

INDEX

CANADIAN

ARCHITECT AND BUILDER



VOL. VIII.



1895:

C. H. MORTIMER, Publisher
TORONTO-CANADA

INDEX

	Page		Page		Page
Architectural Reminiscences	7	Hunt, Richard M., Death of	93	Safe Building Requirements	15
Accident at Montreal Street Railway Co.'s Building	18	High Buildings Unsanitary	114	Shingles, Red Cedar	1-viii
Architectural Guild of Toronto	28	How to Construct and Equip Mills, etc., as Fire Hazards	114	Scratches in Plate Glass	2-viii
Acoustics, Points on	43	Hutcheson, A. C., R.C.A.	117	Staff	41
Aesthetic Unity of the Fine Arts	46	High Buildings in San Francisco	127	Society of Architects, London, Membership in	52
Australian Examination Paper	57	Halifax Sanitary Regulations	137	Sawing Stone by Wind Power	53
Application of Color to Architecture	58	Hudson River Bridge	140	Survey of the Building Season	75
Architectural Competitions	63	Hamilton Boy's Success	143	Sub-estimating and sub-contracting, Code of Practice for	89
Asphalt for Street Paving	83	Hamilton Art School	147	Students Examinations	91
Adjoining Owners, Rights of	84	International Exhibition at Montreal	63	Structural Iron, Use of, Increasing	103
Albert Hall, London, Fire Escape from	84	Inexperienced Contractors, Troubles of	92	Sudden Death of a Well Known Architect	108
Age of Brick, the	87	Improvements in House Drainage	104	Swedish Order to a Toronto Architect	114
Approximate Estimates	90	Ivy Plant not Injurious	115	Sarnia Collegiate Institute	125
Acoustical Defect, Discovery of	103	Ivy on Parliament Buildings	127	Side Talks with the Builder	125
Area Without Fire Walls	104, 114	Ireland Building Collapse	139	St. John Exhibition	125
An Arch Collapses	109	Jennings, Wm. L., C.E.	3	Surveying by Photography	10-viii
American Institute of Architects	113	Jamieson Building Round Corner	139	Stones Part of the Land	127
Architect's Vigorous Indictment	115	Keating, E. H.	86	St. Louis City Hall	128
Architect's Education, Requirements of	136	Keep out of Ruts	114	Sawdust for Buildings	128
Architects and Builders in Convention	138	Lincoln Cathedral	4	Should Master Plumbers Handle Tools	128
Art Students League Exhibition	140	London Competition, the	41	Specifications of Government Buildings	128
Bystander	4, 85	Legal	69, 6-viii	Strength of Bridge and Trestle Timbers	132
Bow Windows	7	Licensing of Architects	73	St. Albans Cathedral	140
Building in Canada in 1894	8	Low Contract Prices	45	Should Architects be Licensed	141
Bearing Power of Foundations	14	Lifting a Roof	107	Safety of Hot Water Heating Systems	146
British Columbia Affairs	20	Lime Combine	105	Sketch Club, Toronto	145
Building Season of 1895	37	Legal View of an Architect's Responsibility	121	Transmission of Heat	3
Building Construction in its Relation to Fire Protection	38	Lien Law	140	Trimming Joists	5
Bribes to Architects	55	Lien Law, Defects of the Ontario	144	Toronto Builders Exchange	34, 41
Buffalo Real Estate Boom	74	London Correspondence	147	Tender vs. Municipal Control for Public Works	37
Bricks and Brickwork	82	Methods of Measuring	2-viii	Toronto Radiator Co.	39
Brick-dust Mortar	91	Montreal Correspondence	39, 56, 70, 80, 88, 98, 117, 131, 145	Toronto Master Plumbers Association	48
Black Birch for Inside Finish	97	Manufactures and Materials	61, 69, 111, 152	Toronto Plumbing By-law, Amendment	51, 93
Bricks and Brickwork, Test of	113	Master Plumbers Association	73, 83	Toronto Building By-Law, Amendment of	52
Bearing and Resisting Strength of Structures	122	Mortars, Some Experiments With	92	Tunnel, Proposed Water Works	66
Bonded Courses	128	Mortar, How to Prepare	92	Trade in Wood Working Lines	94
Building Materials Severely Tested	136	Manual Training in Toronto Public Schools	94	Toronto, Building Permits in	103
Bell, The Largest in America	139	McGill University Library	96	Testing Structural Materials	112
Chicago Canal, Effect of on the St. Lawrence	5	Moving a Stone Dwelling	97	Toronto Streets, Compliment to	114
Concerning Chimneys	5	Monument to Champlain	100	Theatre, the Largest in the World	114
Coloring Metallic Surfaces	7	Mathematics and Construction in the Ecole des Beaux Arts	113	Toronto City Engineer's Report	116
Combination Heating	13	Newfoundland Collapse, Toronto Losses in	1	Thomson, Peter, the Late	121
Concrete	17	No Teutonic Art	36	Toronto Technical School	130
Canadian vs. Imported Cements	18	Norman Adaptation	15	Toronto's Municipal Building	135
Colors from the East	1-xii	Neelon Appeal Dismissed	74	Toronto Sketch Club	139
Concrete Bridge over the Danube	1-xiii	Native Materials should be Used in Canadian Buildings	94	Training the Public Taste	141
Check Valve, Successful Working of	38	New Court House Roof	95	Town Hall, Carleton Place	143
Customs Duty on Architectural Plans	39	Nail Combination	113	Useful Hints 1-ix, 57, 72, 80, 88, 99, 108, 120, 126, 136	136
Chapter from My Note Book	44	New York Building Operations	140	Upper Canada College Buildings	139
Chimney 100 Feet High Straightened	3-vii	New Orleans Court House	140	Unsanitary Condition of Hotels	140
Coating for Hot Water Pipes	3-viii	Ontario Association of Architects	2, 19, 21	Volume VIII	1
Code of Ethics	62	Old Toronto Builders	6	Ventilation a Feature	53
Cairo, Museum at	63	Ontario Assn. of Architects Exhibition	19, 52	Varnish, to Remove	7-xi
Competition Evil, the	69	Ontario Legislative Buildings	37	Victoria, B. C., New Legislative Buildings	110
Chimneys, Damage to by Lightning	5-viii	Ontario Land Surveyors	39	Vaux, The Late Calvert	12-vii
Carleton Place Town Hall Competition	84	Ontario Architects Bill	52	Wood Carving in Switzerland	3
Crushed Glass as Builders' Sand	87	Old Men's Refuge at Kamloops	61	Weathering of Building Stone	35, 10-viii
Chimneys and Flues, Proper Shape of	87	Organization Among Builders and Contractors, Absence of	114	Wages in British Columbia	2-viii
Coloring Architectural Terra Cotta	90	Odd Suit, Strickland & Symons vs. Laidlaw	141	Waterproofing Bricks	56
Cement, Abuse of	7-viii, 12-vii	Pointers on Trade Journals	16	Wages, Masons, in Toronto	19, 64, 74, 113
Chips	94	Prevention of Fire	17	Water Hammer in Steam Pipes	75
Chimneys, Defective Construction of	100	Publications	17, 43, 5-9, 7-vii, 108, 10-viii, 131	Waterproof Brick and Stone	8-viii
Collingwood Hospital	103	Patents, Recent Canadian	18, 59, 81, 101, 109, 152	Wire Nails	104
Canadians, Two Distinguished	108	Personal 1-vii, 2-vii, 41, 53, 65, 81, 88, 99, 104, 116, 144	144	Windows, Size of	117
Convent of the Sisters of St. Croix	108	Pompeian Houses	1-viii	Widow's Tenth, the	125
Concrete Floors for Stables	108	Painting Hard Pine	1-xii	Workman's Suit for Damages	138
Crystal Palace, the Old.—A Reminiscence	109	Portland Cement	28	Wide Portieres and Heating	141
Concrete Floors	110	Porta Dell Pallio	40	Water Curtain Protection	150
Chicago, Building Permits in	113	Pulling Down Walls, etc.	52		
Cement, Manufacture of in Canada	114	Popular Impressions vs. Fact	54		
C. A. & B. Competition	14, 120, 136, 148	Pompeian Bathroom, A	58		
Coal Oil Lamp at Toronto Custom House	127	Planning of Small Houses	62		
Cement at Vancouver	127	Ponderous Machines	4-ix		
Clay Materials, Specimens Wanted	128	Pavements, Street, Brick for	67		
Concrete as a Fire Resistant	129	Public Parks, Our	67		
Canadian Heating Methods in Europe	11-viii	Public Monuments, Sites for	74		
Contracts, Useful Facts about	11-viii	Proposed Palace Hotel for Toronto	76		
Cement, Testing of	151	Public Libraries and Novels	84		
Departmental Store Buildings	48	Plaster Casts	91		
Domes	72	Plumbers Supplies, Unsatisfactory Method of Dealing in	94		
Dominion Government vs. St. Louis	84	Photography in Natural Colors	99		
Douglas Fir Boycotted	93	Preservation of Wood from Decay	100		
Drilling Glass	120	Possibility of Simple and Safe House Plumbing	104, 134		
Decorators, Ancient	121	Preserving Wood by Lime	107		
English Methods	37, 42	Protest, A	145		
Electricity for Architects	32	Parliamentary Library at Ottawa, More Room Wanted	114		
Effect of American Drainage Works on Canadian Interests	48	Prestige	125		
Electric Lighting for Large Buildings	55	Public Works, Money may be Squandered on	127		
Electric Radiators	74	Patents, New	138		
Escape in Case of Fire	77	Paving Material, A New	138		
Essentials of Good Portland Cement	86	Preservative for Brick and Free Stone	11-ix		
Electric Elevators Popularized	113	Paper Plaster	141		
Electric Elevators	139	Paving Materials, About	142		
Eighth Year	140	Points on Plastering	150		
Electric Heating at Carmelite Monastery	140	Quebec, Province, Association of Architects	13, 20, 72, 108, 118		
Fireproofing Toronto's City Hall	2	Question and Answer	65		
Fireproof Flooring	15	Qualities of Building Stone	111		
Frosting Glass	18	Queen Victoria School, Toronto	115		
Fireproofing of Wood	73	Quebec Castle, the	150		
Fireproofing Material, Tests of	78	Rapid Construction, Methods of	60		
Furnaces, Prices to be Advanced	94	Royal Canadian Academy Exhibition	64		
Fire Escapes, Builders of Responsible	114	Russia Seeking Information	93		
Fireproof Building, What is a	129	Roofing Tiles	95		
Finger Plates, Origin of	136	Registration of Architects, Advisability of	106		
Frenchman's Opinion of American Houses	140	Refund of Duty on Iron Materials	128		
Foresters' Temple	145	Riwaux Abbey	58		
Fire Proof Materials	146	Rights of Contractors	140		
Glass Era, A	57	Ruinous Competition	141		
Greenhouses	4-vii	Some Lessons of the Toronto Fire	2		
Granite Stopping	5-xii	Simpson, R., Store	12, 94, 115		
Galvanized Water Pipes, Danger of	74				
Glass Coloring in Germany	80				
Gravel Roofing, Something About	9-viii				
Guild of Sculpture	128				
Globe Building, the New	143				
Good Advertising Methods	151				
Heating Trade, Better Prospect for	1				
Hot Water Heating	6				
Hamilton Correspondence	68, 77				

ILLUSTRATIONS.

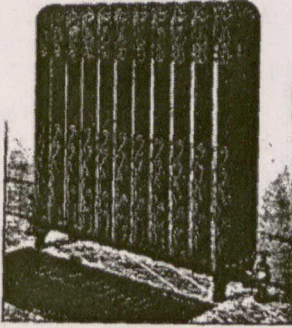
	No.
Addition to Lakeside Home, Toronto	IX
Book Case and Writing Table	IV
Church of St. Gregory, Oshawa	II
Cote St. Antoine Academy, Montreal	IV
Convent of the Sisters of St. Croix, Montreal	IX
Country Railway Station	X
Collegiate Institute, Sarnia	X
Country Church	XI
Details of Store for R. Simpson, Toronto	II
Entrance to a House	VIII
Foresters' Temple, Toronto	VI
Foreman and Workman's House, Vernon, B. C.	VII
Factory Building for Metallic Roofing Co.	XII
Grand Opera Hotel, Toronto	IX
House for A. Dickson Patterson, Toronto	IV
Heating Apparatus, Government House, Ottawa	V
Hotel Majestic, New York	VI
House for A. A. Dixon, Toronto	X
Insane Asylum, Brockville	VII
Lincoln Cathedral	I
Library, McGill University, Montreal	VIII
Muskoka Summer Cottage	I
Masonic Temple, Montreal	II
" " Vancouver	VII
Offices of Perrault, Mesnard & Venne, Montreal	VI
Porta Dell Pallio	III
Proposed Business Premises, Vancouver	XII
Quebec Association of Architects	I
Residence for Arthur Thompson, Toronto	XI
Residence at Swan Lake, B. C.	XI
Residence at Vancouver	III
Riwaux Abbey	IV
Residence on Howard Street, Toronto	V
Roof of Convocation Hall, Toronto University	VIII
Residence for Dr. Gurd, Montreal	XII
Store for R. Simpson, Toronto	I
St. Andrews Church, Belleville	I
Sketches in Italy	II
Stokesay Castle Gatehouse	III
Store of Catto & Son, Toronto	V
Staircase Hall, A. E. Kemp's House, Toronto	IX
St. Marys School, Halifax	X
St. John's Church, Norway	XI
Town Hall, Carleton Place	XII

OXFORD

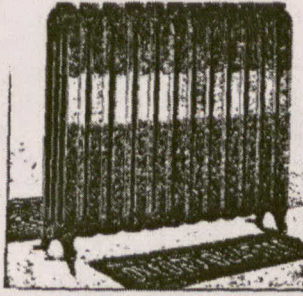
Hot Water and Steam

BOILERS AND RADIATORS

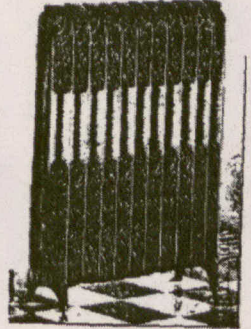
The Largest and Most Complete Line of Heaters
Manufactured in the World To-day.



Oxford Quintet.



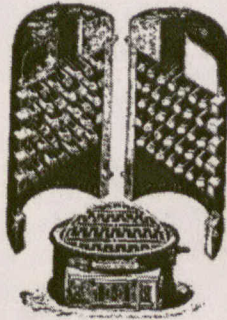
Oxford Quartet.



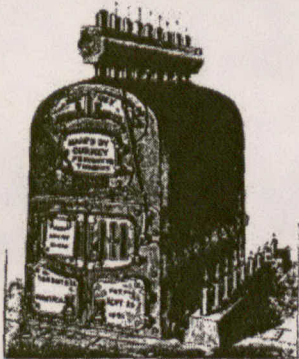
Oxford Duet.



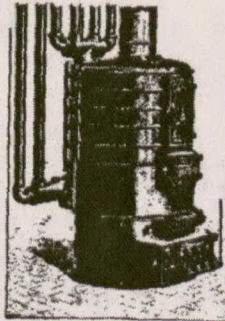
Oxford Steam Boiler.



Sectional View.



Oxford Double Crown—Return Plus.
12 Sizes.



Oxford Direct Draft.
10 Sizes.



Oxford Defiance.
2 Sizes.

Suitable for Heating perfectly from the largest PUBLIC BUILDING to smallest House or Conservatory.

— MANUFACTURED BY —

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



AN ADIAN ARCHITECT & BUILDER

FINE & INDUSTRIAL ARTS
DECORATION - FURNISHING
CONSTRUCTION - SANITATION
ENGINEERING

Vol. VIII.--No. 1.

JANUARY, 1895

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 PASSENGERS
 FAST ELEVATOR VALVES
 SCREW GEAR
 BELT STEAM PUMP SPUR GEAR
 PORTABLE TOWER & CEMENT MORTAR
 SPECIAL STYLES FOR BUSINESS
 HAND POWER
 ELECTRIC ELEVATOR
 DIRECT TANK AND PUMPING SYSTEMS
 SAFETY CARS
 WINDY BEAUTIFUL DESIGN

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

Elliott & Son

92, 94 AND 96 BAY STREET.

TORONTO.



Sketches submitted for . . .

Relief Ornament,

Ceilings and Friezes

. . . AND . . .

Silk Hanging or

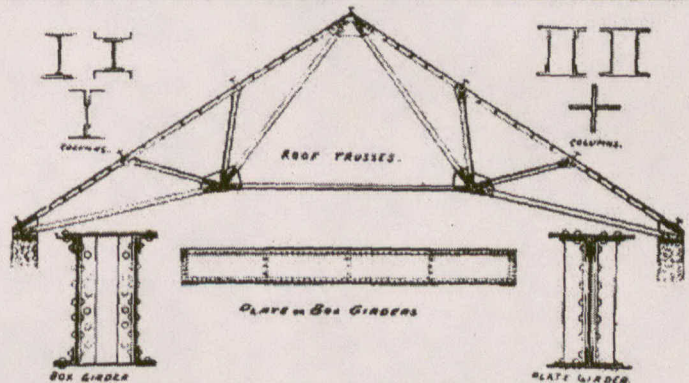
Panelling Effects.

ROOM MOULDINGS,

PARQUETRY FLOORS,

WALL PAPER.

Stained, Chip and Sanded Glass.



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, Rounds, &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 216A.

J. C. TURK, C.E., Contracting Engineer

Montreal Agent: 511 Board of Trade Bldg.
 Telephone 2851.



Metal Skylights, glazed with ribbed or wire glass

Ontario Sheet Metal Works
 A. B. ORMSEY & CO.

MANUFACTURERS OF

CALVANIZED IRON AND COPPER CORNICES, WINDOW CAPS, Slate, Tile, Metal, Felt and Gravel Roofing.

Plain and Decorative Metal Ceilings of the latest American Designs.

GIANT HOT AIR FURNACES, REVOLVING VENTILATORS • 126 Queen St. East, TORONTO
 Telephone 1725

Roofers.

**WARREN'S ANCHOR BRAND
NATURAL ASPHALT ROOFING
AND FLOORING**

Send for circulars, specification forms and estimates on work to
WARREN CHEMICAL AND MFG. CO.
157 Bay St., Toronto, Ont.
Telephone 8273. Residence, 4181.

ROBT. RENNIE, JR., ROBT. RENNIE, JR.
104 Gerrard St. East. 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. 698.

G. DUTHIE & SONS,

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

Douglas Bros.,

SLATE, TILE AND METAL ROOFERS.
Sheet Metal Work, Metallic Ceilings, Skylights, etc.
124 Adelaide Street West, TORONTO.
Telephone 360.
138 Bank Street, OTTAWA.

TUCKER & DILLON

Slate, Tile and Metal Roofers
SHEET METAL CORNICE WORKERS
CEILING WORK A SPECIALTY
78 ADELAIDE ST. W. TORONTO.
Telephone 4585.

H. WILLIAMS & CO.,
23 Toronto St. TORONTO.

ROOFERS

With Slate, Felt and Gravel; also Williams' Flat Slate Roof—the best. We lay ROCK ASPHALT on cellar bottoms, floors and walks—the best material for this work.

W. D. HUTSON,

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

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.

.. JUST ISSUED ..

A Second Edition of the

**Canadian
Contractor's
Hand-Book**

150 pages of the most valuable information, substantially bound in cloth. Price, \$1.50; to subscribers of the "Canadian Architect and Builder," \$1.00.

C. H. MORTIMER, Publisher

Confederation Life Building,

Branch Office: TORONTO
New York Life Building, Montreal.

Out 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

Window Blinds

OUR SPECIALTIES ARE

The "Willer" Sliding Blind

Improved Venetian Blind

All kinds of Folding Blinds

Outside Blinds and Shutters

SEND FOR PRICES

LEE & SEAMAN

6 Northcote Ave., cor. Queen St.
TORONTO.

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.

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

THE STANDARD DRAIN PIPE CO.

OF ST. JOHNS, P. Q. (LIM.)



MANUFACTURERS OF

Salt-Glazed, Vitrified

SEWER PIPES

Double Strength Railway Culvert Pipes,
Inverts, Vents,

AND ALL KINDS OF FIRE CLAY GOODS

INDEX TO ADVERTISEMENTS

Architects.
 Ontario Directory.....111
 Quebec Directory.....112

Architectural Sculptors and Carvers.
 Holbrook & Mollington.....1

Architectural Iron-Work.
 Dominion Ornamental Iron Co.....vi
 Dominion Bridge Co. I
 Lea, Jas.....vi
 Meadows, Geo. B.....v
 Shipway Mfg Co.....xi
 Whitfield, John.....111

Art Woodwork.
 Carnovsky Wood Mfg Co.....xii
 Knechtel, S.....111

Bricks (Pressed).
 Beamsville Pressed Brick Co.....x
 Morris, E. D.....vi
 Morrison & Co., T. A. x
 Port Credit Pressed Brick & Terra Cotta Co., Limited.....xviii

Builders' Supplies.
 Bremner, Alex.....IV
 Currie & Co., W & F P xiv
 Clatworthy, Geo.....I
 Maguire Bros.....I
 Morris, E. D.....vi
 Rice Lewis & Son.....IV

Building Stone Dealers.
 Carroll, Vick & Co.....viii
 Hood & Son, Wm.....vii
 Morrison & Co., T. A. x

Builders' Hardware.
 Rice Lewis & Son.....IV

Cresote Stains.
 Cabot, Samuel.....IV

Church and School Furniture.
 Can. Office & School Furniture Co.....xii
 Carnovsky Wood Mfg Co.....xii
 Office Specialty Co.....v
 Snider, J. B.....xii

Church Restorers.
 Frink, I. P.....xii

Contractors' Plant and Machinery.
 Rice Lewis & Son.....IV

Cements.
 Bremner, Alex.....IV
 Currie & Co., W & F P xiv
 Maguire Bros.....I
 Morris, E. D.....vi
 Owen Sound Portland Cement Co.....IV

Out Stone Contractors.
 Isaac Bros.....11
 Oakley & Holmes.... 11

Chimney Topping.
 Bremner, Alex.....v
 Currie & Co., W & F P xiv

Drain Pipe.
 Bremner, Alex.....v
 Currie & Co., W & F P xiv
 Hamilton and Toronto Sewer Pipe Co.....ix
 Maguire Bros.....I
 Standard Drain Pipe Co.....11

Dumb Waiters.
 King & Son, Warden xi

Electric Wiring.
 Rogers & Doss.....IV

Elevators.
 Fennos, John.....IV
 Leitch & Turnbull.....I
 Williams, A. R.....xiv

Engineers.
 Can. Photo-Eng Bureau.....xiii

Fire Brick and Clay.
 Bremner, Alex.....IV
 Currie & Co., W & F P xiv
 Maguire Bros.....I
 Morris, E. D.....vi
 Seaward Drain Pipe Co.....11

Galvanized Iron Workers.
 Tucker & Dillon.....11
 Douglas Bros.....11
 Ormsby & Co., A. B. I

Granite.
 Brunet, Jos.....111

Grates and Tiles.
 Holbrook & Mollington I
 Rice Lewis & Son.....IV

Heating.
 Gurney Foundry Co. xii
 King & Son, Warden. x
 Ormsby & Co., A. B. I
 Toronto Radiator Mfg Co.....xii
 Williams, A. R.....xiv

Iron.
 Currie & Co., W & F P xiv
 Morris, E. D.....vi

Legal.
 Denton & Dods.....11

Lumber Staining Process.
 McRae & Co.....x

Metallic Lath.
 Metallic Roofing Co.....vii
 Morrison & Co., T. A. x

Mortar Colors and Shingle Stains.
 Cabot Samuel.....IV
 Maguire Bros.....I
 Muirhead, Andrew.....I

Ornamental Plasterers.
 Baker, J. D.....vi
 Hynes, W. J.....vii

Paints & Varnishes.
 Muirhead, Andrew.....I

Painters.
 Gilmer & Casey.....111

Paving.
 The Guelphic Silica Barytic Stone Co.....IV

Plasterers.
 Hynes, W. J.....vii

Plumbing Supplies.
 Campbell & Purvis.....xiii
 Dominion Sanitary Pottery Co.....xiii
 Sanitas Mfg. Co.....II
 Toronto Steel Clad Bath & Metal Co.....vii
 McRae & Co.....11

Plate Glass.
 Hobbs Mfg. Co.....iv
 McCausland & Son.....iv
 The Consolidated Plate Glass Co.....11

Parquet Floors.
 Elliott & Son.....I
 Elliott, W. H.....11

Plumbers.
 Ballantyne, James.....11

Reproduction of Drawings.
 New Color Process Co. vii

ARCHITECTURAL DRAWING



DIPLOMAS AWARDED. Courses in other trades, all including thorough instruction in Mathematics and Physics. Send for FREE Circular stating subject you wish to study to The Correspondence School of Industrial Sciences, Scranton, Pa.

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. 206 King St. West, TORONTO. TELEPHONE 2490.

ANDREW MUIRHEAD,

TORONTO

MANUFACTURER OF

VARNISHES

Of every description.

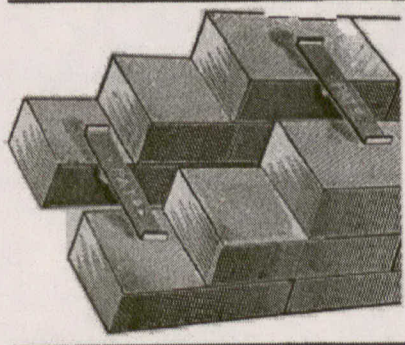
Wood Fillers, Paints & Painters' Supplies generally.

AGENT FOR

SAMUEL CABOT'S CELEBRATED MORTAR COLORS and CREOSOTE STAINS

OFFICE: 82 Bay St. FACTORY: St. Lawrence St.

Warehouse: 15 and 17 Mining Lane.



The Wall Tie

WEESE'S PATENT WALL BRACE OR TIE

USED FOR BUILDING Warm, Dry, Fireproof Buildings

ESPECIALLY ADAPTED FOR Churches, Public Buildings, Hotels, Dwellings, etc.

MANUFACTURED BY THE MAC MACHINE CO.

BELLEVILLE CANADA

Write for particulars.

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.

Please mention THE CANADIAN ARCHITECT AND BUILDER when corresponding with Advertisers.

SEWER PIPE, CHIMNEY TOPS, FIRE BRICK, FIRE CLAY, PORTLAND AND NATIVE CEMENTS.

Samuel Cabot's Celebrated Mortar Colors and Creosote Stains ALWAYS ON HAND.

MAGUIRE BROS. (Successors to Robert Carroll)

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

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 538.

J. Z. RESTHER & SON,
ARCHITECTS
Member Province of Quebec Association of Architects.
Offices: *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, London.
ARCHITECTS
Member Province of Quebec Association of Architects
Union Buildings, 43 ST. FRANCOIS XAVIER ST.
Telephone 9817.

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

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

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

PERRAULT & LESAGE,
(Joseph Perrault. Simon Lesage.)
Architects and Engineers,
Member Province of Quebec Association of Architects.
17 Place d'Armes Hill, MONTREAL.
Telephone 1860.

PERRAULT, MESNARD & VENNE,
ARCHITECTS
Member Province of Quebec Association of Architects.
Bank du Peuple Building, MONTREAL.
Telephone 696.

A. F. Dunlop, R.C.A. J. C. A. Heriot, R.C.A.
DUNLOP & HERIOT,
Architects and Valuators,
Member Province of Quebec Association of Architects.
185 St. James Street, Temple Building,
Telephone 1697. MONTREAL.

F. X. BERLIQUET,
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.
W. & E. C. HOPKINS,
Architects and Valuators,
Member Province of Quebec Association of Architects.
145 St. James Street, MONTREAL.
Telephone 959.

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

G. DE G. LANGUEDOC,
Architect and Civil Engineer,
Member Province of Quebec Association of Architects.
Office: 180 St. James Street, - MONTREAL.
Telephone No. 1773.

L. R. MONTBRIANT,
Architect and Valuator,
Member Province of Quebec Association of Architects.
42 ST. ANDRE STREET, MONTREAL.
Telephone 6709.

JAMES BALLANTYNE
153 St. Antoine Street - MONTREAL.
PRACTICAL PLUMBER,
GAS, STEAM AND HOT WATER FITTER.
Electrical and Mechanical Bell Hanging.
Made at charges. Only experienced workmen employed.
A trial solicited. Bell Telephone 2462.

THE CONSOLIDATED
PLATE GLASS
COMPANY OF CANADA (Limited)

HEAD OFFICE:
73 and 75 Wellington Street West, TORONTO

BRANCHES:
MONTREAL LONDON, OTTAWA.
398 St. Paul St.

