

**PAGES**

**MISSING**

# CANADIAN ARCHITECT AND BUILDER.

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—THE—  
**CANADIAN ARCHITECT AND BUILDER,**  
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(With a Weekly Intermediate Edition—The CANADIAN CONTRACT RECORD).

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

**EDITOR'S ANNOUNCEMENTS.**

Contributions of 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.

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**A Statue of The Queen.**

DURING the last month the suggestion has been made that Toronto should erect a statue of the Queen in commemoration of Her Majesty's Jubilee. The idea should be acted upon, though not with such haste as would be necessary to satisfy the desire of the daily paper that wishes to see the statue in situ on the 21st of June next. It may be possible to buy a "ready made" statue, but the wisdom of so doing is open to question. We should like to see instituted a properly arranged competition for designs, in which Canadian artists and sculptors would be given an opportunity to display their best talents.

**The Toronto Chapter of Architects.**

THE inaugural meeting of this new society was a gratifying success. The officers have had much experience in connection with the Ontario Association of Architects, and can be relied on to do everything that should be done for the success of the organization. They will bear in mind also that upon the success which may be achieved by the Toronto Chapter will depend whether the step taken by the architects of Toronto shall be followed by those of other cities throughout Ontario. The movement, if properly supported, should be the means of awakening greater interest in architectural matters, while at the same time broadening the influence and usefulness of the Ontario Association of Architects.

**Architectural Education in Great Britain.**

THE Society of Architects of Great Britain will renew its efforts to secure the passing of the Architects' Registration Bill at the next meeting of Parliament. The president of the society, in his address at the opening meeting recently, thus expressed himself on the subject: "The bill now 'hung up' and awaiting the opening of Parliament is a measure having for its object the removal of evils which affect the best interests of both the public and the profession. I therefore bespeak for it your continued, persistent, and earnest efforts to place it on the statute book, as a fitting recognition of the sixtieth anniversary of our good and gracious Queen's reign, in the hope that that year may be signalized by placing architectural art and practice on a high level of educational distinction, insuring that all aspirants for the profession shall enter upon their pupilage with a thorough equipment calculated to develop genius on the lines of truth, to foster art and promote science—an alliance which will result in the growth of strength, fitness and beauty as a leading and general characteristic of the designs of the future. The evils arising from incompetency, which are acknowledged by all to exist, will be, meanwhile, gradually eliminated by the gentle hand of Time, without harshness, or what Parliament would designate injustice."

## VOL. X.

THE pressure upon our columns last month precluded mention of the fact that we have reached the tenth anniversary of the first publication of the CANADIAN ARCHITECT AND BUILDER. The journal was launched with considerable misgivings in view of the expressed opinion of a number of leading architects that the undertaking could not succeed, but notwithstanding with a certain amount of assurance on the part of the publisher that he had rightly estimated the situation. The cordial reception accorded to the first number, crude as it was in many respects, proved an incentive to perseverance in the undertaking and to efforts for improvement. For a year each number of the journal consisted of 16 pages of letter press and 2 pages of illustrations  $15\frac{1}{2}$  by  $10\frac{1}{2}$  inches in size. With the beginning of the second volume, the pages were reduced to their present size. Their number has, however, been increased from time to time, until at present the regular numbers consist of 36 pages of letter press and 5 sheets of illustrations.

During the first two years of publication of the CANADIAN ARCHITECT AND BUILDER as a monthly, the need of more frequent publication of information relating to contracts became apparent. To supply this requirement the publication of the CONTRACT RECORD as a weekly edition of the ARCHITECT AND BUILDER was commenced in January, 1890. This weekly edition has, like the monthly, been doubled in size, yet no advance has been made in the subscription price originally fixed for the monthly alone. Under these circumstances it is not to be wondered at that the journal has steadily developed in circulation and influence, so that the principal architects, civil engineers and contractors throughout the Dominion are on the list of its subscribers.

As showing the estimation in which the journal is held by its subscribers, we have pleasure in printing the following testimonial letters received since the publication of our New Year number :

"I must express my pleasure on receiving the New Year number of your paper as well as testifying to the usefulness of your regular numbers in my business, the general information is always correct and the special articles most useful and interesting. I would not be without your paper in my office and trust the coming year may be one of unprecedented success."—E. C. ARNOLDI, Ottawa.

"We beg to state that we think the New Year number of your paper is first-class."—ELLIOT & HOPSON, Halifax.

"I have a real pleasure in expressing my high appreciation of the New Year number of the CANADIAN ARCHITECT & BUILDER, —the illustrations, matter and materials, combining to make it a production of which you may well feel a reasonable pride—the large sheet of illustrations of the Parliament and Departmental Buildings being exceptionally good. As regards your regular numbers I have observed a steady improvement ever since it was first published, and I look forward with pleasure to its arrival as giving me the best and most reliable acquaintance with the buildings throughout the Dominion—built, or in course of construction—and keeping me in practical touch with all the ruling rates for building materials, &c., and also, in this wide Dominion, it is no small satisfaction to find one's self in touch with the best thoughts and ripest experience of professional confreres which is finding so free expression in the columns of your journal. I wish the publication every success."—FRED J. ALEXANDER, Architect, Ottawa.

"Your New Year number of the CANADIAN ARCHITECT is a credit to you, the illustrations being an evidence that architecture is still a fine art. I hope to see you continue the good work, and strive to attain a better professional feeling amongst the members of the craft. Wishing you every success."—E. L. HORWOOD, Architect, Ottawa.

"We are very much pleased with the improved appearance of

the CANADIAN ARCHITECT & BUILDER this year. We also consider the CONTRACT RECORD a very useful addition, as it gives the current prices of materials for building purposes, which otherwise causes inconvenience to obtain. Wishing you the success you deserve."—THOS. KENNEDY & Co., Barrie.

"I have pleasure in expressing my appreciation of the CANADIAN ARCHITECT & BUILDER and the services which it has rendered to the cause of Architecture in Canada. In this widely scattered country it is practically the only means which architects have of knowing what their brethren are doing in the different provinces. It is also a valuable medium of communication between architects and manufacturers. There has been a steady improvement in the literary matter as well as in the illustrations, until now it compares most favorably with any paper of its class. The New Year number I think particularly creditable."—D. B. DICK, Architect, Toronto.

"We have been subscribers to the CANADIAN ARCHITECT AND BUILDER since its first issue, and have been pleased to notice its improvement each year. Permit us to compliment you upon the high character of your New Year number. We think it compares very favorably with the high class American journals."—WM. & WALTER STEWART, Architects, Hamilton.

"Allow us to congratulate you upon the New Year number of the CANADIAN ARCHITECT AND BUILDER. We have noticed with pleasure the continual improvement in the Journal since its commencement, until it has now reached the high literary and artistic standard evidenced by the New Year's number. Every Canadian architect and builder should be a subscriber for your valuable paper."—GORDON & HELLIWELL, Architects, Toronto.

"We take great pleasure in saying that we have found each issue of the CANADIAN ARCHITECT AND BUILDER of very great interest and are much pleased with the artistic cover of the New Year number. The reading matter is much greater in quantity, and we might also say of better quality, than some of our journals costing three or four times the money."—BURKE & HORWOOD, Architects, Toronto.

