful east end window, the central light containing the "Ascension," with the "Baptism" and "Transfiguration" in the side lights, symbolic representation of the four Evangelists occupying the space above and beneath the latter. This is to the memory of the second Bishop Mountain, third Bishop of Quebec. A very handsome window has also been erected to the memory of Judge Stuart and Judge Black (half brothers)—and others in remembrance of Archibald Campbell, Agnes Campbell, Geo. B. Symes, and Mrs. Young.

Strangers visiting the church which hang in the chancel, all meaning of two old flags which hang in the chancel, all tattered and torn. They were formerly the regimental colors of H. M. 69th regiment of foot, and were deposited for safe keeping in the cathedral 22nd June, 1870, when new colors were presented to the regiment by H. R. H. Prince Arthur, then Lieutenant in the P. C. O. Rifle Brigade.

The splendid communion service of this church, consisting of twelve massive pieces of solid silver, was the special gift of King George III. They are exquisitely engraved and embossed with the Royal Arms and the Arms of the Diocese. The alms dish is a particularly beautiful work of art, the bottom being a representation in relief of the Lord's Supper.

Such is a brief and imperfect sketch of a venerable building dear to the hearts of many, not only of those still residing in the city of Quebec, but to hundreds whose lot is now cast in far distant parts. There are those whose early recollections of the old church come back to them in far-off India, in New Zealand, in old England, and our own North-West; and sure we are that often times their mental vision recalls the graceful proportions, the lofty vault, the antiquated oaken pews and open benches, dark with age, the curtained pew for vice-regal use, the Episcopal throne, whence has issued in their childhood's days the peaceful words of the benediction from the saintly lips of a Mountain or a Williams—the mural tablets and brasses, the stained glass windows—all make up a picture never to be effaced from the memory of those whose privilege it has been to worship within its ancient walls, and to join in the glorious liturgy of the Church of England, which has ever been rendered in this church with due dignity and solemnity.

* The writer of this article has drawn his information from a "Monograph" by J. C. Wurtele, Esq., entitled "The English Cathedral of Quebec" and read before the Literary and Historical Society of Quebec, 20th March, 1891.



THE annual exhibition of the Toronto Art Students' League, occurring almost simultaneously with the appearance of their highly decorative calendar for 1894, brings prominently before the literary and artistic public, the existence of an institution which has been quietly working its way upward, and which, in very many respects holds a unique place among the art organizations of our country. Its history is neither very long nor very eventful. It is a story of steady unobtrusive development by a healthy natural growth from a small beginning to a sturdier and maturer vigor.

On September, 22nd, 1886, a circular was sent forth by Mr. A. H. Howard to the artists and art students of the city, calling them to a meeting for the formation of a club, which, relying on the added strength that comes from union, should be in a position to afford better opportunity for the prosecution of art studies than could be secured by any individual action. The date fixed for the meeting was Friday evening, Sept. 24th, and the place a little room at 56 King street east, kindly loaned by Mr. O. R. Hughes, and at that time and place the art faithful gathered together. It was by no means a large, and perhaps not a particularly awe-inspiring assemblage. The room was an upper room, and according to

the story of some who were there, it was very decidedly "upper," with an approach to it that is said to have been much darker and much more difficult and dangerous than the passage to Hades as pictured by reliable writers of ancient times.

These untoward circumstances, however, proved to be no bar to the fulfilment of the purpose for which the meeting was called. There were present Messrs. A. H. Howard, W. D. Blatchly, C. M. Manly, O. R. Hughes, J. D. Kelly, and others proposed for membership were Messrs. Wm. Thomson, Parker Newton and O. P. Staples. The usual resolutions were drawn up and carried unanimously, of course, and the life of the League dates from that meeting.

According to Mr. Howard's first notice, sketching from life was to be a special feature of the club's work, and, in addition to this, a paper had been prepared by Mr. Manly outlining a scheme for the carrying on of a series of monthly sketches on given subjects suited to the requirements of landscape and figure men. The meeting adopted these two features as the foundation upon which the club should build. Provision was made for supplying a model's "throne" and a model's own reflector lamp; several other lamps were added to the one already in their possession, and in a new brilliance as befitted a lover of light rather than darkness, the infant League set out on the straight and narrow path of art.

Someone had to send out notices and write minutes, and Mr. Hughes was made secretary; some one had to hold the money, and Mr. Howard was made treasurer; a president would only be in the way, and none was appointed.

For a time there were many ups and downs, with apparently a majority in favor of the "downs." Models continually failed to keep appointments and when they did appear insisted on being paid, coal-men clamored, the landlord had to be satisfied, and the frequently recurring minute "Resolved that members be urgently requested to pay all arrears of fees" seems to suggest an impending financial embarrassment. The rough places, however, gradually became smooth and the general state of affairs soon assumed a more hopeful aspect.

On April 1st, 1889, the institution removed to its present rooms in the Imperial Bank building, Leader Lane, and with its removal it cast off the most unsatisfactory features of the Bohemianism that had held a dominant place in its old habitation. With an increase in membership, accompanied by a corresponding increase in the financial receipts, it was in a position to make its new abode comfortable with a plentiful supply of light and heat, to procure additional furnishings and provide for

drawing from the life several evenings a week instead of one as before. An elaborate constitution was framed and Mr. Blatchly was elected the first president. Mr. Blatchly successfully fulfilled the duties of this position until 1890, when he withdrew and was succeeded by Mr. Wm. Thomson, who in turn withdrew in 1891 and was succeeded by Mr. R. Holmes. The management of the business is vested in an executive committee of eleven members elected annually on the first Tuesday in March.

The committee for the present year is composed of: Mr. R. Holmes, President; Mr. J. D. Kelly, Vice-president; Miss J. M. F. Adams, Treasurer; Mr. W. W. Alexander, Cor. Secretary; Mr. F. H. Bridgen, Rec. Secretary; Miss G. E. Spurr, Chairman House Committee; Mr. W. D. Blatchly, Chairman School Committee; Mr. J. Willson, Chairman Library Committee.

The League is a co-operative concern. All members share alike in meeting the expenses and enjoying the privileges. There are no paid officers or instructors. The membership fees are, for men, \$3.00 for entrance and \$2.00 per month during the eight working months of the year; and \$2.00 entrance and \$1.50 per month for ladies; and the amount received goes to pay current expenses. The treasurer is instructed to make a reserve sufficient to meet expenses of the summer months, and if any surplus remains, the library or the house-furnishings or the models' wardrobe derives the benefit of it. The institution is first and foremost a life-class, and seems to have set itself firmly in the one resolve, unalterable as the laws of the Medes and Persians, that it shall draw directly from the life, and if necessary every other consideration must bend in obedience to the carrying out of this line of action.

The life-class meets always three evenings a week and frequently as often as five evenings a week, and a programme is laid out, providing for about an equal number of nude and costume studies. For some time considerable difficulty was experienced in securing suitable models, and many are the funny stories told of models who prided themselves on their physique because it tipped the scale at two hundred pounds. This difficulty has, however, been largely overcome by a system of persistently paying the best prices and demanding the best service, and during last year out of nearly one hundred evenings there were only three occasions when models failed to keep their appointments, and their places had to be taken by volunteers from the members.

The lighting of the place was another problem that required time and patience and some ingenuity for its solution, and it was only after a long series of experiments that a satisfactory light for the model was secured. The model's light at present in use consists of several strong gas jets brought so closely together as to form practically one light, which is provided with a large reflector, while several movable joints in the pipe admit of its being placed in any position required. Then around the room, above and to the back of the members at work is a double semi-circle of gas jets provided with shades, which are designed to prevent an interference of these lights with the light on the model.

The series of monthly compositions still remains a most important feature of the League's programme of work. The life-class is intended to supply the means of obtaining an intimate acquaintance with the form, proportions and construction of the figure, together with a knowledge of the textures of drapery and the folds it assumes under varying conditions; and an acuteness of perception, an accuracy of drawing and a facility in the



SUMMER SKETCHING CLASS.
CHATEAU RICHER, QUEBEC.



SUMMER SKETCHING CLASS—QUEBEC.

use of materials comes from the constant exercise in these directions afforded by the work of this class. All these are, however, only the language with which the artist speaks, the medium through which he has to set forth his thoughts, and the composition class is designed to afford him a familiarity in the application of his language to the expression of his ideas in an artistic way. Three subjects are announced every month and the compositions brought in on the first Monday of the following month. "The Wayside Inn," "The Path through the Orchard," and "In Durance Vile" are the subjects for the present month, and give

League who is prepared to undertake the making every day of a sketch, however pretentious or however slight, is recognized as a member of this inner circle.

In addition to the life-class and business evenings an evening is frequently given over to the reading and discussion of papers on art matters prepared or selected by the members, followed on special occasions by "a trifling foolish banquet" with the singing of many songs and the telling of many tales. A favorite recreation for a part of such an evening is five-points. For this idle diversion, pieces of paper of uniform size are prepared and marked with five points jotted down pretty much at random, and a serious struggle ensues as each one wrestles with the problem of constructing a figure with hands fitting on two of the given points, feet on another two and a head on the fifth.



The months of summer are spent in the woods and the fields. Every Saturday is set apart for sketching excursions by the whole League, and smaller meets are generally held on Wednesdays, while special arrangements are made for more extended trips covering several days or several weeks, and in this way during the summer as well as the winter, the members are held together by a bond of common interest; and the loyalty to their institution so eminently characteristic of the League membership is not to be wondered at when one considers how intimately the interests of the individual are bound up in the interests of the body.

At the close of the summer an exhibition of the summer's work is held. It is a private exhibition to be viewed only by the members themselves and their intimate friends. There is no jury; the committee hang successes and failures alike, and many are the lessons such a collection can teach, with here a scrap of scribbler-paper bearing a delightful sketch and there a piece of good paper dirtied and spoiled by a miserable failure.

The public exhibition is always held in December. An interesting feature of the last two of these has been a collection of the original drawings contributed to certain publications prepared by the League, with a collection also of negatives, printing blocks and proofs illustrating the processes of reproduction employed. Made up as it is of persons engaged in practical art work the League had for some time entertained the idea of issuing some such illustrated publication, and this idea took practical shape in 1892. Arrangements were made for publishing a calendar for the following year, and early in December it put in its appearance in the form of a booklet of 24 pages with a lithographed cover in pale blue



LIFE CLASS—A COSTUME STUDY.

and gold bearing the title "Ninety-Three." There were 12 pages of drawings made up of four calendars of three months each and illustrations characteristic of the Canadian seasons contributed by different members of the League, while on the opposite pages were appropriate quotations from the verses of Canadian writers. The favor with which this attempt was received encouraged the League to further efforts in the same line, and the kindly accorded co-operation of a number of literary people has made possible the production of "Ninety-Four," with a genuinely high degree of literary and artistic excellence. The literary part of the book consists of hitherto unpublished



LIFE CLASS—A NUDE STUDY.

a very fair idea of the character of the subjects selected. Taking one of these as a title, each member is supposed to prepare an illustration in black-and white or color, choosing his incident, arranging his leading lines and distributing his masses of light and shade according to his own conception of the subject and his own ideas of what a pictorial composition should be.

The drawing from photographs is of a somewhat similar character. There are many of the League members who "press the button and do the rest" with no mean power, and their work does good service in this department. A suitable subject containing some point of pictorial value is selected and a number of prints of it distributed among the members. Each one, then, taking the prominent point in the print for the basis of a composition, adds figures or other accessories as his imagination suggests or the requirements of the subject demand. The illustration we present by Mr. D. F. Thomson, is from a 4x5 snap shot showing only the cow with a glimpse of the river bordered by trees. When the sketches are brought in they are numbered, and tickets marked with corresponding numbers are drawn by the contributors from the official League hat, and sketch No. 1 becomes the property of the holder of ticket No. 1, and so on until the collection is disposed of.

The N. D. S. L. club is a feature of the League's work which makes very serious demands upon the patience and perseverance of its members. A story is told of a musician who affirmed that a day's neglect of practice could be felt by himself, that two days' neglect was noticeable by his friends, while on the third day the public was sensible of the falling off. The N. D. S. L. club has been formed in the League to encourage among its members a system of every day practice in their work. The title is formed of the initial letters of the motto "Nulla Dies Sine Linea" (no day without a line), and every member of the

verses by a number of the poets of our country, and as many as fifteen members of the League are represented by drawings, which consist of decorative settings harmonizing with the character of the literary contributions, four calendar pages and four full-page drawings illustrating the seasons. The cover is from a delicate and graceful design in purple gray, carmine, gold and white by Mr. A. H. Howard, and the excellence of the printing and engraving is assuredly a matter of very gratifying surprise. In these publications all the contributions have been volunteered purely as a labor of love, and no member personally derives any pecuniary profit from their success. If the venture prove profitable financially the surplus goes into the general locker, and as the League relies entirely on its own resources without support from the government or wealthy patrons, its treasury frequently has plenty of room for additions.

PROPOSED CANADIAN INSTITUTE OF ARCHITECTS.

At a recent meeting of the Montreal members of the Province of Quebec Association of Architects, Mr. J. R. Gardiner gave an address on the desirability of forming a Canadian Institute of Architects, and suggested the following as a basis of organization:—

Membership to consist of all members of the four provincial bodies, viz, Ontario, Quebec, Maritime Provinces and

POINTS ON HEATING.

ONE of the greatest, if not the greatest, natural force in existence for the carrying off of heat is wind, and when we know something of the effects of wind in cooling buildings we learn to consider it more carefully, and plan more thoughtfully for the admission of light. For instance, in experiments with glass houses, a room heated to 70° with the outside temperature at zero, in still weather the inside temperature will be lowered 20° in five minutes and 45 seconds; with the wind blowing three miles an hour the same result will be attained in two minutes and thirty-five seconds. When, however, this wind reaches a velocity of 27 miles an hour the time required to lower the temperature 20° is only 48 seconds. Now it will be readily seen of what vast importance is the consideration of this one element alone, especially when we remember that there is hardly a day passes during the cold weather in our climate, where the velocity of the wind does not reach and many times go beyond the latter figure.

The materials entering into the construction of a building all have a known conducting power, and had we time and space we could give the ascertained conducting power in tabular form. It is not the intent of this short article to go into details, but in a few instances to give the reader some points of vital importance provided he intends to build.

The manner in which a building is put together determines



TORONTO ART STUDENTS' LEAGUE—DRAWING FROM PHOTOGRAPH.

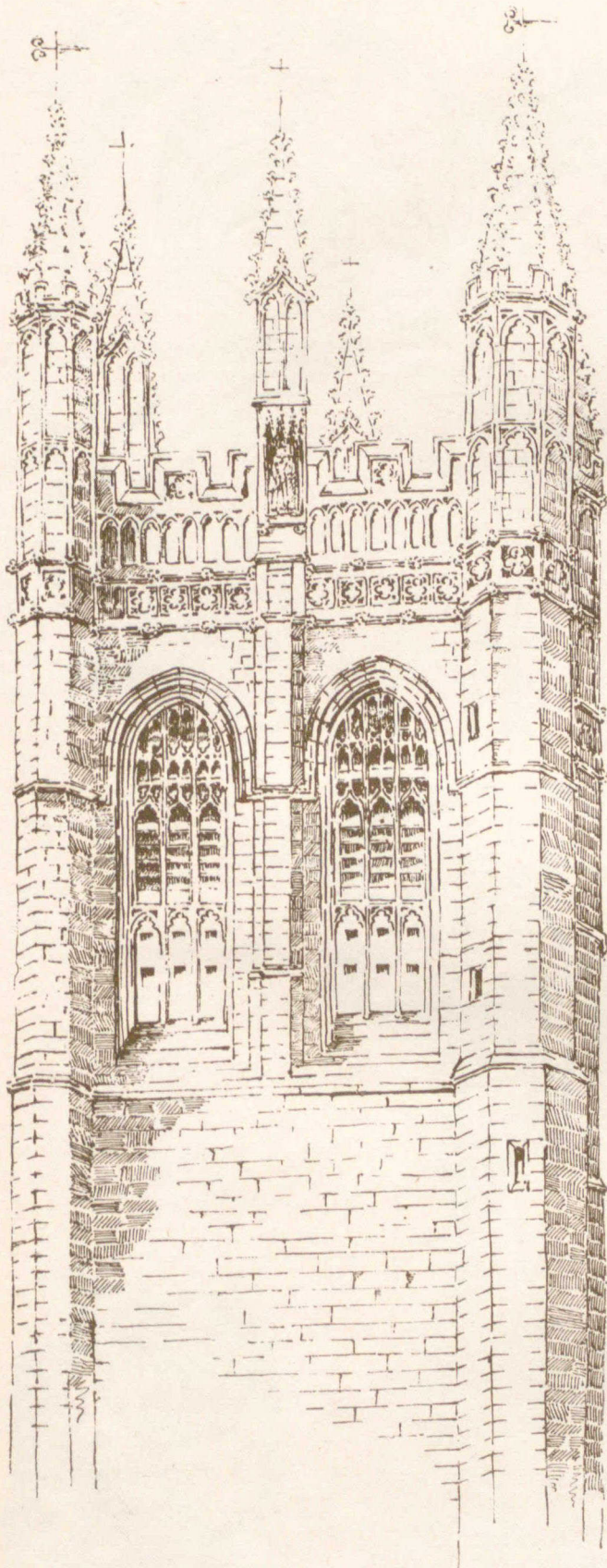
the Western Provinces. Any architect in the Maritime or Western Provinces to be made a member direct to the Canadian Institute instead of through the Provincial body until having a body of their own.

The Council of the Canadian Institute to consist of members of the four provinces elected by their several bodies. Each Province to select two members for the first 50 members on their roll book, three members if more than 50, and four if over one hundred. The province of Quebec to be represented by not more than two out of three or four members out of one nationality. In case where there is no provincial body, members of that province will be able to vote through the Dominion body.

The duties of the Dominion Association will be: 1, To amend the charter, which is to include a tariff of professional charges, which is to be passed in the Dominion Parliament so as to be legally the same throughout the Dominion, a copy of the tariff to be sent to every member; 2, To set examination papers which are to be sent to the provincial bodies on the same date, and where there are sufficient numbers of candidates to be worth while having an examination. The said examination papers to be returned after the examination, sealed, to the Canadian Institute, who will examine same and report at their meeting; 3, To set rules for the guidance of members in competitions; 4, To hold competitions for members and students at which prizes and travelling studentship will be awarded annually; 5th, To decide any arguments brought up by the provincial body; 6th, The Council to meet semi-annually in Toronto and Montreal. The first meeting to be in Toronto.

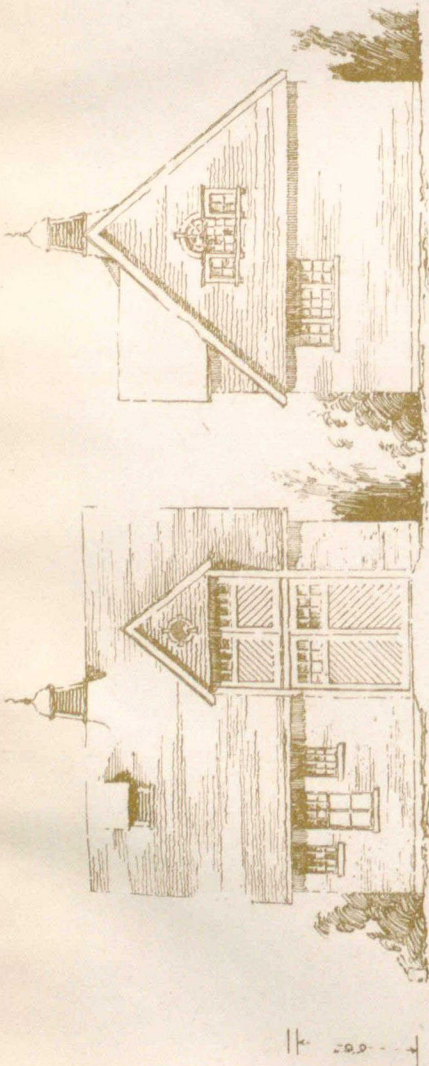
largely how much of a plant will be required to heat it comfortably. If built in a loose manner, so that, as the saying is, "you can through a cat through the crevices," no heating engineer, however expert a calculator he may be, could tell to a certainty, how much heat would be required; for oftentimes a building of this construction will require many times more heat than one well built.

People often remark that were they able they would build a brick house, believing that such a house would be much warmer than a frame one. But on the contrary, experiment has shown that a frame building lathed and plastered inside, and covered outside with paper felt, sheathed and clapboarded, will lose seventy-five per cent. less heat than a brick one of the same thickness of wall. There is a loss of about 25 per cent. more heat without the paper felt than with. There is another thing that people do not often think of in the construction of buildings and that is the amount of glass that is used in the building of the structure. More window surface than just enough to properly light a room is a constant expense in cold weather and the expense is no inconsiderable amount when the time extends over a period of years. The comparative loss of heat between a square foot of glass and a square foot of 12 inch brick wall is as 1 to 6, that is a square foot of glass will lose as much heat as 6 square feet of 12 inch brick wall. Not many people consider the advantages to be obtained by the use of what is termed the double sash. Careful experiments show that when fitted with this kind of sash 75 per cent. less heat is lost than with the single window.



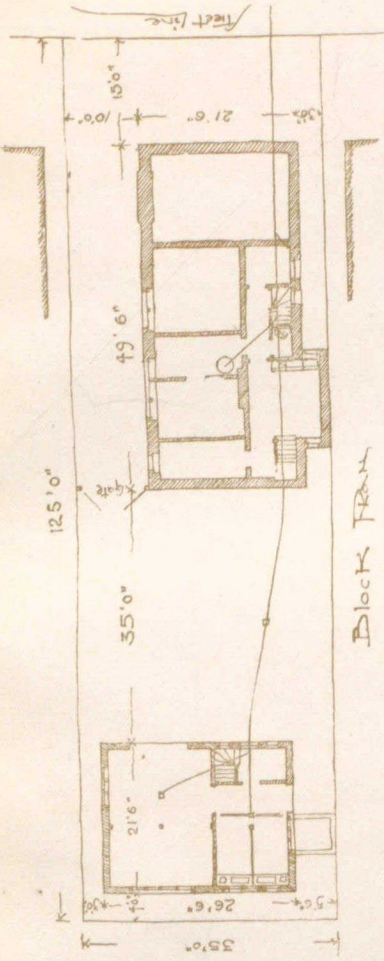
Magdalen Tower
from the Cloister's
Oxford - Eng.