FRANK J. PHILLIPS, Toronto, President.
WM. R. HOBBS, London, } Vice-Presidents.
ALEX. RAMSAY, Montreal, }
Correspondence solicited. Estimates Given
Special Discount to the Trade.



WILLIAM H. ELLIOTT

(Late of ELLIOTT & SON)

ORIGINAL DESIGNS IN
Fresco, Relief Ornament

.. AND ..

High Glass Wall Papers

Interiors treated
in complete harmony
with architectural details.

Designs on
application.



in $\frac{3}{8}$ in. and $\frac{7}{8}$ in. thickness.

BORDERS FOR RUGS, reeded and moulded.
WAINSCOTING, $\frac{3}{8}$ in. thick, in various woods,
with plate rails, mouldings, etc.

DESIGNS ON APPLICATION



.. FOR ..

Arches, Doors, Screens, etc.

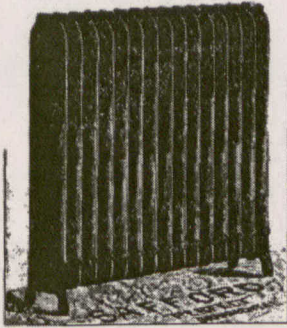
in turned and twisted work, plain and elaborate designs.
Sketches sent when required.

WILLIAM H. ELLIOTT
40 King St. East, TORONTO.

The Toronto Radiator Mfg. Co., Ltd.
TORONTO, ONT.

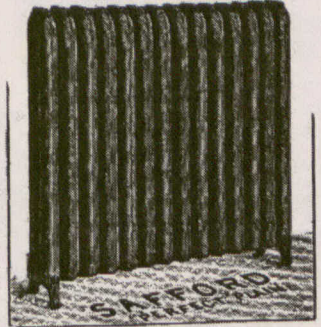
SAFFORD RADIATORS

For Steam and Hot Water Heating



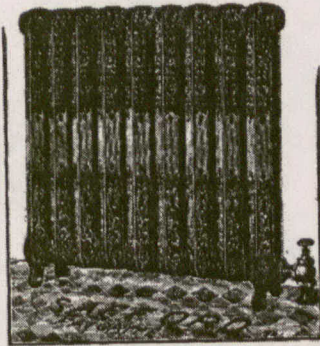
PERFECT.

NO BOLTS..
PACKING
BEST ———
.. ON ..
———— **EARTH**
— FOR —
1894-95

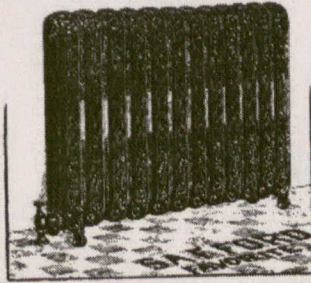


PLAIN.

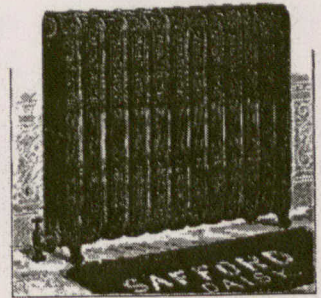
THE PARAGON OF BEAUTY AND EFFICIENCY



FAVORITE SINGLE.

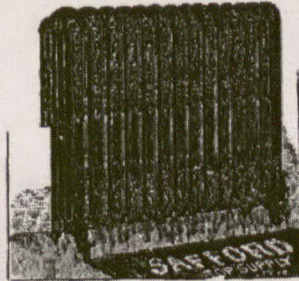


FAVORITE DOUBLE.



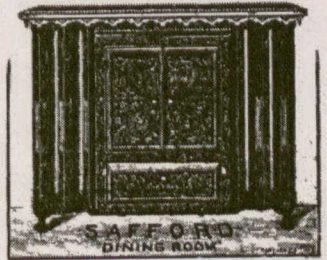
DAISY.

The only Radiator in the world constructed with screwed joints without packing or bolts.



FAVORITE TOP SUPPLY.

— — — — —
ALL CANADIAN MADE
AND BY
— — — — — SKILLED MECHANICS — — — — —
●
FULLY GUARANTEED
— — — — —



DINING ROOM.

MANUFACTURED ONLY BY

The Toronto Radiator Mfg. Co., Ltd.
TORONTO, ONT.

ALSO
MONTREAL, QUEBEC, ST. JOHN, WINNIPEG AND VANCOUVER, B. C.

Please mention the CANADIAN ARCHITECT AND BUILDER when corresponding with Advertisers

S. J. Denton. S. A. Bradley. A. A. Mackey.
DOMINION GLASS CO.
 ESTABLISHED 1881.
 Manufacturers of
Ecclesiastical & Domestic Art Glass
 OF EVERY DESCRIPTION.
Lead Glazing and Sand Cut a specialty.
 73 ADELAIDE ST., WEST, - TORONTO.
 S. J. Denton, Manager.

HAMILTON STAINED GLASS WORKS
 Church and Domestic
ART GLASS
 H. LONGHURST
 14 JOHN ST. NORTH, - HAMILTON.

STAINED GLASS
 Embossed Glass, Sand Cut and Lead Glazing.
G. & J. E. GRIMSON,
 411 St. James Street, - MONTREAL

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

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

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

J. M. CRUSLAND & SON
MEMORIAL WINDOW TORONTO ONT.
 MEDALISTS CHURCH & SECULAR
 LONDON ETY 1886 **STAINED GLASS**
 DESIGNS SUBMITTED

STAINED GLASS
 And . . .
 Church . . .
 Furnishings

Castle & Son,
 20 University St., 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 1922.
GLASS PAINTERS AND STAINERS.
 Manufacturers of White Leads, Colors, Varnishes, &c.

HOBBS ART STAINED GLASS,
 " ECCLESIASTICAL "
 " AND DOMESTIC "

Memorial Windows a Specialty.

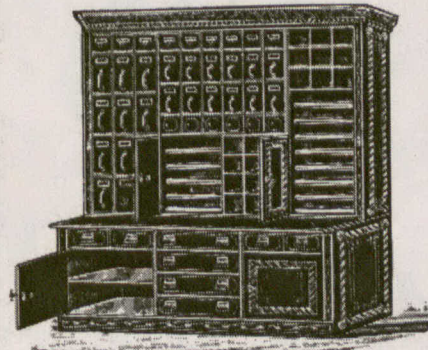
Sand Glass
 Bevelled Glass
 Crystallized Glass **MANUFACTURING**

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



Metallic Vault

... AND ...
Office Furniture

FOR
**PUBLIC OFFICES, BANKS,
 INSURANCE AND TRUST
 COMPANIES, ETC.**

Practical . Everlasting . Handsome

We guarantee our system to
 be most complete and superior
 to any other in the market.

Drawings and estimates
 furnished on application.

Office Desks, Chairs, Letter Cabinets and Files,
 Standard Ledger Index, Rapid Roller Copiers
OFFICE SPECIALTY MFG. CO. 118 Bay Street, TORONTO.

GRILLE WORK

STEEL, IRON AND BRASS

... IN ...

ELECTRO, ANTIQUE AND PLAIN FINISHES.

Ornamental Iron and Wire Fencing

DESIGNS AND ESTIMATES ON APPLICATION.

GEO. B. MEADOWS

Toronto Wire and Iron Works

128 King Street West

TORONTO



Confederation

Established

1871

Life

Head Office

TORONTO

Association

Capital and Assets	\$ 5,600,000.00
Insurance at Risk	25,500,000.00
Paid Policy Holders	3,000,000.00

PRESIDENT

HON. SIR W. P. HOWLAND, C. B., K. C. M. G.

VICE-PRESIDENTS

ED. HOOPER, ESQ. W. H. BEATTY, ESQ.

Directors

HON. JAMES YOUNG.	WALTER S. LEE, ESQ.
S. NORDHEIMER, ESQ.	A. L. GOODERHAM, ESQ.
W. H. GIBBS, ESQ.	W. D. MATTHEWS, ESQ.
A. MCL. HOWARD, ESQ.	GEO. MITCHELL, ESQ.
J. D. EDGAR, ESQ., M.P.	FRED'K WYLD, ESQ.

J. K. MACDONALD, Managing-Director.
W. C. MACDONALD, Actuary.

The Accumulative Policy

HAS ONLY ONE CONDITION, I. E.,

The payment of the premium

The Accumulative Policy

IS ABSOLUTELY NONFORFEITABLE.

Full information furnished upon application

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

Bonded Warehouse and Yard: C. P. R., North Toronto Station.
Office Telephone, 701. Yard, 4097.

E. D. MORRIS

DIRECT IMPORTER
Office: 75 Cottingham Street, TORONTO.

Use Rock Wall Plaster

Send for a copy of the CANADIAN CONTRACTOR'S HAND-BOOK.

Price, \$1.50. To Subscribers, \$1.00.

Architects and Builders say

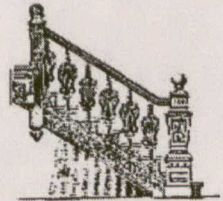
That **Baker's Improved Plaster Board** is the best and most common sense system of plastering up to date. It being nailed on dry there is less dampness and dirt. And it can be finished in half the time.

THERE BEING NO FALLING OFF OR CRACKING, THE FIRST COST IS THE WHOLE COST. THIS IS RIGHT!

JAS. D. BAKER

MANUFACTURER ARCHITECTURAL AND DECORATIVE PLASTER

MONTREAL



ROYAL CEMENT PLASTER

"Nature's Perfect Plastering Material."

Is a light grey, hard Wall Plaster of the highest grade. The best plaster to use in cold weather as frost does not affect it a few hours after its application. Requires only a few days to dry, thereby saving weeks of time and tons of fuel. Is superior in strength to all other plasters. Does not chip or crack, making a dense, solid wall, fireproof and waterproof. Being non-porous, it does not absorb gases or disease germs, hence its desirability for use in hospitals, schools and all other public buildings. It is elastic, allowing the lath to expand and contract. Requires less mortar than other materials and can be readily used by all ordinary workmen. Its quality and fitness of condition can always be relied upon. It is conceded by the best authorities on cements that it is fitness in mechanical condition that gives them their strength; hence special machinery has been designed and perfected at great expense to make Royal Cement Plaster superior to all other plastering materials. Give it a trial and be convinced. Have your architects specify it. The Royal is put up in strong paper sacks containing 100 lbs. each. Samples and printed matter on application.

ROYAL CEMENT PLASTER CO., ST. LOUIS, MO.

B. L. NOWELL & CO.

162 St. James Street

AGENTS

MONTREAL

TORONTO FENCE AND ORNAMENTAL IRON WORKS

JOSEPH LEA

Manager

MANUFACTURERS OF

IRON FENCES, STAIRS, BALCONIES,

Fire Escapes, Shutters, Window Guards,
Gratings, Tower Ornaments, Signs, etc.

BANK and OFFICE RAILINGS

IN ALL THE LATEST FINISHES

* 73 Adelaide St. West, TORONTO

REFERENCES

New Parliament Buildings.
Toronto Railway Co.'s New Power House.
Geo. Gooderham's Residence, cor. St. George and Bloor streets.
Col. Sweeney's Residence, cor. St. George and Bloor streets.
J. B. Fitch, Jarvis Street.
Mrs. Smart, Jarvis Street.
Hon. W. E. Sanford's Residence.
Dr. Bull, Bloor Street.
John L. Blake, Bloor Street.
W. J. Gage, Bloor Street.
Ph. Jacobs, Avenue Road.
Fred. Stewart, Queen's Park, and others.

CANADIAN ARCHITECT AND BUILDER.

VOL. VIII.—No. 1.

JANUARY, 1895

PRICE 20 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.

Branch Office: NEW YORK LIFE INSURANCE 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 advertisements sent promptly on application. Orders for advertisements should reach the office of publication not later than the 15th 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 interest this journal is published, are cordially invited. Subscribers are also requested to forward newspaper clippings or written items of interest from their respective localities.

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

ONTARIO ASSOCIATION OF ARCHITECTS.

OFFICERS FOR 1894.

PRESIDENT	EDMUND BURKE, Toronto.
1ST VICE-PRESIDENT	J. E. BELCHER, Peterboro'.
2ND VICE-PRESIDENT	W. A. EDWARDS, Hamilton.
TREASURER	H. B. GORDON, Toronto.

COUNCIL:

KING ARNOLDI	Ottawa.
FRANK DARLING	Toronto.
D. B. DICK	Toronto.
THOS. FULLER	Ottawa.
J. GEMMELL	Toronto.

REGISTRAR AND LIBRARIAN:

W. A. LANGTON - Canada Life Building, Toronto.

**PROVINCE OF QUEBEC ASSOCIATION
OF ARCHITECTS.**

OFFICERS FOR 1895.

PRESIDENT	CHAS. BAILLAIRGE, Quebec.
1ST VICE-PRESIDENT	A. C. HUTCHISON, Montreal.
2ND VICE-PRESIDENT	A. T. TAYLOR, Montreal.
SECRETARY	J. VENNE, Montreal.
TREASURER	JOSEPH PERRAULT, Montreal.

COUNCIL:

A. F. DUNLOP	Montreal.
J. NELSON	Montreal.
A. RAZA	Montreal.
L. Z. GAUTHIER	Montreal.
F. X. BERLINQUET	Quebec.
J. B. BERTRAND	Quebec.

AUDITORS—L. Z. RESTHER, W. McLEA WALBANK.

TORONTO BUILDERS' EXCHANGE.

BOARD OF DIRECTORS:

WM. PEARS, President.	FRED. WAKEFIELD.
WM. PARK, 1st Vice-President.	WM. BOOTH.
GEO. OAKLEY, 2nd Vice-President.	JAS. ISAAC.
DAVID WILLIAMS, Treasurer.	H. LUCAS.
JOHN ALDRIDGE.	JAS. THOMSON
JAS. CRANG.	H. MARTIN.

JOHN L. PHILLIPS, Secretary.

TO ADVERTISERS.

For the benefit of Advertisers, a copy of this journal is mailed each week to persons mentioned in the CONTRACT RECORD'S reports as intending to build, with a request to consult our advertisement pages and write advertisers for material, machinery, etc.

VOLUME VIII.

To mark the commencement of a new year and the entry of the CANADIAN ARCHITECT AND BUILDER on the eighth year of publication, the present number is presented in holiday attire, and exhibiting special features in the way of illustrations and letterpress which it is hoped will be regarded with favor. An effort has been made to compile a statistical review of building operations in Canada for the year which has just closed, and to indicate as far as can be done at this early date, the outlook for the building trades for the approaching season. While this first attempt has not resulted in as comprehensive a statement of the situation as we hope to be able to present in future years, it will, we trust, bear reading with a degree of interest and profit.

The year 1894 was undoubtedly the most inactive which the building trades in Canada have experienced during the last decade. The cause is known to have existed in the severe commercial depression through which this country and continent has been passing. It is now generally admitted that bottom has been reached, and that the tendency during the present year will be upwards.

The CANADIAN ARCHITECT AND BUILDER is grateful for the support accorded to it during the period of depression which is now drawing to a close, and hopes to merit a share of the increased prosperity which we believe to be in store in the near future for all connected with the building interests. Indulging this belief we are with more assurance able to wish every reader a happy and prosperous new year.

A RECENT conversation with the manager of one of our largest manufacturing companies, served to indicate to some extent the prospects for the heating trade the approaching season. "Our repair business last season was the heaviest we have ever experienced," he said, "the attempt was made to fix up all sorts of old heating apparatus to the extent necessary to make it do duty for another winter. This leads me to anticipate a brisk demand for new heating apparatus next season." There would seem to be good ground for this view of the situation, and we hope to see the anticipations of better times, not only in the heating trade, but in all other lines as well, in some measure realized before the close of the present year.

WE regret to learn that amongst those who suffered loss by the financial collapse in Newfoundland, are several Toronto contractors. After the great fire in St. Johns, several architects and twenty or more contractors went from Toronto to that city and found abundance of employment. Some of these contractors had completed their contracts and returned home before the financial crash came, but others were less fortunate, and have been caught in the storm. There were only two banks in St. Johns, and when both of these collapsed, paper currency and securities were valueless. Gold became the only medium of exchange, and some of our Toronto friends who were well enough provided with paper money and securities, had not enough of the precious metal to pay their way back to their homes.

In view of the recent fire it is to be hoped that the city council of Toronto will see the wisdom of complying with the recommendation of the architect for an extra appropriation sufficient to cover the cost of fire-proofing the roof and corridors of the new city buildings. Mr. Lennox estimates that after deducting the saving in insurance, the cost of fireproofing the buildings to the extent mentioned would not exceed \$30,000. This would mean a charge for interest of only \$1,200 per year. Surely for the sake of so small an amount, the council will not refuse to protect a building, the cost of which will run into the millions. If a wooden roof is allowed to be placed on these buildings their destruction will be next to a certainty in case of fire being communicated to them from adjoining buildings.

THE indications point to the success of the annual convention of the Ontario Association of Architects to take place in Toronto on the 15th and 16th inst. Nearly one hundred drawings and photographs of buildings erected by members of the Association have been received by Mr. C. H. C. Wright, of the Department of Architecture, who has reproduced them on lantern slides in order that they may be exhibited for criticism at the convention. It is to be regretted that the designs submitted for this purpose are not representative of the work of a majority of the members of the Association. If the result of the experiment this year should be considered satisfactory, however, a more thoroughly representative collection will doubtless be obtainable for future conventions. The CANADIAN ARCHITECT AND BUILDER for February will contain a complete account of the proceedings of this meeting.

SOME LESSONS OF THE TORONTO FIRE.

It is frequently the case that necessary public improvements come only as the result of a public disaster. The recent conflagration in Toronto is a case in point. The fact that the means for the protection of the city from fire were totally inadequate for the purpose, was well-known to the chief of the fire department and others who took the trouble to investigate the condition of affairs. The city council was urged to furnish the necessary fire equipment, but the matter was from time to time deferred, with what serious result is now seen. Since the fire, the statement has been published that Toronto is perhaps the only city of importance on the continent of America, which does not possess a number of steam fire engines. Montreal has a dozen or more. Detroit has eighteen, in addition to, besides chemical engines, while other American cities with a population only thirty per cent. that of Toronto, have from eight to twelve engines. It appears also that the water mains in the business district of Toronto are of too small diameter to furnish the necessary supply of water in case of a large fire such as the city has just experienced.

The first thing requiring to be done is to put the fire equipment of the city in a thoroughly satisfactory condition. Second in importance to this comes the necessity for a thorough revision of the city building by-law, with the object of preventing the erection of structures such as some of those which were destroyed in the recent fire, and which had so much to do with spreading the conflagration. It is not many years since the existing by-law underwent revision at the hands of the Council, but in the time which has since elapsed many changes have taken place in materials and methods of construction, so that what virtue the by-law may have possessed five or six years ago it cannot be said to possess to-day. Within the period mentioned there have been erected a number of large buildings, five, six and seven stories in height, the upper stories of which the firemen with their present appliances are powerless to reach. In the absence of a carefully prepared building ordinance, some of these high structures have been erected throughout of combustible materials. The roof of the Globe building for example is estimated to have contained not less than 20,000 feet of lumber. The interior of the Osgoodby building was wood throughout, even to the partitions and ceilings. In addition to the combustible character of these buildings, the Globe building at least, was looked upon as an unsafe structure. The upper stories, surmounting two or three stories of an old building formerly used as a warehouse, were carried on iron pillars, and the upper floors of the building were loaded with heavy machinery. It is by no means improbable that had fire not destroyed the building,

it would at some future time have collapsed and caused large loss of life. This building was a type of cheap and showy architecture erected under the supervision of a firm of American architects, who, after securing all the work they could during the period of the boom, returned to their native soil across the line.

There are other buildings still existing constructed in much the same manner, which, should a fire break out in them, would burn out as quickly and spread destruction to adjoining buildings. One amendment to the building by-law should be that roofs of buildings above four stories in height must be of metal and other fire proof materials, and where galvanized iron cornices are used, they should be backed with brick and supported on iron brackets. The method of constructing such cornices with wood backing and hung on wood brackets is a dangerous one, as in case of fire the galvanized iron becomes heated to such a degree as to set fire to the wood, and thus a path is formed for the flames around the top of the building. The combustible material such as has hitherto been employed in roofs and cornices is carried by the wind to adjoining buildings, and in some instances to distant parts of the city, thereby greatly enhancing the danger of a serious conflagration.

The present by-law does not regulate as it should the thickness of walls, nor does it limit as it should the area between brick walls. As a result, many buildings, such as warehouses, have been erected with large floor areas and walls of insufficient strength. A valuable provision would be that such buildings must be divided laterally by brick fire walls. The value of such walls was clearly demonstrated in Messrs. Buntin Reid & Co.'s building, where a twenty-four inch brick wall dividing the building was the means of staying the progress of the fire, and doubtless saved the wholesale district of the city from being swept away.

Something requires to be said also with regard to the use of iron in substitution for wood as a supporting material for buildings. It is well known to those who have investigated the subject that heavy wood beams are better capable of withstanding fire than steel girders and steel or wrought iron pillars, unless the latter are thoroughly encased in fire proof material, such as porous terra cotta. To encase merely the supporting columns, leaving the girders exposed is of little advantage. This method might be of some use in case of a fire breaking out in the basement or the ground floor, as it would be the means of keeping the floor supports intact for a considerable time, thereby giving greater opportunity for the fire to be extinguished. In the case, however, of a building taking fire in the upper stories, it becomes valueless. It is to be hoped that when the building by-law comes up for consideration and amendment, the protection by fire proof material of all structural iron work will be made compulsory.

In the present loose conditions of affairs, it has been possible for an unscrupulous architect, by offering to put up a building of larger dimensions for less money than could be done by one who proposed to carry out his work in an honest manner, to secure work which under proper conditions would find its way into the hands of the better men in the profession.

We are pleased to observe that the Toronto Board of Trade have adopted a resolution calling on the City Council to amend the building by-law, and to establish a building department, at the head of which should be a person fully qualified to judge whether or not the plans for buildings proposed to be erected have been properly designed from a structural standpoint. The head of such a department should be one fully familiar with the strength of the various materials entering into the construction of buildings, as well as the proper methods of using them. There is need also for more frequent and thorough inspection of buildings in course of erection, in order that when the by-law shall have been properly amended, its provisions may not be disregarded.

Finally, there is need for legislation such as the Ontario Association of Architects is seeking to obtain, which would make it compulsory on architects to pass a qualifying examination, and show themselves to be equipped for the proper practice of their profession.

The authorities of the Louvre have been conducting a series of experiments as to the best background for sculpture, and have now decorated the galleries which contain them with a light red colour.

CHARACTER SKETCH.

WM. T. JENNINGS, C.E.

"Because I have neglected nothing."—Nicholas Poussin.

ONE of the men who has played an active part in the construction of public works in Canada, is Mr. Wm. T. Jennings, who was born in Toronto, May 19th, 1846. Mr. Jennings was educated at the Model Grammar School and Upper Canada College in his native city, and commenced his professional career as an engineer in 1869. He was then under Mr. Molesworth, and his first work was to survey the swamp lands of Grey and Bruce for drainage improvements. From 1870 till 1875 he was on the engineering staff of the Great Western Railway, which he left to enter the service of the Dominion Government. From that time forward Mr. Jennings' chief work, perhaps, has been in the line of railroad construction. Several important surveys and construction works in the Northwest, British Columbia and other parts of the Canadian Pacific Railway were made by him while in the service of the Government, the Construction Co., and the C.P.R. Co. From 1886 to 1890 he had charge of the surveys and construction for the C.P.R. in Ontario, and early in 1890 was appointed Engineer for the City of Toronto.

Whatever work Mr. Jennings has undertaken has been marked by thoroughness and complete mastery of his profession. Nowhere was this more apparent than during the two years he occupied the position of City Engineer in Toronto. The basis of the present arrangement between the city and the Street Railway Co. had its origin with Mr. Jennings, and not only the excellent character of the road, but also the revenue the city receives from it in the shape of percentages and mileage tax is largely the result of thought on the part of the late City Engineer. Toronto is proud of its splendidly paved streets, and this work was planned by Mr. Jennings during his occupancy of the office of City Engineer. It was a special study with him to give to Toronto a system of pavements that should not alone be attractive as public thoroughfares, but that would possess endurance and lasting qualities. Negotiations between the city and Bell Telephone Co., which resulted satisfactorily for Toronto, were also undertaken while Mr. Jennings was in the service of the city. He had planned a system of underground wires in connection with the electric light and telephone contracts, and had he remained in office would likely have brought these plans to completion. During these two years the esplanade matter came up for consideration and Mr. Jennings had to fight with his known determination the strong railroad corporations.

His official connection with the city did not cover as great a length of time as citizens, desirous of the well-being of Toronto, would have liked. The fact is that Mr. Jennings was too independent and fearless an officer to suit many who at that time occupied the position of aldermen. They quickly learned that he was a man who was master of his business and could not be dictated to, or used by those who had their own little schemes to carry out. Of his own free will, and to the regret of the better elements in the Council, after occupying the position for about two years, he resigned, owing to the aldermanic body breaking faith with him by changing the by-law under which he took office. The past two years of Mr. Jennings' professional career have been employed, to a large extent, in the construction of various short lines of railway throughout the province.

Personally Mr. Jennings is popular with all who have his acquaintance or friendship. He is ever ready, out of his wide knowledge of public affairs, to impart information to those honestly wanting information; at the same time he is too busy to rest comfortably under the intrusion of those who hold to a person in his position much the same relationship that the editorial bore does to the journalist in his sanctum. His career furnishes a capital illustration of the saying of Owen Feltham:

"That man is but of the lower part of the world that is not brought up to business and affairs."

Mr. Jennings is a member of the Canadian Society of Civil Engineers, the Institution of Civil Engineers, the American Society of Civil Engineers and the American Association for the Advancement of Science.

THE TRANSMISSION OF HEAT.

HEATING a building properly calls into requisition not only practical every day experience in the business of pipe fitting and furnace setting, says the Pacific builder, but also a thorough understanding of the laws governing the production and the communication of heat. As heat is the force, so cold is the absence or diminution of this force. It is produced by a mode of motion through particles of matter, whether gaseous, solid, or liquid, and is communicated in three ways, viz: by radiation, conduction, and convection. The radiation of heat, of which the warmth of the earth is an illustration, is the transmission of heat from one body to another through gases, the heat always passing in straight lines and with great velocity. Conduction consists in the passage of heat from one particle of a substance to another through insensible distances. By convection we mean conduction and radiation, as when heat is carried from one point to another by moving particles in liquid and gases. It

should not be forgotten that in liquids and gases there is very little, if any, conduction of heat, and that radiation does not warm the air through which it passes. But while heat is not transmitted from one particle to another in gases and liquids, but depends for dissemination chiefly upon the movements of the particles, it is readily transmitted between them and solids. This is the whole secret of many difficulties in heating, and explains the futile attempts on the part of many purely practical workmen to heat rooms without the necessary attention to circulation. When warm water, steam, or hot air is used it is absolutely necessary that a proper circulation is maintained so that every particle of air or water comes successively into contact with the heated surface of the furnace or radiator. Many persons cannot understand why their rooms, although "perfectly tight" are yet but partially heated, even with a great consumption of fuel. To understand it thoroughly it is only necessary to re-



WM. T. JENNINGS, C.E.

member the theory of the communication of heat by convection. For just as warmth and fuel may be wasted by too much ventilation, so they may be also thrown away by a lack of it; and it is only the expert heating engineer, trained both in the practice and in the scientific theory of his business, who is fully competent to meet all requirements of modern house heating and guarantee satisfaction in every instance.

THE wood-carving industry, which was formerly very prominent and profitable in Switzerland, is beginning to arouse serious apprehensions as to its future. The business in the Oberland of the cheaper and lower grades of wood-carving continues to be remunerative, but the demand for the better class of work has fallen off very much. The sales to English customers, formerly very large, have been seriously affected by the competition of German and Austrian woodworkers. The institutions for teaching wood carvers in Germany, established some years since, are said to be well managed and attended, and their influence is fast telling on the Swiss trade. There is at present some Federal and very considerable Cantonal interest taken in the fostering of this industry; but there is a growing sentiment that it can be maintained against the rising competition only by the Confederation assuming a more direct and complete supervision of it with more liberal subventions for training schools; that the assistance, local and general, is too scattered and imperfectly organized to accomplish satisfactory results.

LINCOLN CATHEDRAL.

BY EUSTACE G. BIRD

AFTER travelling through many Cathedral shires, spending much time in sight-seeing, sketching and measuring many old fabrics, I at last set foot upon Lincoln.