"On receipt of the New Year number of the CANADIAN ARCHITECT AND BUILDER, I was much pleased with the marked improvement over former years, and congratulate you on its success as an up-to-date professional Journal, and with the CONTRACT RECORD, an advertising medium of great scope and a good reference."—JOS. W. POWER, Architect, Kingston, Ont.

"Please accept my congratulations upon the handsome appearance of your New Year number. The illustrations I think are excellent, while the reading matter is as usual interesting. Your sustained efforts to provide a journal devoted to the interests of architects and builders, worthy of the importance of those interests, is most commendable, and certainly entitles you to all possible support from Canadian architects and builders."—HARRY STAVELEY, Architect, Quebec.

"We have a complete file of the CANADIAN ARCHITECT AND BUILDER, and consider it a most valuable work. We highly esteem its course in matters relating to the honorable practice and advancement of the profession in this country. Wishing you deserved success for your noble work."—BERLINGUET & LEMAY, Architects, Quebec.

"Regarding the merits of the CANADIAN ARCHITECT AND BUILDER, I beg to say, I cannot add anything to my former testimony, that it is a very excellent publication, and I congratulate you upon the artistic appearance of the New Year number, just to hand. Wishing you further success."—GEO. W. GOUINLOCK, Architect, Toronto.

"The extra quantity of reading matter and illustrations makes the New Year number of the CANADIAN ARCHITECT AND BUILDER one of unusual interest, but to know the full merit of your valuable publication, one must read it all the year round. This I shall continue to do, as well as direct the attention of tenderers on my plans to the advertisement pages."—D. OUELLET, Architect, Quebec.

"The only words I can say regarding your New Year number are those of pure admiration; from cover to cover it is a triumph of artistic production, and the amount of historical matter makes it doubly valuable. The catchy, pithy write up and the design of each "ad" is specially worthy of commendation. In regard to the regular numbers I have always felt that our supply sources are not sufficiently represented in the advertising pages. An architect will invariably refer to those pages and then to the catalogues afterwards. There is always an impression of reliability given by an advertisement in the CANADIAN ARCHITECT AND BUILDER, and personally I have specified many things, such as Steel Clad Baths and Mica Covering on the mere idea of their value I got from your pages. All supply dealers and manufacturers should have a card there, and every contractor should read the paper, and especially that paragon of usefulness, the CONTRACT RECORD."—DAVID G. BAXTER, Architect, Stratford, Ont.

Regarding the future, we have only to say, that as in the past, a constant effort will be made towards improvement. We earnestly solicit the active co-operation of our readers in an endeavor to further advance the scope and value of the CANADIAN ARCHITECT AND BUILDER.

## THE EGYPTIAN PYRAMIDS AND THEIR BUILDERS.

THE first lecture of the course organized this winter in Montreal by the Province of Quebec Association of Architects was delivered on Jan. 22nd, in the Art Gallery, before a crowded audience, by Mr. S. H. Capper, the recently appointed Professor of Architecture at McGill University, who took as his subject, "The Egyptian Pyramids and Their Builders." The chair was occupied by Hon. George Drummond, and at the close of the lecture, which was illustrated by a very interesting and complete set of lantern views (part of the equipment provided for the Chair of Architecture by Mr. Wm. C. McDonald, its founder), a hearty vote of thanks was accorded to Professor Capper on the motion of Mr. Andrew T. Taylor, President of the Association. The following is an abstract of the lecture, for which we are indebted to the kindness of the author:

After noting the physical characteristics of Egypt, which, as an habitable country, consists solely of the bed of the Nile, rendered fertile by the annual inundations of the river, Professor Capper first dealt with the ethnology of the ancient Egyptians. At the furthest point to which we can trace them back in their monuments, some six thousand years ago, there appear to be two, if not three, distinct races in Egypt, of which the dynastic race, probably the latest invaders, would seem to be allied to the ancient Phoenicians. It is surmised that these 'Punic' tribes, leaving their original home on the Persian gulf, made their way along the coast up the Red Sea, whence, crossing over into the Nile Valley, they conquered and occupied Egypt, becoming the dynastic race known to us in a long and magnificent succession of sculptured monuments. Other waves of this great tide of migration and conquest settled on the coasts of Philistia and Syria (the Philistines of Biblical history being one branch) and made their way further west to the famous settlement of Carthage and its offshoots in the extreme west of the Mediterranean. The Egyptians, when they first become historically known to us, are a people in a very high state of socially organized life, perfectly acquainted with the arts of masonry and sculpture, of carpentry and turning, of working in copper, of pottery-making, glazing, weaving and dyeing; in many respects their workmanship and works have never been surpassed by anything man has accomplished since their day.

Egyptian history begins for us with the fourth dynasty of kings, dating from the earliest years of the fortieth century before Christ. To the time immediately anterior to this dynasty the 'Pyramid of Degrees,' or Stepped Pyramid, of Sakkara is generally ascribed.

Within the last few years the Pyramid of Sneferu, first king of the 4th dynasty, has been identified at Medum and thoroughly explored. Though much ruined, it is in some respects better preserved than the more famous Pyramids of Gizeh; in particular the temple, attached to every pyramid on the eastern side, has in this instance been completely preserved, buried under piles of debris. The Pyramid at Medum, known to ancient Egyptians as 'Kha,' is a most interesting link, showing the development of the true pyramid from the truncated form known by the name of 'Mastaba.' This pyramid and that at Sakkara are the only instances of successive enlargement, the 'accretion theory' of pyramid-building being shown to break down when applied to the great Pyramids of Gizeh. Further, the Pyramid at Medum was the direct model followed by Sneferu's successor, Khufu, when he built his much grander pyramid at Gizeh, the one having been brought to the true pyramid by a final layer or casing, built at a totally different angle from the original slope of the 'Mastaba' core, while the other was built directly to the true pyramid angle. The dimensions of Sneferu's Pyramid are: height,  $7 \times 25$  cubits; side of square base,  $11 \times 25$  cubits; those of Khufu's—'The Great'—Pyramid at Gizeh being precisely similar, with a length of 40 cubits substituted for the 25 cubits of the earlier monument. This ratio of height to base-circuit, viz., 7 to 44, is precisely equivalent to the nearest simple approximation of the ratio of the radius of a circle to its circumference;

and this theory of pyramid building seems to be well established by the most accurate measurements of modern times. The theories and paradoxes sought at various times to be established in regard to the Great Pyramid, are almost innumerable; in comparatively recent times they have been chiefly associated with the name of Professor Piazzi Smyth, of Edinburgh, whose excellent work of solid investigation is sadly marred by the fanciful theories in which the learned explorer allowed himself to run riot. Within the last few years Mr. Flinders Petrie has given accurate data for the first time to the world, the result of a most painstaking scientific research, illumined by great critical acumen; and in the works of this eminent English Egyptologist are to be found the most recent and most authentic statements of our present knowledge on the subject.