Sept 92 *Easton*

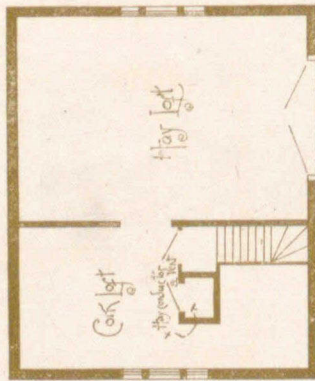


Front Elevation

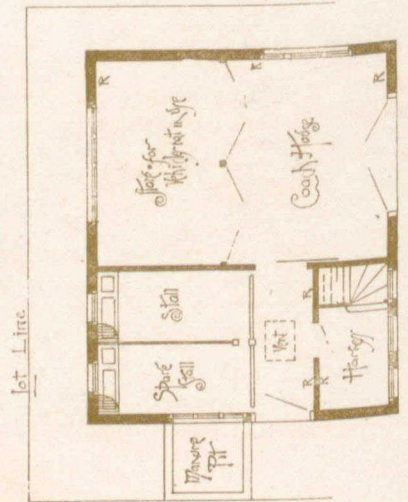
Side Elevation



Block Plan



Plan of 1st Floor



Ground Floor Plan

Canadian Architect & Builder

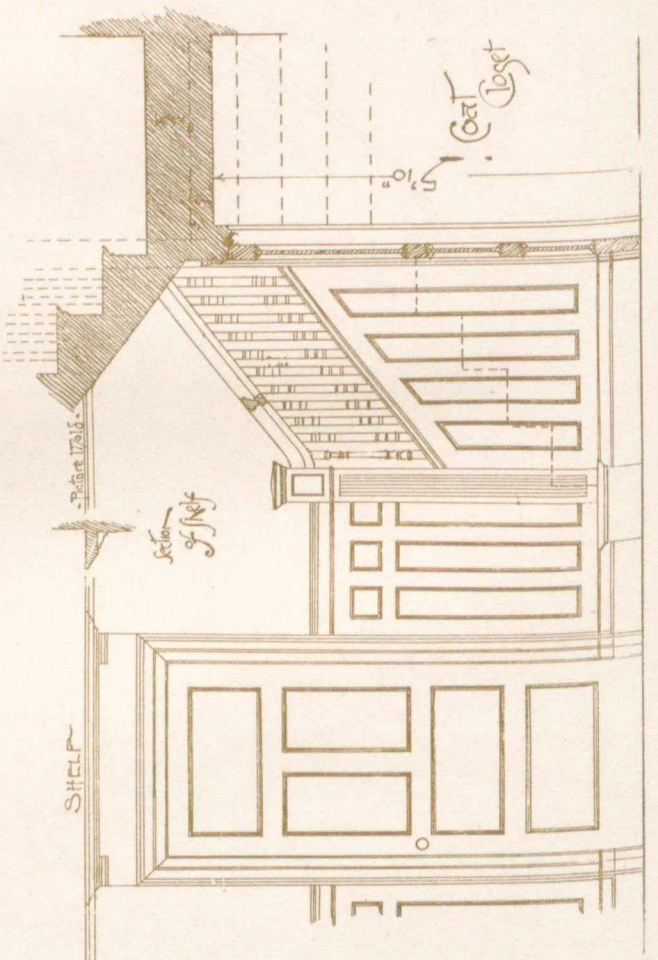
Competition for a Town House
Design by "Igoravny"

- House -

The basement wall up to ground line to be carried up in rubble masonry; and walls from ground to first floor joists of pressed brick laid English bond in dark brown mortar. Gables to be of frame plastered in cement mortar on outside, with strips nailed on. Roof to be covered with slate. The lumber marks out to be selected pine except stair case, front doors, and sash in Hall on ground and first floor, and Dining Room which is to be of oak. Parlor will be provided with panelled oak doors, which will be left open during the day, and closed during the night.

- Stable -

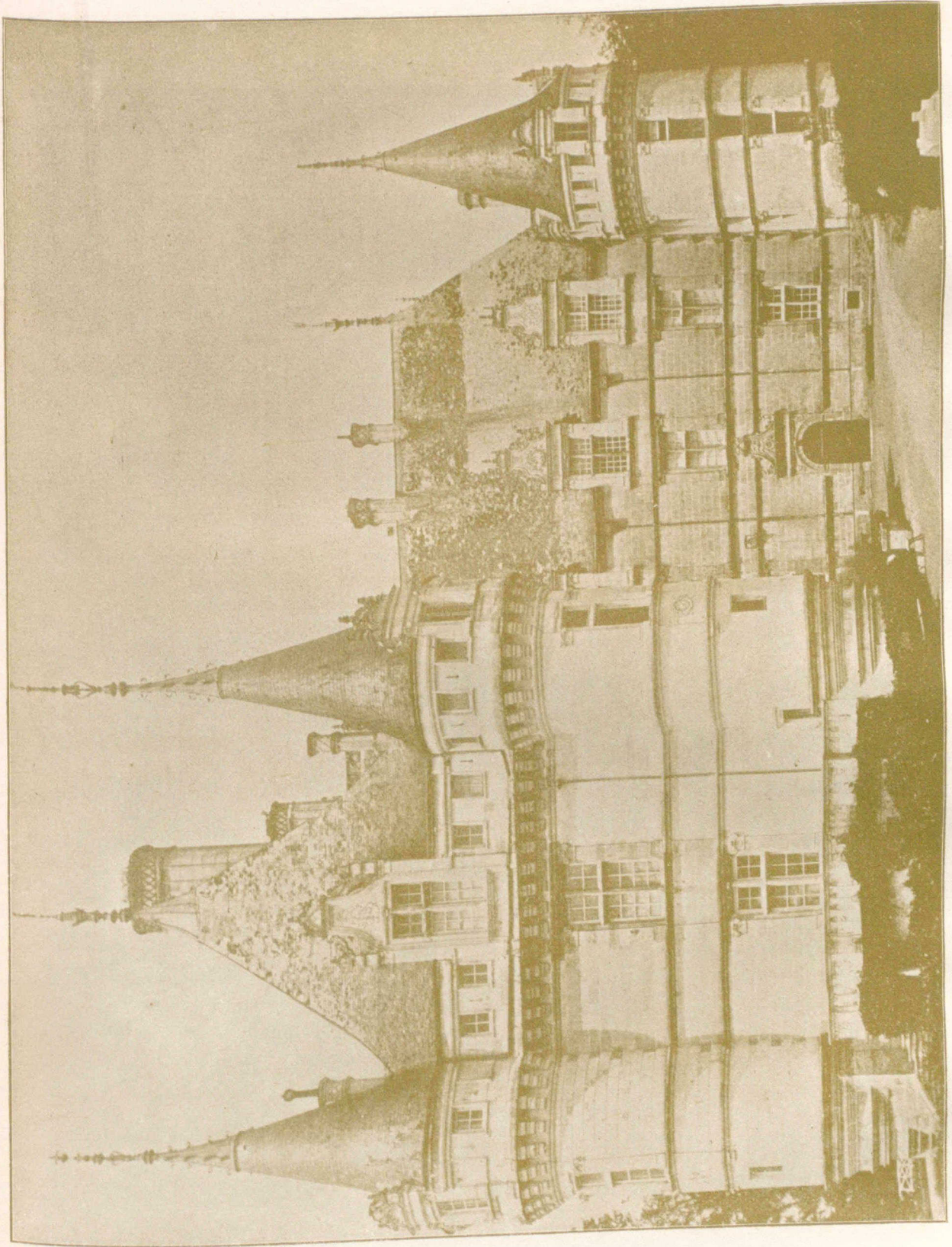
Stable to be built of frame encased in brick and resting on stone foundation, and covered with slate. Interior to have asphalt pavement with gutter to stall, and finished in pine.



CEILING LINE
Plaster cornice

SHELF

Coat Closet



CHATEAU D'AZAY-LE-RIDEAU, FRANCE.





CERTOSA DI PAVIA, FINESTA SULLA, FACCIATA DELLA CHIESA, ITALY.



TOWERS AND STEEPLÉS — SIR CHRISTOPHER WREN, ARCHITECT.

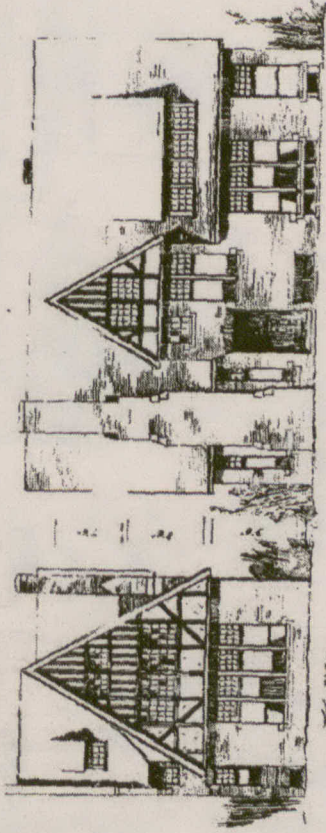
Reproduced from Original Drawings by MR. A. T. TAYLOR, F.R.I.B.A., Montreal

Canadian Architect a Designer

Construction for a Town House

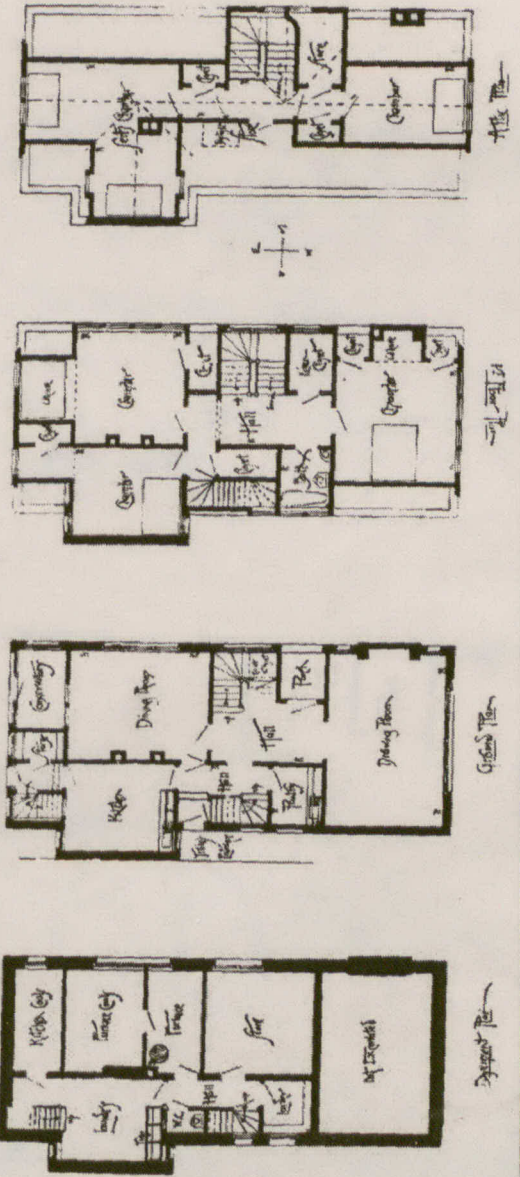
Plans submitted by "Leporeau"

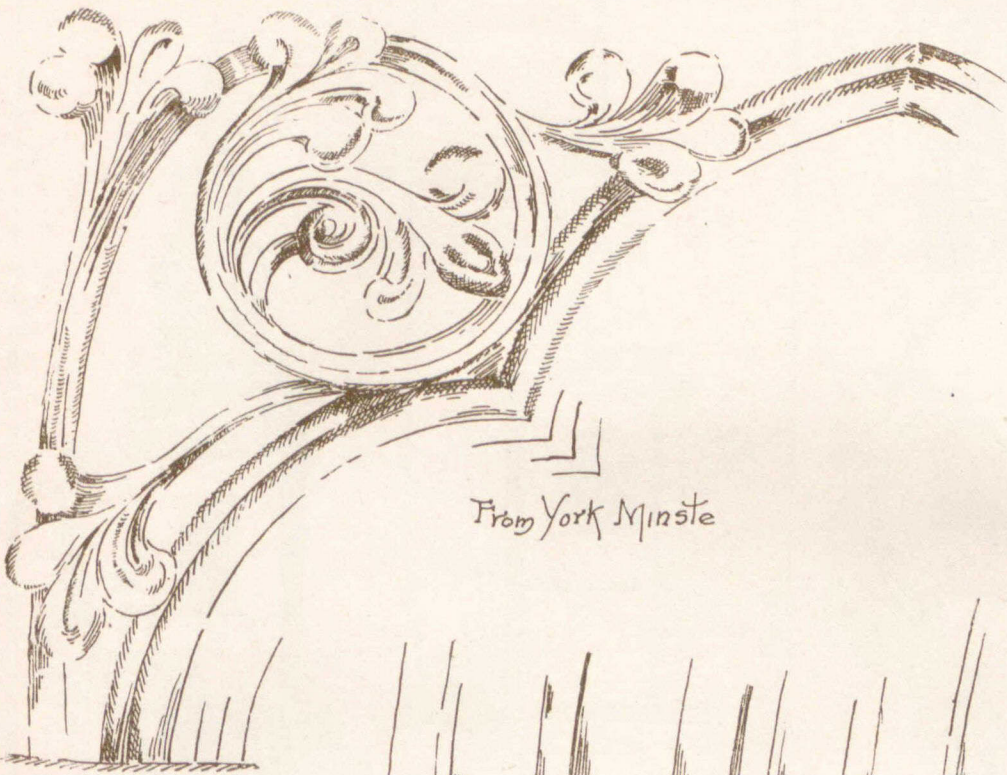
Not for Price and Estimating



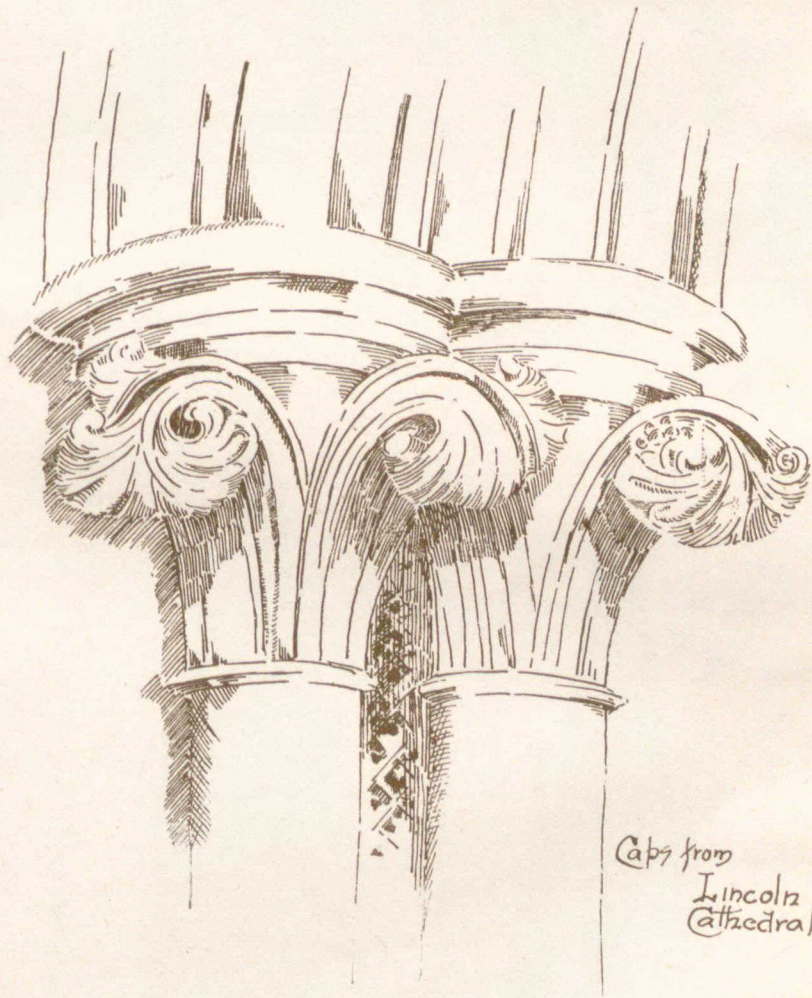
Side Elevation

Front Elevation

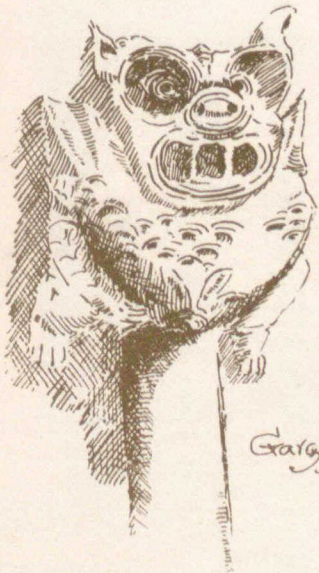




From York Minster



Caps from
Lincoln
Cathedral



Gargoyle
Lincoln

Bite from my sketch book.
Eudene & Mid -
Aug 93

NOTES FROM ST. JOHNS, N. F.

AS everyone knows, the city of St. John's has unfortunately suffered from two large conflagrations; that of 1846, however, was not so disastrous as the recent one, which broke out after six weeks drought when everything was dry as tinder; owing to this and the high winds then raging, it soon got beyond control, and before night the eastern and central portions of the city was in flames. It must have been a magnificent sight, harmonizing well with the rugged grandeur of its surroundings, and enough even to satisfy the ultra-æsthetic cravings of a hero.

The loss was very great; all the principal public buildings were destroyed, as also were the leading wholesale and retail houses and the better class of residences. Except on the main thoroughfare, Water street, where it has been a necessity since the fire of 1846 to build in some incombustible material, there were very few brick or stone buildings. This fact explains to a certain extent the fire getting so great a hold on the city.

From an architectural point of view the most unfortunate occurrence was the burning of the Church of England Cathedral. This, said to be the finest specimen of Gothic on this side the Atlantic, was one of the masterpieces of the late Sir Gilbert Scott. It was designed in the style of the Early English period of Gothic, and even in its ruined condition, one can see how successfully the designer mastered his problem. The effect is obtained more by perfect proportions and careful massing of the parts than any elaborateness in detail—resulting in a noble piece of architecture.

The nave was started as far back as 184—, but the chancel and transepts were only completed a few years before the fire. Even then the building was not finished, as it still lacked the upper portion of the large central tower. Some are sanguine that it will yet be finished, but it is to be feared that many years must pass before this consummation. Only the outside walls of the nave are left standing, the whole of the stone arcading being a mass of ruins. The chancel and transepts, although badly damaged, did not suffer so much as the nave, and these portions of the cathedral are being restored to be used by the congregation till funds permit of the whole building being finished.

It is both surprising and refreshing to find such an architectural monument in this country of fog and ice, which one usually thinks of only in connection with cod fish and seals, and which during part of the year is surrounded by a small army of icebergs, looking like so many ghosts as they silently glide by. The unexpectedness of such a thing no doubt lends an additional charm, and the building, set off by a background of rugged picturesqueness, is a pleasing sight to the stranger.

For some time after the fire the burnt-out portions of the city presented a novel and curious spectacle—streets and streets of ruined houses, and in the majority of cases only heaps of rubbish to indicate what had once been. Here and there where had stood a number of frame buildings, one would come across a perfect forest of chimneys, standing stark and bare, some looking like grim pillars set up to commemorate the fiery scourge, and others, where two breasts had been brought into one stack, like great Gothic arches of a ruined cathedral.

Some very quaint bits were to be found; indeed it needed very little sometimes when looking at a building with the electric light streaming through window openings and fissures, to imagine oneself back in the Old Country viewing some old castle or abbey by moonlight. The stunted and blackened piles of the wharves show to what an extent the fire went; not only this, but the sidewalks were completely destroyed, as were also the fish flakes on the eastern side of the harbor where the cod fish used to be dried.

The burning of the cathedral was not only the unfortunate happening of the fire, but it was the most unexpected, for everyone considered it fireproof; this belief was really the cause of its destruction, as the interior was filled with furniture and goods by those whose homes were burning, and although the cathedral stands in an isolated position, the heat of the fire ultimately cracked the lead glazing, the sparks flying through the chaotic mass of household belongings stored therein, and before anything could be done the entire building was filled with furious flames, bursting out through the roof and licking the stone walls as if greedy that nothing should be left. This instance gives some idea of the fierceness of the fire and its unrelenting hold.

The city is built around the harbor—one of the finest in the world—and rises picturesquely from the water's edge. When entering the "Narrows" one sees row upon row of houses, each one seeming to spring from that below. The view culminates in the two cathedrals, which stand like sentinels over the city, forming a fitting apex to the grouped up medley of walls and roofs. The extreme hilliness of the place renders building in some parts somewhat more difficult than usual, nor is this the only obstacle, for the city is built on solid rock, which necessitates a great deal of blasting. On the harbor side of Water street, however, there is much made up ground, and here piling must be resorted to before anything can be done. In one respect Water street when rebuilt will be much improved. Before the fire all or nearly all the buildings were finished with pitched roofs in such a way that the unfortunate pedestrian in winter often had to run for his life. This can still be witnessed in the old portion of the city. In the new buildings the roofs are

all flat, as they should be when brought out to the street line in a climate like this.