Lincoln Cathedral, it may well be said, as she calmly reposes on her "Sovereign Hill" and looking abroad over the wide plains below, has no rival among English Minsters. As seen from a distance, overshadowing scores of red-tiled roofs, standing out against the sky, it is almost perfect in outline, crowned by three noble towers, highly pitched roof, lofty gables and pinnacles and the general harmony of design catches and pleases the eye of the traveller at first sight, and when more closely absorbed and studied, proves itself more worthy of the deepest admiration.

For purity of design, harmony of its parts, and the delicacy of execution of its details, as regards moulding and carving, Lincoln presents the best example of an instructive as well as the most delightful school for the architectural student who desires to make himself thoroughly acquainted with the styles and master of the first rudiments and development of Early English Gothic. For those students and others contemplating an architectural trip to old England, for the purpose of studying the true principles of Gothic Architecture, I strongly advise them to spend most of their time in Lincoln.

From the Norman work of Remigius in 1074 A.D., in the Western facade, and through Alexander "the Magnificent," Hugh of Burgundy, William of Blois, Hugh of Wells and Robert Grosseteste, we reach the touching point of the highest development of Early English Gothic Architecture in the Angel Choir which was finished in 1280 A.D., and exhibits the refinement and elegance as well as a delicacy of finish which can hardly be paralleled.

The observer will see for himself in this Cathedral that each successive epoch of the thirteenth century Gothic Style is complete in and separate of itself and it is obvious that under such circumstances the whole development of the Lancet Architecture can be studied under the one roof with ease.

To return to the history of the cathedral, the first cathedral was erected by Remigius de Fécamp, the first Norman Bishop, on the removal of the See from Dorchester on the Thames, in 1074 A.D. Of this cathedral the only parts remaining are the central portion of the west front, with its three recesses, a fragment of the first bay of the nave and the semi-circle foundations of the apse in the east end. Remigius' work is characterized by stern and almost savage plainness. After a fire in 1141 Alexander restored the cathedral. As to the parts remaining we may ascribe to him probably the three western doorways, the intersecting arcade above the two side recesses of the west front, and the three lower stories of the western towers, with their elaborately ornamented gables facing north and south. These are in the Transition style of the Norman and the Early English.

The great epoch of change which substituted the present exquisite fabric for the plain and bold work of the Normans, began 1196 A.D., during the Episcopate of Hugh the Burgundian, after the cathedral had been shattered by an earthquake.

Under St. Hugh, the choir and eastern transept with a portion of the east wall of the western transept were built. These portions of the building are very remarkable, as affording the earliest known example of pure Lancet Gothic or Early English free from any trace of Norman influence.

During the successive Episcopates of William of Blois, Hugh of Wells and Robert Grosseteste the great transept was completed and the nave gradually carried westwards in the Early English style between 1203—1253. To the close of this period we may assign the two western chapels, the arcaded screen-wall of the west front and its flanking turrets, the vestry and Galilee porch. The chapter house, with its detached buttresses and centre roof column, also belongs to this period. The two lower stories of the central tower were built in 1237 during Grosseteste's Episcopate. The upper story of the tower was commenced under Bishop Dalderby in 1307 and finished in 1311 in the Decorated style. A spire of timber covered with lead surmounted this tower to a height of 524 ft., and was destroyed during a tempest in 1548.

Between 1255 and 1280 we reach the last epoch and stage of

the Early English work at Lincoln, in the carrying out of the Angel Choir built on the east end. This may really be called the Transition between Early English and Decorated.

This addition, the gem of the building, consists of five bays—two included in the ritual choir and three forming the retro-choir in which stood the shrine of the saint, and under the east window the altar of Our Lady. It is an exceedingly exquisite work, belonging to the very best period of English architecture and executed with the greatest delicacy of refinement.

There was no substantial addition to the main fabric of the minster after the completion of the Angel Choir. The cloisters and vestibule belong to the Decorated style, 1296. Although small, they present a beautiful example. Of a later date the upper stages of the western towers were built, and in this work will be seen the Transition from Decorated to Perpendicular. The wooden spires, which once crowned these towers, were taken down in 1808.

The Chantry Chapels of Bishops Fleming, Russell, and Longland are of the Perpendicular style.

The library at the north side of the cloisters is a classical work by Christopher Dean, 1674.

THE BYSTANDER.

ON another page of this number of the CANADIAN ARCHITECT AND BUILDER is published a letter from Mr. Cecil B. Smith, of Montreal, in reply to certain comments from the Bystander on Portland cements, published in the December issue of this journal. Mr. Smith evidently desires, if possible, to weaken the force of the statements there made, by saddling the authorship of the article in question, on some interested or uninformed source. Let the Bystander say, that Mr. Smith is altogether astray in his conclusions on this point. The Bystander is not interested a particle in Canadian cements further than as a citizen and journalist to give encouragement to the products of the Dominion. Written by a member of the editorial staff of the ARCHITECT AND BUILDER, there is no necessity that the articles of the Bystander should carry an individual signature. Still less fair is Mr. Smith's reference to the connection in which Mr. Wright's name is used in the discussion. What views are credited to Mr. Wright, this gentleman is prepared to assume.

× × × ×

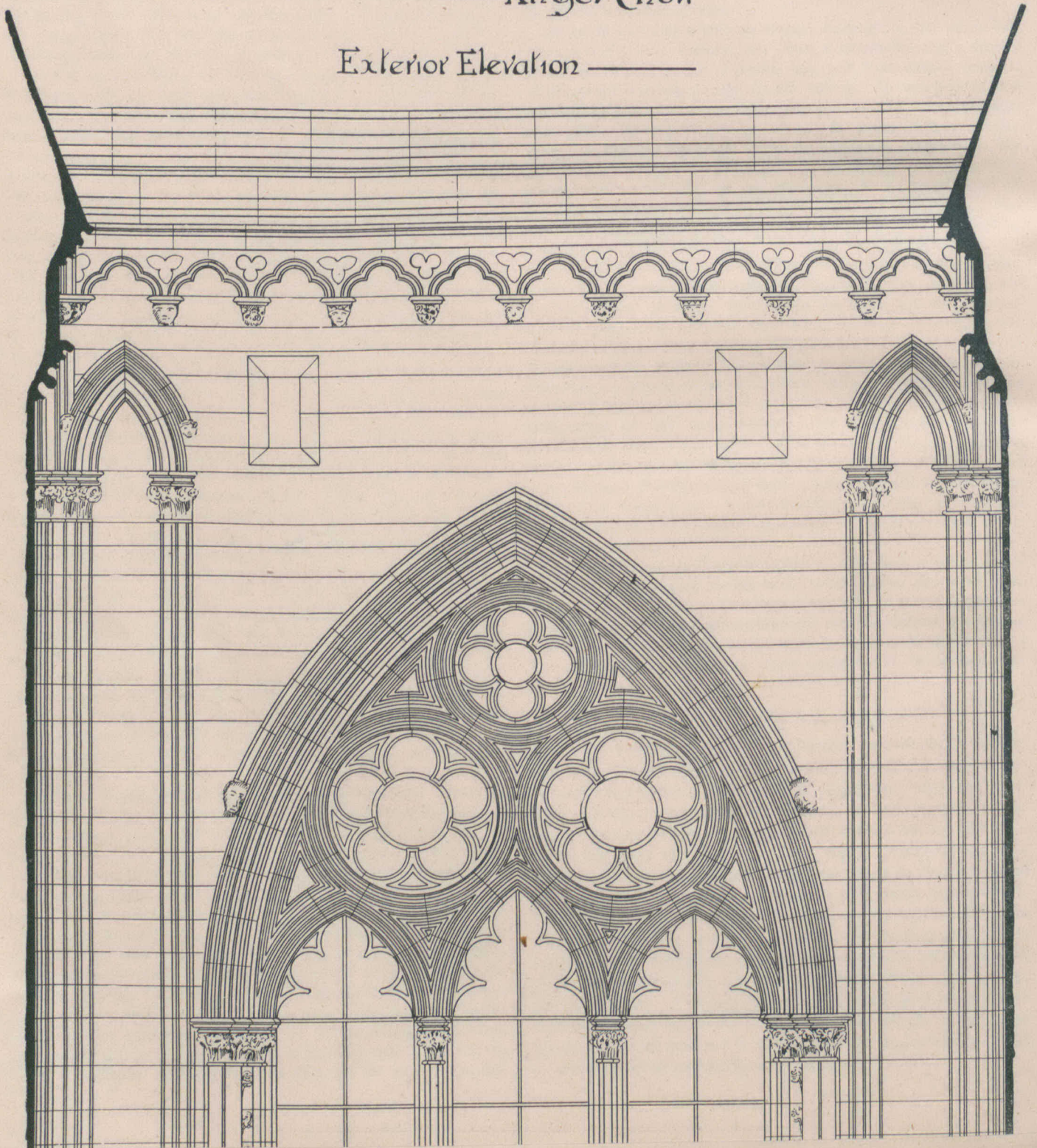
Now as to Portland cement. Readers can judge for themselves how far Mr. Smith has answered with any degree of argument or fullness, what was said in this column a month ago. His present letter only adds force to the contention of the writer that Mr. Smith would apply to Canadian cements a line of criticism, that he studiously withholds from English cements. It was stated plainly in former comments on this question that Mr. Wright and the Bystander were one with Mr. Smith in their desire to have produced in Canada a cement of "uniform fineness and strength, which will answer severe specifications." What is asked is, that this same rule be applied to imported cements. The Bystander does not contend that Canadian cements are perfect in uniformity of grinding or burning. Defects in this particular exist, though they are being rapidly overcome. Mr. Smith, however, would leave the impression in his original article and equally so in his letter of this month, that these defects were common only to the home product, and not to the imported article. The Bystander gave a number of facts to show that English cements were wanting in these particulars, just as the Canadian cement, and which disprove the statement now made by Mr. Smith, that English and other makers turn out an article, which is not variable. The Bystander repeats his inquiries of a month ago: What about the thousands of barrels of English cement of the poorest class, brought to this country, and yet supposed to come from an English maker of repute? Why are English manufacturers of Portland cement organizing for the purpose of securing an article that will not be variable? Why should Canadian cements be singled out for criticism, when, as Mr. Wright has shown, they will stand a test easily of 5%, and others have run as high as 3%, 2½% and even 1%, where large proportions of English cements will not average 10%?

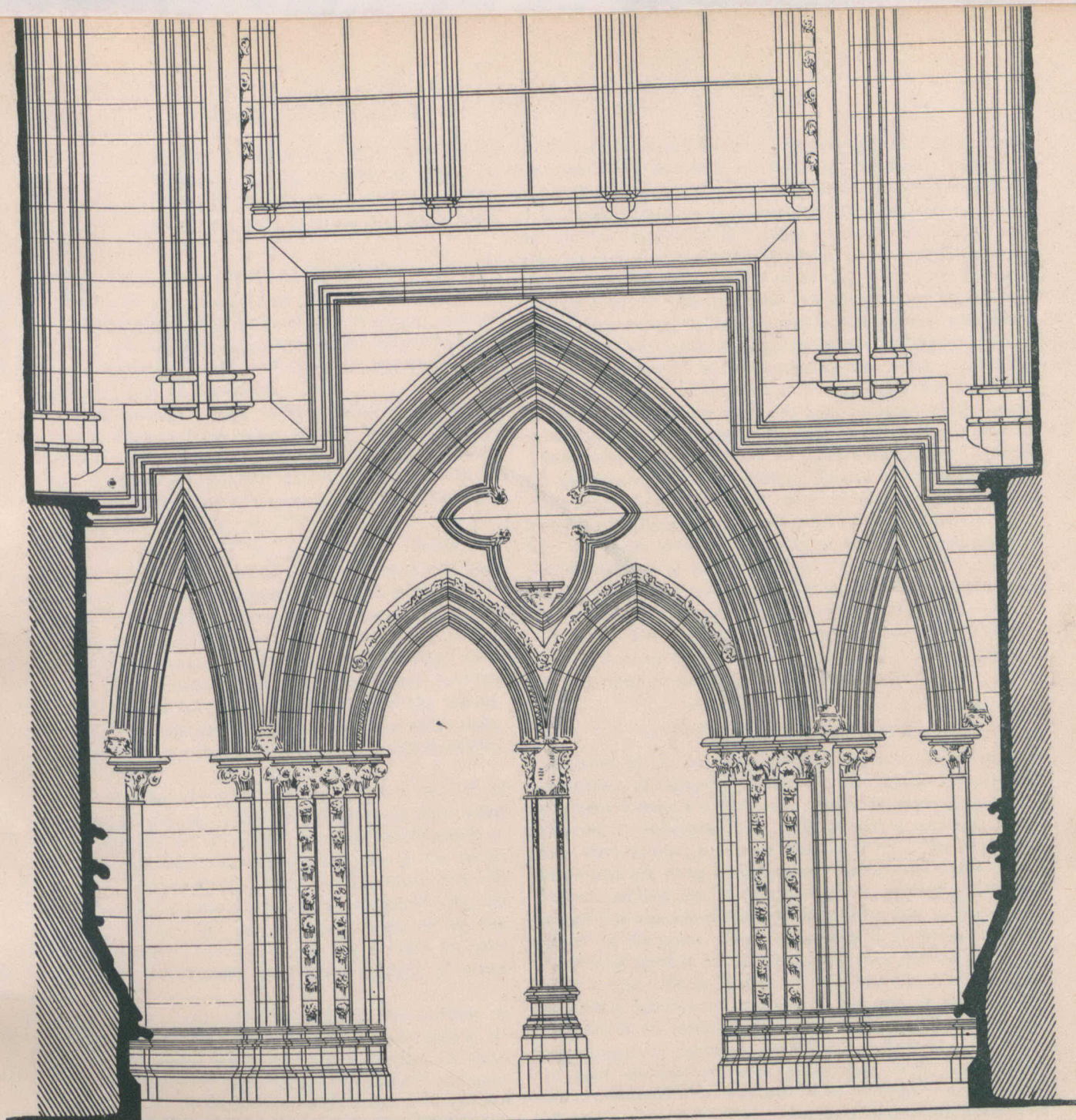
× × × ×

Canadian manufacturers will, no doubt, thank anyone for suggestions that will lead to improvement in manufacture, and the Bystander would be sorry to say anything that would lull them into an unconsciousness of mistakes they may make. In doing this, however, there can be no occasion to free their competitors in foreign fields of defects in manufacture in which they are alike culpable with Canadians, and in some respects, are more so.

— Lincoln Cathedral —
North Door Bay to Aisle
"Angel" Choir

Exterior Elevation ———



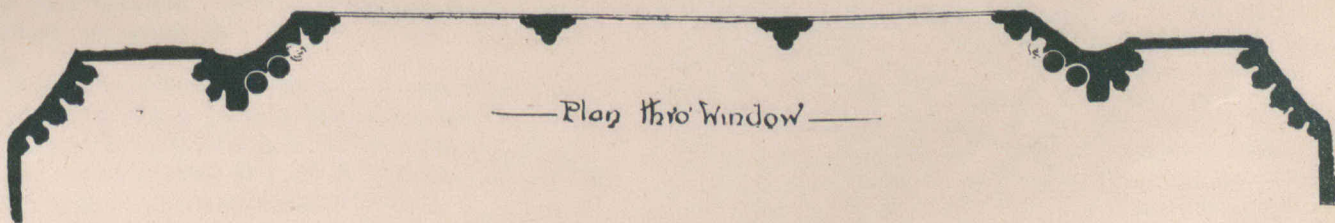


1 2 3 4 5 6 7 8 9 10 Feet
Scale

Measured & Drawn
by Eustace G. Dred
Sept 1893



— Plan thro' Door —



— Plan thro' Window —

EFFECT ON THE ST. LAWRENCE OF THE PROPOSED DEVIATION OF A PORTION OF ITS WATERS TOWARDS THE GULF OF MEXICO, BY THE CHICAGO CANAL NOW IN PROCESS OF EXECUTION.

BY CHAS. BAILLAIRGÉ, C. E., QUEBEC.

I DO not know that I can better answer your request for a New Year article than in treating in a cursory manner the necessarily interesting question of the effect which the Chicago drainage works will have on the waters and commerce of the St. Lawrence.

The so-called Chicago Canal, to be 42 miles in length, 160 ft. wide and to draw 20 ft. of water, with a legal capacity of 600,000 cubic ft. of flow per minute, has now been under way for some time. Twenty-nine separate contracts have been let of one mile in extent each, and the canal is expected to be ready for drainage and traffic by the end of 1896.

No doubt the riparians of the Des Plaines, Illinois, and Mississippi rivers have been wedded to the scheme, which, were it simply one of drainage of the great city, would be objected to on account of its pollution of the waters of these rivers, by the fact that the sewage is to be thoroughly diluted and rendered so to say inoffensive by such an accession to it of Michigan water as may make of the canal one of a commercial and maritime nature, the prospective profits of the trade overcoming the dislike which the riparians might otherwise have to their waterways being made receptacles for and conveyors of this wealthy neighbor's detribus.

I have just said that the canal is to run 600,000 cubic ft. of water per minute, or 10,000 ft. per second. On the other hand Niagara runs 18 millions of cubic ft. of water per minute from Erie and the upper lakes into Ontario and the St. Lawrence, or 300,000 cubic feet per second. The St. Lawrence flow will therefore, of course, be thereby diminished by one thirtieth, and this of itself will naturally decrease our waters by say one thirtieth of their depth; which even on the channel of Lake St. Peter, must tell against the present draught of ocean steamers.

But Chicago, whose population is now but two millions, or close upon, in the near future may and likely will swell to six millions in another half or quarter of a century, when the canal will have to be enlarged to take the then increased drainage from the city with its percentage of diluting waters from Lake Michigan, in a way to run fully three times the quantity at present legally permitted. And that it may not be inferred that this is a gratuitous supposition, I have to remind your readers that extension has already been provided for in effecting the specifications necessary for the right of way. The ultimate flow through the canal will then be likely 30,000 cubic feet per second, instead of only 10,000, and diminish by one tenth the Niagara outpouring, and also by one tenth the depth of flow of the St. Lawrence; though, by less, below Montreal, due to such tributaries as the Ottawa, the St. Maurice, the Richelieu and other side issues; thus seriously affecting the present possible draught of vessels through Lake St. Peter, with a demand by our friends of Montreal and westward for a further dredging of the channel by some 3 ft. or 10% to make good the loss in flow, to say nothing of the fact that other portions of our maritime highway from the Great Lakes to the Ocean must suffer in a like manner, by forcing us to go back to river craft of less capacity.

Western traders, eastern to Chicago, are beginning to open their eyes to this subject matter of discussion, and it is strange to me that the Montreal, Quebec, and other Chambers of Commerce and Boards of Trade have not as yet in any way alluded to the fact in their more recent transactions.

But as a matter of international concern, or of mere legal right, how can one nation rob another of its God-given resources, turn aside its waters into new channels, any more than in a city, a village, an individual can impound and cause to deviate the waters of any stream or any notable portion thereof, without having, as bound by law, to turn them back into the same natural bed or channel for the use of his next neighbors on a lower level.

And this is why in my last report to the Quebec City Council on the proposed scheme of turning the waters of river Caché

into river Huron and thus into lake and river St. Charles for the purposes of our aqueduct, and thus stay complaints and claims for damages by parties below the Lorette dam; this is why, say I, I put the Council on its guard and recommend that our legal advisers be consulted as to whether by thus deviating the Caché from its present purpose of supplementing the Jacques Cartier, the decrease in flow of the latter may not give rise to the same interparochial or intermunicipal complications as those which we are now striving against on part of mill owners who, below the dam are suing for damages on account of the alleged decrease in the flow of the St. Charles by the off-take of our city aqueduct. Again, in the same way as damages may be caused and sued for on the one river, due to a decrease of its waters, in like manner an accession to those of the Huron and St. Charles above the dam, may be taken advantage of to proffer claims on account of more deeply flooded and otherwise cultivable lands on the borders of these rivers; and if the levees along the Mississippi can hardly hold out as it is during floods, how will it be with the riparians of this now comparatively shallow river, as of the Illinois, when added to in a way to put proprietors along their respective banks to the expense of raising the dams in a way proportionate to increase of flow.

This, Mr. Editor, is, of course, nothing but a mere sketch, destined to cause other engineers to think the matter over and air their views on an important subject of enquiry.

CONCERNING CHIMNEYS.

AMERICANS do not make much of chimneys as do most of the builders of European countries. The builder is not sufficiently honest about his chimneys. Either he gives them undue prominence, overloads them with decorated materials or he treats them as though he were afraid of them. The chimneys of Amsterdam are beautiful indeed and add greatly to the picturesque-ness of that city. Likewise in Paris, while they are there treated in a way somewhat more decorative than is common to the rest of the world, they are handled in an honest way, no effort being made to conceal them, and their decorative work is that of artists. There is often the idea that the chimney should maintain a symmetrical relation to the rest of the building. However, in no section of the world do we find a high regard for symmetry in chimneys successful; on the contrary, we find the most beautiful chimneys in that part of the world where they are allowed to have largely their own way; coming out of a building in unexpected ways and decorated by the hand of an artist.—The Clay Worker.

TRIMMING JOISTS.

THE efficiency of single flooring is materially affected by the necessity which constantly occurs in practice of trimming round fire places and flues and across openings. Trimming is a mode of supporting the end of a joist by tenoning it into a piece of timber crossing it, and called a trimmer, instead of running it on or into the wall which supports the ends of the other joists generally. A trimmer requires for the most part to be carried or supported at one or both of its ends by some of the joists, which are called trimming joists, and are necessarily made stouter than if they had to bear no more than their own share of the stress. Commonly it is found enough to make trimmers and trimming joists from $\frac{1}{2}$ inch to 1 inch thicker than common joists. In trimming tusk tenons should be used, and the long tongue or main body of the tenon should run not less than 2 inches through, and be draw pinned and wedged, moreover, if it do not completely fill the mortise in the direction of the length of the latter. The principal objection to single flooring, says a writer in an exchange, is that sound readily passes through, the attachment of the boards above and of the ceiling below being to the same joists throughout. Another objection is the necessity of making the joists so thin, not to injure the ceilings, that they with difficulty receive the flooring brads in their upper edges without splitting. A partial remedy for both these disadvantages is found in a mode sometimes adopted of making every third or fourth joist 1 inch or $1\frac{1}{2}$ inches deeper than the intervening joists, and to these ceiling joists are notched and nailed, or nailed alone. This, by diminishing the number of points of contact between the upper and lower surface, for the ceiling joists must be carefully kept from touching the shallower joists of the floor, is less apt to convey sound from one story to another, and allows conveniently thin joists to be used for the ceiling without affecting those of the floor. It clearly, however, involves the necessity of cogging the deeper joists down so much more on the wall plates on which their ends rest.—Carpentry and Building.

OLD TORONTO BUILDERS.

THE dead past has not much interest to many whose lot is with the living present. As Artemus Ward has remarked, however, there is a pleasure in reminiscences of olden times, whilst Professor Wrong, of the Toronto University, in his lecture of a few days ago, is doubtless right when he says that many mistakes of the present would be avoided if people were better acquainted with the history of the past. "History is philosophy, teaching by examples," as another writer has said.

Though untempted to delve deep into the buried past there are few who have not an interest in that particular past which relates to their own selves or their individual callings. This has been the thought of the writer, as he has allowed memory, and historical incident and data, to take him back to the days when Toronto was best known as Muddy York, and the magnificent buildings which are the pride of her citizens to-day were unknown.

To make a start at the beginning of the century there came to York in 1800, Caleb Humphrey, a carpenter, builder and contractor. He was one of the pew holders of St. James church from its commencement in 1803, and pioneers whose memories will enable them to locate the south-west corner of Toronto and Adelaide streets, as it existed in those days, will remember Caleb Humphrey's house. More strictly speaking the late John G. Howard, to whom the city owes a debt of gratitude for his handsome gift of High Park, ranks as an architect, rather than a builder, and yet many of the early houses of Toronto were built by him. The first 11-in. plank sidewalk on King street was laid by Mr. Howard. He designed the spire on St. Paul's church, Yorkville, in 1841, the work on which was performed by Mr. John Ritchey, the framing by Mr. Wetherald and the raising was superintended by Mr. Joseph Hill. This was one of the curiosities of the time and received significant mention in Dr. Scadding's "Toronto of Old."

A list of the inhabitants of York in 1805 includes in its numbers William Cooper, a builder, and owner of one of the first wharves and warehouses in York. Collin Drummond was a builder, and owner of a lumber yard, located on Yonge street, between Wilton avenue and Shuter streets, the burning of which, with other properties, is still fresh among the boyhood memories of the writer. Henry Hales was a builder and contractor of the first decade of 1800. He had a brick yard at the south-east corner of Duke and George streets. William Smith was a builder, who came to York with Governor Simcoe, and was the first man to take up a building lot after the laying out of the town plot. This was located at the north-east corner of King and Sherbourne streets, and the house which he built is still standing there. William Smith, jr., was a son and a builder. The boys of Toronto, who on Saturdays tramped out Yonge street to Hogg's Hollow, remember well the Severn brewery on Yonge street. This building was originally built by the father of the present John Baxter.

The recent burning of the new Globe building brings to memory the old Globe building, from which was published that journal, when some of us were boys in our teens. It was familiarly known as Dallas' building, and was situated on the property where now stands the Canadian Bank of Commerce. Let us go back, however, of the days when the printing press performed its mission on that site, and it will be remembered as the spot where stood in 1818 the first Methodist church at York. This remained a place of worship until 1833 when it was converted into a theatre. A memento of this church building is to be seen in a walking stick made from a portion of the altar rail by one who in those days was known as "Old Daddy Petch," and which later came into the possession of Mr. Robert Carroll, one of the best known contractors of the present day. Mr. Petch built the old church in question and at one time was a partner of ex-Mayor Manning. By the way, I am reminded that Mr. Carroll is to the manner born, being of the fifth generation of builders, bearing the name of Carroll. The history of the Globe corner of later days is well-known. The old buildings were afterwards supplanted by the fine warerooms of Jakes & Hay, furniture manufacturers, to take their place later by the Bank of Commerce.

The firm of Metcalfe, Forbes & Co., or as they were sometimes known, The Company, were builders of the old Bay street Presbyterian church, situated on the corner of Richmond and Bay streets, and of which the Rev. John Jennings, D. D., was for many years pastor. John Ross Robertson, in his Land Marks of Toronto, tells the story that early in the sixties a great storm occurred in Toronto, and one of the stone pinnacles at the south-east corner of the church was blown down and fell through the roof. The stone in its flight downward detached a piece of wood with a nail in it, which also fell, the nail piercing a Testament in one of the pews and punctured the book through to the text: Mark 7-25, "And the winds blew and beat upon that house; and it fell not; for it was founded upon a rock." The firm of Metcalfe, Forbes & Co. were also contractors for Trinity College and other prominent buildings. James Metcalfe, of this firm, was well-known to many as California Metcalfe, from the fact that he went off to that

country and returned to Toronto a rich man, having struck it right in the gold diggings or elsewhere.

Messrs. Ewart & Parkes and Mr. Joseph Turton are known as the contractors of the old Parliament buildings. McDonald & Young make claim of having built the present city hall in 1845. The College avenue of a quarter of a century ago, was different from the College avenue of to-day and was a favorite excursions point for the boys of that time. I can well remember the spot known as Sleepy Hollow, the residence of the Hon. John Beverley Robinson. This well-known residence was built by Mr. George Shaw, father of Ald. Shaw, and was the first building he ever put up.

The contractor for the masonry work of Knox church, Mr. J. Grant, was a familiar figure in building circles more than 25 years ago. He was known as Tam O'Shanter, because in addition to his business as a contractor he kept a tavern near Duchess street, to which he had given this name. The carpenter work of Knox church was done by McBean & Withrow, the latter the father of the present John Withrow. The gas office, the building of the Trust and Loan Co., and other commercial buildings, were erected by A. Burrowes, who was a contractor of prominence in Toronto 30 years ago. John Plenderleith's carpenter shop on the corner of Elizabeth and Edward streets, taking in the larger part of a square, gave employment to many men in the trade, who are still to be met on the streets of Toronto. An old builder of those days, who keeps active in the service, despite advancing years, is Mr. Wm. J. Hughes, a resident of Simcoe street. He came to Canada in 1832. It may have been forgotten by many citizens that Mr. James Dobson, late post-master at Yorkville, who died at the age of 85 years in December last, was a carpenter and carried on building operations in the city for a number of years.