Turning to the pyramids of Gizeh, the lecturer was compelled by want of time to limit himself to a description of the Great Pyramid, built by Khufu, the second king of the fourth dynasty, and known to the ancient Egyptians as "Akhet." It is one of the largest and—when completed—loftiest buildings achieved by man, covering some 13 acres, with solid masonry, and attaining a height of 481 feet. The side of the base is (within two or three inches) 756 feet long. The accuracy of workmanship is probably unrivalled in all human building. The most careful modern measurements, taken with instruments of scientific precision, prove that the accuracy of levelling of the casing-stones of the Great Pyramid is equal to "most modern opticians' straight edges" of an equal length; while the descending entrance passage, partly built, partly driven through solid rock to a total length of some 350 ft., reveals an error of less than one-quarter of an inch in the sides and of three-tenths of an inch along the roof. This extraordinary accuracy, however, which is far greater than anything attempted in modern masons' work, is not true of the uppermost chamber within the pyramid, which is considerably out of level, a fact that would seem to indicate that the master-builder or architect had passed away before the completion of his work, leaving it to less careful successors to finish. Mr. Flinders Petrie's researches had thrown great light on the mechanical methods of the pyramid builders and the organization of labor. The remains of what were believed to be the barracks of the workmen still existed on the west side of the Second Pyramid, quite adequate to house from 3,500 to 4,000 men. In all probability some such staff of skilled masons would be employed continuously; while during the period of the Nile inundation, when agricultural work was at a standstill and the people ready and thankful for employment, a special levy of perhaps a hundred thousand laborers would be requisitioned to quarry the stone on the east bank of the Nile, and convey it (by water) to the site at Gizeh. There is therefore great probability in the statement of Herodotus that 100,000 men were employed to build this pyramid, working during 20 years for 3 months at a time. Under the circumstances the pyramid building, far from being an oppressive exaction, would be a great scheme of public works, finding employment for the unskilled population at the season when they would otherwise be idle.

### PERSONAL.

Mr. John E. Belcher, architect, of Peterborough, Ont., is at present visiting in England.

Mr. C. J. Gibson, architect, Toronto, has removed his office to the Janes building, corner King and Yonge streets.

Mr. A. G. McIntyre, a well-known Toronto contractor is about to remove to Berlin, Ont., where, with the assistance of a partner, he expects to do an increased business.

Mr. John Shaw, of the firm of Shaw & Gilkes, contractors, Winnipeg, died in that city on January 28th. Mr. Shaw had been a resident of Winnipeg for 16 years, having previously lived in Quebec.

Mr. Samuel Birch, of McKelvey & Birch, Kingston, Ont., has left for England, where he will spend a few months as expert for a Canadian firm interested in plumbing and heating in the great metropolis.

The firm Roy & Gauthier, architects, Montreal, has been dissolved, Mr. L. Z. Gauthier continuing. Mr. Victor Roy has formed a new partnership with Mr. Alp. Content, and the new firm will be known as V. Roy & A. Content.

**MR. JOSEPH W. POWER.**

WE have the pleasure of presenting herewith a portrait and brief sketch of Mr. Joseph W. Power, the newly-elected President of the Ontario Association of Architects. Mr. Power may be said to be an architect by birth, association and education. His father, the late Mr. John Power, studied and practiced architecture in England, and subsequently on coming to Canada in 1847, located in Kingston and conducted a successful practice in that city for a period of 30 years. Mr. Joseph Power, after having completed a college course, and graduated as a C.E., entered his father's office as a student, and served the usual term under articles. In 1873 he was admitted to partnership in the firm, and assisted in the designing and construction of most of the business buildings erected in place of those destroyed by the fire which, in 1876, swept Princess street.

Since the death of his father in 1881, the business has been continued under the same name by Mr. Jos. Power, who has designed and superintended the construction of a number of the principal and most meritorious buildings of the city, notably the Opera House, St. George's Cathedral, St. Andrew's Church,



MR. JOSEPH W. POWER.  
President Ontario Association of Architects.

the Locomotive Works, Collegiate Institute, Central School, Residence of Dr. Horsey, Mr. Pense, Major-General Cameron, the Rectory building, etc.

Mr. Power is a member of the Royal Canadian Academy of Arts, and has been a most active and efficient worker in the Ontario Association of Architects from the date of its organization until the present time. The honor which has been conferred upon him, by electing him to the presidency of the Association, is one which he has fairly earned and is well fitted to wear.

**ILLUSTRATIONS.**

SKETCH BY S. ARNOLD FINDLAY, MONTREAL.

STUDIO OF MR. R. DIXON PATTERSON, R.C.A., TORONTO.—  
DARLING, SPROATT & PEARSON, ARCHITECTS.

HALL IN RESIDENCE OF MR. R. DIXON PATTERSON, R.C.A.,  
TORONTO.—DARLING, SPROATT & PEARSON, ARCHITECTS.

NEW DRILL HALL, HALIFAX, NOVA SCOTIA.—THOS. FULLER,  
CHIEF ARCHITECT, DEPARTMENT OF PUBLIC WORKS,  
OTTAWA.

**PUBLICATIONS.**

We are in receipt of an attractive calendar issued by Mr. Alex. Bremner, contractors' supply merchant, Montreal.

We have received a copy of the 1897 edition of the circular of information of the School of Architecture, Scranton, Pa., containing a description of their method of teaching, details of courses of instruction in architecture, architectural drawing and designing; also sample pages of the instruction and question papers and reduced specimen drawing plates.

**TORONTO CHAPTER O.A.A.**

THE first regular meeting of the above Chapter was held Monday evening, Feb. 8th, in the School of Practical Science. There were present, Mr. W. R. Gregg, chairman; Henry Simpson, sec.-treas.; Messrs. Wickson, Wright, Paull, Gibson, Edwards, Helliwell, Burke, Gray, Bishop, Hall, Harper, Gordon, Beckett, Boulton, Heward and commander Law.

In his opening address Mr. W. R. Gregg threw out some valuable suggestions as to how the meetings of the Chapter might be conducted. He also gave the following list of old city buildings, with dates of their erection, the names of their architects, etc., which showed that Mr. Gregg had gone to very considerable trouble to make the first meeting interesting. So much was this information appreciated by those present that it was thought fitting to have it printed in this issue of the CANADIAN ARCHITECT AND BUILDER.

EARLY BUILDINGS, STILL REMAINING IN TORONTO, WITH DATES AND NAMES OF ARCHITECTS.

- 1829—Old Parliament Buildings, Front St. West. . . . . J. Young.
- 1833—Dr. Christopher Widmer's House, Front St. E. J. G. Howard.
- 1843—Trinity Church, King St. East . . . . . H. B. Lane.
- 1843—Commercial (now Merchants) Bank. . . . . J. G. Howard.
- 1844—Old City Hall, Front St. East . . . . . H. B. Lane.
- 1844—St. George's Church, John St. . . . . H. B. Lane.
- 1846—Lunatic Asylum, Queen St. West . . . . . J. G. Howard.
- 1847—Church of the Holy Trinity, Trinity Square. . . . . H. B. Lane.
- 1848—Knox Church, Queen St. West. . . . . Wm. Thomas.
- 1848—Oakham House, Church and Gould Sts. . . . . Wm. Thomas.
- 1848—St. Michael's Cathedral. . . . . Wm. Thomas.
- 1848—House of Industry. . . . . J. G. Howard.
- 1850—St. Lawrence Hall. . . . . Wm. Thomas.
- 1851—Normal and Model Schools, Gould St. . . . . Wm. Thomas.
- 1852—Court House, Adelaide St. East. . . . . Cumberland & Storm.
- 1852—Trinity College. . . . . Kivas Tully.
- 1853—Yorkville Town Hall . . . . . Wm. Hay.
- 1853—St. James Church, King and Church Sts. . . . . { Cumberland & Storm.
- 1853—Old Post Office (now Inland Revenue Office) . . . . . { Cumberland & Storm.
- 1854—General Hospital, central portion. . . . . Wm. Hay.
- 1854—Mechanics' Institute, now Public Library . . . . . { Cumberland & Storm.
- 1854—House of Providence . . . . . Wm. Hay.
- 1855—Rossin House. . . . . Wm. Kauffman.
- 1856—St. Michael's College and St. Basil's Chapel . . . . . Wm. Hay.
- 1857—University of Toronto. . . . . Cumberland & Storm.
- 1857—St. Stephen's Church. . . . . Thos. Fuller.
- 1857—Osgoode Hall, central part and additions . . . . . { Cumberland & Storm.
- 1857—Model Grammar School (now Normal School) . . . . . { Cumberland & Storm.
- 1857—Masonic Hall, now Can. Permanent B'ld'g. . . . . Wm. Kauffman.
- 1857—Romain Building, King St. West . . . . . Jos. Sheard.
- 1857—Cawthra Residence, now Molsons Bank . . . . . Jos. Sheard.
- 1858—Chapel St. James Cemetery . . . . . Cumberland & Storm.
- 1858—St. Paul's Church, Bloor St. East. . . . . G. K. & E. Radford.