Of all the new buildings put up on Water street at present, not more than a dozen can lay claim to any architectural merit, for the jerry builder has been at work, and some awful looking piles of brick and mortar meet the eye. Where he has attempted anything it is only a futile effort to copy some architect's design, with the usual result of poor detail, absurd proportions, and general incongruity.

There will be one part of St. John's with a group of buildings worthy of any city, for within a stone's throw of the two cathedrals will be the Church of England Synod halls and schools with residences, the Presbyterian church, the Methodist college, the Gower Street Methodist church, the Congregational church, Presentation Convent, the Christian Brothers' College, the two Bishops' residences, and the Anglican clergy house. The locality, which might appropriately be called "The Architectural Square," is well-chosen, for the gently rising ground gives a pleasing relief and masses the buildings well one with another. The government and other public buildings in different parts of the city will certainly add to its architectural attractions, but beyond these and the buildings already mentioned there will not be anything that should be called architecture. There are a great many frame buildings springing up like mushrooms all over the place, having no particular merit but that of fulfilling their primary purpose of affording shelter from the elements.

St. John's has been a busy place during the past summer, and much has been done to obliterate traces of the fire. Even now, though, these are only too apparent. There will be less building next season if one can judge from present indications, and after that, affairs will be pretty much in their normal condition.

C. H. A. B.

THE CENTRAL ONTARIO SCHOOL OF ART AND INDUSTRIAL DESIGN.

Architects should take an interest in the progress of this school and it would be well for architectural students to attend some of its classes. The school is now in its fourth session and is steadily growing. The course is based upon study from the antique and from life as the means of highest training for eye and hand in preparation for design of all kinds. These classes, which are under the care of the best instructor procurable in Toronto, form the whole course for some students who are aiming merely at skill in drawing and painting. But the ultimate aim of the school is to form a centre of education in the arts of industrial design as well as in the graphic arts. On the board of directors are, besides artists and architects, several of the leading manufactures and producers of objects requiring design. Work in the precious metals, lithography and engraving, furniture, carpet weaving, stained glass and decoration are all represented on the board. An analysis of the students' register shows among the students lithographers, glass stainers, decorators, designers, carvers in wood and stone, cabinet makers, jewellers, painters and engravers. Efforts are continually being made to extend the usefulness of the school in the direction of teaching industrial design. The larger the school becomes the greater will be its power of enlarging this department. For this reason it is to be hoped that it will continue to increase and be such a centre of teaching in art as will realize its name to the full. It is better to have one good school than many indifferently ones. Centralization of schools means concentration of the students' fees and power therefore to employ the best teachers. One teacher can handle many students, and there is a distinct gain to the art student in being one of a large number rather than one of a few. In no other class of work is the benefit of association with others so great. The students in the large ateliers of Paris derive as much benefit from their manner of working together as they do from the occasional visits of the great man under whose name they are associated. It would be a good thing for Toronto and for the country if this school can fostered so as to become a great central school of art with funds large enough to attract to its teaching staff men of the best class.

It is worth pointing out to architects that subscribers of \$10 per annum are entitled to send one student to the evening classes. It may sometimes be worth while to invest this much in training a promising student who cannot himself afford to pay for instruction.

PAINTING INTERIOR WOODWORK.

Some people seem to think that as soon as wood is used inside a house, there arises a deadly sin against the proprieties if it be painted, and hence all interior woodwork should be finished in its natural colour and grain. How can they reconcile the uncompromising hardness and coldness with which an unstained or unpainted piece of oak or white pine will obtrude itself into any scheme of decoration consisting of soft warm colours. It were far better to stain the wood in harmony with the general decorative effect—not to imitate some other wood, be it understood, but to get the desirable colour, for harmony with its surroundings. But really there can be no objection to good honest paint in soft, flat colour, or in brilliant and polished china gloss if it be desired. If it be honest to paint the outside of our dwellings in colours to please us, what harm can there be in choosing such colors as may be agreeable for our inside finish, and boldly painting the woodwork to suit our decorative scheme? This idea is gaining ground, and the area of varnish finish is almost ended; or at least the time when varnish alone was considered to convey a title to respectability, and when painted interior woodwork was supposed to be sure indication of poverty and social inferiority, for now even the richest and most favoured socially dare to paint their woodwork, if it suits them best to do so.—*Furniture and Decoration.*

CANADIAN BUILDING STONES AT THE WORLD'S FAIR.

A PROMINENT and interesting feature of the admirable collection of Canadian minerals shown at the World's Fair, was the variety of specimens of building stones from the several provinces of the Dominion. These specimens were collected by the Dominion Government Survey at Ottawa, and by the Ontario Government Mining Bureau, Toronto, and from these sources we have obtained the particulars hereinafter printed in regard to them:

In material of this description, Ontario is particularly rich. Many excellent varieties of limestone, freestone and sandstone occur. The first named yields an excellent quality of quicklime. The Guelph dolomites are well adapted for building purposes. The hard, close grained, Kingston limestone is quarried from beds varying in thickness from six inches to a foot, and although of a dark grey color when fresh, it bleaches to an agreeable whitish hue in the course of a few years.

At many places the crystalline limestone is fine enough to work as marble. At Dorion in Thunder Bay District, it is of a flesh color, variegated with veins. Elsewhere in the same district is found an argillaceous limestone of a milk white, branded with pale grey, and of a rich brown and pale green (mottled), known as Penessie Marble. Another variety called "Serpentine Marble," possesses good colors, but does not take a high polish. Renfrew County yields the largest quantity of marble for commercial purposes.

Good marble, black, white and pink is found at Madoc in the County of Hastings, and Barrie township in Frontenac County.

At Cornwall, on the River St. Lawrence, a fairly good quality of black "marble" is being worked.

Extensive deposits of Medina sandstone are worked at the Forks of the River Credit in the County of Peel.

Several points along the north shore of Lake Superior yield sandstone of the very best quality.

Good granite, rich in color and free from flaws, is found in many places; West of Fort William it occurs of a brownish grey in some localities, elsewhere it inclines to a pale purple. Near the City of Kingston the color strongly resembles that of Peterhead granite, but is a brighter red.

Black Syenites are found along the north shore of Lake Superior.

In addition to Ontario's exhibit, there were shown at Chicago some fine samples of sandstone of a fine grained nature by New Brunswick, Nova Scotia, North West Territories and British Columbia, together with a large collection of marbles and granites from various parts of the Dominion shown by the Geological Survey.

The following particulars of the character and variety of Canadian exhibits of building stones, the purposes for which they seem to be adapted, and the sources of supply, are expected to prove of much interest to architects, engineers, builders and others interested in knowing what native material in this line is obtainable.

LIMESTONES.

John Hyslop, Goderich, Ont.—Six-inch cube of limestone, dressed—About thirty feet of this rock, in beds from three to six feet thick, is exposed in a cliff at Mr. Hyslop's quarry, and large blocks can be easily obtained. The stone makes good lime, but is chiefly used for building purposes. The piers of the Maitland bridge at Goderich, and the Goderich Jail are built of it.

Geological Survey—Six-inch cube limestone, dressed—From the quarry of Mr. White, Pembroke, Ont. The beds are from three to twelve inches thick. The stone is largely employed in the town of Pembroke, and has been used to some extent for bridges, &c. An analysis of a specimen, similar to that exhibited, gave,—carbonate of lime, 83.96; carbonate of magnesia 9.29; carbonate of iron, 0.69; insoluble, 6.06.

Geological Survey.—Six-inch cube of limestone, dressed—From the quarry of Mr. John Mahoney, Que.

Geological Survey.—Six-inch cube of limestone, dressed—From the quarry of Mr. C. B. Wright. These quarries have been extensively worked for a long time, the beds, which are almost horizontal, having been removed over a large area for a depth of fifteen feet. Blocks ten by five by three feet can be taken out, and are sold at from 25 to 35 cents per cubic foot. Most of this stone is used for building purposes in the city of Ottawa. The upper portion of some of the beds presents a banded structure, the lower portion being finely granular. The stone is easily dressed and susceptible of high polish and sharp tooling.

Geological Survey.—Six-inch cubes of grey and white limestone, dressed—From an extensive band of crystalline limestone at Portage du Fort, Lichfield, Que. The beds, which vary in thickness, are sometimes grey in color, alternating with others which are almost pure white. The stone takes a good polish and weathers evenly.

Dudswell Marble and Lime Co., Marbleton, Que.—Six-inch cube of limestone, dressed.

Geological Survey.—A six-inch cube of limestone dressed—Montreal, Q.

Geological Survey.—A six-inch cube of limestone, dressed—Point aux Trembles, Q.

Worthington & Co., Montreal, Q.—Six-inch cube of limestone, dressed—At the quarry of Messrs. Worthington & Co., Terrebonne, Q., the beds of limestone worked are from eight inches to four or five feet thick, and are cut by joints from ten to forty feet apart, which greatly facilitates the quarrying. The stone is of excellent quality, and blocks of any required size can easily be obtained. It is carried to Montreal, a distance of sixteen miles, in scows towed by steam tugs.

Charles Dussault, La Chevrotiere, Q.—Six-inch cube of limestone, dressed—The Trenton formation, which is the next in succession above the Birdseye and Black River, yields excellent building stone, at Montreal, at Chevrotiere nearly forty miles above Quebec, and at many intermediate places. The beds are from three to eighteen inches thick at the bottom, passing toward the top into a black nodular bituminous limestone; which is interbituminous shale.

Public Works Department, Quebec, Q.—Six-inch cube of limestone, dressed, from Deschambault quarry, Que.—In this quarry the beds vary from nine inches to three feet in thickness, and the finest stone suitable for all the better class cut stone work can be obtained. It has been used extensively in the cities of Quebec and Montreal for the last thirty years.

Geological Survey.—Six-inch cube of dolomite, dressed—This greyish-brown dolomite is from the quarries of the Canadian Pacific Railway, and also largely for general building purposes. The stone when first quarried is very soft, but hardens on exposure. The stone when first quarried is as bridges and culverts along the line of the Brockville and Ottawa Railway, are built of it. Blocks 3 x 3 x 15 feet can be obtained.

The following exhibits were included in the Ontario Government collection:

P. A. Johnston, St. Davids, Ont.—Six-inch cube, dressed, from Queens-

Union Co-operative Stone Co., Thorold, Ont.—Six-inch cube, dressed from Thorold quarry.

Robt. McInnes, Owen Sound, Ont.—Six-inch cube, dressed.

T. J. Kilpatrick, Kingston, Ont.—Six-inch cube, dressed, from Wolfe Island Quarry.

John Battle, Thorold, Ont.—Small rough block,

D. Kennedy, Guelph, Ont.—12 inch dolomite cube, dressed; 6 x 9 block, dressed.

P. A. Johnston, Queenston.—Paving block.

Geo. Farquhar, Toronto Stone Co., Toronto, Ont.—twelve inch cube, dressed.

Dressed Magnesian blocks, from Elora, Ont.

Robt. L. Gibson, Beamsville, Ont.—Dressed block, 2 x 1 x 1 foot.

City of Ottawa.—Dressed and polished block, 20 x 12 x 7 inches.

Town of Thorold.—Cubic foot, dressed and polished.

Town of Fergus.—Magesian block, black, dressed.

Mr. White, Anderton, Essex Co.—9 inch cube.

Pelee Island, Ont.—Six-inch dressed cube.

SANDSTONE AND FREESTONE.

The following exhibits were included in the collection of the Geological Survey, Ottawa:—

Vancouver Coal Mining and Land Company, (Limited), S. Robbins, Supt., Nanaimo B. C.—Six-inch cube of sandstone, dressed.—From quarries on Newcastle Island, B. C. Among the coal-bearing rocks on Newcastle Island there are beds of brownish-grey sandstone, which afford excellent material for building and flagging stones. The upper beds are of the best quality, and it was from one of these that Mr. E. E. Emery, of San Francisco, obtained the stone for the construction of portions of the mint in that city. Blocks for pillars were taken out, which after dressing were twenty-seven feet six inches in length, and three feet ten inches in diameter. Flagstones, with even surfaces, as much as ten feet square, have also been obtained, and are easily quarried, and it is not unlikely that some of the measures will afford good grind-stones.

The Chicago and Verte Island Stone Co. of Chicago, U. S. A.—Six-inch cube of sandstone, dressed.—From quarries on Verte Island, Nipigon Bay, Lake Superior, Ont. This stone is known to have a thickness of thirty feet. The upper bed alone is twenty feet thick. Mr. Geo. P. Merrill, of the United States Geological Survey, recently made a microscopic examination of it, and found it to be composed of quartz and feldspar, with a very little mica. The crushing strength is reported to be 11,500 lbs. to the square inch. Thus far it has been used principally in the United States.

Credit Forks Stone Co., Credit Forks, Ont.—Six-inch cube of sandstone, dressed.—From quarries at Caledon, Ont. The brownish-red variety of the stone occurs in beds six feet thick, and is underlain by a greyish or whitish sandstone. The beds have been stripped over an area of four acres and the stone removed to a depth of fifteen feet.

Six-inch cube of sandstone, dressed.—From Skead's quarry, about four miles from Ottawa. The stone is very fine grained, of a brownish grey colour, and would make handsome buildings. It appears, however, to be difficult to quarry, the blocks obtained being of very irregular form, owing to somewhat conchoidal fracture. A dressed specimen, about seven feet long, may be seen in the coping of the wall round the grounds of the Parliament Buildings at Ottawa, but it can only be distinguished from the adjoining blocks of Ohio stone by its finer texture.

Six-inch cube of sandstone, dressed.—From Mr. John Rankin's quarry, near Pembroke, Ont. The stone occurs in beds from six to twenty inches thick. It is easily worked, and although soft, is tough and retains sharp angles. The Pembroke court house is built of it, and it is sometimes employed for making monuments.

Caledonia Freestone Company.—Six-inch cube of sandstone, dressed.—From quarries at Rockland, N. B.

R. B. Heustis.—Six-inch cube of sandstone, dressed.—From quarry at Wallace, Cumberland County, N. S.—The specimen contributed by Mr. Heustis is from a quarry at Wallace situated about 150 feet above high water mark, and only 600 yards from a good harbor. The beds are horizontal, and for the first fifteen feet from the surface vary in thickness from four inches thick to two feet; below this there is a massive bed, which according to Mr. Heustis, is from three to eight feet thick. It is divided into rectangular masses by joints from six to fourteen feet apart, which greatly facilitate the quarrying. The price of the stone delivered on board vessels in the harbor is from forty to sixty cents per cubic foot. Blocks containing 160 cubic feet have been shipped. The quarry is held by a stock joint company.

Nova Scotia Advisory Board.—Nine-inch cube of brown sandstone, dressed; nine-inch cube of chocolate sandstone, dressed.—From McKenzie's quarry, Pictou, N. S. In addition to the above, the Nova Scotia Advisory Board exhibits eleven dressed specimens of sandstone and two of limestone, from various localities in Nova Scotia.

The following exhibits were included in the Ontario Government collection:—

Carroll & Vick, Toronto.—Six-inch dressed cubes brown and grey freestone; block of Credit Valley brown freestone, (medina formation) 2' 3" x 2' 3" x 2' 10". The top is artistically carved in Romanesque style, having in the center of carving a shield bearing the Ontario coat of arms. These specimens were taken from Credit Forks Quarries, 40 miles north west of Toronto, on C. P. R. railway.

Dressed block freestone (banded) from near Perth, Ont., also twelve-inch dressed cube (double banded), twelve-inch dressed cube (white,) window sill (white), from same locality.

Chicago and Verte Island Stone Co., Port Arthur, Ont.—Dressed six-inch sandstone cube; dressed six-inch cube (red).

P. M. McDonald, Perth Ont.—Half dressed six-inch cube.

Indian Mission Quarry, McKay's mountain, Thunder Bay.—Specimen argillaceous sandstone.

C. F. Gildersleeve, Kingston.—Small rough block red sandstone, from quarry near Kingston; sandstone modules, sandstone (red and buff banded) and sandstone (deep red) from Cataragui Quarries.

McKellar Bros., Fort William, Ont.—Small rough block white sandstone; half dressed six-inch cube from quarry at Rossport, Nipigon Bay.

J. C. Goddard, Toronto, twelve-inch dressed freestone cube, from quarry Orangeville, Ont.

GRANITE.

The following exhibits were included in the Ontario Government collection:—

Rat Portage collection (no locality given)—large rough hewn blocks, colors red and grey, and from Ignace station on the C. P. Railway, 150 miles west of Fort William, a block (banded gneissoid) 5 1/2 x 5 1/2 inches, dressed and polished, also block 9 1/2 x 10 1/2 x 8 inches, dressed and polished. The material is said to exist in immense quantities in the locality from which these specimens were taken.

From Pearl River Station, Township of McTavish, west of Black Bay, Lake Superior.—A six-inch cube dressed and polished and a block 5 x 5 1/2 x 8 inches, dressed and polished. This stone is wine color, of fine grain, and

seems well adapted for monumental work, pillars, etc. It exists in area of many square miles.

From Kingston, Ont.—Block (red) $6 \times 10 \times 6\frac{1}{2}$ inches, dressed and polished; round column (red) 7 inches high and 5 inches in diameter; seven-inch cube (red) dressed and polished; tapering pillar (red) 22 inches high and 6 inches square at base, polished.

W. C. Caldwell, M. P. P., Lanark.—Two large blocks, dressed; polished on one side. The location in Renfrew County, from which these specimens were taken is an extensive one. The quality and color of the stone are excellent. Mr. Caldwell also showed small polished specimens from various localities in the Counties of Frontenac and Lanark; small specimens, illustrative of various localities in Ontario, from Lake Huron to the Ottawa Valley, and a large block (red) dressed and polished on one side, from the north shore of Lake Huron.

The following exhibits were included in the collection of the Dominion Geological Survey:—

R. Forsyth, Montreal—Cube of granite.—From Beebe Plain, Stanstead, Q.—Granite occurs in abundance in Barnston, Stanstead, and elsewhere in the "Eastern Townships" of the Province of Quebec. In the last-named township it occupies an area of six square miles. The granite is composed of white quartz, white felspar, and black mica, and takes a fine polish. It is easily worked, and in many localities can be obtained in blocks of any required size. The new Eastern Townships Bank at Sherbrooke is built of it, and it was used many years ago for bridges on the St. Lawrence and Atlantic Railway. Mr. Forsyth also exhibited a 6 inch cube dressed, and a small column, dressed, from quarries at Birch Cove, Halifax, Nova Scotia.

Milne, Coutts & Co., St. George, N. B.—Red granite, polished.

Hon. John Young, Montreal.—Specimens of salmon-red syenite, from the east side of the harbor of Kingston. The rock is exposed for a length of more than a quarter of a mile, with a breadth of upwards of 100 yards, and has a face of ninety feet, overlooking the harbor. It dresses easily and takes a fine polish.

Bay of Fundy Red Granite Co.—A monument of red syenite polished, three feet two inches square at the base, and fifteen feet high. Value \$1000; four head-stones polished; two urns; from quarries at St. George, Charlotte County, C. B.

MARBLE.

The following exhibits, formed part of the Ontario Government collection. In every case except that of Renfrew marbles, the specimens were obtained from surface deposits. At Madoc and Hungerford a little has been done by way of development, but not enough to test fully the qualities of the deposits:—

Jas. E. Harrison, Bridgewater, Ont.—White dressed and polished specimens and a grey and white banded six-inch cube, dressed; white column and base; specimens of grey marble.

J. Smith & Co., Sydenham, Ont.—Small blocks of pale green clouded and pinkish white, half dressed and polished on one side; and a grey banded block $6\frac{1}{2}$ inches, polished.

C. P. Brown, Sault Ste Marie.—Small rough specimen of green clouded, from Echo Lake, Thunder Bay.

From 20 miles west of Wolfe River Station on the Canadian Pacific Railway, Thunder Bay District, a small block, black and grey, $5\frac{1}{2} \times 5\frac{1}{2} \times 3$ inches, polished.—It occurs plentifully as a horizontal bed about twenty feet thick, interstratified with indurated red marble, and with marble of other colors. This is a beautifully variegated marble that might be effectively utilized for mantels and other indoor work. From the same locality was shown a small slab $6 \times 13 \times 1$ inch, light purple, veined with greenish grey and brown.

From west of Nipigon Station, a slab $21 \times 9\frac{1}{2}$ inches, polished, of so-called Nipigon marble.—Plentiful on line of Canadian Pacific Railway, close to Nipigon Bay. Approaching argillite in composition; does not take a high polish.

Collections of "Marbles" from Nipigon series, Wolfe Lake, Thunder Bay District.—This handsome collection of polished cubes, varying in size from two to six inches, represents material said to exist in considerable quantities. Though not susceptible to high polish, they are rich in color, the tints varying from a mellow grey, through deeper shades to light pinks, purples, greens, and browns. Some are banded, some clouded, and others veined. For mantels, panels, mosaics, and interior work of various kinds, they produce a good effect. In quality they are too argillaceous to be classed as true marbles.

The following exhibits from Madoc, Ont., were made by Mr. P. W. Ellis, Toronto, for the Hungerford Marble Co.—Small block, black, $6 \times 6 \times 3\frac{1}{2}$ inches; paper weight, black, $3\frac{1}{2} \times 4 \times 1$ inch; paper weight, black, with white streaks, $3\frac{1}{2} \times 3 \times 1$ inch; turned paper weight, pink; turned paper weight, grey, dark mottled; turned pillar cap, grey, dark veined, 13 inches high; slab, white, for table top 20×24 inches; white, turned pillar, 14 inches high; white card receiver; pillar, black, 6 feet 6 inches high; white block, $8 \times 9 \times 9\frac{1}{2}$ inches, dressed and polished; white, 10 inch cube dressed and polished.

Crescent Gold Mining Co., Malone, Ont.—White slab, 7×30 inches, reported to possess excellent working qualities.