One of the best known builders of more recent years, and yet an old-timer, was Mr. John Ritchey, who built Ritchey's Terrace, a row of houses on Adelaide street, between Bay and York streets, some of which are still standing, though ancient looking. He was born in 1796 and came to this country from Belfast, Ireland, in 1819. He died April 30th, 1866. He built St. George's church, St. James Cathedral, twice, before and after the fire, Judge Haggarty's residence, Simcoe street, the old Lyceum for French on King street w., the Dominion Express Co.'s offices, Yonge street, and his last work was the Dilworth house, on Jamieson avenue. There are a few men in the building trades to-day who remember John Ritchey, and his name suggests to them interesting incidents in the methods employed by contractors in ye olden days.

No sketch of the old builders of Toronto would be complete without a reference to John Harper, father of George Harper, a well-known Toronto architect of to-day. John Harper was a son of Richard Harper, who left Belfast, Ireland, for New York, in 1810. The father remained a resident of that city until 1817, when the family removed to Toronto, and Mr. Richard Harper entered into the building business. John Harper, the son, followed the father's calling and built St. Michaels Cathedral, Trinity Square, the first General Hospital, the first Toronto Observatory and laid the foundation of the present asylum buildings. He also built what is now known as the Newsboy's Home, a building intended at that time for the Canada Company's offices. The first depot of the Northern Railway was his work. John B. Smith, founder of the firm of J. B. Smith & Sons, lumber merchants, Toronto, and who died in March last, was a contractor, rather than a lumber merchant, in his early business days.

This much about old Toronto builders. The story is by no means exhausted. The digging process is an interesting one and much more could easily be unearthed. This task I may take up at another time, or what is not unlikely, enough has been said to prove suggestive to others, who will avail themselves of the opportunity the ARCHITECT AND BUILDER offers to supplement these reminiscences out of their own knowledge.

HOT WATER HEATING.

The hot water method of house heating is undoubtedly growing in popularity, both with the people and the dealers all through the country. Some idea of the extent, says the Building Register, can be gained from a well defined impression that exists that one-half of the radiation turned out by the manufacturers last year was for use with hot water. Preparations in a number of foundries this year have been made to supply a large demand for radiators for hot water use, both direct and indirect. People who have experienced difficulty in heating some rooms readily accept hot water as a means of heating, when it is explained that the radiator will be hot and throw off its heat in the apartment where it is located, no matter from what quarter the wind blows. The principle of the circulation of hot water is readily grasped by steam fitters, and the details of the pipe fitting can be learned much easier than the apportioning of the proper amount of surface for a given room.

ARCHITECTURAL REMINISCENCES.

A BRIEF HISTORICAL SKETCH OF THE LEADING ARCHITECTS OF TORONTO AND THEIR PRINCIPAL WORKS FROM 1842 DOWN TO THE PRESENT TIME.

THE first regular architect was Mr. John Young, a Scotchman, whose principal work in Toronto was the east wing of what was to have been the University of Toronto. This was erected in 1842, and was a bit of nice Edinburgh Classic work, in cut stone. The scheme was abandoned, and the building was used for some years as a branch lunatic asylum, and afterwards taken down to make way for the new Ontario parliament buildings. Mr. Young died in 1860.

The next architect was Mr. H. B. Lane, an Englishman, who designed the present City Hall and St. George's Church, in 1845, Little Trinity Church in 1846, and Holy Trinity Church in 1847. Mr. Lane returned to the Old Country.

The same year in which Mr. Lane arrived in Toronto witnessed the arrival of Mr. Kivas Tully, a native of the Emerald Isle—a man of good training and ability in his profession. His work was mainly in public buildings, such as the old Custom House, 1845, old Bank of Montreal, same year; St. Catharines Town Hall and Market, 1848; Trinity College, 1850; Welland Court House, 1851; Victoria Hall, Cobourg, in 1856. In the same year he was put in charge of the Toronto Lunatic Asylum and erected new wings and hospital to same in 1867 to 1870. In 1868 he was appointed architect, engineer and chief officer to the Department of Public Works. The public works reports furnish a fair idea of the number of these works passing through his hands, the latest of which is the Asylum for the Insane in course of completion at Brockville. Mr. Tully, although well advanced in years, is still the picture of health, and fills well the demands of his onerous office.

Mr. John Tully, brother of Mr. Kivas Tully, came to Toronto in 1843, and after practising for a number of years here, moved to Chicago in 1868, and thence to New Mexico, where he died.

In 1847 a very important acquisition was made to the profession in the person of Mr. Wm. Thomas, architect, who had emigrated to Canada with his family. (A brother of Mr. Thomas was a well-known architectural sculptor in England for many years.) After the great fire here in —, Mr. Thomas was entrusted with the rebuilding of the St. Lawrence Hall Market Block, which stands a monument to his taste and skill. He also designed Knox Church on Queen street, and the United Presbyterian Church, corner of Bay and Richmond streets, where the Medical Council building now stands. Many handsome shops and residences also give evidence of his skill and taste. Mr. Thomas' two sons, William and Cyrus, were associated with him for several years, and after his death, William settled in Montreal and Cyrus in Chicago. Mr. W. G. Storm was a pupil of Mr. Thomas, and imbibed much of his classic spirit.

Messrs. Cumberland and Storm, both well trained and capable men in their profession, filled a large space from 1847 to 1892 in the architectural progress of this province, and especially of the city of Toronto. St. James Cathedral, 1851; the Normal School Buildings, 1855; Old Toronto Post Office—now the Deputy Receiver General's Office; many county buildings; Toronto University and Osgoode Hall—both of these for many years being considered by visitors the best of their class on the continent.

Mr. Kaufman, a German architect of ability, came to Toronto in 1855. The Bank of Toronto and the Rossin House are samples of his work.

Mr. Joseph Sheard, with his son-in-law, Mr. Wm. Irving, enjoyed for many years a large and lucrative practice. Mr. Irving had the advantage of a good training in Scotch classic work, and their works, both public and private, were of the best class.

Mr. Matthew Sheard, son of Mr. Joseph Sheard, practised both here and in foreign cities, but has now retired from business and is enjoying the fruits of his ability and industry.

Mr. Henry Langley has been connected with the profession for a period of forty-one years, during the greater part of which time he enjoyed a large and lucrative practice, and from whose office a large representation of the present practitioners of the city and province has gone out. Among these are his nephew,

Mr. E. Burke, Mr. Frank Darling, Mr. H. B. Gordon, Mr. Post, &c. Many of the largest and most costly churches in the city have been erected from his designs. The completion of the exterior of St. James Cathedral, as also of St. Michael's Cathedral, were his work.

Mr. James Smith, of the firm of Smith & Gemmell, who was contemporary with Mr. Langley, is now practically retired from business, enjoying the fruits of his toil and occupying himself with art and the work of the Royal Canadian Academy.

Mr. David Roberts, who for over thirty years enjoyed a lucrative practice, has now retired.

The new race of architects are now making their history. The new condition of things in the way of development in size of buildings, methods of construction and character of materials, will no doubt produce greater surprises than any in the past.

BOW WINDOWS.

MR. S. Smirke, R. A., remarks: "The bow window, as a peculiarly English feature well deserves our regard and attention. Though so cheerful and pleasant a feature in dwelling houses, it was, perhaps, in its origin designed not only for light and prospect, but also as conducive to security in troublous times, as a looking-out place; giving a wider area for observation than would be awarded by an ordinary window. We see the idea of a bow window carried out, although somewhat timidly, in the Border castles of the North. Subsequently, however, in Tudor times, when castles began to lose their frowning character, indicating a greater sense of security, and a desire to render home not only a place of refuge and defence, but also, to some extent, of domestic enjoyment, we then find them, as at Berkeley Castle, Kenilworth, and many other examples, assuming that particular character which afterwards became one of the principal attractions of an old English mansion. Indeed, we are justified, I think, in claiming this agreeable architectural feature as peculiarly English. Bow windows, no doubt, occur in some form or other in various parts of the Continent; scarcely even, perhaps, in Italy; not very commonly in France; but in Germany some types of the bow window are, I admit, common enough. At Furemburg, that great mine of picturesque architecture which every architectural student should visit and study, some particularly beautiful examples occur. Still there is a manifest local character that distinguishes all these German examples from the genuine old English manner of designing them. The Germans never appear to have so entirely departed from the ancient Gothic type as we find to have been the case in English domestic buildings. Their bow windows are apt to look more like perforated towers than with us; and there seems to have been retained a special disposition to place them at the angles of their houses, as if covertly intended to command the sides of the building, as the bastion of a fortification commands the curtain. Our Tudor bow windows, on the contrary, seem more designed for interior domestic enjoyment. As Bacon says of them,

"These be pretty places for a conference," and it is certainly obvious that our ancestors, in building these bows, were far more bent on providing means for the pleasant occupation of a room than on producing any ornamental exterior effect. It is true they are always extremely picturesque, and never fail to contribute to the beauty of the building of which they form a part; but this only tends to prove what on former occasions I have repeatedly urged, that in design whatever is peculiarly fit and proper for its individual purpose rarely fails to be agreeable in its appearance."

COLORING METALLIC SURFACES.

A beautiful soft bronze color is now imparted to metals, says the Master Steam Fitter and Heating Engineer, by rubbing with a mixture of bloodstone and graphite, the application being made with a brush. Antique green effects are secured by dipping the metal into a solution of ten parts by weight of salt, ten parts cream tartar, ten parts acetate of copper and thirty parts carbonate of soda in 200 parts of vinegar. The satin finish is produced by green vitriol of copperas and subsequent treatment with wax.

Notice of dissolution of partnership in the firm of Gauthier, Vincent & Dufresne, architects, Montreal, has been filed and a new partnership registered between A. J. Vincent and L. A. Dufresne.

BUILDING IN CANADA IN 1894.

A REVIEW OF THE YEAR'S OPERATIONS IN LEADING CITIES OF THE DOMINION.

THE GENERAL SURVEY.

THE review of building operations in Canada for the year just closed, which we are enabled to give below, furnish readers with a fair conception, at least, of the conditions of the building trades in various parts of the Dominion. In a few cases the data that has come to us shows that an increase in building operations has taken place, but an analysis of conditions generally tell of a slow year for building. An increase at some points has taken place in the erection of dwellings for residential purposes. It is to be noted in regard to these, as also in the erection of business properties, that brick and stone are, in most cases, supplanting other materials for building. Even in cities like Winnipeg, and on the Pacific coast, where lumber is the natural product, brick is coming into enlarged use. There has been little done in the line of public works during the year, indicating, apparently, economy on the part of municipalities and governments, as much as individuals. This is a step that, while commendable in some respects, may yet be carried too far, and prove an injury, rather than a help, to the communities where exercised. Wise judgment needs to go with every attempt at economy, and it is to be remembered that the refusal to spend a dollar is not always a saving of that dollar. The labor market has undergone less change during the year than might have been expected, when one considers the depression that has existed in the ranks of skilled and unskilled labor. In the case of the former wages are fixed by the unions; and even though conditions would not permit of paying the highest wage, yet by these regulations men have been debarred from taking a smaller wage when work was offering them. This is one of the features of trade unionism hard for business men to understand when the situation compels a shrinkage in values and calls for a lessening of expenses in every other way. A hopeful feeling exists in regard to 1895, a condition that it is devoutly to be wished may be realized.

MONTREAL, QUE.

Architects and contractors complain with reason that the past year has not been brisk for them. Since 1890 there has been a steady decline in the volume of building operations, as the figures show. In 1893, which was not considered very good, there were about 1000 permits issued, while in 1894 only about 500 were issued, with an aggregate value of \$2,750,000. The best year for the building trade in Montreal was 1889, when about 1800 permits were granted.

Although few in number, the buildings put up during 1894 include some of the finest erected in recent years, many of which will rank as architectural landmarks. There is also a decided improvement in the style and finish in all classes of buildings, but more especially in the three-storey stores and dwellings found on all business thoroughfares.

The widening of Notre Dame street has furnished the bulk of business to architects and contractors, as, had it not been for the rebuilding of that street, Montreal would have witnessed the poorest year of building operations ever recorded in its annals. All the buildings put up on that street are three stories in height, the ground floor being devoted to stores and the two storeys above to dwellings, and of pretty much the same type as those recently erected on St. Lawrence Main street, with the exception of a slight improvement in design and a more free use of stone. All are built with stone front, without mansard or peak roof, as the law governing that street states that they shall be built of stone and of no less than three storeys, without mansard or peak roof. Exception has, however, been made in the case of the new west end branch of the Merchants' Bank of Halifax, who are building, under the superintendance of Mr. Edward Maxwell, a substantial building built of sandstone and buff pressed brick, instead of entirely of stone. The building is four stories high, ground floor being occupied by the bank and the balance by tenants, with a handsome balcony on the top storey, decorated by Corinthian columns and the whole crowned by a Renaissance cornice, all of stone.

On the opposite side of Seigneurs street, on the corner of Notre Dame street, the Bank of Montreal is also putting up an elegant building, to be occupied by their west end branch. The building is entirely constructed of red sandstone, three stories in height, with a peak roof, but sloping towards Seigneurs street, and with a monumental gable facing Notre Dame street, decorated with Romanesque bas reliefs. This building is under the direction of the architects of the Bank, Messrs. Taylor & Gordon, who have just completed the Montreal branch of the Bank of Toronto.

Messrs. Perrault & Lesage have also built a branch office for the "Banque d'Hochelega," and sixteen other buildings for various citizens on that street. Messrs. Perrault, Mesnard & Venne have built a dozen buildings on the same street for the estate of the late Hon. C. S. Rodier. Mr. W. McLea Walbank has also built fourteen buildings of the same class.

Amongst the public buildings erected this year the branch of the Bank of Toronto standing at the corner of McGill and St. James streets is the most important of all. It is built of sandstone, five storeys in height, well proportioned and richly carved. The building is a decided credit to the architects, Messrs. Taylor and Gordon; the sculptors, Messrs. Holbrook & Mollington, of Toronto, and the contractors for the masonry, Messrs. Whighton & Morrison. The porch forming the entrance to the banking room is profusely carved in the Romanesque style, and bears over the centre of two fine Tennessee marble columns the coat of arms of the city of Toronto. The interior is highly finished in marble and mosaics. The ground floor is utilized by the bank and the other storeys are laid out as offices. The six storey building of the "Banque du Peuple" comes next. Although not being an entirely new building—as the walls of the ground floor in the old structure were preserved—it might be considered as new, as no trace of the old structure is visible inside. The building is constructed of limestone; on the ground floor is located the banking room, which is entered by a large entrance porch, and which in proportion is about similar to that of the New York Life Building, which is situated opposite. The upper storeys are laid out as offices, all of which are admirably well lighted; in the centre there is a large light well running the full breadth of the building, elegantly finished in wood and painted in white enamel, with a gallery running all around at each storey. The cost of the building was \$160,000, which is very low, if we consider the extent of the work done. The architects were Messrs. Perrault, Mesnard & Venne.

The Street Railway Company are building a six storey building at the corner of Place d'Armes Hill, Craig Street and Fortification Lane—built of limestone—to be partly used by the company and partly laid out as offices. Work has been at a standstill since its recent collapse, and has passed from the hands of a Montreal architect into the hands of Mr. Post, of New York.

The Birks block on Phillips Square is one of the many business blocks put up by Mr. Edward Maxwell; it is four storeys high and built of sandstone.

The Masonic Temple now going up on Dorchester street—future home of that confraternity—was won in competition by Mr. David R. Brown. It is four stories high, the ground floor being built of sandstone and the other stories above of buff pressed brick, contrasting singularly with the surrounding buildings, which are all of red brick.

The Murphy dry goods store is one of the most extensive business establishments put up this year. It is situated on St. Catherine street, is five storeys in height, built entirely of red sandstone, and was designed by Messrs. J. W. & E. C. Hopkins.

St. Antoine Market at the corner of St. James and Mountain streets, as the result of the fire of which it was the victim last winter, had to undergo a complete renovation. This task was entrusted to Messrs. Maurice Perrault and Eric Mann, who have jointly prepared the plans and superintended the construction.

Amongst the ecclesiastical buildings put up this year Erskine Presbyterian church is one of the finest. It is built on Sherbrooke street, in Deschambault limestone, with a graceful tower on the angle. The principal exterior feature is a large arch, half of its diameter being pierced by foliated lights in stone. The architect of this church was Mr. A. C. Hutchison, R.C.A. Knox church on Dorchester is another of the additions to ecclesiastical

architecture that deserves to be mentioned. It is built of limestone and covered with a roof of conical shape, crowned by a lantern. The church has a seating capacity of 1200, and was designed by Mr. Edward Maxwell. Messrs. Brown & McVicar have put up the Taylor Presbyterian Church on Papineau Road—built of Scotch fire brick—with a seating capacity of 800. An important addition to St. George's Church (the finest church in the city after Christ Cathedral) was made during the year. The main tower, which had been left uncompleted at the level of the eaves of the roof, was completed under the direction of Messrs. Dunlop & Heriot, who have well succeeded in designing the tower in harmony with the architecture of the church.

The number of educational institutions has been augmented by three very important additions, viz.: The Seminary of Philosophy, five storeys in height, 300 feet long, with two projecting wings of 95 feet. The building is in the Renaissance style, built of limestone and situated on Sherbrooke street west. It cost in the neighborhood of \$300,000. The Sacred Heart Academy on St. Alexander street, opposite St. Mary's College, is one of these three. The Academy is also a very large building and cost about \$180,000. The chapel, which is very large, forms the central feature, and the class rooms are housed in two large wings on each side of the chapel. The other is the large building now being built on St. Denis street for the Laval University, which is also of limestone, four storeys high, and similar in its layout and proportion, to the new Board of Trade building. Its cost will be in the neighborhood of \$200,000. Messrs. Perrault, Mesnard & Venne were the architects for these three institutions—the latter having been obtained in competition amongst forty competitors. Mr. A. C. Hutchison has also put up a substantial Academy at Cote St. Antoine, built of pressed brick.

The residences put up this year were not very numerous, but very good buildings were erected, amongst which are the residence of Mr. E. S. Clouston, of the Bank of Montreal, on Peel street, by Mr. Edward Maxwell; the residences of Messrs. C. Meredith and D. McIntyre on the same street and by the same architect, and the residence of Mr. Jas. A. Gillespie at the head of Stanley street, which has been designed to meet the owner's fancy for an old-fashioned English brick house, a desire which has been very successfully carried out by the architects, Messrs. Jas. and H. C. Nelson. Mr. Robert Findlay has also designed a house of quite artistic appearance in the Gothic style for Dr. D. F. Gurd, on Bishop street. Mr. W. McLea Walbank has also prepared the plans for the sandstone residence of Alderman Costigan on Dorchester street. Mr. A. Raza is building two large costly residences—one for Ald. Dubuc and the other for Ald. Brunet, on Sherbrooke street—both in the French Renaissance style, and elaborately decorated.

The price of material and labor, skilled and unskilled, has naturally slightly declined, owing to the dullness of building operations.

We look forward to a bright season in 1895. Early as it is, it can yet be said that 1895 will certainly excel 1894. The passing of the Anger Bill which renders the proprietor of a building responsible for the wages of men and cost of material employed in the erection of his building, if they are not paid for by the contractor, even if the contractor has already been paid the whole of his contract, has done a good deal to curtail building operations in this city during 1894. The Building Inspector is of opinion that the past year would have been very much superior to what it has been had this law not been in existence, and he says that the sooner it is repealed the better. A delegation of Montreal architects and building owners waited on the Provincial Government last December to urge the repeal of the Act but nothing has been done so far.

TORONTO, ONT.

Though rather more than a million dollars were expended in building operations in Toronto during 1894, as shown by the building permits granted, published below, the invariable reply from architects and builders is that the year has been most inactive. The permits fall below those of 1893 by some \$340,000. A comparison of the two years also shows that 82 brick dwellings were erected in 1894, at a cost of \$265,400, as against 139 brick dwellings, costing \$446,700, in 1893.

Toronto has not fully recovered from the building excesses of the boom period, and though the vacant houses that numbered several thousands a few years ago are filling up, there are yet

sufficient of these to meet all demands of the population, which happily, despite commercial depression, continues to grow. It would be a mistake for these reasons to say anything that would give unhealthy encouragement to an extension of house building, and yet the impression prevails in some circles that not a few dwellings might be erected with profit to the owners. The remark has been made by a well-known city builder that there are a good many houses in Toronto of a character that ought not to exist, some wanting seriously, because of age, in sanitary requirements. Others were built in the height of the boom and are not fit places to live in, and if people could only be made to understand this they would forsake the imperfect and unfit-to-be-inhabited houses and rent properties which are not possessed of these faults. The reply has been made that with curtailed incomes many persons are obliged to reside in houses that otherwise they would not rent, the low rent being the only inducement. In the better houses, to which reference has been made, the extra value would be secured in the additional accommodation and healthfulness of the home, and such houses are to be had to-day at low rental. As a result of an exodus of this kind from the poorer to the better houses it is believed that a stimulus would be given to improved building operations, and the old and imperfect houses would be torn down and others erected to take their place.

Perhaps the most notable buildings of the year have been the large seven-storey store erected on the south-west corner of Yonge and Queen sts. for R. Simpson, and the fine premises on King st. for John Catto & Son. The former is down on the permits granted as representing \$80,000. In some respects the building stands out unique among the many fine warehouses and stores in Toronto. The architect was Mr. Edmund Burke, and we are glad to be able to give in this number of the ARCHITECT AND BUILDER illustration and letter press description of this store. Langley & Langley were the architects for the Catto store, and at another date we expect to publish an illustration and description of it. Both buildings are suggestive of innovations, and modern ideas, in store building and it is noticeable in the new store in course of erection for Kent, jeweller, as also in other store buildings, that some of these fresher ideas are being embodied.

In church building there has been hardly anything new in the year closed, outside of additions and alterations to several of the churches. School building has been more in the line of additions than new buildings. The Fern avenue school in Parkdale, opened for occupation after the holidays, is the only building that stands out for special mention. Work on the Union Station, which is down among the permits of 1893 for \$185,000, and helps to swell the increase of that year, was pushed ahead vigorously in 1894, and is represented in the permits of the year by \$52,000. Though not singled out in the permits of 1894 the alterations and additions in the head office of the Imperial Bank on Wellington street occupies a prominent place in the work of the year. These alterations practically mean a remodelling of the entire bank and will cost from \$30,000 to \$35,000. Messrs. Darling, Sproatt & Pearson are the architects and have reason to be congratulated on the character of the work done.

It seems but fair to note the fact that whilst the large music hall erected by Mr. Massey, and the Fred Victor Mission Hall, another evidence of this citizen's philanthropy, appear on the permits of 1893 for \$60,000 and \$50,000 respectively, that a large part of the work on both buildings was done in 1894, the Mission Hall, which went in excess of the proposed expenditure, not being completed until near the end of 1894. Work on the new Court House was also pushed ahead with improved energy in 1894 and gave increased business to the building trades.

Building materials have in sympathy with the shrinkage in values in every branch of business shown a tendency to weaken, and better properties for relatively less money were erected in 1894 than in some years previous, a fact that cuts some figure in estimating the value of the work of the year. There has been no lowering of the standard union wage in the leading building trades within the year, and yet the labor market has been just that dull that contracts have been taken at unusually low figures and by different methods this reduction in price has been in part levelled up in securing labor at a reduce wage. This disposition, born of the depression of the past few years, to con-

tract for work at prices that can present only a small margin of profit to the contractor, if not in some cases, actual loss, is a problem that gives concern to thoughtful men in the business.

Returns from the City Registry Office for the year just closed showed the total number of mortgages recorded during the year to be 2,133, and the aggregate amount of incumbrances, \$6,188,449. The city, for the purpose of registry, is divided into the eastern and western divisions and the returns show that there were 213 more mortgages recorded in the eastern than in the western division, and a difference in the amount loaned of \$2,413,125.

What is the outlook for 1895? This is a question that seemed difficult to answer up to the first few days of the new year. Architects could not report that any large business was ahead of them. There have been talked-of operations in different lines. A million dollar hotel for Toronto has been named, and will be considered at a public meeting to be held this month, but whether it will go on, it is a hard matter to say. It would certainly add encouragingly to the work of the year. It is unnecessary to say that every citizen was pained to learn on Sunday 6th inst. of the disastrous fire that swept away the Globe building, the McKinnon warehouse and other valuable properties in the business part of the city, and they were appalled when on Thursday night it came to their knowledge that a second immense fire had broken out, and before its ravages could be stayed that a number of large wholesale warehouses, in the vicinity of Melinda, Wellington and Bay streets had been destroyed. The total loss in buildings from the two fires will represent nearly \$1,000,000. With hardly an exception it is to be expected that these buildings will be rebuilt. This, of course, will mean an unexpected increase to building activities in 1895.

BUILDING PERMITS, 1894.

	Cost.
82 Brick dwellings.....	\$ 264,400
4 Brickfronted dwellings.....	4,100
6 Roughcast dwellings.....	7,000
24 Brick stores.....	63,200
48 Alterations and additions to stores.....	67,500
8 Factories and work shops.....	54,600
8 Additions and alterations to factories.....	15,300
5 Warehouses.....	25,700
5 Alterations and additions to warehouses.....	31,000
34 New stables and additions to stables.....	12,140
133 Alterations and additions to houses.....	85,860
5 New schools and additions to schools.....	53,500
7 Churches and additions to churches.....	15,600
6 Hotels and additions to hotels and breweries.....	17,600
4 Coal sheds.....	14,300
2 Car houses and additions.....	32,000
1 Chemical laboratory at University.....	58,000
1 Addition to Hospital.....	30,000
1 Freight shed.....	20,000
3 Parts of new Union Station.....	52,000
2 Brick towers, gas works.....	5,000
1 Large store for R. Simpson.....	80,000
9 Miscellaneous buildings.....	11,425
Total.....	\$ 1,020,125.

Total number of permits granted, 400.

BUILDING PERMITS, 1893.

139 Brick buildings.....	\$ 446,700
9 Brick fronted dwellings.....	9,800
9 Roughcast dwellings.....	6,900
14 Brick stores.....	72,350
28 Alterations to stores.....	49,600
4 Factories.....	37,500
26 Additions to factories.....	73,710
8 Warehouses.....	112,600
6 Additions to buildings.....	30,200
27 Brick stables.....	24,100
4 Roughcast stables.....	590
139 Additions and alterations to buildings.....	68,040
2 Club buildings.....	19,000
9 Office buildings.....	29,775
3 Hotels and additions.....	12,100
3 Additions to churches.....	2,750
1 Addition to Registry office.....	16,000
1 Music hall.....	60,000
1 Mission hall.....	50,000
1 Addition to Haven.....	15,000
1 Railway station.....	185,000
1 Motor shop.....	30,000
8 Miscellaneous.....	10,000
Total.....	\$ 1,361,850.

Total number of permits granted 444.

OTTAWA, ONT.

The greatest dullness in building circles prevailed in Ottawa during 1894, and the business done showed a marked decline over that of 1893. Few new buildings were erected. The work done consisted principally of structural remodelling of old buildings. The work of greater importance that may be specially named is as follows: Young Women's Christian Association, \$15,000; Maternity Hospital, \$7,000; Grant's block, \$18,000;

Stavis' block, \$11,000; Hayter Reed's house, \$16,000; St. Andrew's church, improvements, \$5,000, together with certain additions to the Windsor Hotel, the Bank of Ottawa, and alterations in the Perley block. The main work done throughout the year was under the direction of Arnoldi & Calderon, G. M. Bayley, F. J. Alexander, Gregg & Gregg, William Hodgson, M. C. Edey and James Mather. There appears to have been little, if any, difference between the cost of building materials in 1894 and 1893, and prices for labor have remained about the same. With a few insignificant exceptions the principal material used in building has been local stone and brick. Ottawa is not a place where speculative building is indulged in to any alarming extent, and yet each year a number of cheaply finished dwellings are erected by contractors on speculation, meeting, seemingly, the requirements of a certain class of the population. Time alone will tell what 1895 will bring forth; as yet no new work is in view.

HAMILTON, ONT.

The total value of permits issued in Hamilton for 1894 was \$464,832, against \$471,768 in 1893, showing a decline of only \$7,136. It may, therefore, be said, that despite dull times the Ambitious City has held its own better than many other cities in the Dominion. The work completed has shown a goodly increase in residential buildings, with 18 business buildings and 4 public buildings. Among the latter can be included two schools, at a cost of \$20,000 each, Mr. A. W. Peene and Mr. W. A. Edwards being the architects; House of Refuge, \$22,000, R. H. Barber, architect; addition to St. Joseph's Hospital, \$12,000, R. Clopecy, architect. The larger part of the work of 1894 was undertaken by the following contractors: Halliday & Webber, G. H. Mills, R. Press, Wark & White and Hannan & Jacques. The cost of building materials in 1894 was considerably less than in 1893. Labor, skilled and unskilled, commanded about the same price as a year previous. Not a little of the prosperity of Hamilton during 1894, and this likely explains the increase in the erection of residential buildings, is due to the Hamilton smelting works, located in the outskirts of the city, a concern employing a large number of workmen. Architects and builders look forward to a prosperous year in 1895.