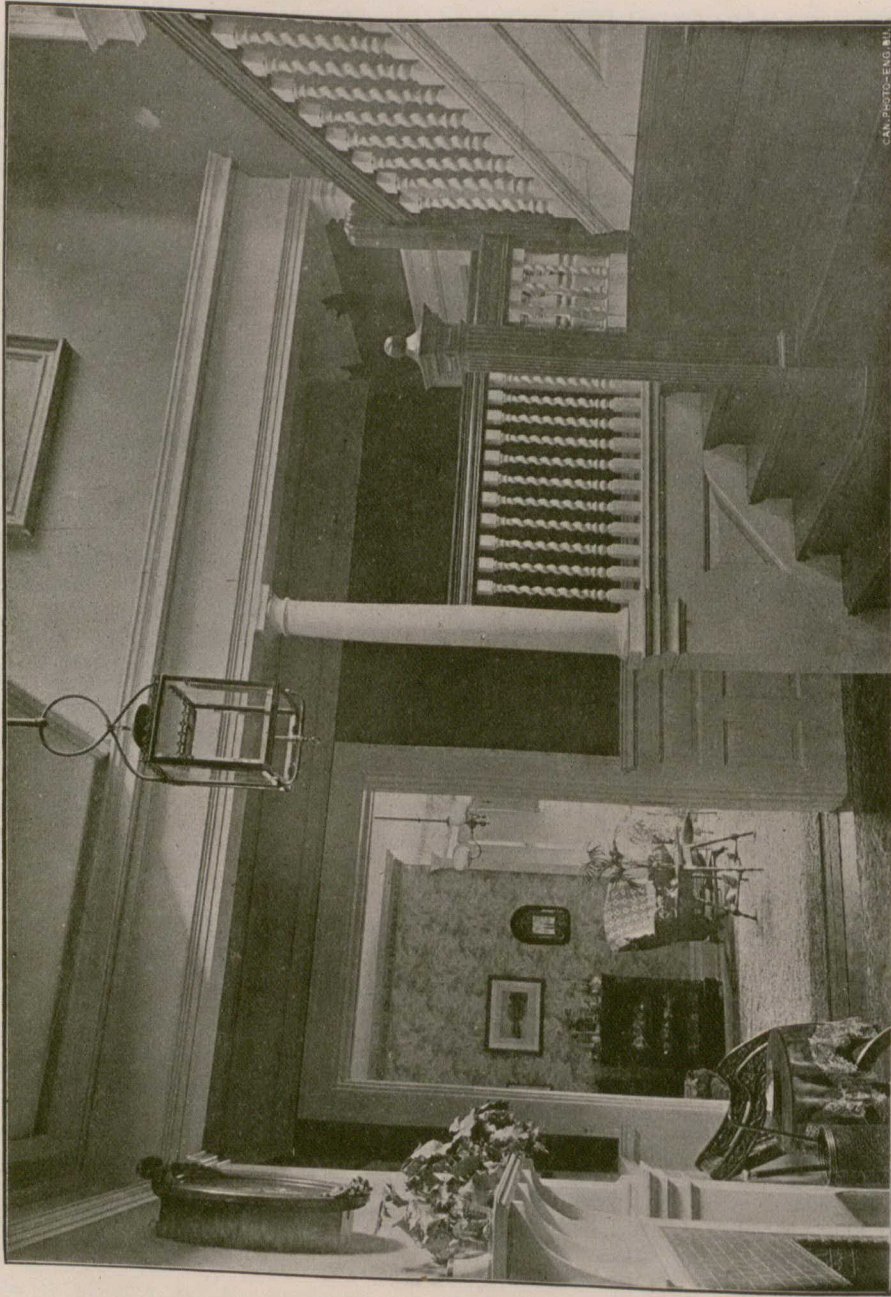
Mr. A. Frank Wickson's paper on "Sunday School Planning" was listened to with great interest, he having made a copy of the World's Fair Model Sunday School, which, though not applicable to every Sunday school building, showed clearly the main features necessary to proper Sunday school building generally.

The next meeting of the Chapter will be held in the same place on Monday evening, March 8th, at 8 o'clock. A very interesting program is being arranged for by the executive committee. Every architect belonging to the Association should make it a point to be present, as the formation of this Chapter will undoubtedly be of great educational value to those attending its meetings.

**PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.**

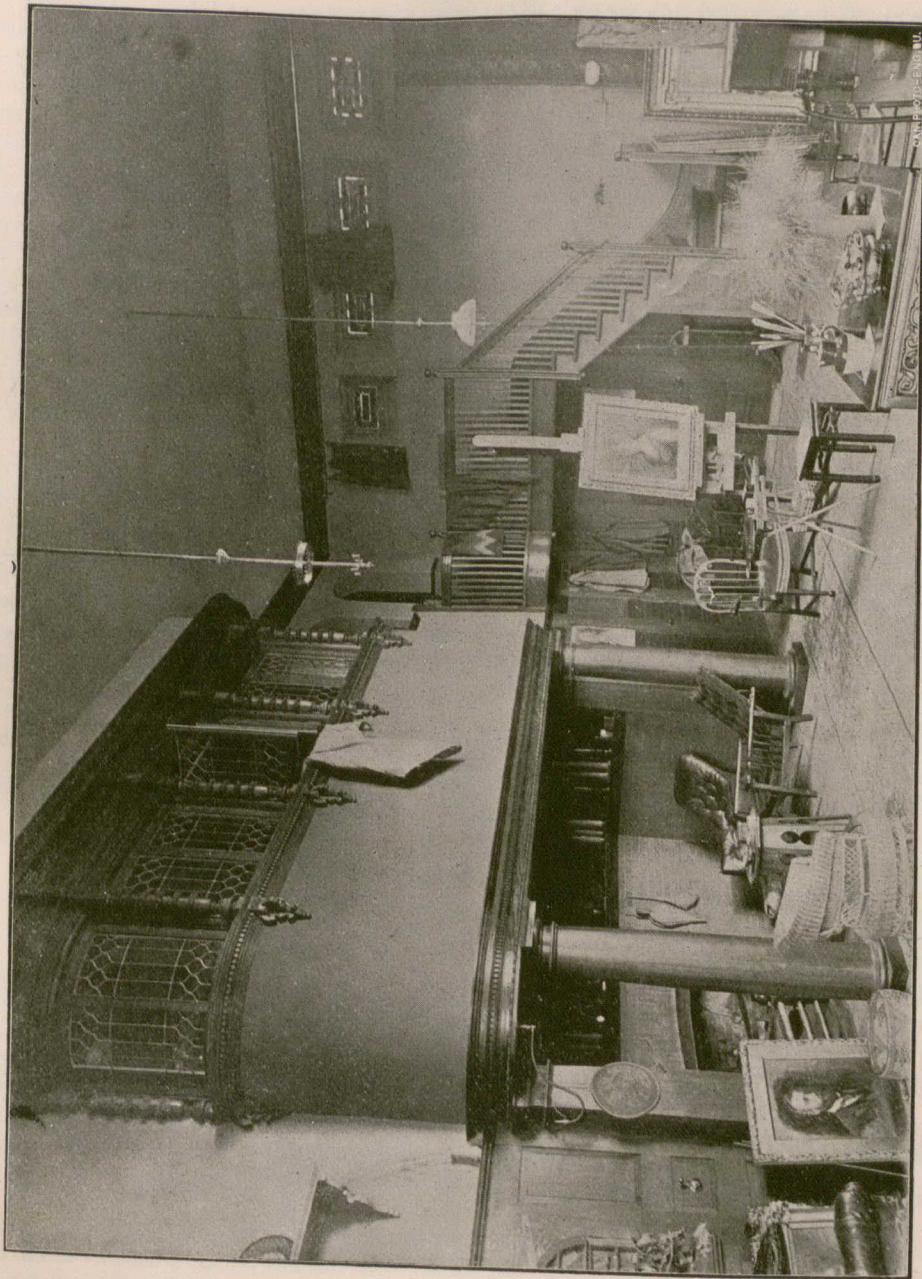
THE semi-annual examinations for admission to study and for registration were held on Wednesday the 27th, and Thursday the 28th of January last, in the office of M. & X. Berlinguet, 209 St. John street, Quebec. Three candidates presented themselves, two from Montreal: Messrs. L. Lemieux, for registration, and E. Geoffrion for study; one from Quebec: Mr. Rene Friche, for study. These three candidates have passed.

The McLeod street Methodist church, at Ottawa, was completed last month.



CAN. PHOTO-ENG. BUREAU

HALL IN RESIDENCE OF R. DIXON PATTERSON, R. C. A., TORONTO.  
DARLING, SPROATT & PEARSON, ARCHITECTS.



STUDIO OF R. DICKSON PATTERSON, R.C.A., TORONTO.  
DARLING, SPROATT & PEARSON, ARCHITECTS.

## CORRESPONDENCE.

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

## AN UNAUTHORIZED PUBLICATION.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS,  
MONTREAL, February 5th, 1897.

To the Editor of the CANADIAN ARCHITECT AND BUILDER.

DEAR SIR,—A diary for this year has recently been published in Montreal entitled "The Canadian Architects' Diary," that has been sent gratis to a large number of architects and others.

From the reproduction of a part of a photograph group of the members of the Association of Architects of the Province of Quebec, and of a notice and portrait intended for the President of the Association, it might be inferred that the diary had the sanction and imprimatus of the Association.

This is not the case; on the contrary, unwarrantable liberties have been taken by the proprietors of the diary, not only with the Association, but with many of the individual members of it.

No permission was asked or given to publish the group of architects, and to make matters worse, only a portion of the original photograph was reproduced, causing it to be most imperfect and misleading, and leaving out many of the oldest and most respected members of the Association.

Invidious distinction doubtless was not intended, but has undoubtedly been made.

As far as can be learned the notices of the different architects were also put in without their knowledge or sanction.

It is only fair to say, however, that no payment whatever was asked or given for any of these notices.

Some might infer from the name of the diary that you had some connection with it; we are fully aware that you had not.

The Council regret exceedingly the occurrence of the whole matter and trust that this protest may be the means of preventing any repetition of it. I have the honor to remain,

Yours obediently,

JOS. VENNE, Secretary.

UNION BUILDINGS, 43 ST. FRANCOIS XAVIER STREET,  
MONTREAL, January 20th, 1897.

To the Editor of the CANADIAN ARCHITECT AND BUILDER.

DEAR SIR,—A copy of a recent publication called the "Canadian Architects' Diary" has, I understand, been sent gratis to all or nearly all the architects in Canada.

Permit me to say through the medium of your journal, the unduly prominent position given to me and my work was done entirely without my knowledge. The first information I had of the matter was on receiving a copy of the diary, and I was much distressed and annoyed to find the liberty that had been taken with my name and personality. I trust my respected conferees throughout the Dominion will exonerate me from any responsibility for a production that is in such palpably bad taste.

I have no doubt that the other architects of whom notices are given, were similarly ignorant of what was being done, and feel as indignant as

Yours obediently,

ANDREW T. TAYLOR.

[Referring to the above communications we desire to state that an effort was made by the authors to have sample pages of the publication referred to circulated through the CANADIAN ARCHITECT AND BUILDER, seemingly with the object of conveying to the minds of architects the impression that the publisher of the CANADIAN ARCHITECT AND BUILDER was connected with the enterprise. This effort, however, was not successful. We wish to disclaim connection of every kind with this unwarranted publication, and to express our regret that a number of the leading architects of the Dominion have suffered serious annoyance as the result of its appearance.—The Publisher CANADIAN ARCHITECT AND BUILDER.]

## THE ONTARIO ARCHITECTS' ACT.

OTTAWA, December 14th, 1896.

To the Editor of the CANADIAN ARCHITECT AND BUILDER.

SIR,—I have read with interest the different articles in your paper, re the Architects' Bill, which was before the local legislature last session, and which was thrown out at that time. I cannot help thinking that there are evils (unforeseen at present) which are sure to arise if such a bill is passed.

Of course there are several sides to everything, and I venture to point out one, which may not have been much discussed, viz: It must be granted that the legislature cannot alter the standing of Architecture as a profession if they passed fifty bills, for or against it; Architecture established itself at the head of the professions, long before legislatures, as we know them, were thought of, and is the greatest factor to show the civilizations and histories of the peoples of the world.

Where written histories have been destroyed and forgotten, the modern historian uses the ancients' architecture, and by its style and decorations, tells us the habits, religions and politics of peoples dead centuries ago.

Now sir, what I wish to suggest is this: As Architecture has lived and flourished for such a time, without aid from any but its own votaries, can we fondly believe that the profession will be elevated by the passing of an act of parliament? I think not; rather it may tend to retrograde that which it intends to elevate.

Looking at the matter from a more selfish point of view, I should like to point out as an illustration of what I mean, other professions which have been fostered by parliament. For instance, medicine, law, dentistry, pharmacy, etc. What has legislation done for them? It has done this—it has filled colleges with students, and the students are ever looking where they may, metaphorically speaking, lay their heads; on all sides we see these professions full to overflowing, and only a small proportion of these men can ever hope to make either success or fortune; the majority eke out a bare existence; the great cry of the time is "the professions are overcrowded."