The following specimens were obtained from the Sanford property, township of Barrie, County of Frontenac:—

Pink of rich tint, small pillar 13 inches high; pink, block $6\frac{1}{2} \times 6 \times 5$; pink, slab 12×8 inches; white slab $13\frac{1}{2} \times 14\frac{1}{2}$ inches; white turned pillar 17 inches high and 5 inches in diameter; grey, with brown veins, pillar 14 inches high and 4 inches diameter; white slab $10\frac{1}{2} \times 15\frac{1}{2}$ inches; grey, light clouded, slab $10\frac{1}{2} \times 15\frac{1}{2}$ inches dressed and polished; pinkish white with dark grey veins, slab $10 \times 11\frac{1}{2}$ inches, dressed and polished; white, with brown veins, small pillar 14 inches high, $4\frac{3}{4}$ inches diameter, dressed and polished; white, with brown veins, $9 \times 11\frac{1}{2} \times 2$ inches, dressed and polished; white, 6 inch cube, dressed and polished; white, 6 inch cube, dressed and polished; grey, small block $6 \times 6 \times 5$ inches, dressed and polished; grey, small block $5 \times 5 \times 4$ inches, dressed and polished; greyish white, with dark grey veins, dressed and polished.

The following exhibits were included in the collection of the Dominion Government Survey:—

From Mount Mark, near Horne Lake, Vancouver Island.—Short column and pedestal of marble.—The crystalline limestones of Mount Mark occur in very thick beds, interstratified with diorite. They are capable of affording a great variety of marbles suitable for ornamental purposes, though not fine enough for statuary. White, dove-gray, and bluish tints are the most common; but some varieties contain reddish and greenish bands. Large blocks, entirely free from flaws, could be easily obtained.

From Arnprior, Ont.—Marble, striped, light and grey.

From Gloucester, Ont.—Brownish grey specimens.

Grenville, Que.—Yellowish-white.

Point Claire—Brownish black and greenish black specimens.—In the township of Grenville and its augmentation, a band of crystalline limestone, containing *Eosoon Canadense*, has an extensive run through the country, and affords in many cases a peculiar variety of marble, having a white ground marked with small green spots of serpentine, which occasionally

forms angular masses several inches in diameter. The serpentine usually runs in bands marking the stratification of the rock. These bands, as in the case of the Arnprior marble, are sometimes even, and at other times corrugated, giving diversities of pattern. Sometimes the serpentine, instead of green, is sulphur yellow, as in the specimen from Grenville. In many parts of the country, the Laurentian limestones are tolerably free from foreign minerals, and give white marbles. These, however, are usually too coarse-grained for statuary purposes, and sometimes they are barred with slightly different colours. Such is the case with the crystalline limestone occurring in the township of Elzevir. Many years ago, a mill for cutting and polishing marble was erected on the Calumet, but the demand for the marble was not sufficient to make the enterprise profitable.

L'Original, Ont.—Grey marble, with thickly disseminated white spots; Dark grey marble, with more thinly disseminated white spots.—The bed from which the specimen (a) is taken, varies in thickness from three to six inches; it is near the surface, and easily quarried, but has hitherto been but little used. The locality is a quarter of a mile from the south bank of the Ottawa, four miles west of L'Original village, and sixty-four above Montreal. The white spots are caused by small bivalve shells (*Atrypa plena*) filled with calc-spar. Of the darker variety (b) there are two beds, of six inches and one foot respectively near the surface, and overlying the previous bed (a). Blocks large enough for chimney-pieces and tables are readily obtained.

Jas. Worthington & Co.—Montreal, specimen of grey marble.

From Montreal, Que.—Specimens of grey marble from the Trenton and Chazy formations.

From St. Dominique, Que.—Specimens of dove grey and dove grey with white spots.

From St. Armand, Que.—Specimens of white, white clouded with pale green, and dove grey marked with white and black. The material, which takes a high polish, occurs in great abundance in the vicinity of Phillipsburg on Lake Champlain.—About a mile and a half south eastward from Phillipsburg there occurs a black marble, similar to this specimen. The beds dip to the eastward at an angle of about twelve degrees; a quarry was many years ago opened on one of them, which has a considerable thickness. The stone was exported to the United States, and much esteemed in New York, but the opening of quarries of black marble at Glen's Falls, where there is good water power, interfered with the demand, and caused the enterprise to be abandoned.

From Caughnawaga, Que.—Specimens of grey and grey with red spots.—Similar grey marbles with red spots (generally corals), occur in the same formation as the rock of Caughnawaga, behind the city of Montreal, and on Isle Bizard. In all of these localities the rock is filled with fossils, which are plainly seen on the polished surfaces.

From Dudswell, Que.—Specimens of cream white, striped with yellow; dark grey and yellowish, fawn yellow and white.—The specimens exhibited of cream white and yellow, and dark grey and yellow, are from beds that overlie one another. The yellow streaks in both of these marbles are composed of dolomite, while the light ground of the one, and the dark ground of the other, are of carbonate of lime. When the dark grey approaches black, which it sometimes does and the yellow streaks are narrow, the marble bears a strong resemblance to the Porter marble from Northern Italy, sometimes known as *black and gold*. On analysis, the resemblance between the two is further sustained by the fact, that in both cases the ground is a pure limestone, and the yellow veins are dolomite.

From Esquimaux Island, Mingan group.—Specimens of drab marble.—This drab coloured marble occurs in great quantity on Esquimaux Island, of the Mingan group, where the stone might be easily loaded on board of small vessels. It cuts with great facility, and takes a uniform polish.

From St. Lin, Que.—Polished slab of red marble.—At St. Lin about thirty miles from Montreal, there are massive beds of limestone, portions of which are of a red colour, and afford a good marble.

From St. Joseph, Beauce, Que.—Polished slab of red marble veined with white.—This handsome marble occurs near the River Guillaume, associated with red shales and sandstones, resembling those of Silery, near Quebec. The bed is from ten to forty feet thick, and in a distance of half a mile on its strike is exposed in four places. The marble takes a fair polish, and could be obtained in large blocks. The locality is forty-five miles south of Quebec.

From Hull, Que.—Polished slabs, spotted green and white.

From Arnprior, Ont.—Polished slab and ten inch cube of marble striped, light and dark grey.—Near the mouth of the Madawaska, in the township of McNab, a large band of crystalline limestone is exposed. The rock contains dark bands, which are sometimes narrow and sometimes wide, producing, where there are no corrugations in the layers, a regularly barred or striped pattern. The colours are various shades of light and dark grey intermingled with white. The dark colours are due to a greater or less amount of graphite, which is intimately mixed with the limestone. The texture of the stone is somewhat coarse, but it takes a good polish. Considerable quantities were employed in the decorative work of the Houses of Parliament at Ottawa.

From Horton, Ont.—Polished slab for monuments. Blocks from a few inches to several feet thick can be easily obtained.

From Texada Island, Strait of Georgia, B. C.—Polished slab of grey marble with black spots and veins; polished slab of greyish-white marble with brownish veins.—A quarry has been worked to some extent on the shore of Malaspina Strait near the north end of the island. Marbles like those exhibited form low cliffs along the shore for several miles.

NOTES.

In the N. B. Section were shown some handsome granite monuments, exhibited by Messrs. Epps, Dodds & Co., Milne Coutts & Co., St. George; Tate Meeting & Co., St. George, also exhibited polished granite.

One large block of sandstone, dressed, was shown by C. E. Fish, Newcastle, N. B.

In the Nova Scotia section was a collection of dressed cubes of sandstone and granite exhibited by the Government of Nova Scotia.

The North West Territories supplied some dressed cubes of sandstone, exhibited by Leonard Gaetz, Red Deer River, J. G. McCallum, Calgary, A. McKay, Indian Head.

In the Quebec Court were some dressed cubes of granite, gneiss and limestone from different places in the province exceptionally fine limestone from Bryson and Dudswell was also shown, the latter constituting a very handsome marble.

The New Rockland Slate Co., Rockland, Que., exhibited a large block of slate, together with manufactured articles, such as sinks, wash-troughs, blackboards, roofing slates, etc.

When papering on white-washed walls it is necessary to first size the surface. Use good glue size and add a pint of malt vinegar to the gallon of the size. The vinegar acts upon the whitening and causes the paper to adhere strongly and permanently.

BRITISH COLUMBIA INSTITUTE OF ARCHITECTS.

THE third annual meeting of the British Columbia Institute of Architects took place in Victoria on the 2nd of December, 1893. The society comprises twenty-four members, of whom the following were elected as officers and Council for the ensuing year:

President—C. O. Wickenden, Vancouver.
1st Vice-President—R. B. Bayne, Victoria.
2nd Vice-President—C. J. Soule, Victoria.
Hon. Treasurer—E. Mallandaine, Victoria.
Council—C. E. Sharp, New Westminster; Thos. Hooper, R. E. Day, J. G. Tiarks, S. A. McClure, Victoria; A. E. McCartney, Vancouver; Thos. Honeyman, Nanaimo.
Hon. Secretary—C. E. Sharp.

The business transacted was, excepting one subject, of the usual ordinary routine kind.

The question as to whether the "Architects' Registration Bill" was to be brought before the Legislature in the coming session was discussed, and the outcome of the discussion was that it was the opinion of the meeting that it would probably best further the object to be attained, to place the society in communication with the eastern societies to ascertain what if anything was being done by them, and to consider the question as a Dominion one. With this object, the Secretary of the society will be instructed by the Council to communicate with the eastern societies on the subject.

The competition question has been unfortunately of the too frequent heart-burning and unsatisfactory character, and on a motion before the meeting it was determined to communicate with the Ontario society, obtain copies of their particulars of competitions, and if considered suitable to our wants, adopt them.

The question of the recent competition in Victoria for ward schools occupied considerable attention of the meeting. It was the opinion of the meeting that after a public competition had been called for, faith was broken with the competitors in the action of some of the members of the School Board in the selection of an inferior plan for one of the wards. A circumstance that lends additional force to this professional opinion is, that the ratepayers of the North Ward petitioned against this selection for a school building being carried out on such a design for that ward.

The report of the Council for the closing year was accepted and passed, and the meeting closed with the following address from the vice-president occupying the chair:

VICE-PRESIDENT'S ADDRESS.

In the unavoidable absence of our President, the duty of making your presidential address devolves upon me as your senior vice-president. I regret it to some extent, as the action I have lately taken in your Council may be looked upon as likely to prejudice me in my remarks when touching on the vexed question of competitions.

Since our last meeting in Vancouver, a period of unexampled dullness has prevailed in our profession—we have not a single new member to welcome; at the same time, so far, we have not a single new resignation to record, and I think with brighter times and more doing that we might count upon several new men who have not yet joined us. I hope that the seeming indifference in lack of attendance of many of our members does not foreshadow dissolution. Busier times may perhaps bring with it a little more enthusiasm and interest; if such improvement does come, I venture to express the hope that we may in the coming year meet more frequently than we have done in the past one, and that our meetings may be, as they should, the means of stimulating energy and enthusiasm amongst us, and I would urge upon all to make some little effort to a better attendance (to-day half our members are not present), and to make occasionally if required some self-sacrifice in order to attend, and to contribute from your individual stores of experience and knowledge for our mutual benefit. In Victoria we inaugurated at the beginning of this season a series of bi monthly meetings for the reading of and discussion after of matters professional, but this for lack of attendance fell through at the fourth meeting.

You all know the fate of our "Architects' Bill," more badly beaten than its predecessor. We have already discussed this question, and our decision is quite in accord with my own feelings that we should wait, as decided on Mr. Soule's proposition, and put ourselves in communication with our eastern brethren.

Since our last annual meeting, at which we patted ourselves on the back at our success in regulating, or being in a fair way to regulate, public competitions, we have passed through three. In the first—the Government Official Buildings, which fell to the lot of a Vancouver architect—happy proof of the honesty of Victoria architects and freedom from undue influence—and a happy instance of the satisfaction following the selection of professional arbitrators. Mr. Sorby, of our city, secured one of the five honors, with, to my way of thinking, a charming bit of design, most artistically executed, thoroughly English in character, the work of an artist. Next we have to record the competition for the Protestant Orphan Asylum, under conditions more or less framed by ourselves, and carrying a clause prohibiting any canvassing of the committee—a work brought to completion and recently opened—a competition that carried with it so far as I have heard no dissatisfaction. Of the third competition, the least said the better; it goes to show that all our self-congratulations last year were premature. I hope our action will prevent repetition.

About this time last year, at a Council meeting, some of your members formed themselves into a self-constituted committee, to frame by-laws for this city, and after some five or six meetings had been held, this too fell through—not because we were too busy to devote the time, but I fancy from an unexpressed feeling that our work, while voluntary, was supererogatory, would have been valuable if worked out. It also, I think, grew so in magnitude as we worked at it that, without admitting it to each other, we shirked it.

In occupying this chair to-night, I am going to indulge in a little criticism of the past year's work in the buildings of this city. Of course, you them at your will.

There are few completed buildings in Victoria of the past year that will call for much more than a passing notice. A departure from the general run is seen in the Temple building offices of Messrs. Ward & Co., a red brick and terra cotta building that suffers from its close juxtaposition with its high neighbor, and is dwarfed by it. I would more like to feel with reference to it that the well designed and treated terra cotta detail was made for it, and not its façade for the detail. There is in some grilles to the ground floor windows some very good iron work.

The Davie block is another new block I would make a passing reference to. Some of you will remember the *Times'* criticisms, and the criticisms on such criticisms that followed, and the amusing reference to "Dog Latin" styles—Romanesque. To one who has studied Romanesque art in its native country such references will certainly be amusing. The term Romanesque as applied out here is a misnomer in every sense. The Five Sisters block was so called by the same authority when the designs for it were first seen. I do not like the trabeated architecture affected here by some of our architects in the use of roughly hewn stone; it looks coarse, especially when used in a third and fourth story; and the zinc shams, such as find place in this block, are I think to be condemned as untruthful and unconstructive. Better put up with plainer and simpler forms if economy has to be taken into account.

The new Protestant Orphans' Home, perched as it is on a hill, might have had a more effective outline than it has, and the money spent on brick decoration, which is not seen until close under the building, might have been devoted to carrying up the roof of the semi-circular portions of the front.

It remains to be seen what the two new ward school buildings will be when completed. There is a breadth of treatment about the North ward building that shows up effectually at present, if it is not going to be crushed in appearance by the roof.

I think that I may include the Board of Trade new building in this year's completion. I do not like it in hardly a single feature. I do not like to see a building, standing as it does, the end and flank to the sea approach to Victoria, as factory-like in its want of treatment as this is, and there are bits of eccentricity in the façade that seem to be simple indulgences as freaks of design—objectless. It is an error, I think, to put at such a height as is done here minute detail, and in the crowning feature of the cornice grotesqueness culminates in the intersecting ornaments—of tin—at the corners. The middle stage is decidedly weak in design, and the plan seems to me more of a puzzle than an economical arrangement, in its broken stairs and crooked passages, and is badly lighted in many places.

I was one of the Victoria members of our Association who attended last year's meeting in Vancouver, and in the company of your other vice-president made the most of our time in seeing that city—grown out of all recognition to me since taking it in my visit from India in the latter part of 1888. We paid considerable attention and went over some new buildings under construction—and this period of construction is, as you all know, the time when shams stand unveiled, and when true construction can be seen. We were both forcibly impressed with the difference in character of the work done in Victoria and that done in Vancouver. In Vancouver the buildings have a degree of solidity and truth in them that is sadly wanting in buildings in our Capital City; ours are only too often what I look on as mere match-box constructions. I think our architects should kick against it. I know where the difficulty comes in. Architect A, inclined to go in for something better than mere lath and plaster partition walls, goes in for brick in accordance with good by-law construction and the credit of his profession; he would soon be put out of the field by Z, perhaps a needy self-styled architect, who, creeping in behind A, informs A's client that he, Z, can save at least \$1000 of cost, said client being left entirely in the dark as to where and how the so-called saving comes in. To my mind A should carefully and thoroughly urge upon his client the question of stability and solidity against "jerry work," and then only on his client accepting responsibility, go in in opposition to Z, and fight him with his own weapons. I fear, though, that some of our clients, if reports are true, play you off one against the other and then take the cheapest; some of you sell your work Dutch auction bidding. In my three years of residence in Victoria, I have seen such construction as I would not have ventured on, and yet in my work and practice in India I have done work in construction much bolder than my peers. The work I refer to as done in Victoria is not healthy work of construction, and I think it regrettable that in the Capital of the province our architects should feel impelled to do such work—that such work should be looked on as a necessity. Men as owners of such work cannot, I think, have had them built as investments—only to sell—and even then false economy.

I was very much surprised only the other day to learn that the Building Inspector in Victoria has it in his power to alter a detail of construction in an architect's design. I should protest against such interference in the construction details in a competent architect's work; I mean one who may be reasonably credited with possessing sufficient knowledge of construction. I think that with good by-laws and a good Inspector to see them honestly carried out, interference with an architect's construction would not be called for, and with good by-laws, not restrictive ones, and a resolute enforcement of them, such buildings as I have commented on would not be perpetrated.

It is within my province to-day to enter my protest against the recent action of the bricklayers of this city in their striking against the appointment of a clerk of works not belonging to their organization, appointed for the municipal supervision of their work by the municipal authorities, and I anticipate that you are all of one mind. If such action and claim as they made were once acceded to, on such a plaint as was theirs, it would place us architects quite at their dictation.

Before we meet again, gentlemen, let us hope that things may improve with us all, and that we will be all busy men as now too many of us are idle men.

The next annual meeting of the society was fixed for New Westminster, on the first Friday in November, 1894.

Red slate is of recent discovery. The most beautiful of its class, it ranks among the costliest material in use for constructional purposes. In the northern part of Washington County, N. Y., within a circle less than fifteen miles in diameter, are said to be the only red slate quarries ever found. There are two parallel veins about five miles apart; the one known as the Granville vein being best adapted for roofing purposes; the other, in Hatch district, and of softer quality, can be sawed into floor tiles and house trimmings.

A discovery for hanging paper on damp walls is being put to a practical test in Germany. It consists of coating a lining-paper on one side with a solution of shellac spirit, of somewhat greater consistency than the ordinary French polish, and then hanging it with the side thus treated to the damp wall. The paper-hanging is then performed in the usual manner with paste. Any other resin that is equally soluble in spirits may be used in place of the shellac. According to the representations, this process is found equally effective in preventing the penetration of dampness.

CANADIAN CITY ENGINEERS.

VII.

ROBERT SURTEES, City Engineer of Ottawa, Ont., was born at Ravensworth, Yorkshire, England, March 3rd, 1835. He served his apprenticeship with the late George Mason, a well known civil engineer in Darlington. At the age of 21 he came to Canada, and first settled in the city of Hamilton, where he acted as Assistant City Engineer for four years, when he removed to New Edinburgh, a village now embraced within the city of Ottawa, where he established himself as an Engineer and Architect.

During his fifteen years residence there he designed and had charge of many important public works, amongst them the Protestant Hospital and the Carleton County Court House in the city of Ottawa. He was engineer of the town of Peterboro', Ont., and city of Hull, P. Q., waterworks, and acted as consulting engineer for a number of municipal corporation drainage and water works schemes.

In 1875 he accepted the position of engineer for the city of Ottawa, and under his direction and supervision some important works were carried out, such as the construction of the main sewer, and the enlargement of the water works system, the former costing half a million dollars and three years labor to complete, and the latter work entailing the expenditure of a similar amount. These works may be classed as amongst the finest in the Dominion.

Mr. Surtees is a member of the Canadian and American Society of Civil Engineers, as well of the American Water Works Association.

Politically he has always been a Conservative. In religion he is a member of the Church of England and is thoroughly evangelical in his views. He married in Hamilton and has a grown up family of two daughters and four sons.

A STUDY IN LIME.

LIME constitutes so large a portion of the building material used in this country, says V. B. Grinnell, in the *Painters' Magazine*, that it seems to me that every builder and decorator should be familiar with its nature, composition, impurities and reaction upon the elements of organized substances coming in contact with it. "Lime is tanked with the alkaline earths, and is never found pure in its native state, but combined with carbonic acid in marble, calcereous spar, limestone and shells, and with sulphuric acid in gypsum, and phosphoric acid in the bones of animals." When lime is made by burning the native carbonate or limestone in kilns it is usually impure, containing alumina, silica, sesquioxide of iron, magnesia, oxide of manganese, clay, &c. The carbonic acid is expelled by the heat in the kiln, but when cool and exposed to the air it absorbs moisture and carbonic acid, and crumbles into powder, and becomes air-slacked lime. When water is added to the fresh lime heat is evolved, the stone cracks and powders, forming hydrate of lime. Lime is so sparingly soluble in water that it takes 700 times its weight in water to completely dissolve it. It acts upon vegetable colors like an alkali. Lime has many incompatibles, among which we may name: "All acids, all metallic acidulous and ammoniacal salts, borates, alkaline carbonates, and astringent vegetable infusions." In other words, they cannot exist together in solution without natural decomposition, and combining their acids, forming calcium salts.

The painter and decorator finds a large portion of his work upon plastered walls, and to do it intelligently he must understand the composition of the wall and the nature of the materials used in its construction, and the effect which they may have upon the various materials which he may be called upon to use in the course of his work. If he is not posted in this respect, he goes at his task in the dark, and must not be surprised if he meets with occasional disappointment and failure. We know that the lime in the well may contain impurities, and that the sand mixed with it may contain clay, and that clay may contain sulphur. The sand may be mixed with iron pyrites, sulphate of lime, sulphate of barytes, magnesia, &c. In the great crushing process which ground the mighty rocks to sand, all the minerals which they contained went in. Who can tell what they were or what has been added since the sand has been drifting from place to place? Who knows what salts will be formed

when the impurities are set free and brought together by the water used in mixing the lime and sand into mortar? The heat in the lime in drying may prevent much that would otherwise happen: but in after years, when the plaster has been long or frequently wet, the sulphur and magnesia coming in contact may produce sulphate of magnesia (Epsom salt). This salt contains more than 51 per cent. of the water of crystallization, and often has very much to do keeping walls damp and in forming crystalline incrustations upon the surface, especially upon brick walls. This salt is completely decomposed by fresh lime, but the lime in plaster, which has been long water-soaked, seems to have become sufficiently inert to admit of the formation of the salt in question. This salt is also decomposed by "potassa and soda, and their carbonates by baryta and stronia, and their soluble salts;" but the trouble is to apply any of these decomposing agents to the source of supply in the interior of the brick or mortar of a brick or plastered wall. We may decompose the crystal upon the surface, but the dampness inside will continue to throw out more of the salt. We sometimes sufficiently decompose it near the surface, to make it possible to check its further advance. First soak the wall with the decomposing agent, and after it is dry apply a coat of waterproof paint or gum. For the outside the dry hot weather of summer is the best, because the hot weather will dry the surface after the decomposing agent has been applied.