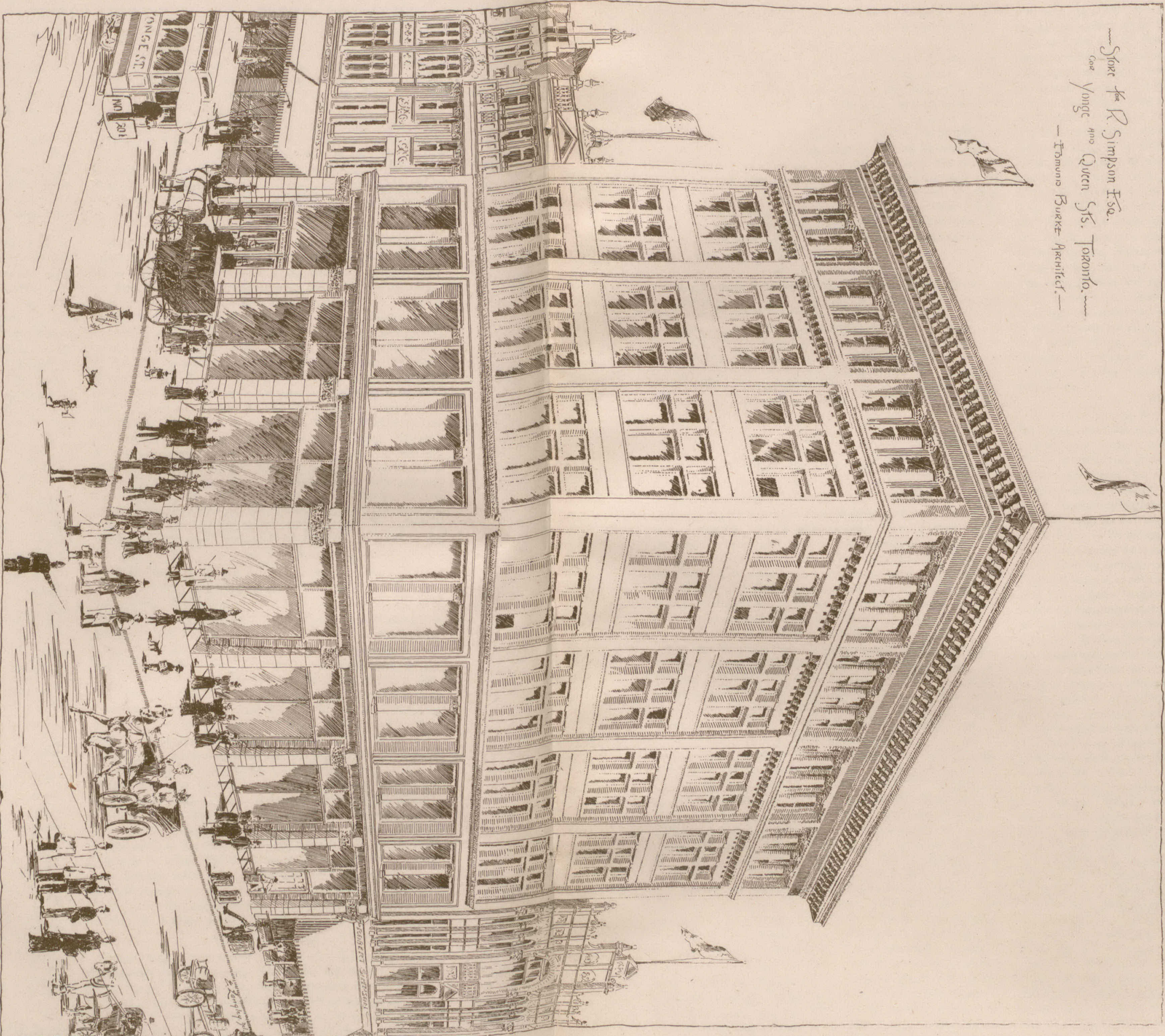
LONDON, ONT.

Building operations in London for the years 1893 and 1894 have run about parallel with each other. The more important buildings erected in 1894 were: St. Paul's Cathedral, at a cost of \$50,000; First Presbyterian Church, \$25,000; remodelling the Huron and Erie Savings and Loan Building at an expenditure of \$15,000. These buildings were designed by Spiers & Rohns, of Detroit, Mich. Tambling & Jones were contractors of the first named building, E. Martyn and W. Tytler of the second, and J. Haymon and Jones Bros. of the third. A large amount of residence building was done during 1894 and of a character that reflects credit on Moore & Henry, H. C. McBride, J. A. Gauld and George Craddock, home architects. It is to be noted that the heavier work of the year has fallen to American architects, and this disposition on the part of the people of London has been further aggravated in awarding the designs for the new Free Library buildings to Mr. C. C. Haight, of New York, though he has since established himself in business in London. Why should this be so with talent of the first order at home? The money that goes to pay for such edifices as St. Paul's Cathedral, the Presbyterian church and the Loan Society comes from the people of London. Prices of material during 1894 were considerably less than in 1893. The labor market has remained about the same. The prospects in building for 1895 are exceedingly encouraging.

OWEN SOUND, ONT.

The growing town of Owen Sound in 1894 did not fall behind the year previous in building operations, the figures for both years running about \$35,000. The most noteworthy feature has been the erection of a considerable number of residential buildings of the decidedly better class. Only one business block of importance was erected in 1894. Brick and limestone trimmings have predominated in material employed. Prices of material were about the same in 1894 as in 1893. An unhealthy feature of the building trades has been the disposition in many cases to take work at abnormally low prices. Some contracts of the year were undoubtedly taken at a loss. This may be considered a good thing for the capitalist who is putting his money into

Store for R. Simpson Esq.
Corner Yonge and Queen Sts. Toronto.
— Edmund Burke Architect. —



property, but taking a wider view, from the business standpoint, it is a feature of trade that in the end can only be productive of evil. Work in this locality commences, owing in part to a late spring, later than in some other places, which renders it difficult to say just yet what the prospects will be for the new season.

GUELPH, ONT.

The Royal City during 1894 showed a degree of activity in building operations that was common to few places. The volume of business done amounted to \$150,000, which was about \$10,000 in excess of 1893. These figures can be divided as follows: Residential, \$61,300; business, \$21,700; public buildings, \$67,000. The erection of an opera house at a cost of \$37,000, a large addition to the hospital, costing \$30,000, and a block of stores for Thomas P. Coffee embraced the heavier contracts. The architects to whom was assigned the chief work of the year were H. J. Powell, Stratford, G. M. Miller, Toronto, and John Day, Guelph. Brick and stone have been nearly altogether used in building operations. There has been no change as compared with 1893, either in the price of material or labor. The prospects for 1895 are good.

BELLEVILLE, ONT.

About \$100,000 is the figure that will cover building operations in Belleville during 1894, a slight decrease over 1893. Largely these have consisted of buildings for business purposes and the material used has been nearly altogether brick. Neither in prices of material or labor can it be said that the conditions of 1894 differ from those of 1893. No public buildings were erected during the year, calling for particular mention. A hopeful feeling exists regarding the new year, and it is expected that the volume of business done will exceed that of the year just closed.

QUEBEC, QUE.

Building records in the Old Capital for 1894 do not augur hopefully for the growth of the city. The volume of operations will not total more than about \$500,000, about one half of that of 1893. This work has been largely covered in the erection of residential buildings of brick and stone. No buildings of sufficient importance have been erected during the year to call for special mention. Prices of brick were lower in 1894 than in 1893, whilst stone and lumber have remained nominally unchanged. Wages commanded by bricklayers have been decidedly less than a year ago. Masons, carpenters, joiners and roofers have been paid about the same wage in 1894 as in 1893. With a retrospect as dull as that here stated, it is yet too early to make any reliable forecast for 1895.

ST. JOHN, N. B.

The year 1894 was one of extreme dullness in building operations in St. John, falling below the average of other years. No buildings of any importance were erected that could be singled out for special reference. There has been more or less in the line of repairing and the erection of a few low priced houses. What the new year will bring forth "no fellow can tell" yet.

HALIFAX, N. S.

More money was expended in building operations in Halifax, N. S. in 1894 than in 1893. About 130 buildings were erected, besides alterations and improvements to 40 others. These may be divided as follows: Residential 79, of these 6 brick and 73 wood; business 45, 14 brick and 31 wood; public 6, 1 brick and 5 wood. The buildings that stand out most prominent are: Roman Catholic Seminary, brick and stone, J. C. Dumaresq, architect, M. E. Keefe, contractor, cost \$35,000; N. S. Furnishing Co.'s store, brick and stone, E. Elliot, architect, Rhodes Curry & Co., contractors, cost \$30,000; Clayton's business block, brick and stone, J. C. Dumaresq, architect, John McInnis & Sons, contractors, cost \$12,000; Roy's business block, brick and stone, S. H. Tremane, architect, T. M. Brookfield, contractor, cost \$12,000. Prices of material in 1894 showed little change as compared with 1893. Wages of carpenters and laborers were about 25% less in 1894 than 1893. Prices of labor in other trades remained unaltered. The decrease in wages of carpenters may be accounted for, in part, from the fact that the depression in the United States drove many in this line to seek employment in the Maritime Provinces. On the other hand there was a scarcity of masons, as a good many were engaged in work in St. John's, Nfld. Prospects for the new year seem fair, though it is difficult to speak correctly until about April. Several good buildings are in contemplation.

VANCOUVER, B. C.

The year 1894 has held its own in building lines fairly well when compared with 1893. The total cost of buildings erected was, perhaps, a little less than that of 1893, but the difference has not been particularly noteworthy. Residences of the better class have run into fair numbers, though, generally, too many of these have borne the stamp of the speculative builder. Office buildings, rather than warehouses, have predominated among the business class. There has been little or nothing in the way of public buildings during the year closed, except what remained to complete of the court house, representing a cost of \$40,000. The architect in this case was Mr. R. Mackay Fripp, F.R.I.B.A. Other buildings of considerable size are as follows: The Dunn block, cost \$20,000, architect, William Blackmore; Hudson Bay warehouse, \$30,000 to \$35,000, architect, O. Wick; Bank of Montreal, (completed), Mr. A. T. Taylor, F.R.I.B.A., of Montreal, architect. In both the prices of material and of labor there has been a slight decline. Buildings, as a whole, in this new Pacific coast city, show a marked improvement in quality of workmanship, durability of material, and in a few isolated cases the designing and planing are far in advance of past years. The Bank of Montreal is the most noticeable example of this. With timber in rich abundance in British Columbia, residential buildings are almost entirely of wood. For business purposes brick and stone is coming into increased use. Brick with Portland cement facing and cornices is prominent in the public buildings of Vancouver. No one is over sanguine of the outlook for 1895; the indications at present point to a somewhat dull season.

WINNIPEG, MAN.

As is the case with most new and progressive cities Winnipeg has had a varied experience when viewed from the standpoint of architect and builder. It has had its boom, and its collapse. But of late years the growth of the city has been of a more steady and reliable character. The fact that the year 1894 was less favorable in building than 1893 may doubtless be accounted for by the financial depression that has existed the world over, and which has not left unscathed our own country. There was less building in Winnipeg in 1894 than in 1893. Few residences of any importance were erected, the work in this line being confined chiefly to cottages and houses of a small class. An unfavorable feature in connection with house building has been a manifest tendency to speculative building. Only disaster can follow the continuance of this method, and in the best interests of Winnipeg it is to be hoped that neither capitalists or building societies will allow themselves to encourage this line of work. Prominent among the more important buildings erected during the year have been the new court house, or rather its completion in 1894, at an expenditure of \$33,000, and representing a total cost of \$72,000. The Ottawa Bank was also finished during the past year. The total cost of the building was about \$60,000, and rather more than half of this was expended on the work in 1894. The Davis block of stores was erected at a cost of \$20,000; alterations were made in the Union Bank, amounting to \$10,000; buildings for water works purposes were erected at a cost of \$13,000. The architect of the buildings named was Mr. Charles H. Wheeler. There was also erected in 1894 St. George's Church (Episcopal), brick veneer and stone foundation; basement used for Sunday School purposes; cost \$12,000; architect, Mr. George Browne. The Nurses' Home in connection with the General Hospital, solid brick and stone foundation, two storeys and finished basement and attic, was the work of Mr. McGowan, architect. St. Andrew's Church (Presbyterian) was erected at a cost of from \$35,000 to \$40,000; materials used, stone and brick; architect, J. McDiarmid. A work of marked importance in 1894 was the Wesley College, erected at a cost of \$75,000; materials used, Calgary stone, backed with brick, slate roof; Geo. H. Browne and S. F. Peters, associate architects. Compared with 1893 no remarkable change has occurred in the labor market. Skilled labor command as good a wage as in 1893, whilst unskilled labor has shown a slight decline. Brick and stone were cheaper in 1894 than in 1893, materials in use in wood-work holding unaltered. Brick, stone and steel are coming into increased use in building in Winnipeg. Well informed authorities say that things at present are so dull that it is difficult to predict what will be the outcome of the building trades in 1895.

ILLUSTRATIONS.

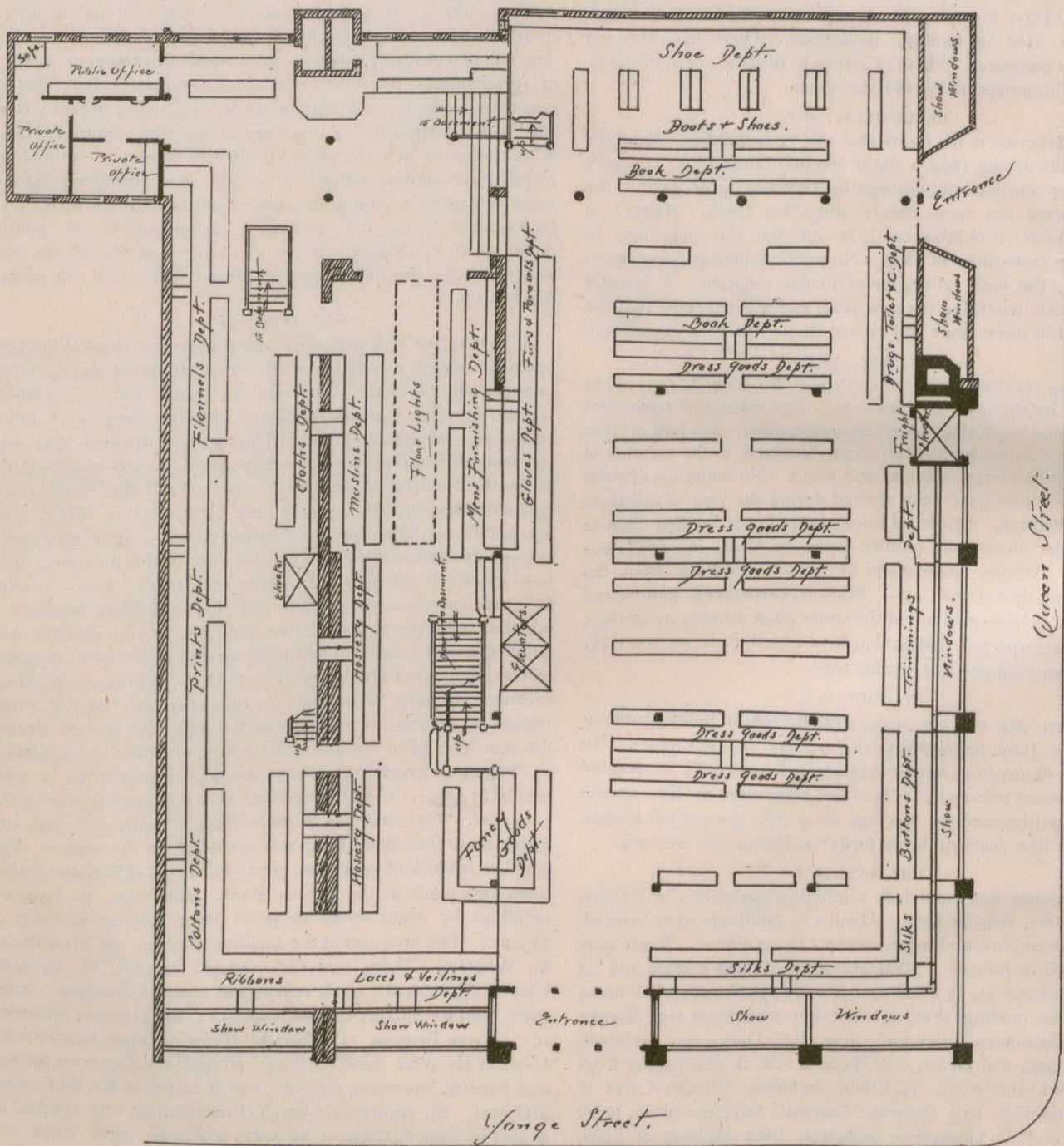
STORE OF R. SIMPSON, CORNER OF YONGE AND QUEEN STREETS, TORONTO.—EDMUND BURKE, ARCHITECT.

THE premises cover a frontage on Yonge street of 118 feet, and on Queen street 157 feet, the corner, 70 x 100 feet, being occupied by the new building.

Building operations were somewhat hampered and difficult owing to the conditions and surroundings. Some of the heaviest

raised bridge kept three feet above the level of the roadway, supported by shores, which were lengthened as the excavation was deepened. This bridge was covered in to form the usual hoarding for the protection of the public, and the whole was maintained till the completion of the building and also of the granolithic sidewalk beneath. The Queen street sidewalk for a length of 105 feet was fenced in, and most of the material was taken in through one or two openings. Long girders, etc., had to be taken in at night or in the short intervals between the

*Store for R. Simpson Esq.
Cor. Yonge and Queen Sts Toronto.
Edmund Burke Architect.*



Plan of Ground Floor.

traffic on the streets of Toronto is centered at this point, street cars passing up and down Yonge street about once a minute, and along Queen street at about double that interval. The foot traffic on Yonge street is also exceptionally great, and as the tracks are double on both streets, and turn the corner within a few feet of the curb, it was found necessary to provide a passage of ample width without encroaching on the roadway and permit at the same time the prosecution of the excavation under the sidewalk. This was accomplished by the construction of a

passing of the cars. Business had also to be maintained in the Queen and Yonge street stores without interruption. To this end a complete wooden wall, dust and weather proof from cellar to roof, was constructed in these stores, sufficiently far away to permit of the removal of the party walls and to make connections of old floors to new beams supported from the columns carrying the new building. Some of the work was carried on night and day, chiefly the excavation and the structural steel works, the night work being done by the aid of electric lights.



Reproduction of Group Photograph of Montreal Members of Province of Quebec Association of Architects presented to the Quebec Members, October, 1894.

- 1 C. CLIFT.
- 2 A. PRÉFONTAINE.
- 3 M. PERRAULT.
- 4 J. SMITH.
- 5 J. W. HOPKINS, R.C.A.
- 6 J. PERRAULT.
- 7 A. VINCENT.
- 8 S. LESAGE.

- 9 VICTOR ROY.
- 10 GEO. W. WOOD.
- 11 JAS. WRIGHT.
- 12 A. MESNARD.
- 13 G. DE G. LANGUEDOC.
- 14 JAS. NELSON, A.R.C.A.
- 15 A. DUBREUIL.

- 16 A. GENDRON.
- 17 O. MAILLOUX.
- 18 A. BOILEAU.
- 19 ERIC MANN.
- 20 L. Z. GAUTHIER.
- 21 JOS. VENNE.
- 22 T. DAoust.

- 23 R. FINDLAY.
- 24 A. T. TAYLOR, F.R.I.B.A.
- 25 L. R. MONTBRIAND.
- 26 A. FLOCKTON.
- 27 J. Z. RESTHER.
- 28 G. A. MONETTE.
- 29 J. B. RESTHER.

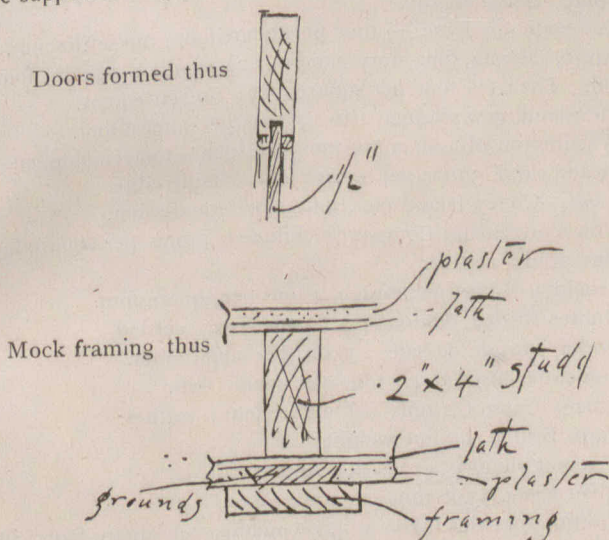
- 30 A. C. HUTCHISON, R.C.A.
- 31 A. LEVESQUE.
- 32 A. H. LAPIERRE.
- 33 H. C. NELSON.
- 34 A. F. DUNLOP, R.C.A.
- 35 J. R. RHIND.
- 36 A. RAZA.

- 37 A. G. FOWLER.
- 38 JOS. HAYNES.
- 39 C. CHAUSSÉ.
- 40 E. C. HOPKINS.
- 41 W. E. DORAN.
- 42 C. ST. JEAN.
- 43 W. McLEA WALBANK, B.A.S.

Possession of the premises was given to contractors on the 30th of May, and the work of tearing down the old building was actively prosecuted. The time allowed for the erection of the building being limited to less than six months, it became necessary to carry up the walls with the utmost speed. The steel frame was erected to the height of 32 feet above the sidewalk, and the brickwork began at this point on the 7th of August. The setting of the cut stone columns, beginning at the street level, was simultaneously carried on. On the 17th of September the roof was being boarded in, although the upper story was not closed in for lack of terra-cotta. The plastering was begun on the 4th October. On December 4th the last window frame was set. In the meantime all the floors but the first were finished and made ready for occupation, the first floor being finished about 10 days after the occupation of the premises. The moving into the new store was accomplished on the night of December 4th. A large number of workmen began pulling down the temporary partitions at 6 p.m. At the same time the new fixtures which had been delivered a few days previously, were being set in place, including a number in the old buildings. A large staff of clerks then transferred the goods to the new shelving, and by nine a.m. the next day the premises were ready for business, although many small items still remained in a somewhat incomplete state. The time occupied was six months and four days, from the date of commencing to tear down the old buildings. The columns and beams are of steel and the joists of Southern pine. The ground floor piers are of Corsehill stone and the work above of buff brick and terra-cotta. The building is plastered with Acme cement, the steel columns and beams being encased with the same, metal lath being employed for the columns. There are three electric elevators, two passenger and one freight, running from cellar to roof. The building is heated by steam, having a battery of four boilers placed under the sidewalk, three being sufficient for the work, leaving one in reserve. The lighting of the new building is by the incandescent arc system, all the wiring being exposed. The shop windows are lighted with incandescent lamps, arranged to concentrate the light upon the goods without being themselves an obtrusive feature. The internal fittings have been specially designed and are executed in ash and oak. Special attention has been given to the day lighting of the building. Light is admitted to the basement through pavement lights set in the sidewalk and through an arrangement of sloping plate glass windows reaching from the pavement lights to the sill line of the shop windows, which gives a view of the basement from the street and admits a flood of light, obviating largely the use of artificial light.

C. A. & B. COMPETITION FOR A MUSKOKA SUMMER COTTAGE—
DESIGN BY "YE OLDE," (MR. T. R. JOHNSON, TORONTO)
AWARDED FIRST POSITION.

The foundations of cottage to be built off rock without previous levelling; lines to follow any unevenness in bed; first course laid in cement. Walls of elevations not shown to be supported on piers. All masonry to be of local rock or stone,



built in boulder work with large rough joints. Where arches appear they are backed by lintels for support of joists.

All exposed timber work except posts, rails and balusters of

verandah steps to be undressed. Roof to be shingled. Inside partitions to be six inch, lathed and plastered; plaster finished in stucco. Frames, sash trimmings, staircase, etc., to be perfectly plain, with rounded edges. Walls of elevations not shown, also those facing on verandah to be enclosed with siding.

All exposed woodwork and shingles of roof, except floor of verandah and steps to be stained in old reds and warm greens; floor of verandah and steps to be bleached. Plaster work between framing to be tinted buff. Inside woodwork to be shellaced.

C. A. & B. COMPETITION FOR A MUSKOKA SUMMER COTTAGE.—
DESIGN SUBMITTED BY "BYDAND" (MR. KENNETH GORDON, TORONTO) AWARDED SECOND POSITION.

The cottage to be built on brick piers. The walls to be formed of studding, with siding on outside, and sheeting on inside of all outside walls and partition walls of first floor.

The three bed rooms of second floor to have partitions formed of 1 1/4" dressed sheeting. The front gable to be shingled on face and sides with shingles cut as shown, and stained; dormer on side to be treated similarly. Living room to have a pressed brick fire place.

The bedrooms have been arranged so that, by taking advantage of the slope in the ground, they are all quite private, and away from living room. The front bedroom opens into a balcony, from which a view in three directions can be obtained.

LINCOLN CATHEDRAL—BAY OF THE ANGEL CHOIR—MEASURED
AND DRAWN BY EUSTACE G. BIRD.

This drawing exhibits the Bay of the Angel Choir aisle with north east door of Lincoln Cathedral. It is of the latest portion of the main fabric, having been built between 1255 and 1280 A. D.

ST. ANDREW'S CHURCH, BELLEVILLE, ONT.—DARLING,
SPROATT & PEARSON, ARCHITECTS, TORONTO.

THE PROVINCE OF QUEBEC ASSOCIATION
OF ARCHITECTS.

The Province of Quebec Association of Architects examination will be held as advertised, in the rooms of Mr. F. X. Berlinquet, in Quebec, on the 28th, 30th, and 31st inst. The candidates for preliminary examination are Messrs. D. O. Turgeon, and Louis Bélanger, of Montreal, and E. B. Staveley, of Quebec. For final examination, the only candidate is Mr. Cagetan Dufort, of Montreal. The following are the newly appointed examiners:—Messrs. C. Bailliargé, F. X. Berlinquet and Harry Staveley, of Quebec, and Messrs. A. C. Hutchison, A. T. Taylor and Jos. Venne, of Montreal. Three have been named for each of the two cities, so as to do away with the travelling expenses of the examiners as in the past.

COMBINATION HEATING.

From the use of an ordinary pipe coil in the firepot of a furnace there have sprung many devices for heating water to be circulated through radiators for warming rooms which are otherwise heated by a furnace with difficulty. Some trouble has been experienced in getting the water heater properly proportioned to the air heating capacity of the furnace, or in connecting just the right amount of radiation with it to get a satisfactory quantity of hot air without boiling the water. Such satisfaction has attended the use of the apparatus that this method of heating is growing rapidly in popularity. One of the taking features is that a positive heat is afforded by the radiators and a positive change of air is the result of the constant inflow of hot air from the registers. As in many other branches of domestic engineering, the authorities do not agree as to the best methods of installation. Some say that the lower floors of the building should be heated by hot air and the upper floors by the radiators, while others hold that a radiator and register should be placed in each room to secure satisfactory results. With the first method there is some possibility of the rooms warmed by radiators becoming overheated when the furnace is fired strong enough to keep those heated by hot air comfortable. With the latter method strong firing cannot produce such an effect. The installation of the double system is, however, more expansive.

Mr. Fred. Toms, of Ottawa, who recently received the contract for the erection of the new Dominion public building at Victoria, B. C., has gone out to the coast to start the work.

STUDENTS' DEPARTMENT.

"C. A. & B." COMPETITION FOR A MUSKOKA COTTAGE.

THE judges in the above competition have submitted the following report :

"Although a great many designs have been submitted, this competition is not at all satisfactory. The competitors have exercised the greatest freedom in the interpretation of the conditions, but in spite of this not one of them has produced anything approaching an ideal "Muskoka Cottage."

"Ye Olde" has been placed first because in this design alone some artistic skill is evinced in the treatment of the elevations, but the planning is very weak. No advantage has been taken of the variation in levels in the site, and the avowed purpose of enclosing the walls of the two elevations not shown with siding, cannot be too strongly condemned.

"Rearing our temple let it be our pride
Nought to neglect, but build with patient care.
A perfect building, finished everywhere ;
Not a mere facade with one good side."