Now, sir, my humble opinion is this: if such a bill passes parliament, students will be attracted and ground out of colleges in large numbers, as they now are from the other colleges, only to find too late, that the chances for fame and fortune are indeed small; and the bill, which on its face seems to make a closed corporation of all things architectural, has instead only served as a light to attract the moths it would fain keep away. As it now is, architects have the selection of students, and therefore the power to upraise the profession if they will only take enough interest in them to direct their studies and make them something more than tracing machines. Thanking you in advance,

Yours truly,

ARCHITECT.

[“Architect's” letter (evidently inspired by a fear lest the act will bring in competitors) must be considered an effectual off-set to the usual cry that the promoters of the proposed amendment to the act are trying to keep out new architects.—EDITOR C. A. & B.]

## PROPOSED LEGISLATION FOR ONTARIO ARCHITECTS.

To the Editor of the CANADIAN ARCHITECT AND BUILDER.

SIR,—Your editorial in reply to a letter I wrote and which you published in a recent issue of your valuable paper shows to my mind the weak points in the Bill to be reintroduced at the next session of the Ontario Legislature.

Surely if it is desirable or necessary to apply for special legislation to compel men to pass certain examinations before they can be legally styled architects, it is to be assumed that there are at present some persons in Ontario trading on that title who are either a disgrace to a body of professional men or that by their incompetency the æsthetic feeling is shocked or the lives or limbs of the public are endangered; and is it not on this latter plea that special legislation is asked? Why



then should any architect who has the least respect for himself or the profession he has adopted, object to undergo the examination he so earnestly wishes to have imposed on the rising generation?

You mistake the import of my previous letter—I do not claim to be able to turn out students fully prepared to enter upon the practical work of superintending architects, but I do profess to be able to train young men to become efficient architectural draughtsmen in less time than such takes by the obsolete method of doing ordinary routine office work supplemented by the picking up of wrinkles as chance favors.

The clause in the Bill exempting two year's services in an architect's office to students of the School of Science looks as if that institution is in need of State crutches as well as of State funds for its continuance. If the object of the Bill is to ensure that well-qualified men, and those only, may practice the profession of architecture, I say by all means—1st, have the examinations; 2nd, have them conducted by either the government or the university in conjunction with specialists elected annually from the members of the profession; and 3rd, have different degrees; 4th, have the examinations open to all and honestly conducted; but, 5th, having a committee to investigate appeals.

It is not just to compel all students in the province to attend a school in Toronto for three years, but examine them there if no better place can be found, and grant the diplomas to all who can do the work without questioning where or from whom their information has been gained. You state that mine is a gloomy picture of a student's work in an office, but if space would permit I would give the statements of those who suffered, and the picture would be gloomy indeed.

You object to the word "self-dubbed"; so does every worthy member in the profession. Here is an example: only last week a carpenter enquired of me how long it would be before he could draw a plan; he stated his trade was not a desirable one, and as he was out of work he thought when building begins in the spring he would "hang out his shingle as ha harchitek." This man has evidently more ambition than knowledge; perhaps he may be a good workman under supervision, but as a supervisor he must fail. He further stated "that as a boy he disliked educational work and that if Tom ——— can make money as a harchitek, he could." On enquiry I found he had never worked a problem of geometry, he knew nothing of drawing, and virtually nothing of any building trade but his own. If his shingle appears, is the term "self dubbed" too expressive of contempt; if so, let it be "self styled."

You mention "vested interests"; kindly compare that to vested interests in cesspools. If the public demand their abolition he has to do away with them and adopt a system of sewage approved of by the public. Where safety is concerned vested interests often mean interests lost; all reforms press on some sore corn.

The statement I made in reference to students fares being paid to the United States is correct, as is also that in regard to obstacles being placed to prevent students from practising in Canada. If you wish for these details I will give them privately; it is inadvisable to publish names. You also infer that I have not

shown due respect for the Ontario architects; on the contrary I have the highest respect for every educated man whose actions are above suspicion.

Yours respectfully,

S. JOHN IRELAND,  
Principal Hamilton Art School.

### THE PRESIDENT OF THE R. C. A.

THE Royal Canadian Academy of Arts, which includes in its membership a number of architects, was founded in 1880. In 1893, Mr. Robert Harris was elected President, and still occupies that position. We are pleased to be able to present to our readers the accompanying likeness and particulars of this interesting personality.

Mr. Harris, when a young child, came with his parents from Wales to Charlottetown, Prince Edward Island, where, at the Prince of Wales College he received his education. He qualified as a Provincial land surveyor, but manifested a strong inclination and adaptability for art, facilities for the proper study of which were altogether lacking at that period.

After drawing and painting for several years without an instructor, direct from nature, he determined in 1877 to devote his life to art, and in pursuance of this purpose, entered the Slade School University College, London, under Legros, and afterwards the Atelier Bonnat, Paris. As might have been expected, his progress was rapid, and his style free and strong.

Upon his return to Charlottetown in 1878, Mr. Harris painted a number of pictures, some of which were sent to the Exhibition of the Ontario Society of Artists, of which society he was afterwards elected Vice-President.

He removed from Charlottetown and for two years had a studio in Toronto.

From 1880 to 1883 was spent in further study in Paris and Italy. In the latter year Mr. Harris returned to Canada, and opened a studio in Montreal, which city has since been his home.

Mr. Harris was a member of the Committee of Arrangements appointed to prepare a basis of organization for the Royal Canadian Academy, and the present prosperous condition of the society is in no small measure due to his labors on its behalf.

Mr. Harris was formerly an exhibitor at the Paris Salon, the Royal British Academy and other European art exhibitions. He was likewise an exhibitor at the World's Fair, where he was awarded a medal. Since 1893 he has not exhibited outside of Canada. He has given us many excellent Canadian landscape pictures, as well as historical and ecclesiastical pictures, but it is as a portrait painter that he has gained his chief distinction.

### EXAMINATIONS OF THE O. A. A.

The examinations of the Ontario Association of Architects for 1897 will begin on March 15th, at 2 p.m. Students who intend to come up for examination should send their names to the Registrar without delay.

The annual meeting of the Iron Founders' Association, of Montreal, was held on Thursday, the 14th January. There were present Messrs. H. R. Ives, W. Laurie, Wm. Greig, J. H. Garth, Jos. Amesse and Wm. Rodden. The following officers were elected for 1897:—Wm. Laurie, president; Jos. Amesse, 1st vice-president; W. Davis, 2nd vice-president; H. R. Ives, hon-treasurer; Wm. Greig, secretary; Geo. H. Weaver, sec.-treas.



MR. ROBERT HARRIS, President of the R.C.A.

PRINCIPLES OF DESIGN.\*

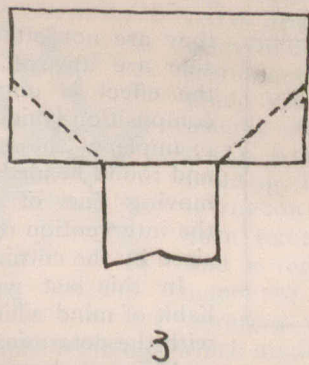
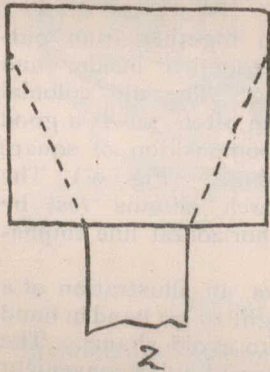
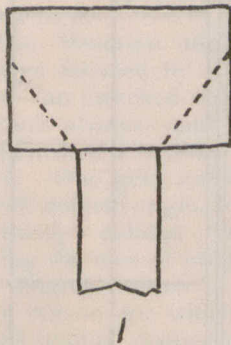
By W. A. LANGTON.