An example of the rapid formation of the crystals of this salt came under my observation two years ago in a basement. A

bank of clay had been cut down and a plastered wall made near to it. Subsequently the basement was flooded with water, which stood for several days, thoroughly soaking the wall. Within a few weeks I discovered crystals upon the surface of the wall; they continued to increase until several square yards of the wall were covered, in places half an inch in thickness. The product was unmistakably Epsom salts. I found, upon examination, that the wall was still wet, and that the space between the wall and the bank had been filled with earth, which had been washed from the top of the bank, which I found still damp. As an experiment, a small portion of the wall was dried by artificial heat, and then kept wet for a day by frequent applications of a strong solution of carbonate of soda. The plaster was then dried and given two coats of orange shellac. At the end of eighteen months no more crystal had formed upon the place which had been treated. The crystals of this salt upon brick walls are frequently called saltpetre; but I am at a loss to know why, because the taste and form of crystals in the two salts are so much unlike.

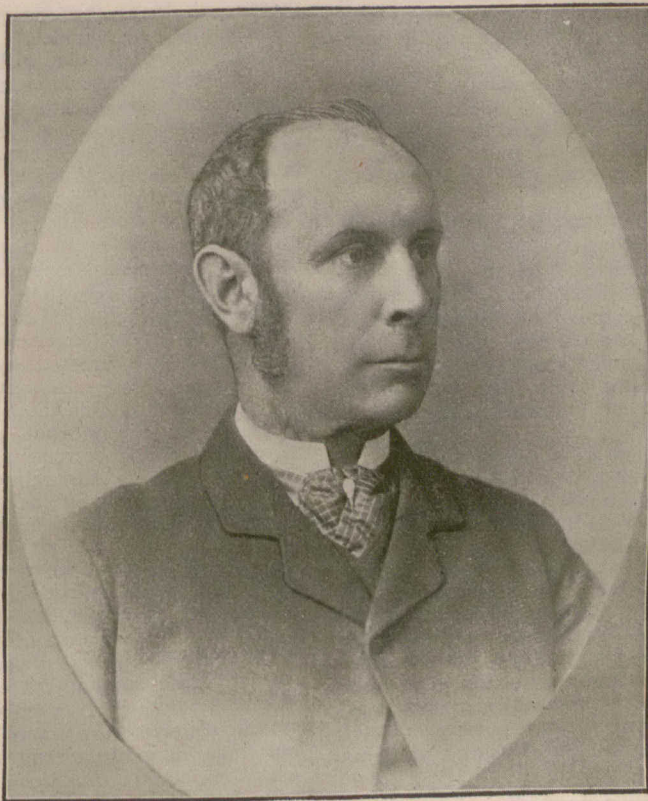
Saltpetre is found in old plaster rubbish, in combination with lime and common salt; but in this combination it seems to be inert. Saltpetre has a sharp, cooling, and slightly bitterish taste, and its crystals are long, striated, semi-transparent six-sided prisms. Epsom salt crystallizes in four-sided prisms, is colorless and transparent, of bitter, nauseous, saline taste.

The Engineering Society of the School of Practical Science, Toronto, has decided to establish a monthly paper.

The new high school building recently erected at Niagara Falls, Ont., was formally opened on the 8th inst. by the Minister of Education. The building is erected in Wesley Park, and is surrounded by seven acres of ground. The building and site cost about \$30,000.

A representative of the National Wall Paper Company of America was in Ottawa recently for the purpose of inducing the Customs Department, in making valuation of imported wall papers, to allow for a discount of 20 per cent. which the company offers to all dealers who use its goods exclusively.

The new hotel Frontenac, erected by the Canadian Pacific Railway at Quebec, was opened to the public on the 18th of December. The building contains 170 bed rooms, some of which are 310 feet above the level of the St. Lawrence. The building occupies a magnificent site, affording views up and down the river, of the Isle of Orleans, and of the Laurentian range of mountains. It is designed in the old chateau style, the decorations and furniture being of 16th century character. Mr. Bruce Price, of New York, was the architect.



ROBERT SURTEES, CITY ENGINEER, OTTAWA.

THE BUILDINGS OF THE DOMINION.

By G. F. STALKER.

TO what extent and in what manner the government is justified in encouraging by substantial aid, the development of art depends upon a variety of circumstances. The possession, however, of galleries of art treasures and of fine buildings is an unmistakable evidence of national culture and progress; and no country having any pretension to greatness can afford to be without them. The balance sheet of the finance minister is, after all, only a temporary index of national solvency. We must look into a different ledger for the indelible marks which show the onward or backward movement of the people. But the finance minister and every other minister, can do a vast amount to foster and develop such thoughts and feelings as will ineffably impress themselves on the national character, and find expression in works of art which will be an indication to future generations of our standing as a people.

The ministers of the crown in this country are the chosen leaders of the people, and they like to be spoken of as such. But they are, in many instances, only the followers of public sentiment. Ideas and schemes, which on the face of them have the stamp of necessity (sometimes of urgency), are put on one side because there has been no public demand for them and so much valuable time is wasted in weary waiting for the great unwieldy mass of the people to meet together, formulate their ideas, and submit their wishes to those in authority. All this seems just the reverse of what it ought to be. The wise leaders, whose names have come down to us, have been men who, being in advance of their time, have educated the people up to their ideas, and legislated and acted without the necessity of ever-recurring agitation and turmoil.

At present we want one or more of the ministers to strike out and take the lead in national art matters. The course is perfectly clear, and whoever steps into it will have the satisfaction of knowing that the laurels which he will gain will not be plucked from the brow of any of his contemporaries, nor from the chaplet of any of his predecessors.

It is, of course, freely admitted that there are difficulties in the way, the chief one being that we belong to a somewhat utilitarian race. The British people have never been too lavish in expending money on "mere works of art," and it has taken a long time to bring them to acknowledge the refining influences of the beautiful and pure in art, upon the national character. But this is admitted now, and leading men throughout the empire lose no opportunity of impressing this truth upon us. In fact, if we look at the matter fairly, the encouragement of art by the national government is really utilitarian in its effect. The national advancement and refinement are a *quid pro quo* for the national expenditure.

A slight indication of the way the wind is blowing was given during the last session of the Dominion Parliament. While the estimates were being discussed the Minister of Interior asked for a beggarly sum of one or two thousand dollars for the annual expenses of the National Gallery, when from an unexpected quarter a loud complaint was raised because the sum asked was not twenty or thirty thousand, which would have been as readily granted as the smaller sum. The fact that the complaint met with the general approval of the House is sufficient to show that the time has gone by when ministers need be afraid to ask for the expenditure of public money for art purposes; and it must be with satisfaction that every man of education and good sense will regard this fact.

But it must not be supposed in speaking of art, that painting and sculpture only are referred to. Architects need not take a second place to their brothers of the brush and chisel in the beneficent effects on the public mind which are produced by their own branch of art. On the contrary its place in the trio of the fine arts has always been, and will ever be the first. And while, as an art, it exercises its refining and ennobling influences on the mind, it is practically interwoven with every phase of human existence.

On this account and because it would be impossible to conduct the business of the country without necessary and adequate building accommodation, architecture has received a fair amount of encouragement at the hands of the government. No fault can be found with the different governments so far as providing buildings when and where they have been found necessary. But the system which was adopted at the birth of the Dominion and which was both necessary and suitable for that time has nothing to recommend its continuance at the present. When the Dominion came into existence there were very few architects in the country and comparatively no very great demand for them. Since then, however, the country has made rapid strides and has developed in every direction to an abnormal extent. With this growth has come the demand for a better class of building, and architects have come into the country and grown up in it to supply the demand; so that the larger cities particularly are well provided with buildings of a high order, and give unmistakable evidence that we have in our Dominion as capable a body of architects as are to be found in any other country at the present day.

The government has no need, therefore, to restrict itself for its architecture to the abilities and services of one man, as was necessary and suitable thirty years ago. The system which we

followed at Confederation was the best system for a young country; but we shall be doing a wise thing when we follow the example of Britain and other countries, and give opportunities to more than one architect to display their architectural abilities.

In quite recent times there have been a great many large public buildings erected in England, such as the Foreign Offices, the Law Courts, the Natural History Museum, the Admiralty Offices, etc., etc. In every case the designs for these buildings were chosen either by public or limited competitions. The object the British Government had in view in these competitions was, not only to obtain the best designs, but to give to architects generally an incentive to put forth their best efforts and to bring into prominence the talents of some who would otherwise have remained unknown.

It is impossible to overestimate the benefits to the profession and to architecture in England, which have resulted from these competitions. The influence of the designs that were submitted and that remained for many weeks on public exhibition has completely revolutionized architecture in England. At the beginning of the present century and until about fifty years ago architecture in England was at a very low ebb. Now there is no country in which buildings are erected on a grander scale, of more beautiful design, or where so much attention is given to architectural principles and detail.

To say that this has been brought about by the system of having competitive designs for government and other buildings would be to claim a great deal too much. But no one can deny that this has been one of the most potent factors in producing the change. If such a system were to be adopted in Canada there is no doubt that the effect upon the architecture of the country would be beneficial, but it would give national encouragement to architecture without incurring any further charge upon the Dominion exchequer than is incurred now. The cost of maintaining the architects department in connection with the government amounts to more than five per cent. of the annual value of the buildings erected. The change would therefore involve no financial loss, but rather a gain to the country. It is not, however, for this reason that the question is here raised. Neither is it from any desire to find fault with the present government architect or to speak disparagingly of his ability. If the present system is to remain unchanged it would be no easy matter to find, in the whole Dominion, a man better qualified for his position. But the circumstances which rendered such an office necessary no longer exist.

The buildings erected by the Dominion Government are chiefly post offices, custom houses, government offices and drill halls, and though there is not much variety in the classes of buildings, the location and local requirements introduce elements sufficient to require considerable variety of treatment. But the most versatile architect becomes in the course of time liable to repeat himself; he may even become stereotyped in his versatility. We cannot therefore, look for much progress in the architecture of our national buildings, when we continue through a long series of years to engage the services of only one man. But we are certainly running the risk of remaining at a standstill in this respect; and to do so is to retrograde.

But if it be a wise thing for the government to secure by competition the best designs from the best architects in the country for our public buildings, it would be equally unwise to abolish absolutely the office of government architect, and here again we might imitate the practice of the motherland. In all public buildings there are changes made as time goes on. And so, when any building has been completed according to the architect's design, the plans are deposited with the government architect, who, with a sufficient staff of capable assistants, will look after any future changes which may be found necessary.

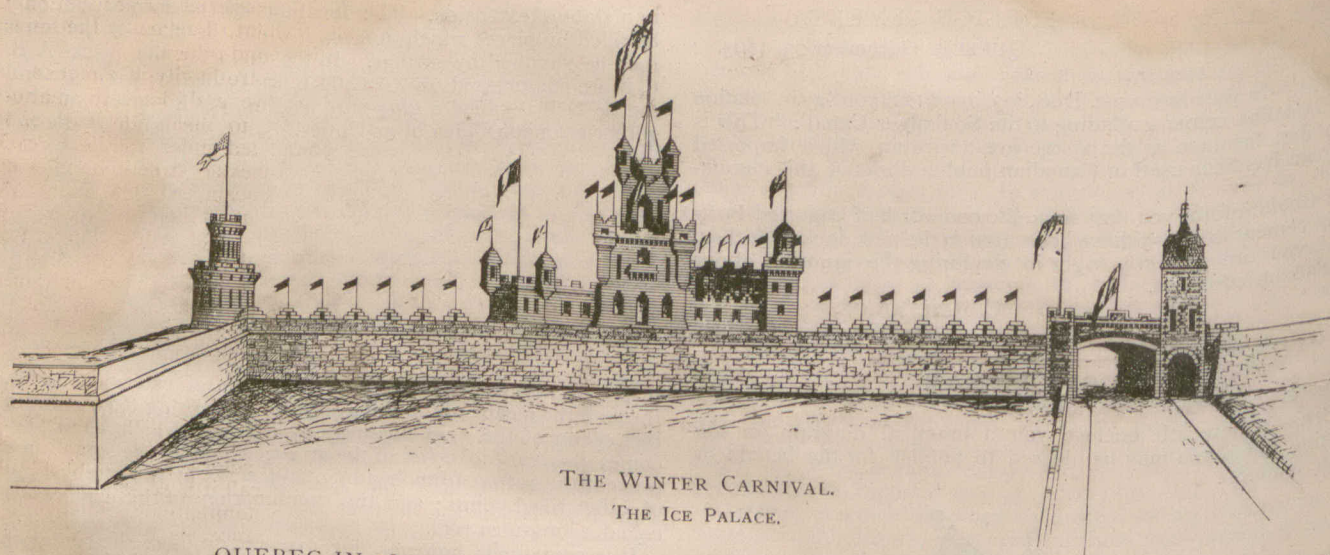
As already stated, the course is open for any Minister of the Crown to distinguish himself by lifting our national art up to a higher level than it occupies now. And the foregoing is humbly submitted as an outline of a system which could easily be adopted in regard to our public buildings, and one which would give great satisfaction to the profession generally, as well as being of inestimable and lasting benefit to the country at large.

NEW YORK CITY HALL COMPETITION.

ON the 20th of December, the Advisory Board of Architects in the above competition presented their report, in which they announced the selection from 134 designs submitted of numbers 13, 23, 28, 35, 107 and 113 as the six which most nearly meet the requirements. The final selection will be made from these six selected designs at the close of the present month, and the names of the successful competitors announced.

The oldest school building in Montreal, situated at the corner of Cote and Lagauchetiere streets, has been sold for the sum of \$20,000, for manufacturing purposes.

THE Arts and Crafts Association of Hamilton, has been organized at Hamilton, Ont., local artists and architects being among the chief promoters. The object sought to be attained is to foster local talent and assist in bringing the work of artists before the public. The organization meeting in the Hamilton Art School was well attended. Mr. E. W. Morrison was appointed secretary of the Association, the election of officers being deferred to a subsequent meeting.



THE WINTER CARNIVAL.
THE ICE PALACE.

QUEBEC IN 1894.

BY CHAS. BAILLAIRGE.

THE old-fashioned city of over 25 years ago has put off many of its characteristic traits and donned quite a new and comparatively modern physiognomy.

The six city gates have either disappeared *in toto*, as with the three facing on the St. Charles and the St. Lawrence, where, on account of the precipitousness of the cliff, the unnecessary walls have been lowered to allow of being seen over; thus giving to tourists on entering the city from the C.P.R. a splendid view of the port—one of the finest and most extensive in the world—or have been remodelled, rebuilt in a way to be less offensive to the outlying wards, which had come to view the barriers as lines of social distinction between themselves and the would-be aristos within.

The stratagetic curves of the old approaches to the city walls having lost their prestige under the high and far flying missiles of war of modern times, the sinuosities outside of the city gates are now replaced by straight and unbroken lines of streets, while the crenelated tops of the new gates are there to remind us of our ancient military glory.

The "Grande Allée," extending a mile beyond the city proper, has had its width not less than doubled, and along its southern side we have the splendid new "Drill Hall," built after the designs of M. M. Taché & Fuller, architects, but laid at a level fully five feet lower than it should have been to be properly seen from the St. Louis road.

Nearly opposite the Drill Hall is the Short and Wallick monument, designed and executed by our talented Canadian artist, Hebert, who also carved the "Indian Group" over the fountain opposite the tower of the Parliament buildings, but which is singularly marred in its effect by being set at a level about three feet lower than it should be. The new Government architect, Mr. Charest, should see to this, and that there be erected without further delay, and as much more pressing than the enclosure walls around the grounds, a porchway such that a carriage may drive under and persons be thus enabled to enter the building under cover, instead of, as in the case of the last ball, having to hold an umbrella over every gentleman's and lady's head as they successively entered the buildings with garments thoroughly drenched by the storm.

The portico alluded to could be most easily and aesthetically erected opposite the main or central tower by making each of the two angle piers of the porch a group of four columns like those on the opposite side, bringing forward the present entablature and completing the sides.

The most ungainly facade along the river side of the Grande Allée is that of the skating rink which architect Staveley had made quite a fine feature of when on the opposite side of the street, but which from motives of economy, he was prevented from having carried out on its previous lines when moved to its present site to clear the ground fronting on the new Parliament Buildings. Ranges of fine dwelling houses have sprung up all along the thoroughfare, and of various design, under architects Raymond, Berlinguet, Peachy, Tanguay, Bussieres, Bernier, Talbot and others, with, further on, Stent and Laver's Female (old military) Orphan Asylum, Le Court's Protestant Home, with the St. Bridget's Asylum and many fine residences on the opposite side, including the so-called Langelier block by Berlinguet, but where the site is far too straitened for the size of edifice—too many trumpety finials about its roof, and too much crowding of the bays and oriels on the central corps and portico. Dr. Verge's dwelling is amongst others worthy of remark.

The principal architectural feature along this thoroughfare is, of course, the Parliament Buildings already incidentally alluded to, the architects of which were M. M. Gauvreau, Taché, Derome, Cousin, Gauvin and Lesage; but that an article like the present, published in such a journal, may have its full utility, as a lesson to all concerned and to architects and the public in

general to prevent the repetition of such a costly blunder, it will be seen that the building all around the 300 feet quadrangle should have been 60 feet in depth instead of 50 feet, making rooms instead of guts of the spaces on either side the central corridor, and adding 33 per cent. to the available depth for stairs instead of the break-neck things they are.

The building, of which the exterior is well enough proportioned and the architectural features not unæsthetic, though no building can be truly grand which, like this, has not a central feature—a dome for instance, a spire or a tower rising from a structure in its midst, and around which the outer portions of the edifice may cluster and rise the one above the other ("pyramider") an expression which can hardly be rendered in the sister language except by the word 'to tower,' but which is exemplified in our new Frontenac Hotel, by Bruce Price, of New-York, architect, with the exception that the roof over the entrance gate should have been made just one storey higher, and thus have hidden at the same time the upper rear corner of the main building not intended to be seen, and which protrudes itself most ungraciously into sight.

Now it will hardly be credited that while the splendid cut stone enclosure wall and lofty ornamental wrought and cast iron railing around the Marine Hospital, Quebec, designed by the writer, costs but \$13.00 per foot lineal complete *in situ*, the mere coping alone of the more than 6,000 feet lineal of walls surrounding the Parliament grounds, with its underlying plinth course and dwarf foundation to the rock, and exclusive of cement, has been paid for at the enormous rate of \$29.50 per foot lineal, exclusive of iron work, thus swelling its cost to four times the price of the wall alluded to, and amounting to the astounding sum of \$200,000 or more.

The workmanship, it is necessary to say, is very fine, and the 12-foot granite monoliths superb; but I do not know at whose door the fault is to be laid of giving the separating pillars a projection on all sides of only $1\frac{1}{2}$ in., which should have been at least from 3 to 4½ inches to render the work architecturally effective, making it deeply to be regretted that so much of the public money has been expended on a work which in proper hands could have been rendered an acceptable feature of the general design at much less than half the cost.

Persons who have not visited the city within the last fifteen years must be reminded that we have a terrace which is well worth seeing, and of which Princess Louise and the Marquis of Lorne, while performing the ceremony of throwing it open to the public in 1879, said to Mr. Baillaigé, engineer of the structure, while cordially congratulating him and shaking him by the hand, "this is the finest promenade in the world," and so I believe it may be considered, not only on account of its length, though less than that of St. Germain in France, but hanging as it does, so to say, from the face of the cliff at the sensational height of 182 feet above mean tide level of the St. Lawrence.

This terrace, erected by the city entirely of wood at the time, and at a cost of only \$20,000, from motives of economy, has since been walled in on the river side at the expense of the Federal Government at a cost of over \$60,000, said wall forming portions of the enceinte fortification of the city, and which had been destroyed by the landslide of 1841; and what it will now behove us soon to do, is to replace the perishable structure by stone and iron, brick and asphalt: cross walls at distances of sixty feet apart being necessary not only for floor supporting purposes, but to counteract the ever-present, ever-active tendency of all such side-hill structures to move forward and downward by the effect of earth and frost pressure from the rear. The space from wall to wall would be spanned by sixty ft. built plate girders with intervening supporting columns; iron joists laid across these at say three ft. centres, ½ brick archings between them, and concrete and asphalt over all, estimated to cost another \$60,000.

The new Post Office, but which can hardly be called so now, should evidently have had a proper architectural facade towards the St. Lawrence, and had its upper floor windows been made of proper height, the extra course or two of masonry taken

from the space above would have corrected the top heaviness of the structure.

The new Court House is of course a great improvement in size and style as compared with the old building, but the combined areas of openings is considerably beyond what it should be in relation to that of walls. The architects of these two buildings were, of course, some one or more of the Government quintet already named.

I have alluded incidentally to the new hotel, and would state that the architect, Mr. Bruce Price, of the United States, has, in my opinion, been guilty of a serious omission in not providing in any way for escape in case of fire, nor for a few outside iron balconies where one could sit and smoke and have a cup of coffee while enjoying the view and music. In other respects the building is a fine structure, and its architecture, its plan, its site, well suited to the fortress-like surroundings.