A 12x22 room without a fireplace and with a stair and four doors opening off it, is not a "generous living room" for a Muskoka cottage, and the pantry would be very much better between dining room and kitchen. The 10x10 room with a stair reducing the height of one side to 4 ft. 6 in., lighted only from a window overlooking the front verandah, and labelled "bedroom," would be of very little use for that purpose, and there are not enough closets.

"Bydand" gets 2nd place by the ingenious manner in which he plans his bedrooms, but the verandah is much too narrow and would be much better without the rise of three steps at the west end. This difference in level, while it prevents an entrance to the verandah at the ground level, has the effect of reducing the privacy of the front bedroom. The fireplace in living room is very badly placed, and this room would be much better for a window unshaded by the verandah. The arrangement of doors to kitchen and pantry is bad.

"Eureka," which takes 3rd place, is unquestionably the most carefully thought out plan submitted, and would, but for the silly affectation of symmetry, in showing two stairs from the living room, both landing in the same spot on first floor and balancing the porch by the cloak room, have taken a better place. The idea of giving the whole of the ground floor to the living room and verandah, and taking advantage of the hillside site to get the kitchen department at a lower level is good and well adapted to the requirements of Muskoka life, but it would be better to have the dumb waiter larger, so that it could act as a sort of moveable pantry, as this would enable the removal of dishes, &c., from the living room after meals to be effected very rapidly and easily. The fireplace alcove is too near the door, and the cloak room too far from it. The bedroom floor is well planned, but a bath-room is hardly necessary in a Muskoka summer cottage. The flat roof would be an excellent place for a dance on a moonlight evening. Although excessively ugly, praise is due for the frank way in which the elevations are treated, and the drawing is good.

"Rosseau" comes in a good fourth, with a good verandah but very poor living room. The fireplace between the stairs and pantry door is utterly useless, and the cutting off of the internal corners of the living room is childish. The "den" would be better treated as a simple alcove off the living room. The bedroom floor is fairly well planned, but would be better if the little triangular closet were left out and the N. W. bedroom finished like the N. E.

"Gravenhurst" submits a simple plan, substituting dining room, reception hall and sitting room for the living room called for, but all the windows to these rooms are shaded by the verandah and the proportions of the elevations are not good. A fireplace and chimney built of boulders as shown in the section would be cumbersome and difficult to keep clean.

"Hunter" has a very good arrangement for his earth closet and the kitchen and pantry are fairly well arranged, but both living room and verandah are poor, and the bedrooms are not sufficiently lighted.

"Kenozsha" has a good living room but very poor verandah. The space between kitchen and ground floor bedroom would have been much better as one good pantry than cut up as it is. The bedroom floor plan is good, but rather too much space is devoted to the hall.

The work submitted, with perhaps the single exception of "Ye Olde," points to a familiarity on the part of the students with second rate examples of American design, but evinces little or no knowledge or study of the principles of true architecture, and we would advise the students to direct their attention to the study of better examples of architectural design. Osbourne's House Planning gives the principles of domestic planning in a very concise form, and examples of skilful and artistic design for small houses are to be found in plenty in the pages of the "Builder," "Building News," and other similar publications.

Most of the drawings submitted might, for any evidence of artistic knowledge they contain, have obtained their motive from some of the publications issued by the "Co-operative Building Plan Association" or other similar institutions, and if "the budding architect" cannot produce better work than this, the public can hardly be expected to go to the expense of architectural services for buildings of this sort.

S. H. TOWNSEND.
H. J. EDWARDS.
JOHN GEMMELL.

[The names of the winners of the competition are as follows : "Ye Olde," T. R. Johnson, 74 Baldwin St., Toronto ; "Bydand," Kenneth Gordon, Toronto ; "Eureka," J. Eugene Payette, N. Y. Life Building, Montreal.—EDITOR C. A. & B.]

BEARING POWER OF FOUNDATIONS.

FROM the valuable note-book of Mr. E. L. Corthell, of the Western Society of Engineers, we have been permitted to extract the following data respecting the bearing power of foundations.

Clay.—From 2 to 8 or 9 tons per square foot, without allowance for friction.

Sand.—The different kinds vary greatly in bearing power. Sand mixed with loam will not bear more than 5 tons per square foot. 9.3 tons per square foot were placed on fine gravel and sand at Urk viaduct ; masonry piers on cylinders 4.8 inch diameter ; friction neglected.

In India, on coarse sand in deep foundations, not over 9 tons are used.

In experiments 20 tons have been put on sand without measurable settlement.

Friction.—Side friction varies from 200 to 600 pounds per square foot.

All the above are in gross tons = 2,240 pounds.—B. Baker April 17, 1888.

Clay.—Black Friars Bridge, 5 tons per square foot. Settled badly.—Randall Hunt, Engineering and Building Record, June 23, 1888.

New London Bridge, 5 tons per square foot on piles, = 80 tons per pile. Settled badly.

Newcastle-on-Tyne, 1½ tons per square foot ; no settlement.

Fargo, Dakota, four-story building, 2½ tons per square foot ; failed. Then 1½ tons per square foot ; no settlement.

Cleveland, new viaduct, 1 to 1.7 tons per square foot.

Washington Monument, 9 tons per square foot, inside edge. Clay and sand, 3 tons per square foot, outside edge.

Sand.—Coney Island pier, 5 tons per square foot.

New York Steam Company's chimney, 4 tons per square foot on fine sand ; settled.

Brooklyn Bridge anchorage, 4 tons per square foot.

Nantes Bridge, 6.8 tons per square foot ; settled.

Berlin, considered safe, 2.3 tons per square foot.

Sometimes used to 4.1 tons per square foot.

Albany Capitol, 2 tons per square foot ; settled.

Cairo Bridge, fatigue weight :

Channel piers, 3.34 tons per square foot.

River Piers, 33.08 tons per square foot.

Friction on sides taken at 4,000 pounds per square foot ; fine sand.

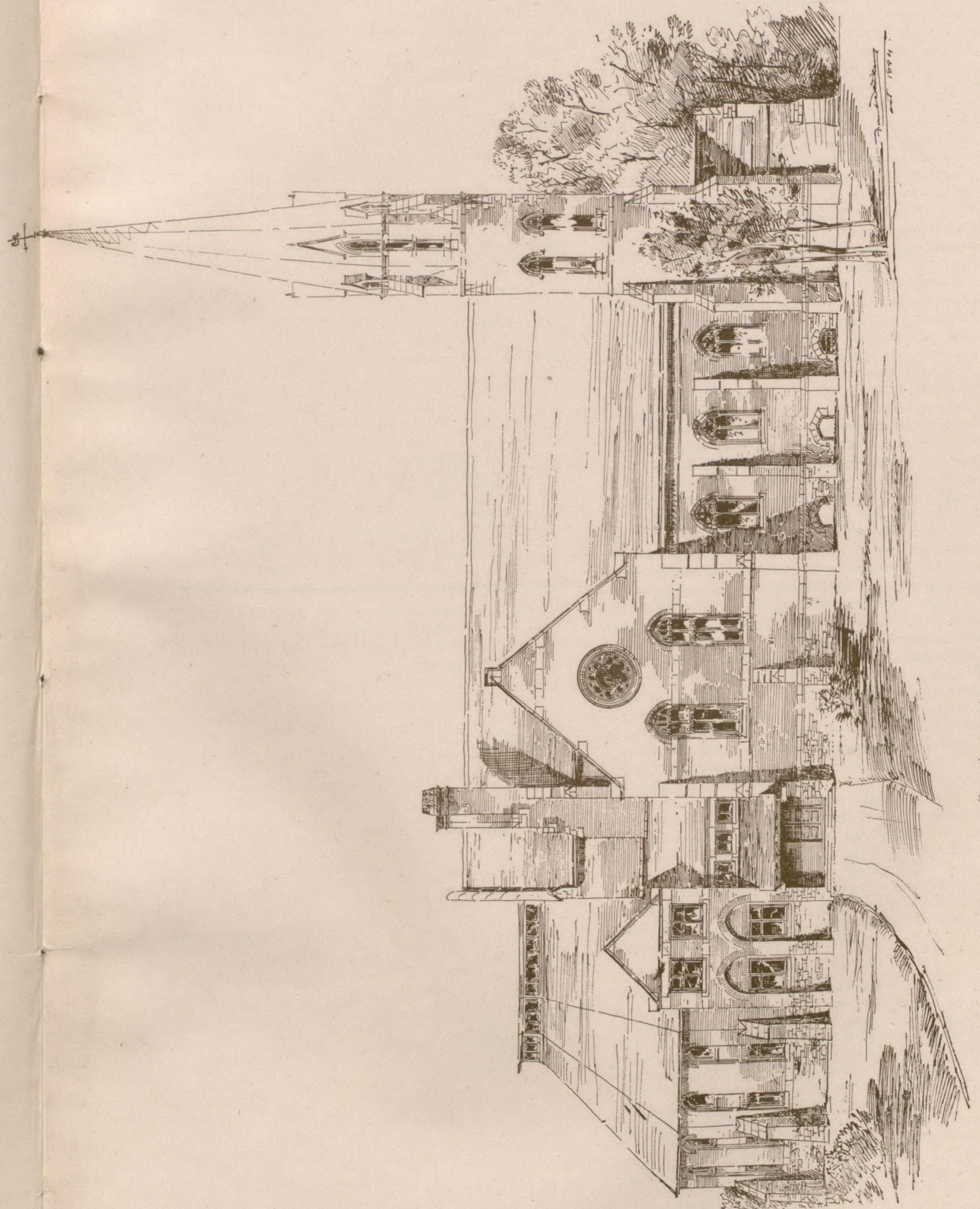
Sioux City, Pier III ; sand, 2.64 tons per square foot.

Soft Soil.—India, one ton per square foot used.—Journal of Engineering.



St. Andrew's Church
Belleville, Ont.

Darling, Sproatt & Pearson, Architects.
Mail Building, Toronto
Sept. 1894.



ST. ANDREW'S CHURCH, BELLEVILLE, ONT.
DARLING, SPROATT & PEARSON, ARCHITECTS.

SAFE BUILDING REQUIREMENTS.

IN view of the necessity for immediate revision of the by-law which is supposed to govern the erection of buildings in the city of Toronto, we print below the provisions of the building laws of the cities of New York and Boston regulating the thickness of walls of brick and stone buildings of varying heights:—

THICKNESS OF WALLS REQUIRED IN THE CITY OF NEW YORK DWELLING HOUSES.

HEIGHT OF WALLS.	FOUNDATION.		EXTERNAL WALLS	PARTY WALLS.
	STONE.	BRICK.		
Not exceeding 55 feet.	20"	16"	12"	12"
Exceeding 55' but not exceeding 80'.	24"	20"	16" to top of second floor, 12" remaining height, if not more than 40'.	16"
Exceeding 80'	8in. thicker than the wall next above.	4in. thicker than the wall next above.	4" thicker than the above for every 15' added to the height of the wall above 80'.	16 inches.

BUILDINGS OTHER THAN DWELLINGS.

HEIGHT OF WALLS.	STONE.	BRICK.	BEARING WALLS.	OTHER WALLS.
Not exceeding 40'.	20"	16"	12"	12in.
Exceeding 40' not exceeding 55'.	24"	20"	16"	12in.
Exceeding 55' not exceeding 75'.	28"	24"	{ 20" to height of 20'. 16" to height of 55'. 12" remaining height }	4in. less than bearing wall
Exceeding 70' not exceeding 85'.	32"	28"		
Exceeding 85'	8in. thicker than the wall next above.	4in. thicker than the wall next above.	4in. thicker than the above for every 15' added to the height above the 85ft.	

THICKNESS OF WALLS REQUIRED IN BOSTON DWELLING HOUSES.

HEIGHT OF WALLS.	THICKNESS.				
	FOUNDATION.			EXTER-NAL WALLS.	PARTY WALLS.
	BLOCK STONE.	RUBBLE STONE.	BRICKS.		
Not exceeding 35 ft.	16in.	20in.	16in.	12in.	12in.
Exceeding 35 ft., not exceeding 55 ft.	18in.	22½in.	16in.	12in.	12in.
Exceeding 55 ft.	20in.	25in.	20in.	12in.	12in.

BUILDINGS OTHER THAN DWELLINGS.

HEIGHT OF WALLS.	THICKNESS.				
	FOUNDATION. BLOCK STONE.	RUBBLE STONE.	EXTERNAL WALLS.	PARTY WALLS SOLID.	PARTY WALLS VAULTED.
Not exceeding 35ft.	24in.	30in.	{ 16in. to top of upper floor, 12in. remaining height. }	{ 20in. to top of second floor, 16in. to roof, 12 in. remaining height. }	{ 20in. from found'tion to under side of roof boards. }
Exceeding 35ft.	28in.	× × ×			

In Germany water pipes are being made of glass with asphalt covering, to prevent fracture. It is claimed that they give thorough protection against moisture in the ground, and against the action of acids and alkalis.

FIREPROOF FLOORING.

THE increased interest which has within the past year or two been shown in the construction of fireproof floors is indicated in a marked manner by the experiments, though small in number, which have been made for the purpose of testing the strength and fire endurance of concrete and hollow-tile flooring, as well as by other tests now contemplated. These evidences show that this class of construction is receiving an amount of attention which is destined to soon bring it to a much more satisfactory condition than it has hitherto attained. It is obviously easy and simple enough to construct a floor which will be both strong enough and essentially fireproof with either concrete by itself or with any of the rather numerous clay products in the shape of hollow terra-cotta or tile, provided it is not at the same time requisite to attain low cost and a minimum weight. As a matter of fact, up to the present time fireproof floors of the best quality and requisite strength are excessively heavy, as anyone must readily realize who has designed a modern high building of the skeleton type. The weights or loads under which the column sections are designed, are made up largely of the weight of the floors, which are dead weights in the most intense sense of the word. They add extremely little to the stability and stiffness of the building, but they add both directly and indirectly to the cost of the structure, and hence any kind of floor which is found to yield an increase in unit strength, as it were, and thus decrease total weight, cannot fail to be of material advantage.

The recent tests of a combined concrete and iron-wire floor, together with corresponding tests of flat and arched hollow-tile flooring recently made at Trenton and fully described in The Engineering Record of Dec. 22, show that the combination of metal and concrete possesses some characteristics of considerable merit in this connection. A number of combinations of the same materials and for the same purpose, as is well known, have for some time been advocated and even employed for fireproof floor construction, but we do not recollect that any quantitative tests of strength and resistance to fire have been made prior to those which have just been named. The two chiefly interesting features brought out by these tests were, the large reduction in weight (about 40 per cent.) over the hollow-tiled floors with which experiments were made and the apparent fire endurance of the combined iron and concrete. Sufficient data are not at hand to enable any reliable comparative estimates of cost to be made, but there seems to be no costly elements in either the material or processes required by the lighter construction, while its high load-carrying capacity certainly fills every reasonable demand for strength. It is obviously a necessity for the fire endurance of such a combination that the metallic portion should be well imbedded in the concrete, but having attained that end, it would seem that an essentially fireproof quality is attained.

It has been maintained by some engineers that the rates of expansion and contraction due to change of temperature would in a short time destroy such a combination, but it is now well known that the two rates for iron and steel and cement mortar or concrete are so nearly the same that for practical purposes they may be considered identical, and hence that there is no ground for criticism on this score. The whole field is one of no little structural interest, and the questions involved can be satisfactorily settled in no other way than by intelligently conducted quantitative tests such as those we have named and others now in preparation.—Engineering Record.

It is probable the Normans, after their arrival in England, adopted the dwellings they found in existence until the necessity of their removal, through decay, induced the re-erection of the buildings in an improved and more commodious form, and it began to be found that the repeated destruction by fire of the frail tenements of their predecessors induced the necessity of a change in the material of the houses. Accordingly, in the twelfth century stone with shingle or thatch as a roof covering began to be employed by those who had the means of doing so. This, of course, tended to confine the ravages of fire to the building where it originated; but the houses thus erected were comparatively few in number, and it is to be remarked that in the decrees of the Assize of London, in the first year of Richard I.'s reign, no provision is made for chimneys. Richard's ordination says the walls were to be 3 ft. thick, 16 ft. high, and of hewn stone; upon these were built wooded gables of heights irregular, and instead of thatch they were to be slated or covered with Brent tiles.

POINTERS ON TRADE JOURNALS.

It is a prominent and indisputable fact that those periodicals known as trade journals are great factors in individual business success at the present day. This is owing to their educational character and to the care and judgment exercised in their preparation. And while the field of trade journalism may be in many instances overcrowded, still there are few papers of this class which do not possess a peculiar merit that entitles them to consideration.

In the distribution of advertising patronage the importance of trade journals as mediums is too frequently overlooked, or else a proper value is not placed upon the quality of the publicity which they can give their patrons. Few general advertisers give thoughtful consideration to the claims which such papers present, and consequently fail to do justice to their worth; but indefatigable efforts on the part of the journals themselves must ere long bring to them the recognition they deserve. When an advertiser prepares to distribute his patronage there are three facts in connection with the different advertising mediums which he takes into account—quantity of circulation, quality of circulation and space rates. These then, are the facts to be considered in regard to the value of trade journals to advertisers.

First as regards quantity of circulation. It cannot be expected that a class publication will enjoy the same field favorable to the acquirement of enormous circulation figures that is accorded to newspapers. Being published for a class, it is of necessity confined to that class in securing readers, and its circulation is therefore limited to the magnitude of its class. But notwithstanding this fact, a study of the American Newspaper Directory will reveal a number of trade journals that possess a clientage surprisingly large, and there can be no doubt that the leading exponents of each line of business go to a very large percentage of the members of its own trade brotherhood.

But the shrewd advertiser well knows that the true merit of a medium does not lie in the size of its edition only. He looks deeper than this before investing in its pages, and it is here that the trade journal will bear the closest investigation and comparison. In the quality of its circulation, it possesses an unquestioned superiority over any other sort of publication. It fills a place that no newspaper or magazine can occupy, because

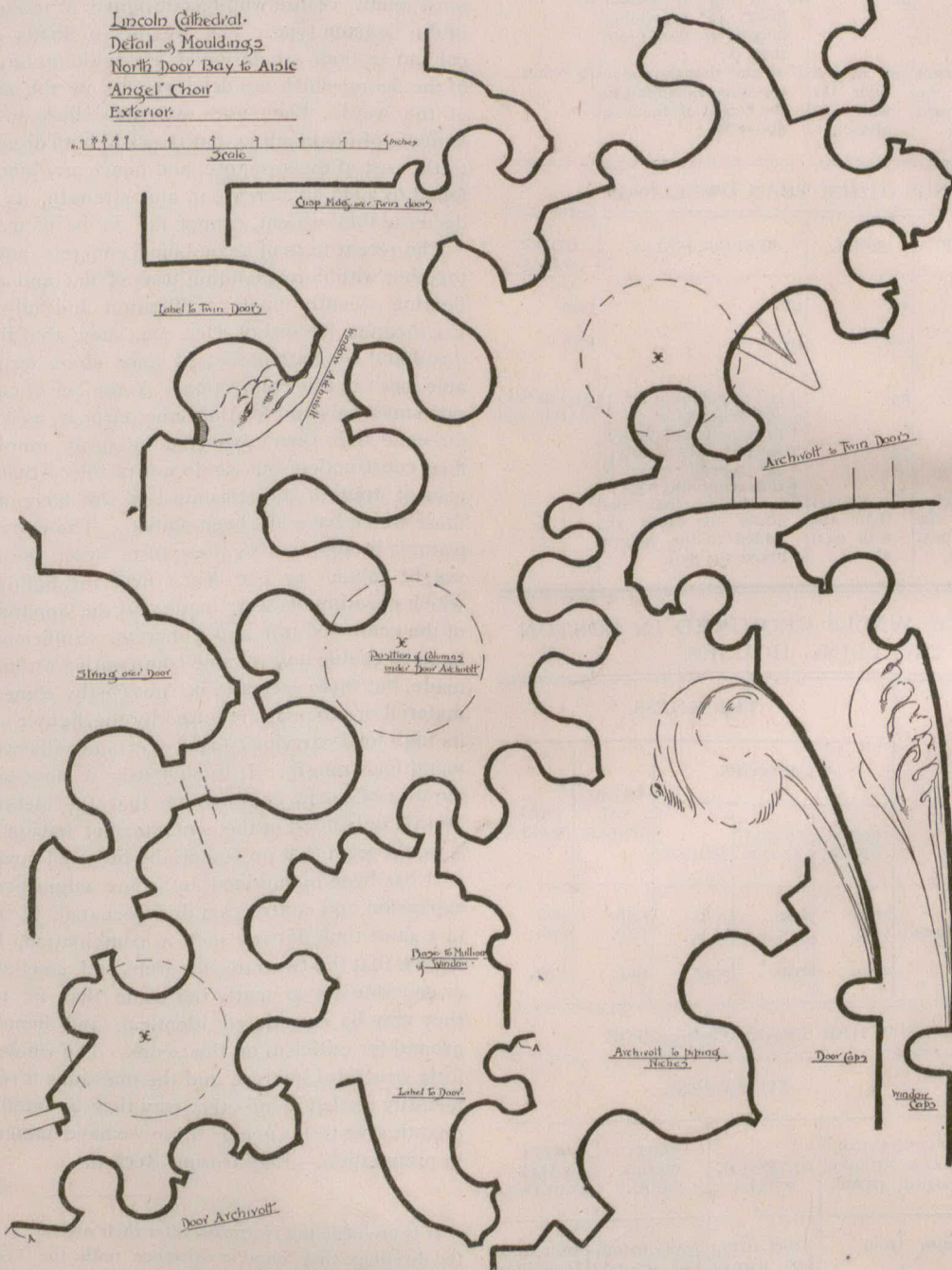
it is of individual interest, while the latter is of general interest. It talks only about subjects that concern its class of readers, teaching them new business methods and the most profitable manner of applying these methods, so that it becomes a veritable schoolmaster in its own particular field. Thus by its educational facilities it contributes to the final success of many a struggling young business man, helping him over the rough places and guiding him to safer paths. It therefore follows that each issue of such a journal is regarded by its readers as a thing of value and carefully studied as a source of profit to themselves. It is preserved for future reference, and the advertisement it contains brings forth fruit long after those that have appeared in a newspaper are forgotten. I think it will be admitted that these valuable characteristics entitles the trade journal to a high position among advertising media. Now, a word about rates. It is

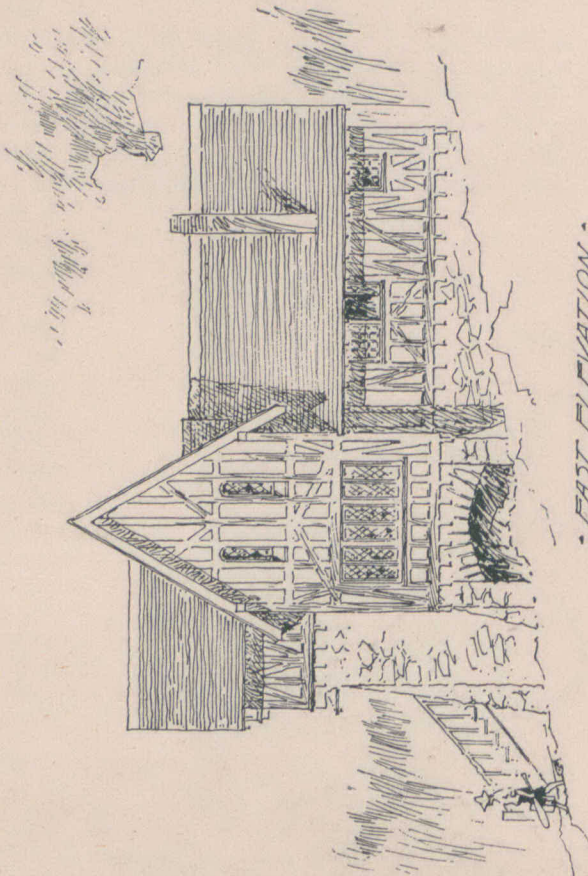
true that class publications, as a rule, ask more for their space than newspapers, but take into consideration the quality of this space and then tell me if they do not deserve all they ask. Of course excellent judgment must be used in selecting the class of journals in which to advertise a certain kind of goods, but after this has been happily done compare the results with newspaper results in proportion to circulation. All articles cannot be profitably advertised in class journals; but many can be, and to advertise the latter I would rather pay five cents per line per thousand of circulation to trade papers than one-half to newspapers. Results will justify this assertion. — Jas. B. Kirk, in Printers' Ink.

Whites from lead should never be used in water-color drawing.

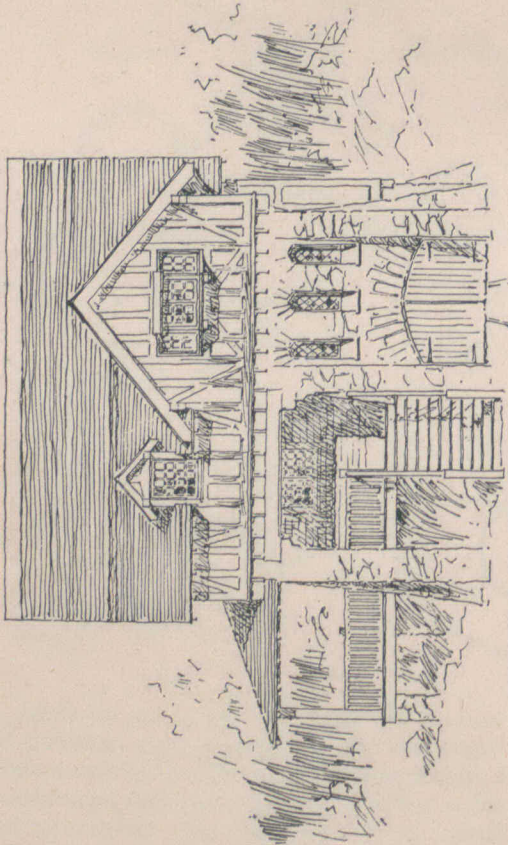
In many of the drawings by the old painters patches of black occur where the high lights were introduced. This is due to the use of white lead.

There has just come from the bending kiln of the Diamond Plate Glass Company, of Kokoma, Indiana, the largest bent plate glass ever made in America. The glass was cast and bent to order, and measures 108x133 inches, containing 100 square feet. The magnitude of this product can be appreciated when it is understood that in the two largest bending works in the country—the Oriel, of St. Louis, and the Trenton, of Trenton, N. J., no plate has ever been bent which contains over 35 square feet. The plate just completed will be used in a fine business building at Duluth.—Southern Manufacturer and Builder.