THERE is a class of principles in design which approach to moral qualities—such as honest construction, truth to material, etc. I would turn naturally to these in the first place, for I believe there is no such short cut to interest in design, and to that character which is beyond beauty—as it is also an essential part of it—as honest construction; and no source of good design like truth to material. But we are familiar with these ideas. They have been in the air for a generation, and as ignorance of them or disregard of them ought to be unusual, I think we may assume them for the present company, and I should like to enter more into details of handling in search of rules or principles which may be a guide to help the eye in matter of taste, just as an elementary knowledge of perspective is often a guide to the eye in drawing an object where it is difficult to decide by the eye alone whether a line is horizontal or sloping, or which way it slopes.

It is possible to view the proportion between capitals and columns, or between capitals and piers—which are more often used by us than columns—as having some sort of law of fitness in their combination which may form a rough guide to their design.

The capital is a useful feature, but the points upon which we expend thought in designing a capital are not intended to increase its use so much as to express it beautifully. The base illustrates this clearly from the fact that it has no usefulness at all. Its whole function is to express security.

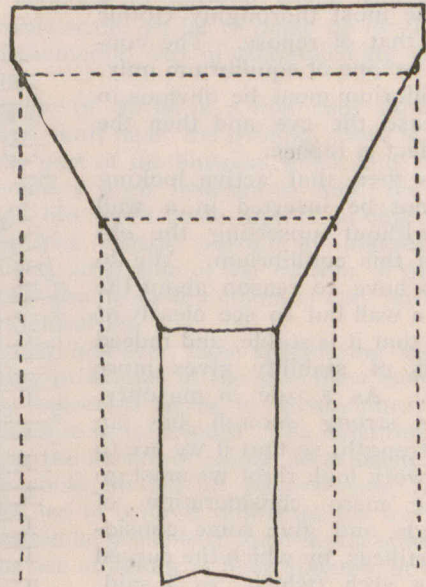
A column is a supporting wall gathered up into a small cylinder, and the use of the capital is to enable us to concentrate a large load upon the small cylinder. A block would do this, but it is more pleasing to the eye to cut away the useless part of the stone and leave the portion which does the work, and which is thus shaped in the most expressive way by the actual lines of energy. (Fig. 1). If the block is low in proportion to its width safety demands a deep abacus (Fig. 3); if high, the abacus may be narrower. (Fig. 2).



The form of capital and relation between capital and column may be varied in numberless ways, but the eye demands and is only pleased by forms and relations which express the structural facts. More than this, it likes to have them emphasized; and where there is small super-incumbent weight it is more pleasing to have the column small and even fantastic. For instance, in the Lombardic fronts of Pisa and Lucca, where the columns stand over one another for ornament and support nothing, it would cease to be ornamental and be merely dull if they were sober, business-like columns, instead of being as they are, small, inlaid, twisted, knotted, composed of a pile of animal forms, or even with the upper and lower parts looped together as if in tension. The capital, however, as stone is not strong in the transverse direction, cannot project far without having also a deep bell, so that for small columns we get this shape of capital, which you will recognize as be-

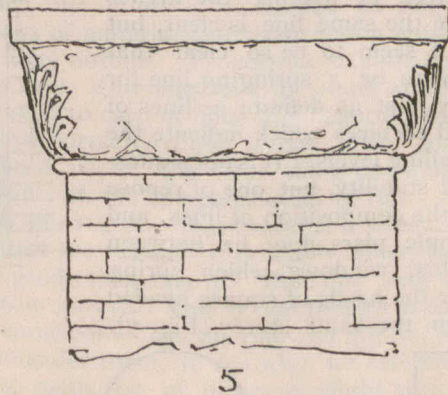
ing common in one-storey cloisters. And if we take this as a type of the small column, we can get from it the proper relation between capitals and columns of all thicknesses simply by drawing lines centred on the same axis, defining the width of the column we require.

It will thus appear that when the column assumes the

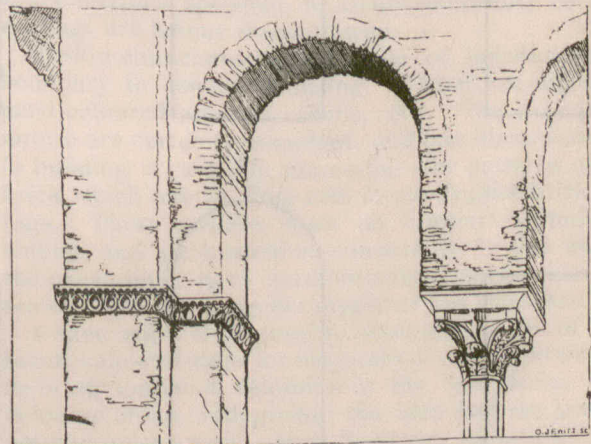


proportions of a pier the capital disappears, leaving only the abacus (Fig. 4)—and this seems to be right.

The heavy caps which we so often see on piers are a mistake, and have no expression. (Fig. 5). The designer seems sometimes to have considered himself forced into this



form of cap on the pier so as to keep in line with the depth of cap on columns between the piers. But that is not necessary. The Italian method is simply to let the abacus do duty for a cap to the pier. (Fig. 6).\*



As regards arches: I think we may take as the bottom principle of the effect of arches in design, the saying, "the arch never sleeps."

That this is the effect of the line to the eye, rather than an impression upon the mind of the conditions of thrust and resistance which we know to exist where an

\* Paper read at the annual convention of the Ontario Association of Architects, January 12th, 1897.