We have designs at hand for a new City Hall on the Jesuits' lot, and this is the lot it should be built on; as, though it may not appear to be quite centrally situated, since St. Sauveur has been annexed, there is no doubt that any extension of the city will now occur towards Hedlyville, and make it in reality the central site required.

St. John suburbs, under architect Peachy, has erected a spacious and costly (say \$200,000) new cathedral instead of that destroyed by fire in 1881, but the diameter of its spire is by several feet less than it should have been.

In the lower town Hon. P. Garneau has erected, under Contractor Parent, a splendid new \$100,000 stone structure, but my friend Tanguay, the architect, has been guilty of a freak, which cannot be called a license, and would not be tolerated anywhere—that of running his mullion or dividing column right up to the very keystone of the upper or attic window instead of cutting it short at the impost level and throwing the space above into two sub arches and a central panel or spandrel.

St. Roch's has now become, so to say, the commercial portion of the city, and the merchants and citizens of that locality have erected some very fine buildings under Mr. Raymond at the corner of Crown and St. Joseph streets, others by architects Talbot, Bussières, Bernier, Vallée and Dussault—one of the finest by Peachy, for Labiberteé, the furrier. The staliest of all, some six tall stories in height, and of solid monolithic granite piers, and polished granite columns for Paquet, under his architects and builders, M. M. Charest and Bertrand.

New streets have been opened in the lower town, as Dalhousie and St. André, facing on the St. Lawrence and harbor works of the River St. Charles. Others have been widened; some prolonged, as St. Paul street to St. André, St. John St. Within, Fabrique, Ann in the upper town have been widened, St. Claire and Salaberry in St. John Ward.

D'Youville street, by Kent Gate, eases off the grade from St. Lewis to St. John's wards, and Negresse Hill, that from John to Jacques Cartier wards, while a new grade is being run from Grande Allée to the Citadel Heights at the old French fortifications, where a splendid view of the harbor can be had, and of a dozen parishes around and the main road reached again by a loop line without leaving one's carriage.

It is only lately we have enacted that henceforth all streets be at least 66 ft. in width, and lots 100 ft. deep, after my showing on the occasion of each of our monster fires of 1845, 1866 and 1881, etc., that their extent was due to nothing but want of depth in our heretofore 60 ft. lots, where if you build a house 30 ft. in depth, stables or an outhouse another 20 ft., there remains but 10 ft. between the two, with 30 feet streets between the blocks.

We now have in addition to the St. Louis and Frontenac hotels, the Royal Albion; and the Florence House under B. Trudelle, is also one of the most central and best patronized hotels in the city, with lines of busses to drive you any and everywhere; and the city having just opened a new line of communication by Mount Pleasant into St. Ours street, I would advise tourists wishing to enjoy a splendid view of the valley of the St. Charles to go out by Grande Allée, down Salaberry, get out at the steep part of the new hill, enjoying the view as you go down, resume your carriage at Arago street level, and then do St. Sauveur and St. Rochs, returning to the Frontenac or Florence by Abraham Hill and St. John street within or without.

The old wooden stairways between the upper and lower wards of the city have been replaced by elegant and costly new structures of cast and wrought iron, as at St. Claire and St. Augustin streets, and more recently at Buade and Champlain streets, with others to follow, as from the St. Charles battery to St. James street, and maybe from the remote extremity of Dufferin Terrace to Champlain street, while a new hill is contemplated from the Cove field to Cap. Blanc, thus saving a two miles' circuit to reach it by the brigade in case of fire.

Other alterations have been obtained by which we have rechristened many of our streets, which bore duplicate, triplicate, and even quadruplicate names. We had, for instance, not less than four "St. Peter's," four "St. Francis," three "St. Joseph's," etc., which were fruitful of many errors and inconveniences. They are now called by names dear to memories gone by: De Brébœuf, Garneau, Ferland, Christie, McMahon, O'Connell, Colbert, Chenier, *et al*, while a host of St. Sauveur saints have kindly stepped aside and been replaced by names less suggestive of prayers, pilgrims and poverty, and more of battles, bacon

and business, as Kirouc, Fiset, Durocher, Racine, Charest, Charlevoix, Elgin, d'Youville, Hebert, Lalemant, Lansdowne, Colomb, Cartier, Montcalm, Wolfe and others.

Quebec is admittedly the best electro-lit city in America. It has a fine water power both for fire and domestic purposes under a head of 486 ft. from Lorette to mean tide level of the St. Lawrence. We have just completed under architect Peachy a splendid new fire station in Dorchester street; another new one in St. Sauveur by architect Cousin, is also under way, while still another is having its foundation laid in Lower Town near the Custom House—nine in all—and while danger from fire is thereby combatted on the one hand, all anxiety as to proper sanitation is fully provided against by our new quarantine system at the Palais, our costly steam disinfecting apparatus and our splendid new Hotel Dieu Hospital just erected under architect Tanguay, at a cost of a third of a million of dollars in Palace ward.

There is, however, one important thing we can not as yet boast of, and that is of the improved character of many of our streets. A million of dollars would be necessary to pave our hills and business thoroughfares with solid granite, and we can not afford such an outlay; though I call it false economy.

Our places of worship for all denominations are numerous and spacious, St. Mathews having recently been rebuilt by Staveley, and the Seminary Chapel by Peachy, but of which the inner galleries must be lowered in front or the interior made a fairer.

Our educational status is high, with Laval in our midst; our poor well cared for by the Grey Nuns (Sisters of Charity); our too loving ones by the Asylum of the Good Shepherd; the waifs at the Sacre Cœur; and close at hand is the Beauport Asylum for all our mentally afflicted.

In addition to the Grand Trunk and Intercolonial railways, we now have communication with the remainder of the world around us by the Quebec Central, the C.P.R., the Q. & L. S. J. Railway, and the Quebec, Montmorency and Charlevoix; and the six companies should agree during our proposed carnival of February next to bring the people of our sister cities here to see the progress we have made. The new Frontenac Hotel, costing nearly a million of dollars, and of which the dining-room tapestry alone is valued at over \$3,000, will be opened for the occasion, and a splendid reception tendered our guests in the new palace, and what between sleighing, coasting, snow-shoeing, curling, skating and other fun, a drive to the source of electric light supply at Montmorency Falls and mammoth ice cones of the Montmorency, a view of our ice palaces and statues and of the proposed 150 ft. pyramid of beauty over the illuminated fountain at the Place d'Armes, together with other attractions, such as ice-boating on the St. Lawrence and St. Charles, a good time may be anticipated by all our visitors, whom our mayor, Mr. Fremont, M.P., Senator Hearn and other city aldermen and councillors, and in a word all our citizens, will right royally welcome and endeavor to amuse and make happy to the fullest extent of their power. The new Palace Hotel of itself is well worth the trouble and expense of coming to see, and old Stadacona, even without the additional fun and attractions of a winter carnival, in which Montreal is to join us with several thousand of its snow-shoers, skaters, curlers and the crowds of other athletes who have promised to add to the festivities of the occasion.

And should the St. Lawrence be frozen over for the occasion, and our trees be decked as they generally are at such a season in snow crystals reflecting the component colors of the sun-beam and electric light, the millions of ruby, emerald, sapphire, topaz and diamond hues will enhance the fairy-like nature of the scene.

CANADIAN CONTRACTOR'S HAND-BOOK

Our attention has recently been called to errors in the above book. In the wages table on page 71, \$14.96 is given as the wages for 66½ hours work at 21 cents per hour; the amount should be \$13.96. On the same page \$13.07 is given as the amount of wages for 67 hours at 21 cents per hour; the amount should be \$14.07. The algebraic formulæ on page 49 is in part incorrect; it should appear as follows:

$$4. (a+b)(a^2+ab+b^2)=a^3+2a^2b+2ab^2+b^3.$$

$$7. (a-b)^3=a^3-3a^2b+3ab^2-b^3$$

$$8. \frac{x^3-y^3}{x-y}=x^2+xy+y^2$$

$$9. \frac{x^3+y^3}{x+y}=x^2-xy+y^2$$

The attention of persons having copies of the 2nd edition of the book is called to these errors, which will be corrected in copies which may be sold in future.

There has lately been found the original contract used in the erection of St. James Cathedral, Toronto, in the year 1839, together with elevations and floor and gallery plans.

A new Methodist church has just been built at Kingsville, Ont., at a cost of \$15,000, from designs by Mr. James Wilson, architect, of Chatham, Ont. The construction work was done by Mr. Thomas Jenner, of Kingsville. The building is said to be one of the best adapted in Western Ontario.

EARLY ENGLISH MOULDINGS.

The exquisite skill, taste and patient labor invariably evinced in the working of early English mouldings are truly admirable, says a foreign exchange. The ingenuity that was never at a loss in any difficulty of finish or constructive irregularity, and the minuteness with which even the most concealed and darkened parts were executed, are circumstances of much interest, and show a love for the art above the sordid considerations of minimum cost. The deepest hollows are all as cleanly and perfectly cut as the most prominent and conspicuous details; and in the village church as much so as in the most glorious cathedral. An early English doorway is often a wonderful piece of art, however little it may attract the attention of ordinary observers. It is most pleasing to notice the long train of dog-tooth lurking in the dark furrow of a label or channeled recess; to see the end of some inconvenient member got rid of by throwing a flower across the point where it suddenly stops or dies into the wall; to admire the floriated boss and the foliated capital intruding their luxuriance upon the mouldings and hollows, as if they had overgrown their original and proper limits. How beautifully, too, the knots of pierced and hanging leaves extend like some petrified garland or bower of filigree work round the arch, dividing the plainer moldings into groups, and almost imparting life and vegetation to the very stones. There is an abundance of doorways of this style which exhibit the most delightful varieties in their forms and groupings; always, yet never, the same. Some examples occur at Bolton and Furness abbeys, whose arch moldings extend five or six feet in width. The west fronts of several of our cathedrals have Early English doorways of amazing magnificence. The entrance doorway of the chapter house at Lichfield is a very fine example of the moulding of this style. But almost every cathedral and every ruined abbey will supply good specimens.

THE STRENGTH OF BRICK.

Here is a graphic illustration of the statement made by Mr. Williams in his paper on Vitrified Brick, read before the 7th Annual Convention of the National Brick Manufacturer's Association of the United States Touching on the progress of brickmaking in the United States, he quotes from Trautwine, the statement that a column of brick six hundred feet high would crush itself. He takes a test of the crushing strength of annealed brick, and shows that a column ten thousand feet high is required to crush itself; while a column of granite of similar dimensions would crush itself at a height of eighty-one hundred feet. Verily this is a striking illustration of the superiority of the machine made brick of to-day over those made in former years, and is proof that the craft is progressing. What industrial art can show an equal advance in the quality of manufactured products? This illustration of the relative height that a column of certain dimensions may be built of the materials named will give a better idea of the superiority of vitrified or annealed brick than is generally prevalent, even among those who are informed on the subject.

LEGAL DECISIONS.

In the case of *Sieyes versus Cure Sentenne et al*, recently decided at Montreal, plaintiff was leased the premises now occupied by the *Compagnie Generale des Bazar*s, but he was not allowed to enter on the date fixed. He sued and was awarded \$1497.84 as damages. *Cure Sentenne* then sued the contractors in warranty and they were condemned to pay this amount, together with the sum of \$525 costs.

DAMAGE FROM DROPPING OF MORTAR.—Where a person sustains damage by the dropping of mortar and bricks during the erection of a wall next to the premises occupied by her, the party for whom the wall was being erected is not liable for such damage, but the contractor would be, if any one, if it was not a necessary result of the building of the wall, but was caused by the negligence of the contractor or of his servants. The injury caused by dust arising from the dumping of loads of brick near a person's residence might be so trifling as not to be actionable, or there might be evidence of such excessive and long-continued annoyance therefrom as to warrant the submission of the question of damage caused thereby to the jury. *Pye v. Faxon*, Supreme Judicial Court of Massachusetts, 31 N. E. Rep., 640.

PAGE V. DEFOE; BROWN V. DEFOE; ASHDOWN V. DEFOE.—Judgment on motion by the defendant in all three cases, which were tried together before MacMahon, J., and a jury, at Toronto,

to set aside the judgment for the plaintiffs and to enter judgment for the defendant; or for a new trial of the action. The defendant was the owner of a storage warehouse in the city of Toronto which collapsed and destroyed the plaintiffs' goods therein stored. The defendant contended that the collapse was not due to any negligence on his part, but, as the evidence showed, to the dry rot in a portion of the timber, for which he was not responsible, having exercised due care in converting the building from its former use as a billiard table factory and in the selection of the material for that purpose. The court held that the collapse was due to dry rot unknown to the defendant, and that there was no negligence on his part. Motion granted and actions dismissed with costs. Leave given to carry all the cases to the Court of Appeal together, if one of them is appealed, and if the amount in question in any is too small for an appeal, leave granted to appeal.

SMITH V. FORT WILLIAM SCHOOL BOARD.—Judgment in Chancery Court, Toronto, in action tried at Port Arthur. Action by a resident freeholder, ratepayer and elector, and a supporter of the Public Schools in the town of Fort William, on behalf of himself and all other ratepayers of Fort William except the ratepayers, against the Public School Board of the town, certain individual members of the board, and Robertson & Ross, contractors, for an injunction to restrain the defendants from proceeding with the erection of a school building in the town, and to compel the repayment to the school corporation of certain sums of money paid by the individual members of the board to the contractors for the work. The learned judge holds that the school board of a city, town, or incorporated village have no power to enter into any contract for the building of a school house until the necessary funds have been provided under section 116 of the Act of 1891, and that if a certain sum has been provided under that section for the purpose of building a school-house they cannot be allowed to enter into any contract or undertake any work involving the expenditure of any greater sum, and therefore that the contract into which the School Board in this case entered was beyond their powers, and not binding upon them. Injunction made perpetual as prayed. If the work done is of some value to the board as the foundation of a smaller building or otherwise, they are to make an allowance for it, to be ascertained by the local judge at Port Arthur. The defendants other than the School Board to pay back to the School Board the whole of the \$2,625 paid on account of the contract, with interest from the time of payment, less such sum, if any as the referee shall find for the allowance as above. The defendants other than the School Board to pay the plaintiff's costs of the action.

ENGLISH AND ITALIAN BRICKWORK.

Early English brickwork is now rare. Little Wenham Hall, Suffolk, of the latter part of the 13th century, shows, says the *Clay Record*, different sizes of brick; these are mixed with stone and flint in parts. The brick are of Flemish shape, though some resemble Roman brick or tiles, and the color varies. We must turn to the Eastern counties for examples of English brickwork. In many of these flint is introduced in the form of panels, and this kind of walling is known as "flush work." Nearly every important church is of this mixture of brick or stone and flint. Layer Marney Hall, Essex, is a noted example of brickwork. The great gatehouse of three stories, flanked by octagonal turrets, with battlements and parapets, and window mullions, exhibits an advanced stage of brickmaking and workmanship. Respecting the size of English bricks, those at Little Wenham Hall measure 9¾ inches in length by 4¾ inches wide and 2¼ inches thick. Those made in Edward II.'s time measure 10 and 12 inches long by 5 and 6 inches wide. The "great brick" of 1374, measured 12 inches long, 6 inches wide, and 3 inches thick. Portions of Hampton Court Palace show some beautiful examples of English brickwork, to which the attention of the student may be directed.

The late Mr. Street, a great authority upon Italian brickwork, points out in his work on "Brick and Marble Architecture" to what a large extent red brick is used with stone. Italian brick are rather larger than ours, but not of better quality; the joints are wide, generally not less than half an inch. The brick used for windows, doorways, and other ornamental features are of finer quality and moulding.

Those who know Italian examples of brick arches and tracery are aware that the cusping of arches is of brick, set in the same radiating lines as the arch, and cut and rubbed to the outline required. He says: "In nearly all cases where brick is used for tracery, it is in the shape of plate tracery. The tympanum of the arch is filled in with a mass of brickwork, through which are pierced the arches over the several lights of the window, and these are supported on marble or stone shafts, with carved capitals instead of monials; and above these sometimes, as in the windows of St. Andrea, Mantua, are three cuspid circles, sometimes only one; or else as in the cathedral of Cremona, the plain brick tampanum is relieved by the introduction of a panel of terra-cotta, bearing the cross on a shield, whilst round its outer circumference delicately treated though large cusping defines the outline of the arch." Outside the arch sometimes a red brick label 2½ inches wide is introduced. In Mantua and Asti these narrow bricks are set between rings of brick and stone voussoirs.

THE "EMPIRE" SCROLL SAW.

This machine is designed for carpenters, builders, cabinet makers and general workshop use; it is thoroughly practical, strong and durable, will cut up to 3 inches thick, and swing 24 inches.

It has wooden arms operating upon an entirely new principle being pivoted in such a manner as to do away with any side-motion, and in connection with the self adjusting saw clamps gives a straight up-and-down motion of the saw blade.

It is arranged to use regularly, 8-inch saw blades, but can be adjusted to use 5-inch blades for very light work, if desired. It has an iron tilting table turned true and polished, which can be changed to any angle for sawing inlaid work. It has an adjustable upright drilling attachment, provided with an "Empire" drill chuck, which will hold from No. 60 to 3-16 inch twist drills. The driving wheel is 24 inches in diameter and the driving belt being the patent V shape, strong power is obtained without any slipping or lost motion.

The foot power has a walking motion, by which much power can be obtained with little fatigue, and it enables the operator to run the machine with both feet, sitting; or one foot, standing, as desired.

The average rate of speed when sawing is about 800 strokes per minute. The height from floor to top of table is 40 inches.

For steam power, tight and loose pulleys, arranged to connect with the driving wheel shaft, are furnished.

The Victor lathe can be used on this machine. Weight of machine, 155 pounds. Boxed for shipment, 240 pounds. This machine is manufactured by the Seneca Falls Mfg. Co., of Seneca Falls, N. Y., from whom any further information may be obtained.

CASTING PLATE GLASS.

The casting tables, the most important pieces of apparatus in a plate-glass works, are nineteen feet long, are nineteen feet wide and fourteen feet wide and seven inches thick. Each is provided with an iron roller, thirty inches in diameter and fifteen long. Strips of iron on each side of the table afford a bearing for the rollers, and determine the thickness of the plate of glass to be cast. The rough plate is commonly nine-sixteenths of an inch in thickness; after polishing it is reduced to six or seven sixteenths. The casting-tables are mounted on wheels, and run on a track that reaches every furnace and annealing oven in the building. The table having been wheeled as near as possible to the melting-furnace, the pot of molten glass is lifted by means of a crane, and its contents quickly poured on the table. The heavy iron roller is then passed from end to end spreading the glass into a layer of uniform thickness. The whole operation of casting scarcely occupies more time than it takes to describe it. Each movement is made with almost nervous rapidity. Few industries offer such fine scenic display as the pouring of molten glass. One feels like crying "encore!" it is so very brilliant. In contact with the cold metal of the table the glass cools rapidly. As soon as possible the door of the annealing-oven is opened, and the plate of glass introduced. The floor of the oven is on the same level as the casting-table so that the transfer can be conveniently and quickly made. When, after several days the glass is taken out of the oven, its surface is found to be decidedly rough and uneven. A small quantity is used in this condition for skylights and other purposes where strength is required without transparency. It is known in the market as rough plate. The greater part of the glass, however, is ground, smoothed and polished before it leaves the establishment.

FIREPROOF CONSTRUCTION.*

In a thoroughly fireproof building it is not alone necessary that the materials of construction should be incombustible and covered with burned clay. (1) The clay used in the manufacture of the fireproofing material must be of a certain kind. (2) The forms of the pieces and the method of putting it together and securing it in place must be based on scientific principles and the experience of those who have studied the subject.

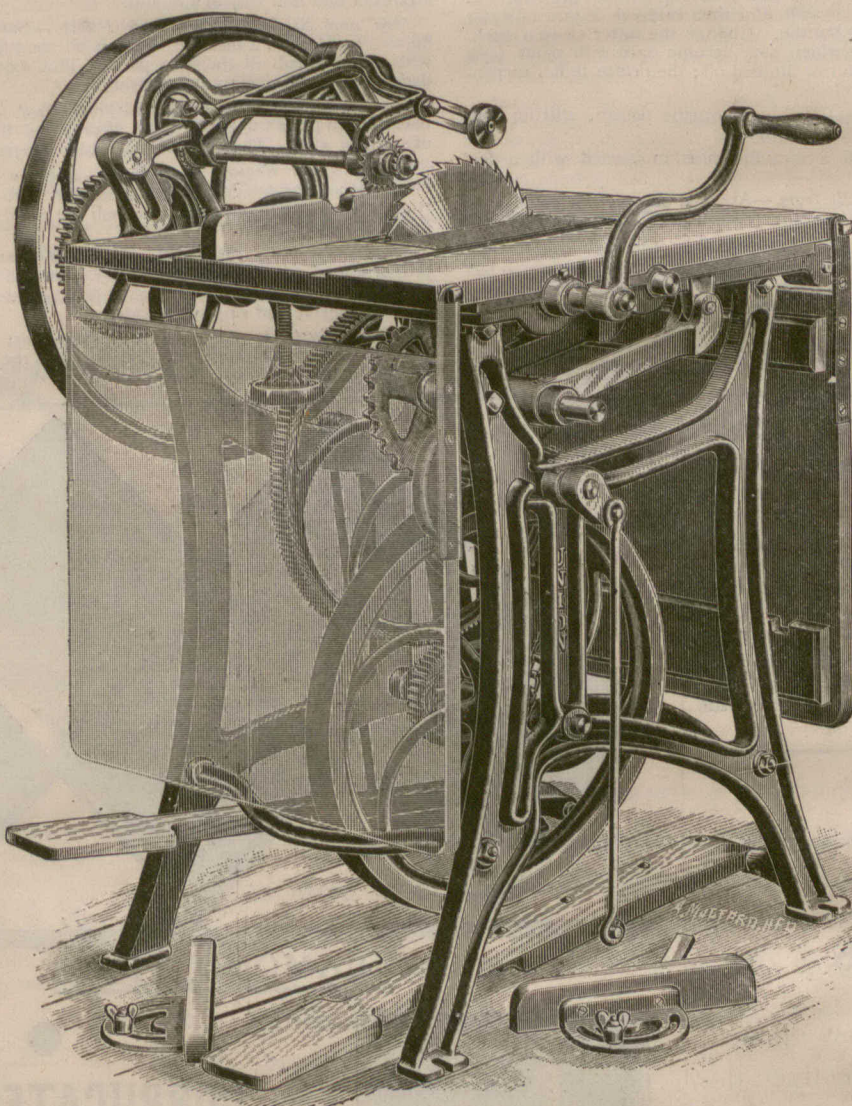
The clay must be of the refractory kind. That is, it must be either a plastic fireclay, a semi-fireclay, or a fireclay mixed with a plastic clay or shale. The best fireclays are too "short" for this purpose and too brittle if highly burned. In the manufacture of porous terra-cotta very few clays have been found that are both practicable for making a good article and reliable to resist fire when in use. So far as I know they have only been found in three places—Brazil, Indiana; Chaska, Minnesota, near Minneapolis, St. Paul; and in some parts of eastern New Jersey. For the manufacture of hard fireclay material, proper clay can be found in many localities. The best I know of are in Utica and Ottawa, Illinois; St. Louis, Missouri; and the eastern clay belt of Ohio, where they exist in the greatest quantities. They are all white and buff clays—the buff clays being preferable on account of their toughness. No clay that burns red or salmon color is fit for a fireproof building material. Of this I am positive. The greatest errors of American architects have been in the acceptance of so-called fireproof materials made of inferior clays.