• EAST ELEVATION •

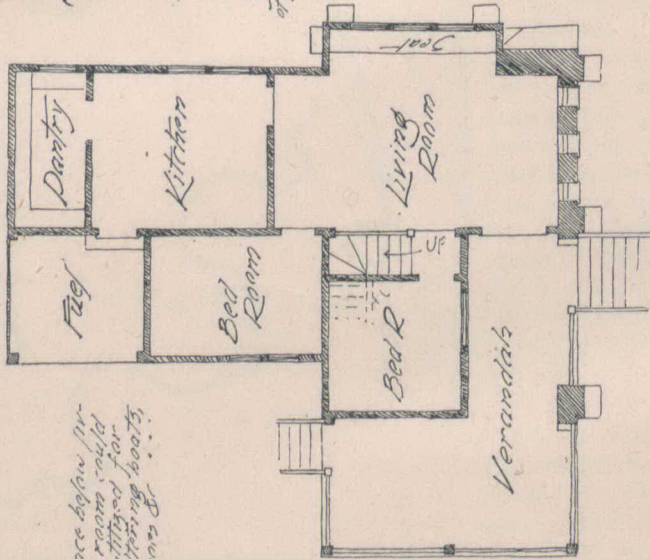
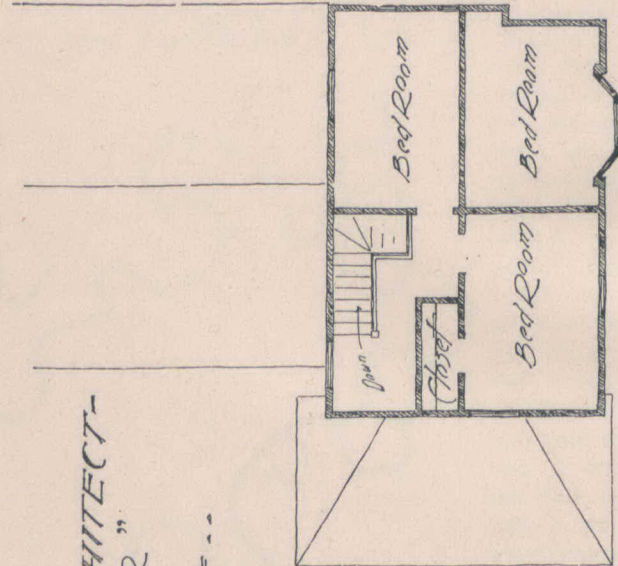
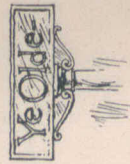


• SOUTH ELEVATION •

"CANADIAN ARCHITECT-
AND BUILDER"

-- COMPETITION FOR
A SUMMER COTTAGE --

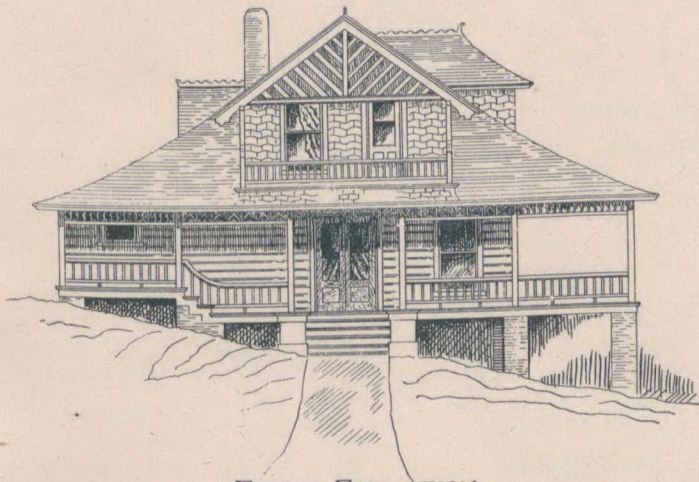
Scale
of feet



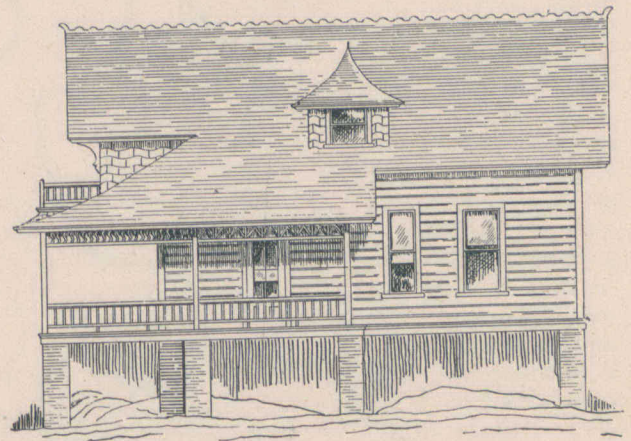
Note - Space before por-
chey rooms could
be utilized for
storing boats,
cans etc.

CANADIAN ARCHITECT & BUILDER
COMPETITION FOR A \$1000
MUSKOKA SUMMER COTTAGE

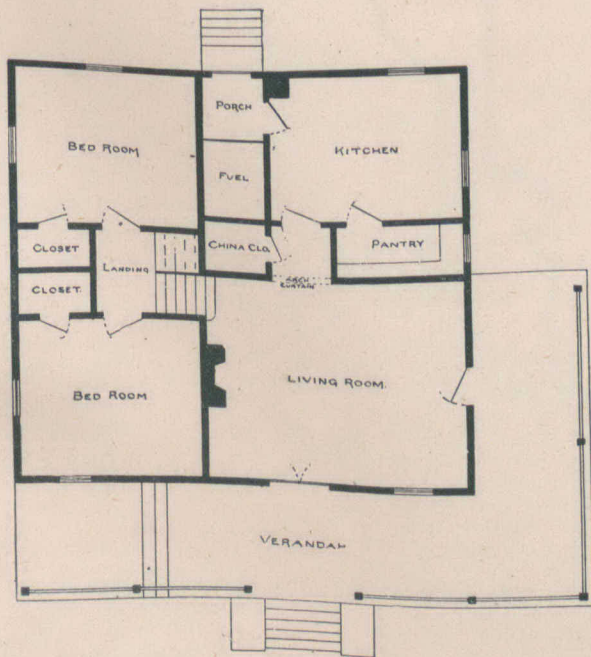
BY BYDANDⁿ



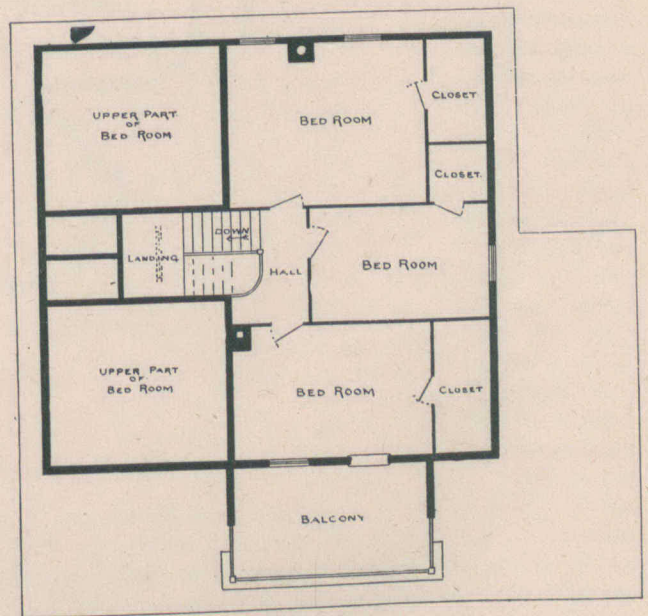
FRONT ELEVATION.



EAST ELEVATION



FIRST FLOOR PLAN



SECOND FLOOR PLAN

SCALE 1 IN. = 8 FT.

CONCRETE.

THE discovery of the use of concrete is curious. In excavating for one of the piers of Waterloo Bridge, says the Builders' Reporter, the workmen had a good deal of difficulty, owing to the very compact state of the gravel forming the bed of the river, which everywhere else they had found perfectly loose. This effect had been produced by the accidental sinking of a barge-load of lime over that spot some time before, which had cemented the loose gravel into a solid mass, resembling the calcareous conglomerates of nature which are gradually formed by a similar process. Mr. Rennie having mentioned this circumstance to Sir Robert (then Mr.) Smirke, the latter with great judgment availed himself of the hint and subsequently used it in all his foundations, none of which have ever been known to fail. Part of the penitentiary at Milbank, begun by another architect in a different manner before Sir Robert Smirke was employed there, was evidently giving way. The superior efficiency of concrete was also proved in a remarkable manner at the new Custom House, where the floor of the large apartment called the Long Room actually fell in and the whole building was in danger, owing to the insufficient manner in which the piling had been originally executed in a very difficult situation. At this period Sir Robert Smirke was consulted, who found it necessary to pull down a small part of the building, but saved the rest of it by undersetting all the walls with concrete, to the average width of 12 feet and to the depth of from 12 feet to 15 feet—that is, until he found a natural bed of gravel, including one course of Yorkshire landing stones and twelve courses of brick laid in cement, having three offsets or footings between the Yorkshire landings, resting on the concrete and the base of the original walls. No other expedient could possibly have saved this fine edifice from entire demolition. It must be allowed that not only the ancient Romans and after them the Moors, but even the Norman barons of England in their feudal castles used concrete, of which Kendal Castle is one of the most striking examples; and more recently Belidor, in his "Architecture Hydraulique," treats of beton mortier, which is much the same; so that is not absolutely new. In fact, according to the old proverb there is scarcely anything new under the sun; but the merit of introducing this immense improvement

systematically and generally into the modern practice of architecture is undoubtedly due to Sir Robert Smirke.

PREVENTION OF FIRE.

A CIRCULAR was recently issued by the Fire Underwriters of Missouri, under the above title. We quote here a few of the hints which will be found to be not only plausible, but eminently practical.

Electric trolley railroads should not be permitted to furnish light or power to any building, as it is highly dangerous, being almost certain to cause a fire in every instance.

Elevators, staircases, etc., should be in fireproof or fire-resisting shafts or in hallways, cut off from the main structure by brick walls, with self-closing doors at each storey, which latter would be improved if covered with metal on both sides. Where elevators and staircases are not cut off by brick walls, they may be cut off at small expense by metallic lath or plaster partitions of patent plaster blocks.

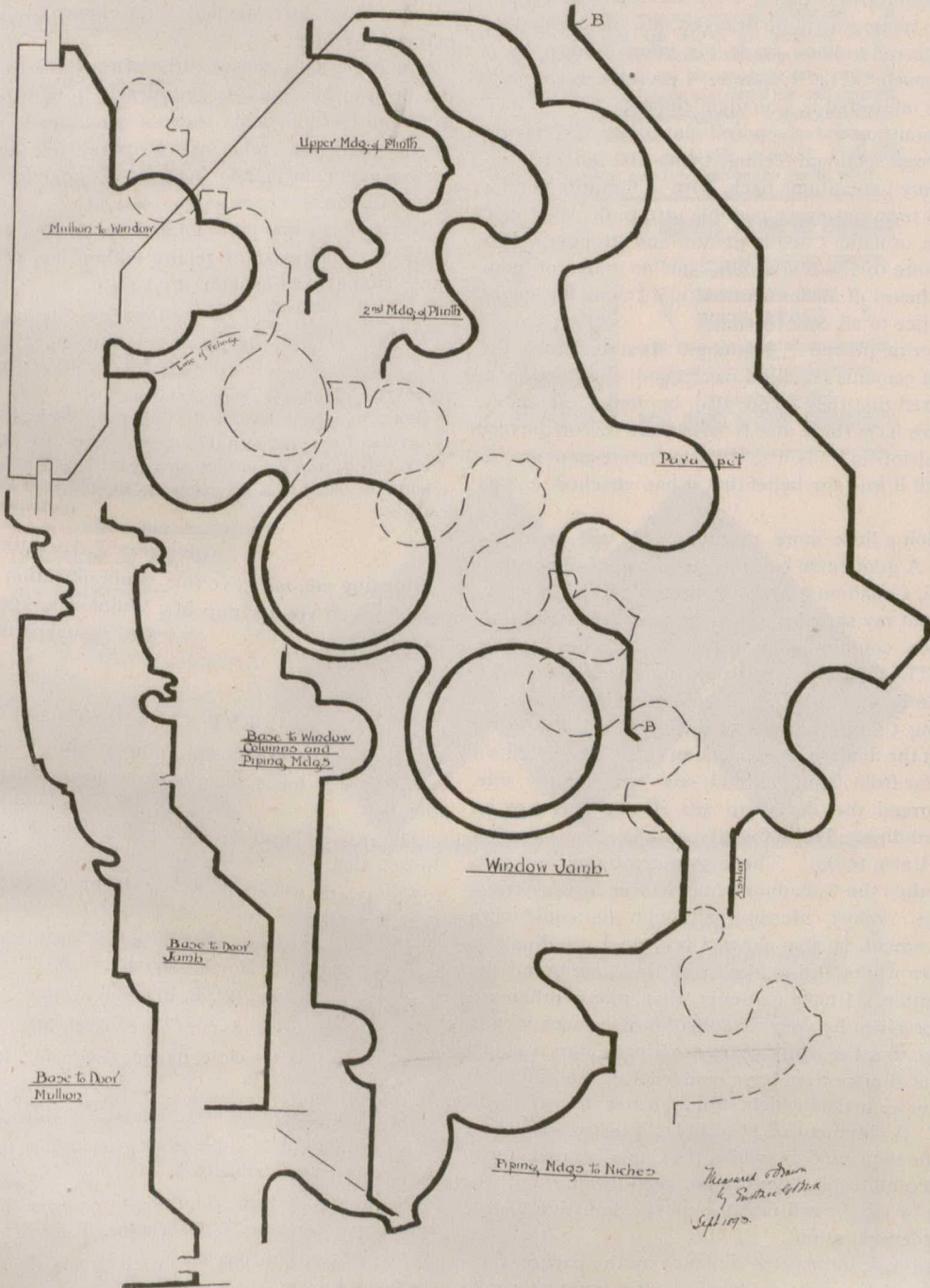
Ventilating shafts, dumbwaiters and all other openings from floor to floor throughout the buildings, if necessary (and they seldom are) should be of fire-resisting material throughout; at best they are likely to serve as flues, and convey fires throughout the structure. Wooden-chutes, wooden dumbwaiter shafts, etc., are inexcusable, and well-holes, while frequently found in mercantile buildings, ought

not to be allowed anywhere. Electric wires should be run through strong tubes of brass or other metal, with hard leather insulation. Where not so protected, the driving of a nail by some careless mechanic, breaking the insulation and cutting the wire or combustible material, may cause a short circuit and a serious fire. A small inexpensive fire-extinguisher kept on the premises may be the means of saving your property in case of fire.

PUBLICATIONS.

The Consolidated Plate Glass Co., of Toronto, have issued a perpetual calendar, handsomely mounted, with the company's name and address in silver letters on the front.

Just preceding the famous Charcot's death he prepared an article for The Cosmopolitan on Pasteur, to be published after Pasteur's death. But Charcot has died first, and so with the consent of Charcot's executors, the article is given now.



LINCOLN CATHEDRAL—DETAIL OF MOULDINGS.

CORRESPONDENCE.

Letters are invited for this department on subjects relating to the building interests. To secure insertion, all communications must be accompanied by the name and address of the author, not necessarily for publication. The publisher will not resume responsibility for the opinions of correspondents.]

CANADIAN v. IMPORTED CEMENTS.

MCGILL UNIVERSITY,

MONTREAL, Jan. 1st, 1895.

Editor CANADIAN ARCHITECT AND BUILDER.

DEAR SIR,—I notice in your December issue, a somewhat lengthy criticism on an article written by myself, for the Canadian Engineer. I prefer, myself, to write over my own signature in criticising other articles, and, I am sure, if Mr. Wright had known that his name was to be dragged into the discussion, he would have preferred to have made his views known in a letter signed by himself. The Bystander, I presume, is a reporter or else someone interested in Canadian cements.

It is somewhat amusing to see myself put down as having English and Montreal sectional feeling, being as I am of Canadian stock for many generations back, born in Ontario not far from Toronto, and trying at every possible turn to do all I can, in my humble way, to make Canada greater and stronger. It is not necessary to state this to my friends, but as most of your readers have now heard of me for the first time I think this ought to be stated in justice to all concerned.

What has my critic proved? Nothing! I stated that the Canadian portland cements could be very good, and gave facts to prove it. I stated that they could also be found, at times, very poor, and gave facts there also! What has this on the face of it? Lack of patriotism? Is it to the true interests of an infant industry to lull it into the belief that it has reached a safe position?

If you will pardon a little more discussion, I will give you some incidents: A gentleman building sub-aqueous work asked me about a certain Canadian brand. I praised it highly, but explicitly stated that my samples had come from the manufacturer. I was then commissioned to test *it* and the Burham English brand. The Canadian one would have been taken if satisfactory, as the Burham, though a safe ordinary cement, is very coarse, having 5% residue on a 50 sieve. When I went to get the samples, at the dealer's, the Canadian cement I was shown for *competition*—far from being a good one—was simply vile. I protested, and urged the dealer to see if this was not an especially poor grinding. He obtained samples from another shipment, which I also tested. This also was too poor to consider at all—and thus the Canadian manufacturer lost a heavy sale—lost prestige. Why? Because, although he could turn out a very good cement, he also allowed very poor grindings to pass out of his own works (all marked with the same brand) to earn him a reputation. I have no doubt that many other experiences could be given by your readers of similar cases, whereas it is well known that the many years experience, large plants and careful chemical inspection have enabled English and other makers to turn out an article which, although not first-class, is yet not *variable*. A shipment of 4,000 bbls., if tested say every 100 bbls., could be depended on, while, if a Canadian maker who turns out 50 to 100 bbls. per day does not keep turning out the same article day by day, it will take the most exhaustive testing to detect the sudden variations.

What I advised was, increasing vigilance on the part of Canadian makers, that they might, by turning out a *uniformly* good article, gain the confidence of the army of consumers who do not test every 10 bbls; and, I repeat it, I see no better way than to have impartial tests made monthly, and published.

That, however, is a matter of judgment. As to the matter of facts, they stand uncontradicted. They were written with the best of intentions, and I believe will bear fruit. If, no other, they will call public attention to the industry, and warn the manufacturers of the pitfall. I explicitly stated in my article that I believed some makers were not in need of this criticism, and my best wish is that, in the near future, increased care, increased output and increased appreciation of that which is worthy, may put them all in the front ranks and put an end to importation.

Yours sincerely,

CECIL B. SMITH.

The CANADIAN CONTRACTORS' HAND-BOOK. Price \$1.

THE ACCIDENT AT THE MONTREAL STREET RAILWAY COMPANY'S BUILDING.

MONTREAL, January 14th, 1895.

Editor CANADIAN ARCHITECT AND BUILDER.

SIR,—Amongst the correspondence in the last number of the CANADIAN ARCHITECT AND BUILDER, under the heading, "Montreal Street Railway Building Collapse," appears a report purporting to have been drawn up and signed by Mr. W. McLea Walbank, B.A.S., M.C.Soc.C.E., &c., and Mr. Lacroix, City Building Inspector.

It was commented upon in the following terms, namely: "That as there was much diversity of opinion amongst the experts examined, you would print only the conclusions arrived at by them; whose opinion as embodied in the report you should regard as being impartial."

It may perhaps be somewhat of a surprise to you, as it certainly has been to Mr. Lacroix and myself, to find his name attached to a report which, as he states in his letter to me, given below, he did not sign, and was no party to; and further, which arrives at conclusions he has not yet gone into or expressed any opinion upon.

What object was to be gained by tacking the City Building Inspector's name to the report, without his knowledge, is left for those doing so to explain, if possible.

[COPY OF THE INSPECTOR'S LETTER.]

OFFICE OF THE BUILDING INSPECTOR,

CITY HALL, MONTREAL, Dec. 24th, 1894.

EDWARD C. HOPKINS, ESQ., Architect.

DEAR SIR,—Your favor of the 22nd just received. In answer beg leave to say that I have not seen the article referred to in THE CANADIAN ARCHITECT AND BUILDER; furthermore, that I have never signed Mr. Walbank's report; besides I have yet to express an opinion as to the true cause of the collapse.

Yours truly,

(Signed) P. LACROIX, Building Inspector.

Trusting you will give this communication the same prominence which you have to Mr. Walbank's report,

I am, Sir, yours respectfully,

E. C. HOPKINS.

RECENT CANADIAN PATENTS.

- No. 47,361, steam radiator to Edward Ethel Gold, New York.
- No. 47,382, frame for window sashes to Peter McKenzie, Ottawa, Ont.
- No. 47,403, Tread for floors, Wm. Henry Lindsay, Ashton Gate, Bristol, Eng.
- No. 47,418, window sash, R. Heinrich Wilhelm Rump, Hamburg, Germany.
- No. 48,434, process of making building blocks, Theodore Sanford Pierce and Fred. C. Norris, Lansing, Mich.
- No. 47,446, Closet, W. B. Malcolm, Toronto.
- No. 47,448, Brick mould, Carl F. Kaul, Madison, Neb.
- No. 47,459, water closet flushing device, W. R. Baker, Watertown, N. Y.
- No. 47,459, Sash fastener, Lewis Cass Miller, St. Louis, Mo.
- No. 47,482, plate or pieces of glass having imbedded in it metallic wires covered with asbestos.
- No. 47,503, a bath, consisting of an inner shell with a covering of pulp or papier mache, J. O. Thorne, Toronto.
- No. 47,532, fastening for metallic roofs, John Osborn Pew, North Bloomfield, Ohio.
- No. 47,541, window frame, Oscar Frostscher, Philadelphia, Pa.
- No. 47,556, roofing tile, Thos. Arundel Aldridge, Bridgewater, Somerset, Eng.

There are many ways of frosting glass, some of the plans making the glass permanently frosted, others only temporarily so. For permanence, take a flat piece of marble, dip it into glass cutters' sharp sand, moistened with water; rub over the glass, dipping frequently in sand and water. If the frosting is required very fine, finish off with emery and water. As a temporary frosting for windows, mix together a strong, hot solution of Epsom salts and a clear solution of sulphate of soda, warm; and when cool, wash with gum water. Or dab the glass with a lump of glazier's putty, carefully and uniformly, until the surface is equally covered. This is an excellent imitation of ground glass, and is not disturbed by rain or damp.

PERSONAL.

Mr. Arthur J. Cooke, will shortly open an office in Montreal for the practice of architecture.

Mr. William Laurence Munro has opened an office for the practice of architecture at No. 10 Main street east, Hamilton.

Mr. George Browne, architect, Winnipeg, is at present spending a couple of months in Ontario, making his headquarters at Hamilton.

A fortnight ago, in company with a number of Ontario lumbermen, the subject of shingles came up for discussion. There was a time when the term shingles, so far as this province is concerned, simply meant white pine shingles, but with the introduction of the red cedar shingles of British Columbia, and, though only to a limited extent, the white cedar shingle of New Brunswick, conditions have changed. The Pacific Coast people

tell of the red cedar shingle as showing no signs of decadence, after having been 30 years and more on a roof. Ontario lumbermen may be prejudiced against their red cedar rival. It is the case that on this occasion they were of one mind that whether it was owing to the process of kiln drying, or what not, red cedar shingles were not even now proving satisfactory. "It is all very well," said one, "to talk of the longevity of this shingle, but I doubt if on the Pacific Coast they are put to the test of the severe east rains and snow storms that we get in Ontario, and which will test almost any roof if not well covered, both as regards material and workmanship. I hear complaints of shingles that have only been two or three years in Ontario, as unable to withstand the rains of this province." Probably this point will be disputed by our friends on the Pacific coast.

DURABILITY OF SLATE.—Writing on the durability of slate when exposed, Mr. A. C. Kimber says: "In the Granary Burying Ground, in Boston, there is a stone of slate erected to the memory of Captain William Condy, who died August 25, 1685. The style of lettering, position, &c., all indicate that it was put there soon after the burial. Yet every letter is clear and sharp, even the guiding lines scratched with the chisel being perfectly distinct. In fact, the stone seems to have suffered no change whatever. There are many others near it in the same condition, and of nearly equal age."

WM. LAURENCE MUNRO

ARCHITECT

10 MAIN ST. E. HAMILTON.
Manufacturers please send Catalogues and Samples.

WM. J. HYNES,

Contractor and Plasterer,
Relief Decorator & in Plaster, Stucco or Espece-Mache.
87 Winchester Street
Shop, Esplanade, foot of Jarvis Street.
Telephone 3414.

MEMORIAL
STAINED GLASS
WINDOWS
N. TYLON, TORONTO

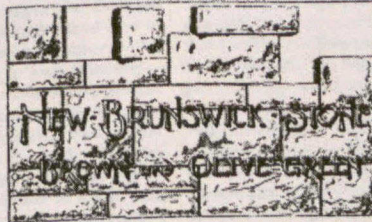
Every Description of **STAINED GLASS**

Send for a copy of the second edition of the CANADIAN CONTRACTORS' HANDBOOK. Price \$1.50; to subscribers, \$1.

ARCHITECTS and ENGINEERS
APPLY TO
THE NEW COLOR PROCESS CO.
214 ST. JAMES ST., MONTREAL,
for Instantaneous Reproductions in
Colors of Drawings and Plans

WILL SAVE YOU
MONEY Copies on Manila Paper
4c. per sq. f. of.
LABOR No recoloring by hand.
TIME We print without the aid of
the sun.
ERRORS We give exact fac-
similes.
TRACING CLOTH
We print direct from originals on paper.
DISSATISFACTION
We guarantee uniformly perfect work.

Originals sent from a distance returned with copies same day as received.



TO ARCHITECTS, BUILDERS AND CONTRACTORS

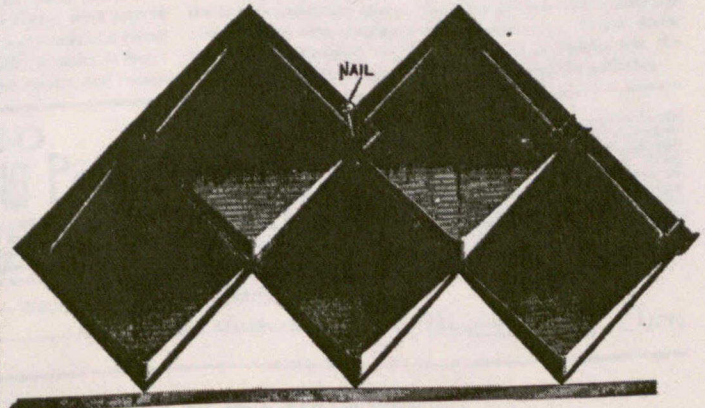
We are prepared to furnish from our quarries in New Brunswick

BROWN AND OLIVE FREE STONE

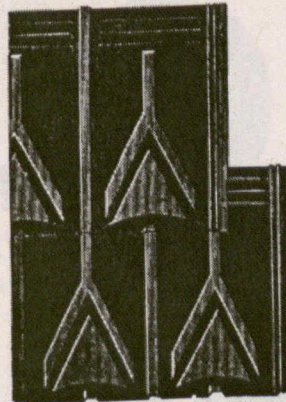
of the finest quality and of any dimension.

Samples forwarded free and quotations given on receipt of inquiry
Correspondence solicited.

WM. HOOD & SON to Richmond Sq
MONTREAL.



DIAMOND TILES



"Empire" Patent Shingles
Warranted Rust-Proof.

CORRUGATED IRON

V CRIMPED AND PRESSED

STANDING SEAM ROOFING

For all classes of buildings.

Hayes' Patent

Steel Lath

WRITE FOR PRICES.

Eastlake Patent Shingles

METALLIC ROOFING CO., LIMITED.

MANUFACTURERS

82 Yonge Street **TORONTO**

POMPEIIAN HOUSES.

ALTHOUGH it has been ascertained that the Romans understood the manufacture of glass, or at least they possessed some utensils of that material, it must not be supposed that they were accustomed to apply it to exclude the weather and transmit light; for in no case has a glass window of any kind been discovered in any ancient structure, and, without contemplating the houses of Pompeii, it is impossible to appreciate the advantages we derive in our habitations from the application of that beautiful production of the useful arts, and how much superior it alone renders them to those of the ancients. The floors of the houses of Pompeii and Herculaneum are all of mosaic work, coarser and simpler in the less esteemed parts, and finer, and more ornate in the more finished apartments. The ornaments are borders, dots, frets, labyrinths, flowers, and sometimes figures. In this, too, the superior advantages the moderns enjoy are evident. The ancients did not understand how to construct wooden floors, at least the application of timber to that use was not made by them; for, though it were admitted—which, however, it cannot be with justice—that in the warmer climate of the south of Italy lithic floors would be more grateful, that would not be the case in this country; and we find the remains of Roman houses, baths, &c., in England, with floors of mosaic, as in Naples and Sicily. All the indications which are found in Pompeii of an upper storey consist in a few rude and narrow stair-cases, which it is very probable were to afford access to the terraces or flat roofs, for they are not common, and no portion of an upper storey remains in any part, though the lower or ground floor rooms, it is most likely, were arched over. In one part of the city the houses on one side of a street are on a declivity; there a commodious flight of stairs is found to lead from the atrium in front to another atrium and rooms

below, not under the houses, but behind them; for neither do we find an underground or cellar storey in the Pompeian houses. On the shores of the Bay of Baia and of the Gulf of Gaeta, at Cicero's Forman Villa, however, there are crypts or arched chambers under the level of the mansions; for the sites require substructions; but it may be questioned whether even these were used as parts of the house and as we use cellars, for they present no indications of stairs and have no regular means of intercommunication. Neither had the houses of the Romans chimneys of any kind; their only mode of warming their apartments was by means of braziers, many specimens of which have been taken out of both Herculaneum and Pompeii; and their cooking fires were on fixed gratings over a sort of stove, but without flues; so that most probably charcoal alone was burnt for domestic purposes. In this respect the modern Italians are not far behind their predecessors; and the mode used by them of applying fire in warming and cooking appears very similar to that used by the Romans. Indeed, many of the peculiarities we have noticed in the Pompeian houses are still found in various parts of Italy and Sicily; the cortili, courts, or cloisters of palaces, monasteries and inns are representatives of the cavæna, vestibula, atria, of courts of Pompeian or Roman mansions. It is common, too, in the former, for bedrooms to open on galleries, as on the colonnaded courts of the latter. There are instances also in the countries referred to of rooms which have no aperture but the doorway. Shops are frequently mere cells having an opening towards the street, part of which is a door, and the other part, with a low dado, a window. It was only in the forums and public places, then, that architectural beauty and magnificence were displayed in a Roman city. Street architecture was unknown and the decoration of houses was the work of the plasterer and painter rather than of the architect.