The form and method of assembling and securing the fire-proof clay materials are the next essential considerations. They involve many principles of construction and provision against expansion, a description of which the limits of this paper will not admit. In securing the material to constructive steel and iron-work many mechanical expedients must be resorted to. The avoidance of these expedients rather than their too extensive use is to be sought. This can be obtained by forms of material that are to a certain extent interlocking, and a special study is often required in new cases constantly arising. I have often seen in specifications the requirements of mechanical

expedients or fastenings, with iron straps and bolts where they might best be avoided, and too much of the same in practice. It is too often forgotten that it is useless to employ for fastenings the same material that we are trying to protect. As a general principle where metallic fastenings or hangers are necessary they should always be either concealed within the fireclay or covered with mortar. All suspended fireproofing should be secured from the back or edges. As an illustration, the common form of roofing with T-irons and book tyles is not a fireproof construction, and will sag and fall from slight exposure to fire on the other side, though thoroughly fireproof on the upper surface. It should not be used unless protected by a suspended fireproof ceiling, all communication with the intervening space being permanently cut off. As a further illustration, all girder covering supported by straps or bands on the outside is useless, and all wooden blocks built into fireproof materials should be avoided.

The Toronto Steel Clad Bath Co. have issued a supplement to their catalogue in which they call attention to their steel clad bath No. 2, and to the fact that after the 1st of May next they will decorate all steel clad baths in light green enamel, with the standard relieved in gold, without extra charge.

*From a paper by J. B. Wright, Consulting Architect, Chicago.



THE "EMPIRE" SCROLL SAW.

USEFUL HINTS.

The following collection of recipes will be found useful for cleaning various kinds of materials:—

Brass or Copper, to Clean.—Mix together 1 oz. oxalic acid, 6 oz. rottenstone and ½ oz. gum arabic pounded finely. Add 1 oz. sweet oil and sufficient water to form a paste. Apply and rub dry with flannel or wash-leather.

Brass, to Clean.—(1.) Wash with rock alum boiled in strong lye, in the proportion of 1 oz. to a pint; polished with dry tripoli. (2.) Coat the part to be cleaned with a piece of rag moistened with nitric acid; as soon as it turns a light yellow, rub dry.

Bronze, to Clean.—Fly specks, etc., may be removed by means of a mixture of lavender oil, one drachm; alcohol, one ounce; water, one and one-half ounce. Use soft sponge, rubbing as little as possible.

Bronze Statuary, to Clean.—Use weak soap-suds or aqua ammonia.

Brushes, Hair, to Clean.—Dissolve a piece of soda the size of a walnut in a quart of water. After combing out the hair from the brushes, dip them, bristles downward, in and out of this solution, keeping the backs and handles as free from the water as possible. Repeat this until the brushes look clean. Then rinse in cold water, shake well and wipe the backs and handles with a towel, but not the bristles, as it makes them soft as does also the use of soft soap. Set the brushes in the sun or near a gentle fire.

Brushes, Paint, to Clean.—(1.) Clean with turpentine, pressing out all particles of color upon a marble slab, and then suspend in jars of water not allowing them to touch the bottom. Change the water twice a week. (2.) To clean old paint brushes which have become hard with paint, soak the brushes twenty-four hours in raw linseed oil; then rinse in hot turpentine, repeating the process until clean.

Emery, to Clean After Using.—Boil with caustic potash, stirring constantly, then wash with dilute acid, and dry.

Files, to Cleanse.—Rub with a scratch brush moistened with a few drops of benzole.

Floors, to Extract Paraffin Oil from.—Apply a strong, hot solution of oxalic acid, and afterwards use the scrubbing brush.

Glass, to Clean.—For glass that has been run onto with colors while doing the frames; first take a sharp edged putty knife, but one which has no nicks on the edge, cut the paint off as low as you can without scratching the glass. Rub with a mixture of turps, oil and pumice stone. Clean off with a rag and soap. Wash and polish with a cotton rag.

Granite, Removal of Stains from.—(1.) A paste of 1 oz. oxgall, 1 gill of strong solution of caustic soda, 1½ tablespoonfuls of turpentine, with

enough pipe clay to make it thick, scour well. (2.) Use strong lye or make a hot solution of 3 lbs. of common washing soda dissolved in 1 gal. of water. Lay it on the granite with a paint brush.

Grease Spots, to Kill before Painting.—Give the surface a wash with saltpeter in solution or very thin lime whitewash. Soap-suds if used, must be well rinsed off or the paint will not dry over.

Grease, to Remove from Stone Steps.—Pour strong soda or boiling hot water over the spot; lay on it a little fuller's earth made in a thin paste with boiling water; let it remain over night and if the grease be not removed repeat the process. Grease may sometimes be removed by rubbing with a hard stone, using sand and very hot water with soap and soda.

Hair Pencils, to Clean.—Rinse with turpentine; work the brush in fine ashes, and shake the hair out well.

Hands, to Clean.—To remove paint use linseed oil and if necessary turpentine also. Use a nail brush instead of a knife for cleaning around the nails. Do not brush too often. After the hands are well brushed, washed and rinsed, dry on a soft towel and apply the following, pulverized borax three drachms, dissolved in two tablespoonfuls hot water, add to this glycerine, ounce, bay rum one ounce, a few drops perfume. A few drops after cleansing the hands and before going to bed will keep them soft and white, and remove the dry and uncomfortable feeling of which so many painters and paper hangers complain. (2.) Take a wine glass full of eau de cologne and another of lemon juice; then scrape two cakes brown Windsor soap to a powder and mix well in a mould.

Iron and Steel to Clean and Polish.—Saturate a spongy piece of fig tree wood with a mixture of sweet oil, and finely powdered emery and with this well rub all the rusty parts. This both cleans and polishes, rendering the use of whitening unnecessary.

Iron and Steel, Fine, to Clean e from Rust.—Cleanse first with a paste made of ten parts tin putty, eight of prepared buck's-horn, and twenty-five of spirit of wine. Then rub with soft blotting paper.

Mahogany, to Remove Spots from.—Apply a little aqua fortis and water or oxalic acid and water, rubbing the part with a cork till the colour is restored, being careful afterward to wash the wood with water, and to dry and polish as usual.

Marble, to Clean.—Mix soda, pumice stone and finely powdered chalk in proportion of two parts of the former to one of the latter; pass through a sieve and mix with water to form a paste of same consistency. Rub well into the marble and rinse with water.

Marble Busts, to Clean.—(1.) Remove dust and wash with very weak solution of hydrochloric acid. Soap injures the color of the marble. (2.) Brush the marble with a clean paint brush dipped in a solution containing

Mr. H. E. Burnett, manager of the building firm of Wm. J. Davis & Co., Chicago, has recently visited Canada with the object, it is said, of establishing a branch of the firm's business in this country.

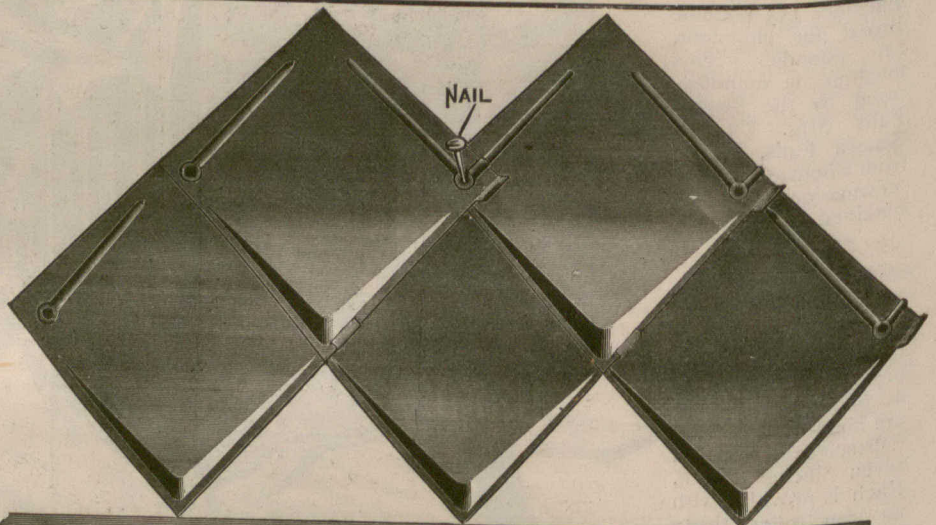
The Carpenters' and Joiners' unions of Montreal are said to have recently made arrangements with most of the contractors of that city whereby in future 9 hours shall constitute a day's work. The unions are also said to have determined a standard day's pay for all carpenters, the enforcement of which will be attempted after the first of May next.

Room Mouldings

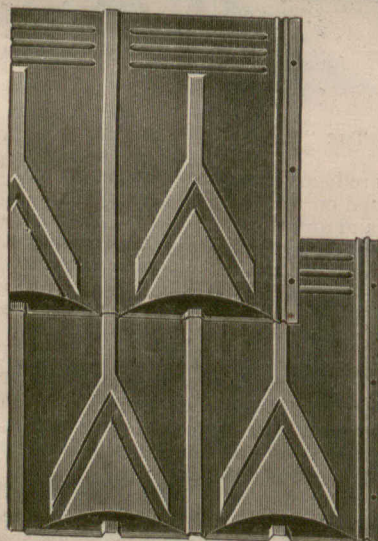
New goods just opened. Rich and effective designs specially coloured to match our Wall Papers and Ingrains; also Chair Rails, Ceiling and Panel Beads, Coves, etc., in Gold and shaded effects, Natural Oaks, etc.

We colour mouldings to match any paper.

M. STAUNTON & CO.
6 KING STREET WEST.



DIAMOND TILES



"Empire" Patent Shingles

CORRUGATED IRON.

V CRIMPED AND PRESSED
STANDING SEAM ROOFING
for all classes of buildings.

Hayes' Patent
Steel Lath

WRITE FOR PRICES.

METALLIC ROOFING CO., LIMITED.
MANUFACTURERS

706 Craig Street, MONTREAL. 82 Yonge Street, TORONTO.

Eastlake Patent Shingles

POWER'S**TEMPERATURE REGULATOR**

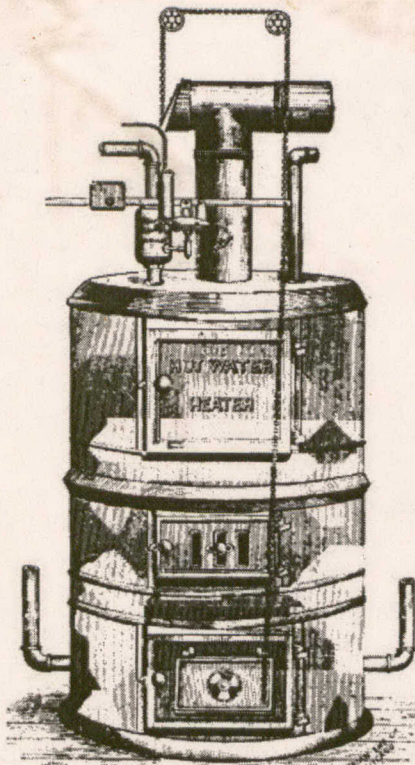
... FOR ...

Controlling Hot Water or
Steam Heating Apparatus.**INDISPENSABLE IN ANY HOUSE WHERE HOT WATER IS USED.**Thousands in use in Canada.
Millions in use in United States.Entirely AutomaticNo ElectricityNo ComplicationSaves FuelEasily ConnectedFully Guaranteed*SPECIFIED BY ALL LEADING ARCHITECTS.*

MANUFACTURED BY

THE TORONTO RADIATOR MFG. CO.
TORONTO, ONT.

Agencies: Montreal, Quebec, St. John, Hamilton, Winnipeg, Victoria, B.C.



... THE ...

Confederation Life
AssociationJ. K. MACDONALD,
Managing-Director.*Head Office: TORONTO.*W. C. MACDONALD,
Actuary.**Policies****Unconditional** from date of issue**Automatically Non-forfeitable**

after two years

EXTENDED INSURANCE being granted for the full amount of the policy until the entire reserve value is used up.

Adamant Wall Plaster

.... IS

Fire Proof

Water Proof

Time Proof

ENDORSED BY SANITARY ENGINEERS.

Adamant will save you three weeks' time when building. Adamant is hard. It is convenient. It is Adamant. The best Architects and Contractors use it with satisfaction. We want to prove to you that it is the **Best Plaster.**

WRITE US FOR SPECIFICATIONS, PRICES AND LITERATURE.

ADAMANT MFG. CO. OF AMERICA

100 Esplanade East,

TORONTO, CAN.

The E. Harris Company of Toronto, Ltd.

... IMPORTERS OF ...

44 KING STREET EAST AND
OLD POST OFFICE LANE.

British and German **PLATE GLASS** TORONTO

A complete stock of Rowney's and Winsor & Newton's Artist's Materials.

VARNISHES, OILS, WINDOW GLASS, COLORS, BRUSHES, ETC.

ENGLISH AND CANADIAN PORTLAND CEMENTS,
LIME AND HYDRAULIC CEMENT,
SEWER PIPES, FIRE BRICK AND FIRE CLAY,
MORTAR STAINS AND LUMBER IN CAR LOTS,
PLASTER AND HOLLOW FIREPROOFING MATERIAL.

Bonded Warehouse and Yard: C.P.R., North Toronto Station.
Office Telephone, 701. Yard, 4091.

E. D. MORRIS

Offices: 36 VICTORIA STREET, TORONTO.



GUEST & CO.
TORONTO.

HYDRAULIC ENGINE

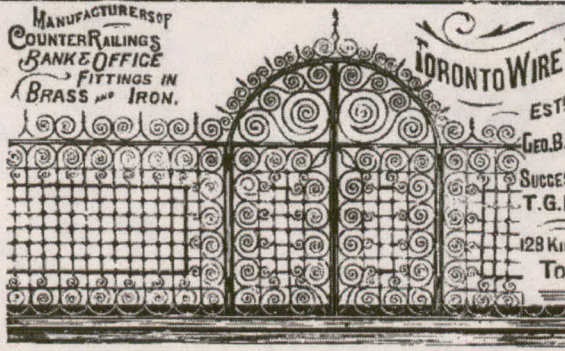
For Organ Blowing.

This Engine is adapted to the requirements of the largest and smallest Parlor and Church Organs.

Endorsed and used by all well-known Organ Builders and in the principal churches and musical academies in Canada.

Testimonials Furnished.

MANUFACTURERS OF
COUNTER RAILINGS
BANKE OFFICE
FITTINGS IN
BRASS AND IRON.



TORONTO WIRE WORKS

ESTD 1854.

GEO. B. MEADOWS PROP.

SUCCESSOR TO
T. G. RICE.

128 KING ST. WEST

TORONTO, ONT.

Bank and Office (

) Counter Railings

WINDOW BLINDS AND SIGNS

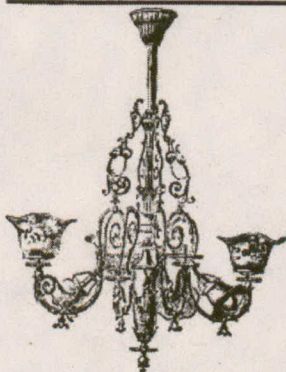
BASEMENT WINDOW GUARDS.

Write for Catalogue and Price List.

MANUFACTURED BY

THE B. GREENING WIRE CO.
(LIMITED)

HAMILTON, - ONTARIO.



Gas, Electric, Combination

FIXTURES AND BRACKETS

ENGLISH, CANADIAN AND
AMERICAN DESIGNS. . . .

A SELECT STOCK OF

.. Gas and Electric Globes ..

ALWAYS ON HAND.

JAS. BARWELL

88 Bay Street - TORONTO.

Drawings and prices on application.
The trade supplied.

two ounces of carbonate of soda to one quart of water. Rinse constantly with cold water.

Mirrors.—Wet the surface of the glass with gin to remove stains. Then rub with a cloth dipped in powdered blue. Polish with a silk handkerchief. Be very careful not to touch frames.

Paint Stains, to Remove from Clothes.—If the paint is fresh use turpentine or alcohol. Chloroform will remove dry white paint, which has resisted the action of ether, benzole and bisulphide of carbon.

Paint, to Clean.—(1.) Dip a flannel cloth into warm soapsuds, then into whitening and apply it to painted surfaces. Then wash with clean water. (2.) Dissolve ½ oz. glue and a piece of soft soap about the size of a walnut in three pints of warm water, brushing the surface with this solution, using a well worn whitewash brush. Rinse with cold water and let dry of itself.

Paint Stains, to Remove from Glass.—American potash, 3 parts, unslaked lime 1 part. Lay this on with a piece of wood, allowing it to remain until the paint becomes soft.

Rust, to Remove.—(1.) Cover the metal with sweet oil well rubbed in and allow to stand 48 hours; smear with oil applied freely with a piece of cotton wool, after rubbing the steel. Then rub with finely powdered slaked lime. (2.) Rub slightly on with the finger a small quantity of the dry powder of magnesia, allowing it to remain for an hour or two, then brush off.

Varnish Brushes.—Should the varnish brush drop to the floor or become soiled, clean out well in varnish. Fill with varnish and place in the keeper and in time the dust will settle to the bottom. By cleaning with turpentine which is very volatile, the dust and dirt are drawn up to the tin of the brush and will work out when used again.

Varnished Paints, to Remove Stains.—When the varnish is hard enough polish with water and tripoli, very finely ground, or with a great deal of water and rottenstone. Then rub with a very fine rag, dipped in sweet oil. Complete by drying with clean rag.

Varnish to Remove.—Wipe off all dust with a damp sponge. It is some times useful to give a fresh coat of varnish to obviate the necessity of much

rubbing. When the new varnish becomes dry, both coats may be easily removed with an ordinary solvent. (2.) Hard varnish requires a mixture of spirits of wine and turpentine, which are made to unite, by adding a small quantity of carbonate of potash. Shake well before using, and pour a very little upon a piece of flannel and rub therewith. Repeat this operation over the whole of the paint frequently changing the flannel. Lastly sponge the paint with water, slightly soapy, and immediately wash with clear water. (3.) For old intractable varnishes rub with a large cork, dipped in impalpable pumice-stone powder. Brush off the powdered varnish from time to time, and, when it assumes a whitish appearance cease rubbing that part.

Walls, Smoky, to Clean.—Brush well, wash with a strong solution of pearlash, rinse at once with clean water. Then give the wall when dry, a thin coat of fresh slaked lime, with considerable alum dissolved in hot water added. After this has dried apply whitening and gold size.

Wall Paper, to Remove Grease from.—Lay several folds of blotting paper on the spot and hold a hot iron near it until the grease is absorbed.

Zinc, to Clean.—Mix one part of sulphuric acid with twelve of water. Dip the zinc into it for a few seconds and then rub with a cloth.

Wood, to Remove grease and Smoke Marks Preparatory to Painting.—Wash with a solution of saltpetre in water or with very thin lime whitewash. Soapsuds may also be used if thoroughly rinsed with clean water.

Window Panes, to Remove Paint Splashes.—Use, by means of a piece of soft flannel, a very hot solution of soda.

Whitewash to Remove.—Apply with a whitewash brush, a thick paste of wheat flour, in which put considerable alum. Shut the doors and let it stand over night.

Paint, to Remove.—Four pounds Irish moss; 3 pounds methylated spirits and 30 pounds water, boiled, and a solution of 16 pounds caustic potash in 28 pounds water added. Stir the whole until cold and solidified to a brownish gelatinous mass. Apply with a brush, allow to remain from twenty minutes to an hour, then wash thoroughly.

Announcement has been made that Messrs. McRae & Company, of Ottawa, have been given the contract for further borings in connection with the Prince Edward Island tunnel.



should be true in color, brilliant in tone, reliable in quality, of unvarying uniformity, and lasting. HIGGINS' AMERICAN DRAWING INKS are known the world over for these and other good qualities. Always ask for HIGGINS' DRAWING INKS whether you want Black or Colors, for brush or pen work. Twenty-five cents per bottle AT ALL DEALERS; thirty-five cents by mail, prepaid, from the manufacturers. Sample card showing actual inks sent free.

CHAS. M. HIGGINS & CO., Mfrs.,
168-170 English St., BROOKLYN, N. Y.
English Depot, 7 & 9 St. Bride St., LONDON, E. C., ENG.

HEATING . . .

AND

VENTILATION

The **FULLER & WARREN SYSTEM** of Warming, Ventilating and Sanitary Construction for Schools and Public Buildings is the best and most economical in use.

Robb Engineering Co.
(LIMITED)

AMHERST, - NOVA SCOTIA,
Agents for Canada.

WORLD'S COLUMBIAN EXPOSITION.

EXECUTIVE COMMISSIONER FOR CANADA.
J. S. LARKE.

CANADIAN PAVILION, JACKSON PARK.
CHICAGO, U. S. A.

19th, December, 1893.

Messrs Carroll, Vick & Co.,

T O R O N T O,

C A N A D A.

Dear Sirs;—

I have this day received an authorized list of the Medals and Diplomas awarded to Canada at this Exposition, and I am happy to be able to inform you that an award has been granted to you for your exhibit of SANDSTONE and FREESTONE in Cubes.

The Medals and Diplomas will not be ready for some months yet, probably not till next June, —when all the Medals and Diplomas awarded will be transferred to the Canadian Government and that Government will either send them to the successful exhibitors or they will be delivered at public meetings to be held in some of the large Cities.

Yours very truly,

J. S. LARKE.

Executive Commissioner.

Please mention the CANADIAN ARCHITECT AND BUILDER when corresponding with advertisers.

Very Important to Architects and Builders!

If you want the most perfect plumbing you must use the "Sanitas" goods. They have no equal as to perfect sanitary arrangements. The leading hotels and large buildings throughout the United States use the "Sanitas" adjustable traps to save venting.

SANITAS MFG. CO., Bank St., Ottawa, Ont.

Don Valley Pressed Bricks

TWO HIGHEST AWARDS AT CHICAGO.

Gold Medal for Bricks -:- Gold Medal for Terra Cotta

EXTRACT FROM THE REPORT OF JUDGES ON WHICH THE AWARDS WERE GIVEN :

"In our estimation there are no bricks on the Exhibition Grounds to be compared to those manufactured by the Don Valley Brick Works."

60 Adelaide Street East

OFFICE AND SHOW-ROOMS :

TORONTO

The Port Credit Pressed Brick and Terra Cotta Co.

(Successors to the Thomas Nightingale Pressed Brick Co.)

... MANUFACTURERS OF ...

Plain, Moulded
and Ornamental

PRESSED BRICKS

Farm Drain Tile,
Roofing and Floor Tile,
Paving Brick, &c.

Works : Port Credit, Ont.

Office: **52 Colborne St., Toronto**
Telephone 298.

Please mention the CANADIAN ARCHITECT AND BUILDER when corresponding with advertisers.

WM. TALLMAN.

Established 1870

W. F. TALLMAN.

BEAMSVILLE PRESSED BRICK CO.

MANUFACTURERS OF

Fine Pressed and Ornamental

BRICKS, TERRA COTTA,

Red, Brown, Buff, and other shades,

COMMON BRICK, FARM, DRAIN AND ROOFING TILE, &c.

Our goods have stood the test for a quarter of a century, and have been pronounced second to none in every respect. They are being used in the very best buildings in the country, which in itself is sufficient evidence of their quality.

We are now prepared to supply Terra Cotta and Roofing Tile in any quantities.

→ WRITE US FOR PRICES ←

ADDRESS ALL COMMUNICATIONS TO

Branch Office : 145 St. James Street, Montreal.

... **BEAMSVILLE, ONT.**

THE HAMILTON AND TORONTO **SEWER PIPE CO.**



WATER PIPE CULVERT PIPE
FLUE LININGS CHIMNEY TOPS
SMOKE PREVENTIVES INVERTS, &c.

Write Head Office for Discounts:

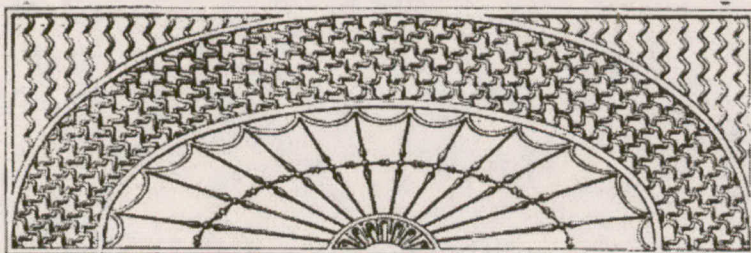
HAMILTON, - ONTARIO.

S. KNECHTEL

... MANUFACTURER OF ...

MOORISH · FRET · WORK

Rope, Spiral and Bead Mouldings
 and all kinds of Spiral Turnings



Newels

... AND ...

Balusters

Table Legs, etc., etc.

IN STRAIGHT, TAPERING OR
 IRREGULAR FORMS.

ALL WORK EXECUTED FROM
 ARCHITECTS' DETAILS.

SEND FOR PRICES

MAPLE HILL - - ONTARIO

MILLER BROS. & TOMS

(Successors to Miller Bros. & Mitchell, Established 1869.)

MACHINISTS, MILLWRIGHTS AND ENGINEERS

... BUILDERS OF ...

Standard · Elevators

for all purposes, of any capacity, and operated by any desired motor.

Foundry and Machine Shop Cranes, any capacity.

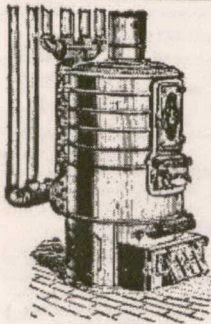
Builders' Winches and Hoisting Engines, all sizes.

Builders' Derricks, Hand or Steam, 1, 1½, 2, 3, 5 and 8 tons.

23 YEARS' EXPERIENCE.

Any one in want of anything in the above lines, or in general machine work, will save money by addressing

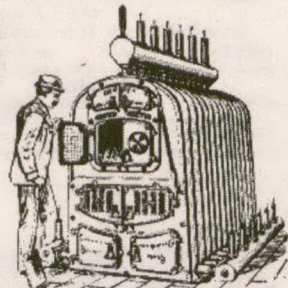
MILLER BROS. & TOMS, MONTREAL.



OXFORD DIRECT

OXFORD HOT WATER HEATERS.

Embodying the most perfect improvements and valuable features known to modern science. Have stood the most SEVERE TESTS. Acknowledged by ALL to be the GREATEST of ALL Hot Water Heaters. Try them and be convinced



OXFORD CROWN INDIRECT.

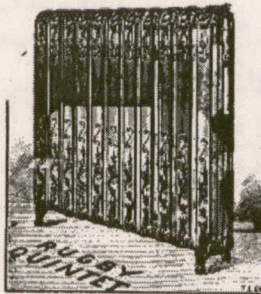
RUGBY

RADI-

--- Steam and ---
Largest Radi-
Original in

Specially adapted to large buildings, rooms, halls, and corridors where floor and wall space is limited.

WE SUPPLY THE TRADE ONLY.
Trade catalogue supplied on application.
Send for "How Best to Heat our Homes."



QUINTET

ATORS.

--- Hot Water ---
ator Loop in the world.
design and ornamentation.

THE GURNEY FOUNDRY CO., TORONTO.
GURNEY-MASSEY CO., MONTREAL.

Plaster Your Building With

ACME CEMENT PLASTER

"NATURE'S PERFECT PLASTERING MATERIAL."

Is not an artificial compound, but perfect in its natural state, requiring only calcining to prepare it for use. No acids, chemicals, hair, fibre or ingredients of any kind used in its manufacture; requires only the addition of sand in its application to the wall. More simple in application, uniform, reliable, durable, stronger, cheaper and requires less labor than any plastering material ever produced. Most perfect fire-proof plastering material on the market. 30,000 tons used in the United States in 1891 (1 ton Acme will cover same surface as 3 tons of the patent materials that are furnished to the trade mixed with sand.) Nearly 2,000 tons used on the World's Fair buildings at Chicago.

Does not require skilled labor. A house plastered with this material can be occupied 4 to 6 weeks sooner than if plastered with Lime Mortar. Owing to its density it makes a house warmer in winter and cooler in summer. But little more expensive than common lime mortar.

Send for samples, &c., prices delivered at any point, and further information to

B. L. NOWELL & CO., AGENTS

12 & 14 NAZARETH STREET, MONTREAL.

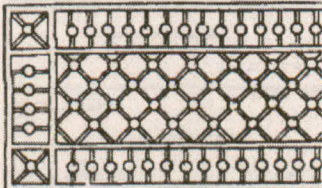
ORNAMENTAL

Grille and Fret Work

... FOR ...

- DOORS
- ARCHES
- WINDOWS
- AND
- STORE
- DECORATIONS

Any design to order or designs furnished.



OTTERVILLE
MANUFACTURING CO., LTD.

Otterville, Ontario.

THE CANADIAN OFFICE & SCHOOL FURNITURE CO. LTD.
PRESTON ONT.

FINE BANK, OFFICE, COURT HOUSE & DRUG STORE FITTINGS
OFFICE, SCHOOL, CHURCH & LODGE FURNITURE
SEND FOR CATALOGUE.

W. & F. P. CURRIE & CO.

MONTREAL

Importers of

- SCOTCH DRAIN PIPES,
- CHIMNEY TOPS,
- VENT LININGS,
- FLUE COVERS,
- FIRE BRICKS,
- FIRE CLAY,
- WHITING.



- PORTLAND CEMENT,
- ROMAN CEMENT,
- CANADA CEMENT,
- WATER LIME,
- PLASTER OF PARIS,
- BORAX,
- CHINA CLAY.

MANUFACTURERS OF BESSEMER STEEL, SOFA, CHAIR AND BED SPRINGS.
A LARGE STOCK ALWAYS ON HAND

Architects.

FRANK DARLING, HENRY SPROATT,
J. A. PEARSON,
DARLING, SPROATT & PEARSON,
Architects,
Members of the Ontario Association of Architects.
Mail Building, TORONTO.

STRICKLAND & SYMONS,

ARCHITECTS

18 Toronto Street, TORONTO.

Henry Langley, Chas. E. Langley,
LANGLEY & LANGLEY,

ARCHITECTS
Members of the Ontario Association of Architects.
Canada Life Building, King St. W., TORONTO.

EDMUND BURKE,

ARCHITECT

Successor to the late W. G. Storm, F.C.A.,
Union Loan Chambers,
28 AND 30 TORONTO STREET, TORONTO.

JOSEPH CONNOLLY, R.C.A.,

ARCHITECT

OFFICES: ST. JAMES BUILDINGS,
46 Church Street, TORONTO.

S. HAMILTON TOWNSEND,

ARCHITECT

53 King Street East, TORONTO.

EDWARDS & WEBSTER,

ARCHITECTS

18 Victoria Street, TORONTO.

DAVID ROBERTS,

ARCHITECT

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

Arthur R. Denison, Fred. Fellowes,

DENISON & FELLOWES,

Civil Engineers and Architects,
NORTH OF SCOTLAND CHAMBERS,
20 King St. West TORONTO.

W. A. LANGTON,

ARCHITECT

Canada Life Building, TORONTO.

E. J. LENNÖX,

ARCHITECT

S. E. Corner King and Yonge Streets,
TORONTO.

JAMES BALFOUR, A.R.C.A.,

ARCHITECT

—) AND (—)

Building -:- Superintendent,

Wentworth Chambers,
25 James Street South,
HAMILTON.

G. M. MILLER,

ARCHITECT

15 King Street East, TORONTO.

R. C. Windeyer, R. C. Windeyer, Jr.

WINDEYER & SON,

ARCHITECTS

20 Canada Permanent Buildings,
Toronto Street TORONTO.

E. R. BAHINGTON'

ARCHITECT

Rooms 29 and 30, Union Loan Building,
28 and 30 Toronto Street, TORONTO.

J. McBEAN,

Architect and Valuator,

23 Toronto Chambers, Toronto St., TORONTO.
Telephone No. 2501.

G. WILLIAM KING,

ARCHITECT

9½ Adelaide Street East, TORONTO.

JAMES A. ELLIS,

ARCHITECT

BUILDING SUPERINTENDENT AND APPRAISER,
Room 7, Dundas Chambers,
TORONTO JUNCTION.

J. C. FORSTER,

ARCHITECT

Member Ontario Association of Architects.

MEIRS BLOCK, OWEN SOUND.

POWER & SON,

Architects and Building Surveyors,

KINGSTON,

ONTARIO.

GILMOR & CASEY,

House and Sign Painters,

Telephone 149. 149 VICTORIA STREET.

GEORGE ROWE,

DERRICK BUILDER

All kinds Builders' Supplies. Scaffolding a Specialty.
262 BATHURST STREET, TORONTO.



PUBLISHED EVERY SATURDAY.
DEVOTED TO
ARCHITECTURE, BUILDING, & DECORATION.
\$6.00 per annum. 15c. per copy.
WM. T. COMSTOCK, Publisher,
23 Warren Street, New York.

"LIGHT, MORE LIGHT!"
IT MEANS HEALTH.

BUT "BOXED AND CASED-IN" BATHS EXCLUDE THIS
GREAT DISINFECTANT.

USE....

Sanitary "Steel-Clads"

EVERYTHING OPEN
NO NON-GET-AT-ABLE CORNERS.

MANUFACTURED BY

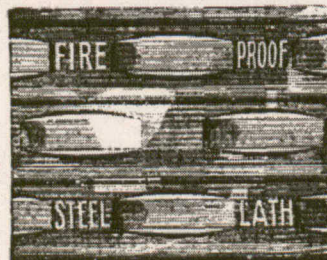
Toronto Steel-Clad Bath and Metal Co., Ltd.

A. G. BOOTH, Sec.-Treas.

123 Queen St. East, TORONTO.

BOSTWICK PATENT

**A Great Saving of Material
and Labor.**



Recommended by Architects and extensively used by Builders.

**FIRE, RAT, VERMIN
AND LIGHTNING PROOF**

The magnificent hotel of the Canadian Pacific Railway, Quebec, is being lathed throughout with this celebrated fire proof Lath.

ILLUSTRATED PAMPHLET AND SAMPLE FREE.
CORRESPONDENCE SOLICITED.

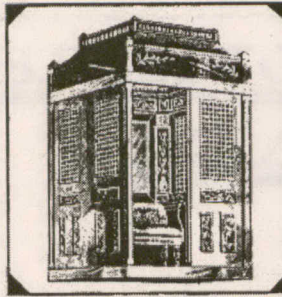
BOSTWICK METAL LATH CO.

T. A. MORRISON, Salesmanager.

118 ST. PETER ST.

MONTREAL

Toronto Agent: E. D. Morris, 34 Yonge Street.
Hamilton Agent: W. A. Freeman.



ELEVATORS

FENSOM ELEVATOR WORKS
52-54-56 DUKE ST
TORONTO.

ELECTRIC HYDRAULIC
STEAM & HAND-POWER
PASSENGER & GOODS
ELEVATORS. DUMB WAITERS

ALEXANDER BREMNER,

IMPORTER OF

Scotch Drain Pipes and Connections

ALL SIZES.

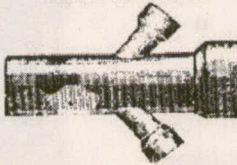
FIRE BRICK,

FIRE CLAY,

FLUE COVERS,

CHIMNEY TOPS,

VENT LININGS.



ENAMELLED SINKS,

CALCINED PLASTER.

WHEEL-BARROWS,

GARDEN VASES,

COAL OIL, &c.

PORTLAND, ROMAN AND CANADA CEMENTS.

Telephone 356.

50 Bleury Street. MONTREAL, P. Q.

THE GUELICH SILICA BARYTIC STONE CO.

OF ONTARIO, LIMITED

WATERPROOF FLOORS

For Malt Houses, Breweries, Slaughter Houses, Stable and Cellar Floors, etc.

STREET PAVING AND SIDEWALKS A SPECIALTY.

Estimates given promptly on application.

WALTER MILLS, General Manager.

Head Office: INGERSOLL, ONT.

B. H. CARNOVSKY,

INTERIOR CABINET DECORATIONS

And all kinds of Furniture
MADE TO ORDER.

CHURCH WORK A SPECIALTY.

128 AND 130 ONTARIO ST.,
- KINGSTON, ONT.

Legal.

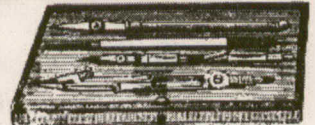
FRANK DENTON, B.C.L., ANDREW DODS,

DENTON & DODS,

Barristers, Solicitors, Notaries, etc.

104 Adelaide St. East. - TORONTO.

Money to loan on buildings in course of erection.



HEARN & HARRISON

... OPTICIANS ...

Surveying and Draughting Instruments

ARCHITECTS' SUPPLIES, ETC.

1640-42 Notre Dame St. - MONTREAL.

BRONZE METAL

HARDWARE

... NEW DESIGNS IN ...

CORBIN'S AND YALE'S MAKES.

RICE LEWIS & SON, LTD.

Wholesale Hardware Merchants

... TORONTO

TO BUILDERS, CONTRACTORS AND STONE DEALERS:

Before purchasing elsewhere it would be well to get quotations from **THE TORONTO AND ORILLIA STONE QUARRY CO. (Limited)**, who have just opened a large Lime Stone Quarry near Longford, Ont., and are prepared to supply in any quantity

RUBBLE AND DIMENSION STONE

in sizes from 4 inches to 28 inches in thickness.

A. TAIT, President.

E. C. WAINWRIGHT, Sec.-Treas.

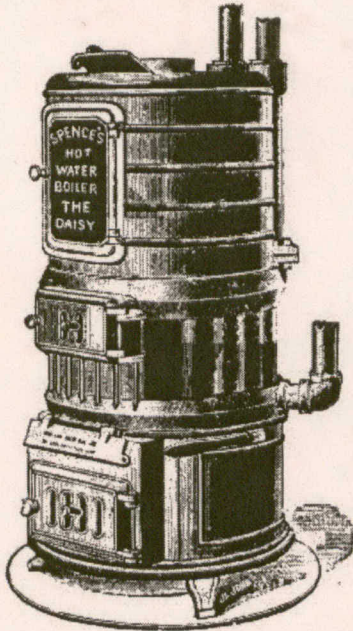
Head Office: ORILLIA.

SPENCE

"DAISY"

HOT WATER

HEATER



∴ **D**URING the past 12 months the "Daisy" has had an unbroken record, and has been, if possible, more popular with intelligent builders and householders. We have undoubted proof that a house will sell or rent to better advantage when it is heated by the "Daisy."

Do not be deceived with many of the clumsy imitations which are in the market. The "Daisy" cannot be surpassed; it never fails to do all we claim for it.

The best proof we can offer of its popularity is the increased demand.

We have introduced several useful improvements, and are also preparing patterns for a heater having a capacity of 3,500 feet of 1 inch pipe, thus filling the gap between a No. 6 and 7.

Send for descriptive or other information.

. . . Stable Fittings . . .

WE HAVE ALWAYS ON HAND A FULL SUPPLY OF

WROUGHT, CAST IRON AND BRASS STABLE FITTINGS.

Special Designs made to order.

Write for Illustrated Catalogue and Price List.

WARDEN KING & SON

TORONTO

MONTREAL

"Truth is Mighty and Must Prevail."

Safford Patent Radiators

FOR

HOT WATER AND STEAM

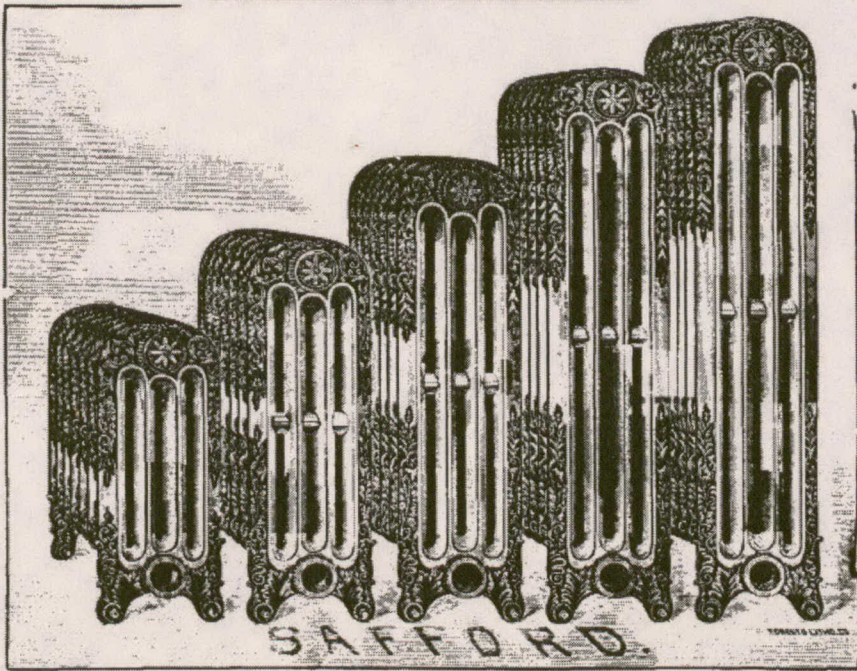
LEAD THE WORLD

No

**BOLTS
PACKING
RED LEAD
LEAKS**

All

**SCREWED CONNECTIONS
TESTED TO 80 LBS.
GUARANTEED
CAREFULLY CLEANED**



Some of our references are :

- NEW PARLIAMENT BUILDINGS
- CONFEDERATION LIFE ASSOC'N
- BOARD OF TRADE
- TORONTO UNIVERSITY
- WYCLIFFE COLLEGE
- NEW UPPER CANADA COLLEGE
- FREEHOLD LOAN & SAVINGS CO.
- AND THOUSANDS OF OTHERS.

Toronto, Ont.

We are the largest manufacturers of Radiators in Canada and sole makers of "Safford Radiators."

The Toronto Radiator Mfg. Co., Ltd.

Branch Warerooms :
MONTREAL,
QUEBEC,
ST. JOHN, N. B.
HAMILTON,
WINNIPEG, MAN.
VICTORIA, B. C.

TORONTO, ONT.