IMPROVED Rolling and Folding Partition



A few simple additions to the ordinary mode of construction, the partition is made sound, dust and air-tight. For ease and certainty of operation this device is unsurpassed, as there is no weight to lift or pull down or friction to overcome, the movements, whether for opening or closing, being horizontal, and independent of weight which is sustained from the ceiling on easily working friction rollers. Access from room to room may be had as by an ordinary door, without moving the other parts, a decided advantage for Sunday School class rooms and dwellings. By adopting this construction an auditorium may be divided into any number of smaller rooms and afterwards opened out completely without interference with line of sight.


— WRITE FOR FURTHER PARTICULARS TO —

O. T. SPRINGER — Patentee and Manufacturer — BURLINGTON, ONT.

ALBERT MANUFACTURING CO.

MANUFACTURERS OF

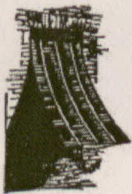
PATENT ROCK WALL PLASTER



MANUFACTURERS OF

"HAMMER BRAND" CALCINED PLASTER

HILLSBOROUGH, N. B., CANADA



Outside Venetian.



Rolling Steel Shutters.



English Venetian Blinds.



Rolling Venetian Blinds.



Rolling Partitions.



Schio-I Venetian

GEO. CLATWORTHY

General Canadian Agent

CATALOGUE AND PRICES ON APPLICATION

46 RICHMOND ST. WEST, TORONTO, ONT.

USEFUL HINTS.

COATING FOR DAMP WALLS.—Thirty parts of tin are dissolved in forty parts of muriatic acid, and thirty parts of sal-ammoniac are added. A powder composed of freestone, fifty parts; zinc oxide, twenty parts; pounded glass, fifteen parts; powdered marble, ten parts, and calcined magnesia, five parts, is prepared, and made into a paste with the liquid above mentioned. Colouring matter may be added. The composition may be used as a damp-proof coating for walls, or for repairing stonework, or for moulding statues or ornaments.

RAPID METHOD FOR DIVIDING TUBES.—In the Zeitschrift für Analyt. Chemie, Herr Beekman describes a very neat and rapid method for dividing glass tubes which are too large or too thick to break with a mere file nick. He scratches round with a file at the line where the division is required, then wraps round the tube on each side of the mark a strip of wet filter paper, and applies a Bunsen burner, or better, a blow-pipe flame. The method is equally good for the thickest glass tubes and the thinnest beakers. The space between the strips of filter paper should not be more than one or two millimetres.

CEMENT FOR MARBLE.—A good cement, with which to join marble,

china, or earthenware, is made as follows: Put a piece of white flint stone into the midst of a fierce fire; when it is white hot take it out with a pair of tongs and drop it into a pan of cold water. It will fly into a fine powder, from which the water must be poured; then melt some white resin, and stir the flint stone powder into it until it is of the consistency of thick paste. When the cement is used, the edges of the marble or whatever substance is to be joined should be warmed, the cement rubbed on them, and the pieces neatly placed together.

WAXING HARDWOOD.—A highly recommended preparation for waxing hardwood floors is made according to the following formula, which is taken from the American Druggist:

Yellow wax	25 oz.
Yellow ceresin	25 "
Burnt sienna	5 "
Boiled linseed oil	1 "
Spirits of turpentine, one gill, or about	30 "

Melt the wax ceresin at a gentle heat, then add the sienna, previously well triturated with the boiled linseed oil, and mix well. When the mixture begins to cool, add the turpentine, or so much of it as is required to make a mass of the consistency of an ointment.

CREDIT VALLEY BROWN STONE

From Carroll & Vick's No. 6 Quarry, Credit Forks, Ont.

SANDSTONE, fine grained, reddish brown. Contains quartz, and a little felspar and mica. The stone is in beds of four feet and under, and can be handled in pieces up to five tons. Quarry 300 yards from Railway.

Specimen.	Section under Pressure		Crushing Load.	Crushing Stress per sq. in.	Average Crushing Stress per Square Inch
	Ins.	Ins.			
A					
B	2 3/4 x 3	2 3/4	131,000	15,188	
C	2 1/2 x 3	2 3/4	130,000	14,751	
D	3 x 3	2 3/4	133,000	14,777	14,905

Montreal Agents: T. A. MORRISON & CO., 118 St. Peter Street.

14,905

pounds is the average crushing strength per square inch of our Credit Valley Brown Stone.

The highest standard of test attained by any pure Sandstone in America.

IN confirmation of the facts above stated, we have pleasure in directing your attention to the accompanying table, showing the result of the test of our stone, in connection with the series of tests of building stones conducted in 1892 at the School of Practical Science, Toronto, under the direction of a committee of the Ontario Association of Architects.

By referring to the results of the tests above mentioned, it will be seen that the average crushing stress of the majority of Canadian and American sandstones is far below that of ours, the difference in our favor ranging from 75 to 50 per cent.

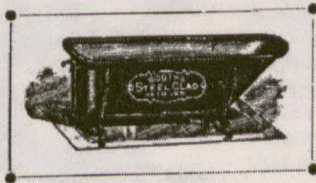
The Credit Valley Brown Stone, owing to its modest tone, harmonizes beautifully with red or cream colored brick.

It has been reported that there is difficulty in obtaining Credit Valley Brown Stone. To correct this mistaken notion, we wish to state to architects and the public that we have a large quantity of stone ready to ship on the shortest notice, which can be followed up with an unlimited supply. Last year we made extensive additions to our plant and opened up new quarries and mines, and will supply promptly all orders given to us or our agents.

CARROLL, VICK & CO.

Quarries: Credit Forks, Ont. Office: 84 Adelaide St. West, TORONTO.

Steel-Glad Baths



Catalogue

1895

THIS month we are mailing our NEW CATALOGUE. We will endeavor to have a copy reach all of our friends; should we fail in this through error or oversight, please excuse the omission, drop us a card, and we will immediately give the matter prompt attention.

WITH OUR HEARTY WISHES FOR A HAPPY AND PROSPEROUS NEW YEAR,

We are, yours truly,

The Toronto Steel-Glad Bath & Metal Co. LIMITED

A. G. BOOTH, Manager.

123 Queen St. East - TORONTO.



OFFICE:
52 Colborne Street - TORONTO.
WORKS:
Port Credit, Ont.

The Port Credit Pressed Brick and Terra Cotta Co., Ltd.
MANUFACTURERS OF
PRESSED BRICK
TERRA COTTA . DRAIN AND ROOFING TILE

Send for a copy of the CANADIAN CONTRACTOR'S HAND-BOOK. Price, \$1.50; to subscribers, \$1.00.



"PERFECT"

The attention of Architects, Jobbers, and others in the Sanitary Earthenware line is drawn to the above Closets.

• THE "LILY" •

The embossing is very a tasteful and natural, and the action is most perfect.

THE "PERFECT"

Of which we are the Sole Manufacturers in Canada. Patented 10th May, 1893.

This closet is quite odorless when in use, and after; and has been pronounced by medical authorities and experts who have seen it in operation to be PERFECT itself, and highly recommend its adoption by public institutions, hospitals, quarantine stations, etc.

--- MANUFACTURED BY ---

Campbell & Purvis
ST. JOHNS, P. Q.



"LILY"



"Richelieu"

Registered No. 20/4741.

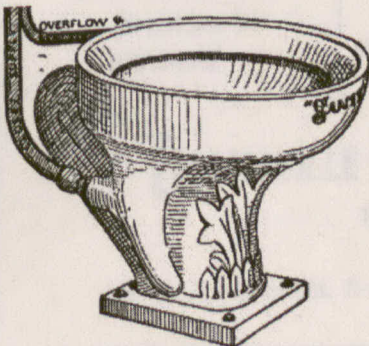
IN consequence of the great popularity of this Closet, we find that imitations are being made and sold as the Richelieu, though decidedly inferior to the genuine article.

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.



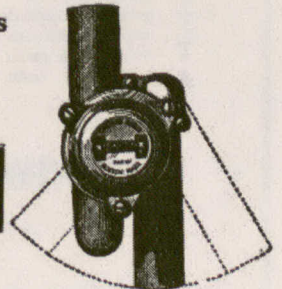
Very Important to Architects and Builders!

If you want the MOST PERFECT PLUMBING you must use the

"SANITAS" GOODS

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.



BRICK
STONE



POROUS TERRA GOTTA
ORNAMENTAL TERRA GOTTA
METAL LATHING

LAPRAIRIE PRESSED BRICKS

possess the following vital requisites to a really first-class brick: An even dark cherry red natural color, perfect shape, well defined edges and corners, and are so close grained and perfectly homogeneous that they will sustain with ease a load that would crush any ordinary bricks. Capacity, 15,000,000 per annum. Our Motto is "YOUR SATISFACTION."

MIRAMICHI OLIVE GREEN SANDSTONE

is gaining popularity every year and makes a most beautiful trimming for Laprairie pressed brick. It cuts easily, stands our severe climate, never gets dirty with smoke, and is remarkably cheap. Used in Birk's Building, High School, Residences of the Late Duncan McIntyre, R. L. Gault and many others in Montreal; Langevin Block, Ottawa; City Hall, Hamilton.

CREDIT VALLEY BROWN STONE rock faced coursing is cheap and a beautiful color. Used in St. James Street Methodist Church, Bank of Montreal, Branch St. Catherine St., Residences of Hon. Geo. A. Drummond, Sir Donald A. Smith, Jas. Ross, and many others.

Scotch and Nova Scotia Sandstone, Ohio Buff Sandstone, Red and Grey Granite, Grey Limestone, etc.

POROUS TERRA GOTTA

made by the Rathbun Company, Deseronto, still stands at the head. PARTITION BLOCKS, FLOORING, POROUS BRICKS, FURRING, etc.

ORNAMENTAL TERRA GOTTA

in Red, Buff, Brown, Gray or any color in stock or made to Architects' details, by the Rathbun Company's Artist, M. J. Hynes.

BOSTWICK METAL LATH—Fire-proof, Rat-proof and Vermin-proof.

We solicit your business. Will you write us for prices and samples?

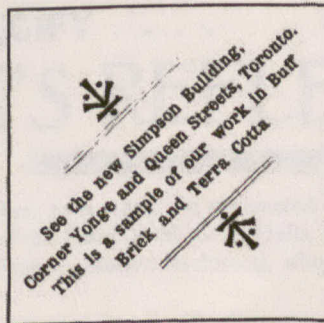
T. A. MORRISON & CO.

118 St. Peter Street, **MONTREAL**

Pressed Brick Terra Gotta
Roofing Tile Drain Tile

Our goods are high-class, and our prices as low as we can get them.

It will pay you to get our quotations before tendering.



COLORS
Red
Buff
Brown
We have special facilities for making new designs to order in any of the above colors

TERRACOTTA

BEAMSVILLE PRESSED BRICK COMPANY

BEAMSVILLE, ONT.

BRANCH OFFICES:

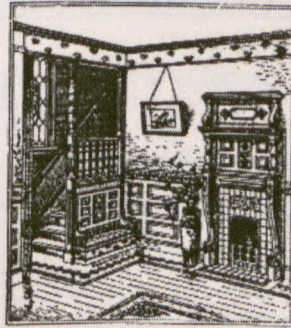
145 St. James Street, MONTREAL AND 10 Yonge St. Arcade, TORONTO

PAINTING HARD PINE.

I regard linseed oil without pigment as the best priming for hard pine, and white lead and linseed oil as the best paint to coat up with, writes V. R. Ginnell in the Painters' Magazine. All combinations containing zinc, barytes or very much yellow ochre are liable to scale from hard pine. I read in a magazine that linseed oil and pine tar mixed made a good priming coat for hard pine. To test the question I primed some Georgia pine, put up on a southern exposure, with one part pine tar and three parts commercial boiled oil, and coated up with two coats of white lead mixed with boiled oil. The paint has endured the heat of two summers; the gloss is gone, but there is no sign of cracking, peeling or chalking. No pitch has come through the paint. I give this experience hoping that others who have had experience in painting hard pine may tell us what they know about it.

COLORS FROM THE EAST.

It is an interesting fact that for some of the most valuable pigments or coloring materials, animal, vegetable and mineral, now employed in the arts and industries, useful and ornamental, the old countries of the East are still resorted to. From the madder plant, in its superior characteristics of Hindoostan growth, comes the almost unexcelled and indestructible Turkey red. Gamboge is sought for in the yellow sap of a tree, which the natives catch in cocoanut shells. Raw umber is an earth from Umbria, prepared by burning. Mastic, the base of the varnish so called, is from the gum of the inastic tree, indigenous to the Grecian Archipelago. To these may be added that most interesting substance, so exclusively Chinese in its production, and the composition of which they sedulously aimed to maintain as a secret—Indian ink. It is from them that the best quality of this highly prized material is still obtained, but the ingredients are not always uniform.



— THE —
CARNOVSKY WOOD MANUFACTURING CO.

Manufacturers and Contractors

SALOON OFFICE, BANK AND STORE

Fixtures

Bar Counters, Back Bar Mirrors, and
Ecclesiastical Wood Work.

FIRST CLASS WORKMANSHIP. — LOW RATES

Estimates and designs furnished
on application.

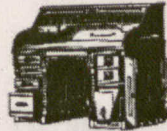
128 and 130 Ontario St. — KINGSTON, ONT.

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.



J. B. SNIDER

Waterloo, Ont.

... MANUFACTURER OF ...

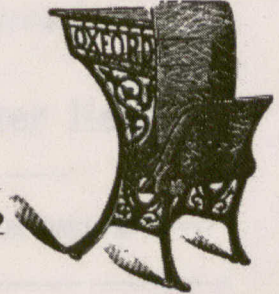
OFFICE, SCHOOL, CHURCH AND LODGE

FURNITURE

Bank, Office, and Store Fittings

Estimates Given.

... A SPECIALTY



WHY NOT SPECIFY

FRINK'S REFLECTORS

For the week ending Nov. 24th, 1894, we contracted to re-light with our Reflectors two prominent Churches, and one of the finest Y. M. C. A. Halls, to take the place of fixtures recently put in under the supervision of representative Architects, who, at the time, would not listen to the use of our Reflectors.

The fixtures, although elaborate, are practically useless to us, and we could therefore allow in exchange only 10 per cent. of their original cost.

In each case we were called upon by the Committees to make the change with no solicitation on our part.

Handsome Catalogue with latest designs mailed for the asking.

I. P. FRINK 551 Pearl Street, NEW YORK.
(One door east of Broadway.)
GEO. FRINK SPENCER, Manager.

CONCRETE BRIDGE OVER THE DANUBE.

At Munderkingen, Germany, says one of the English journals, a concrete bridge has been constructed over the Danube with a single arch of 164 feet span and 24 feet 6 inches wide. The abutments are of concrete on piles at an angle of 15° with the vertical, and are of considerable width, to equalize the pressure over the piles. A pressure of 15 tons per square foot is obtained on the rock abutment on one side, while on the other the pressure is less than 3 tons per square foot, this being on gravel and piles. To increase the security, joints were made at each abutment and at the crown; these joints allow the crown to rise and sink without causing cracks. The arch has a rise of 16 feet 4 inches in the centre. Calculations were made for a live load of 82 pounds per square foot, and the thickness at crown is 3.28 feet and 3.61 feet at the abutments. The arch curve was determined experimentally, and is approximately the line of pressure under full loads. On the left side the arch has a radius of 213 feet; on the other half two-thirds of the soffit has a radius of 230 feet and the remainder 151 feet. From the description it will be seen that the arch forms two rigid segments of concrete, jointed or hinged at the abutments and crown, and these joints have abutting surfaces of steel in 12 separate parts in the width of bridge. These devices distribute the abutting pressure on steel bars over the concrete section of arch. The Portland cement used came from Ehingen Blaubeuren, and was of a fineness to pass a 5,800-mesh sieve.

Send for a copy of the second edition of the CANADIAN CONTRACTOR'S HANDBOOK. Price, \$1.50; to subscribers, \$1.

THIS SPACE IS RESERVED BY US TO SAY THAT . . .



THE TORONTO RADIATOR MFG. CO., LTD.

Toronto, Ont.

— MAKE —

SAFFORD
PATENT
RADIATORS

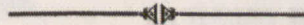
... IN ...

Over Two Hundred Sizes and Nearly One Hundred Styles

THE BEST RADIATORS

... FOR ...

Steam and Hot Water Heating



— LARGEST MANUFACTURERS UNDER THE BRITISH FLAG —

SHIPWAY · IRON · AND · BELL · WORKS

... 35 Richmond Street East, TORONTO ...

Telephone 2854

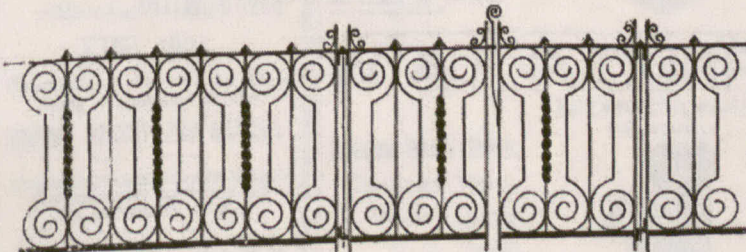
... MANUFACTURERS ...

Iron Fence Grille Work

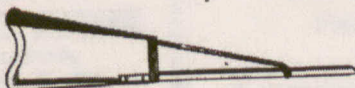
BANK AND COUNTER RAILING

ELEVATOR ENCLOSURES

And Ornamental Iron Work of Every Description.



SCALE 1/2" TO 1'



WIRE WORK
WIRE GUARDS
WIRE NOVELTIES
WIRE FENCING
IRON CRESTING
FINIALS
GALLERY FRONTS
BELL HANGERS

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



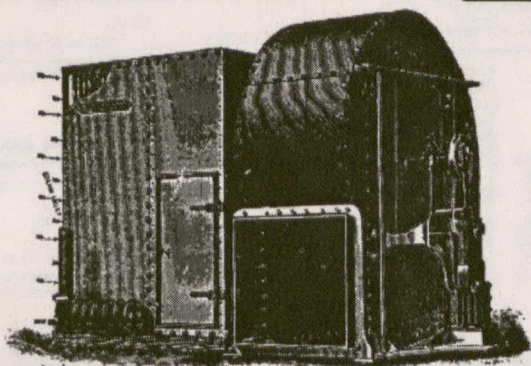
WATER PIPE CULVERT PIPE
FLUE LININGS CHIMNEY TOPS
SMOKE PREVENTIVES INVERTS, &c.

Write Head Office for Discounts:
HAMILTON, - ONTARIO.

A. R. WILLIAMS

— CANADIAN AGENT FOR —

STURTEVANT HEATING AND VENTILATING APPARATUS



STURTEVANT COMBINED STEAM FAN AND HEATER.

THE MOST PERFECT SYSTEM
.. IN THE WORLD ..

BLUE PRINTS FURNISHED SHOWING COLD AND HOT AIR DUCTS WHERE PLANS ARE SUBMITTED.

ALSO MANUFACTURER OF
HEATING BOILERS . .
 AND DEALER IN
HEATING APPARATUS
 OF ALL KINDS
RADIATORS, BLOWERS, ETC.

ELECTRIC MOTORS, ELECTRIC LIGHT PLANTS
AND ELECTRIC ELEVATORS

A SPECIALTY

A. R. WILLIAMS (Soho Machine Works) - East Union Station, TORONTO

THE DANVILLE SLATE COMPANY

MANUFACTURERS OF

BLUE-BLACK

Blackboards . . .
Urinals
Slate for electrical purposes
Mantel Stock . .
Steps and Risers

Estimates furnished to Builders, Contractors, Plumbers, etc., on application.



Window Sills . . .
School Slates . . .
Hearths, Floor Tiles,
Wash Tubs
Sinks, etc.

DANVILLE, QUE.

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

Please mention the CANADIAN ARCHITECT AND BUILDER when corresponding with Advertisers

JUST PUBLISHED.

THE
ARCHITECTS'
DIRECTORY

FOR 1894.

Containing a List of the Practicing Architects of the
UNITED STATES AND CANADA.

MANUFACTURERS AND DEALERS CANNOT AFFORD TO BE WITHOUT ONE.

Handsomely Bound, Price, Postpaid, \$1.

WILLIAM T. COMSTOCK,
 PUBLISHER,
 23 Warren St., New York.

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. K. 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, R.C.A.,
 Union Loan Chambers,
 28 AND 30 **TORONTO STREET.** **TORONTO.**

JOSEPH CONNOLLY, R. C. A.,

ARCHITECT

OFFICES:
 13 Adelaide Street East, **TORONTO.**

S. HAMILTON TOWNSEND,

ARCHITECT

15 Gerrard Street East **TORONTO.**

EDWARDS & WEBSTER,

ARCHITECTS

Room 12, Canada Permanent Chambers, **TORONTO.**

DAVID ROBERTS,

ARCHITECT

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

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.**

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

ARCHITECT

(-) AND (-)

Building -:- Superintendent,

Westworth Chambers,
 25 James Street South,
HAMILTON.

G. M. MILLER,

ARCHITECT

18 King Street East, **TORONTO.**

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

W. WINDEYER & SON,

ARCHITECTS

40 Canada Permanent Buildings,
 Toronto Street **TORONTO**

J. McBEAN,

Architect and Valuator,

Room 3, 67 Victoria St. **TORONTO.**

G. WILLIAM KING,

ARCHITECT

9 1/2 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.**

JOHN WHITFIELD,

174 and 176 Front Street East,

SUPPLIES ALL KINDS OF

IRON AND STEEL WORK

FOR BUILDERS, &c.

Telephone No. 2090.

GILMOR & CASEY,

House and Sign Painters,

Telephone 149. 149 VICTORIA STREET.

THE GREAT CHURCH LIGHT
FRINK'S SYSTEM REFLECTORS
 AND FIXTURES OF EVERY DESCRIPTION
 FOR LIGHTING SMALLS, CHURCHES AND PUBLIC BUILDINGS WITH GAS ELECTRICITY
 OR ACETYLENE
 I. P. FRINK 531 PEARL ST. N.Y.

GRANITE

Red and Rose Pink

Fine Rich Colours for

BUILDING and MONUMENTAL PURPOSES

can be had at low figures from the

St. Phillippe d'Argenteuil Quarries.

Send for quotations and samples to

JOS. BRUNET,

Cote des Neiges, Montreal, Que.



S. KNECHTEL
 . . . MANUFACTURER OF . . .
Turned Mouldings
 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 CATALOGUE
MAPLE HILL ONTARIO

REGISTERED

BRAND

. Samson .

Portland • Cement

EQUAL TO THE BEST ENGLISH AND GERMAN BRANDS.

MANUFACTURED BY

THE OWEN SOUND PORTLAND CEMENT CO., LTD.

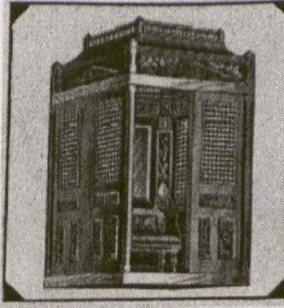
OWEN SOUND, ONTARIO

Its use is authorized by the Toronto City Engineer and Engineers of other Public Works.

Several thousand barrels of SAMSON brand Portland Cement were used by the Toronto Railway Co. in making the foundation for the large chimney (250 feet high) and for the machinery in connection with their power station in Toronto.

QUALITY GUARANTEED. Write for Prices, Tests and Samples.

JOHN LUCAS. Representative for Toronto **377 Spadina Avenue**



ELEVATORS

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

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

BRONZE METAL

HARDWARE

NEW DESIGNS IN

CORBIN'S AND YALE'S MAKES.

RICE LEWIS & SON, LTD.

Wholesale Hardware Merchants

TORONTO

Rogers & Doss

CONTRACTORS
FOR

ELECTRICAL - WORK

Dundas Street
LONDON, ONT.

ESTIMATES FURNISHED FOR ELECTRIC WIRING
First-class workmanship guaranteed.

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



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 MUTTHERAD, 82 Bay St., Toronto, Ont.
W. H. COTTINGHAM & Co., Montreal, Que.

CARROLL, VICK & CO.,

OF THE
Brown Stone Quarries, Credit Forks, Ontario,
SUPPLY THE BEST

BROWN STONE

IN CANADA.

SOLE AGENTS for the Dominion for the
Middlesex Quarry Co.'s Connecticut
Brown Stone, the oldest and best Brown
Stone Quarries in the United States.

OFFICE:
84 Adelaide St. West, Toronto.
Telephone 208.

Montreal Agents: T. A. Morrison & Co., 118 St. Peter Street.

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.

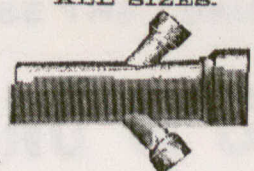
Head Office: INGERSOLL, ONT.

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

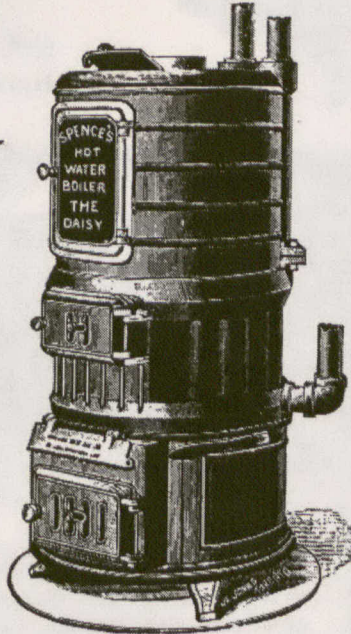
50 Bleury Street, MONTREAL, P. Q.

“VOX POPULI”

The Spence “Daisy” Hot Water Heater



IS BY FAR
THE BEST IN THE
MARKET.



WE MAKE
THIS STATEMENT
WITHOUT FEAR OF
CONTRADICTION.



THE “DAISY” is the Product of many years’ experience in the manufacture of Boilers for Heating Purposes.

THE “DAISY” is up to date—possessing all the latest improvements. 20,000 people who use them testify to their superiority.

THE “DAISY” possesses all the essential features of a First-Class Heater.

The largest possible effective heating surface exposed to the fire.

Each section is an independent heater.

The circulation of the water throughout the system ensues without friction.

Every joint is machine milled, and perfectly true, thus avoiding leakages; a defect which exists in so many other heaters.

THE “DAISY” heats on its own level.

It requires very little attention.

So well known is the “DAISY” it has become a household word, and a dwelling heated by the “DAISY” will rent or sell to better advantage than if heated by an inferior boiler.


There are many imitations in the market, but this is only in outward appearance. Their circulation and construction is imperfect. We have made this a life-long study and give you the benefit of our experience.

BE NOT DECEIVED.

USE THE “DAISY” and no other.

WARDEN KING & SON

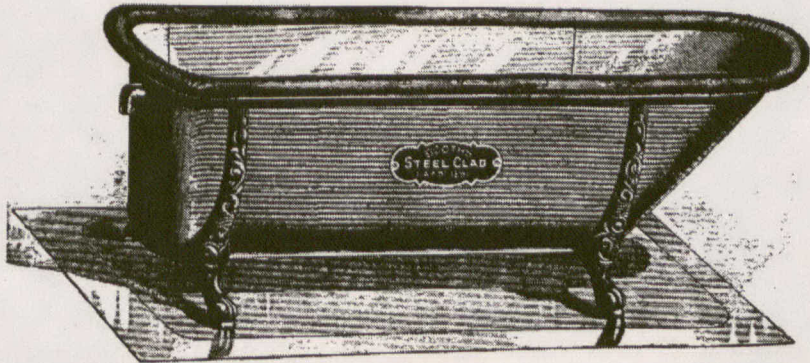
TORONTO BRANCH:
110 Adelaide Street West

 MONTREAL

Steel-Clad Baths

BOOTH'S
PATENT

The only Sanitary Bath
at a REASONABLE PRICE



Can be set up as
cheaply as old-style
boxed bath. ○ ○ ○

*Common Sense demands
the elimination of wood or
any kindred substance from
the construction of a Bath;
also that it shall be free from
encasing. These and all other
good points embodied in . . .*

The only woodwork in
connection with a
"STEEL-CLAD" is the
rim or capping. ○ ○

THE
"Steel-Glad"
◆◆◆◆

± NEW CATALOGUE FOR 1895 MAILED ON APPLICATION. ±

The Toronto Steel-Glad Bath & Metal Co.

(LIMITED)

123 QUEEN ST. EAST

Factories

TORONTO, CAN.
DETROIT, MICH.
NEW YORK, N. Y.
LONDON, ENG.

Toronto
Canada

A. G. BOOTH, Mgr.

Canadian Agencies

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