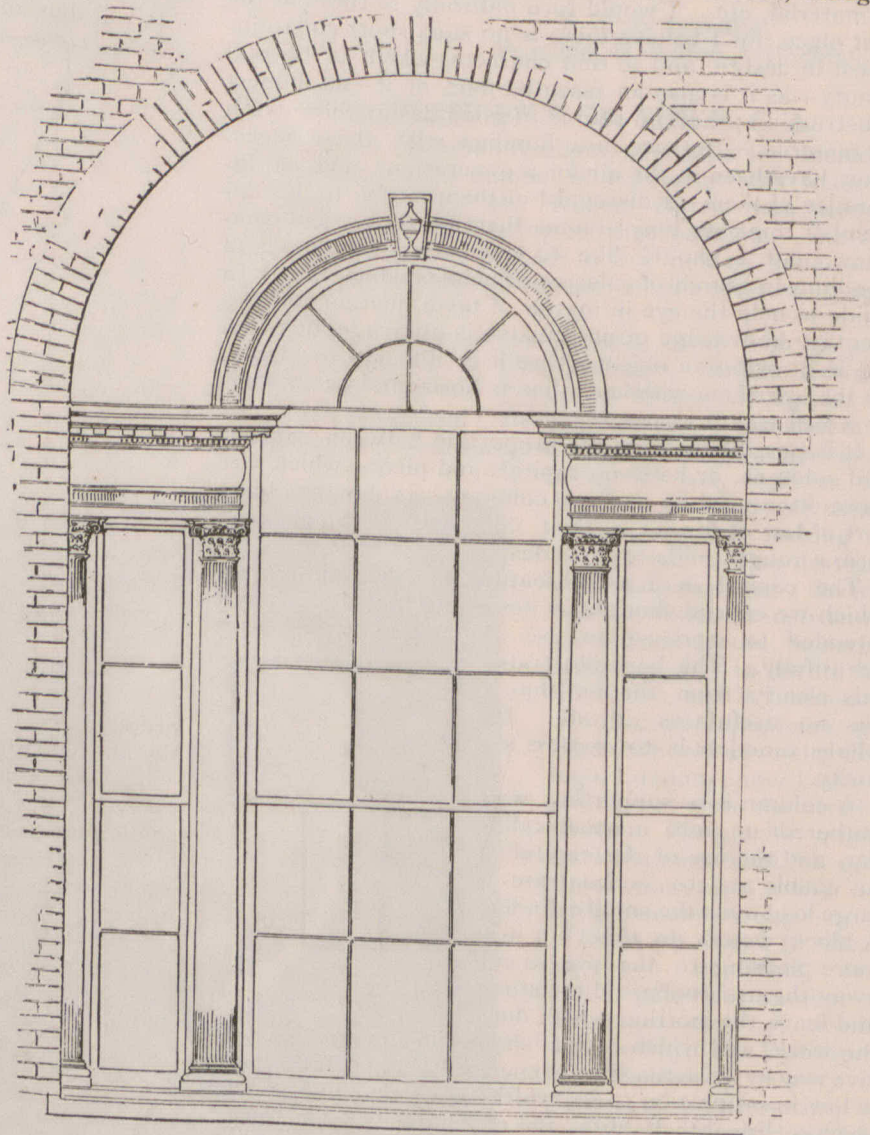
\* Insert in this sketch a pier cap such as in Fig. 5 and the life will be gone from the design.

arch is used, is shown by the fact that a flat arch does sleep. The effect of repose is as great where a flat arch is used as if it had been a lintel.

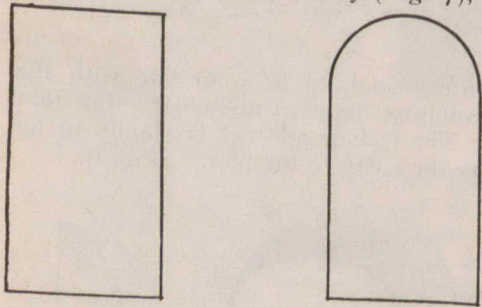
Now I think we may say that in most building some effect of repose is necessary to satisfaction. To my mind the resulting effect of the most thoroughly Gothic cathedral is that of repose. The condition may be one of equilibrium only, but the equilibrium must be obvious in order to please the eye and then the resulting effect is repose.

It follows then that active looking arches cannot be inserted in a wall any how without upsetting the obviousness of this equilibrium. We do not want to have to reason about the stability of a wall but to see clearly at first glance that it is stable, and indeed an emphasis of stability gives more satisfaction. As a rule in masonry, what looks strong enough has an excess of strength, so that if we are to make arch work look right we must go beyond the mere consideration of statical needs, and give some consideration to artifices, by which the curved lines of the arch (which, as I said, seem to be the chief indicators of its restlessness) may be composed. One of these is uniformity in the springing line. This is a point which is often disregarded when the arches, though visible together, are not close together. When the openings form a regular arcade the need of making the arches spring from the same line is clear, but it does not seem to be so clear that there ought to be a springing line for each storey, just as definite as lines of strings and cornices which indicate the floor and ceiling levels. It is not a question of real stability, but one of repose gained by the composition of lines, and though ample piers may be between them, arched windows which spring from below the heads of square headed windows in the same storey (Fig. 7),

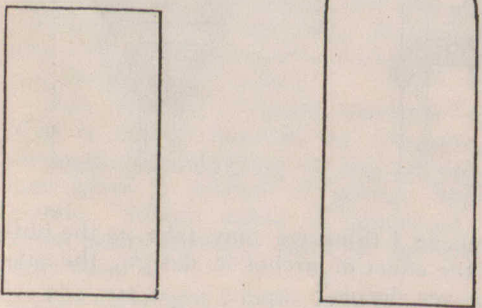
range one often sees of a round headed window on the side of a drawing room towards the street, and square headed ones on another side, the square head on the same line as the intrados of the round head, though



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can never be as pleasing as those which spring from the level of these heads. (Fig. 8.)

It is as bad inside a room as without it and the ar-

they are not often seen together from outside are always seen together inside, and the effect is unpleasing. The old colonial composition which we so often see is a good example of the right composition of square and round headed openings. (Fig. 9.) The moving line of the arch obtains rest by the intervention of the horizontal line emphasized by the cornice.

In this last we have an illustration of a habit of mind which ought to go hand in hand with the determination to avoid shams. The architect of shams has some kind of convenient construction covered up and masked with an appearance of some other kind of construction. The architect who likes to state the facts is too often content merely to state them, forgetting that a mere statement can hardly be called art. The difference between simple expression and artistic expression is that one lays the facts before us, leaving us to find out for ourselves what they are. The artist, poet, painter, architect, puts them in such a way that they strike at once without one's having the trouble to think at all. That is what makes the artist. He is not content until he has expressed the matter so that it will impress some one else.

There is a large stock of means to this end at the disposal of every architect. The whole list of mouldings, features and ornaments serve for this purpose. Some, as in the case of the base to which I alluded before, have

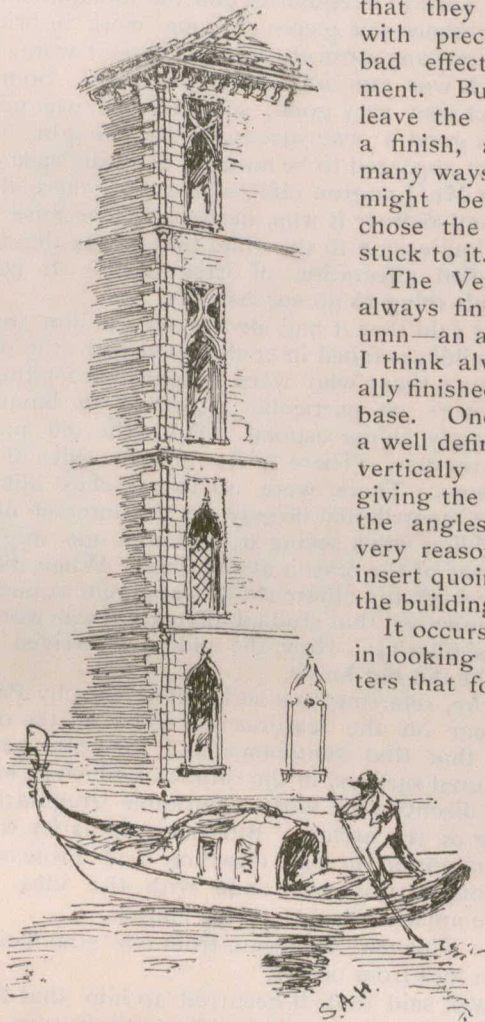
no other reason for their use. In fact there are many features of which one can say that the form in which they are presented is expressive rather than constructional. Of these are the whole family of vaulting shafts—free as well as attached. They are only mouldings in the stone pier which, as a matter of fact, loses a little of its substance to make them, or else, if free, are an ornamental addition to the piers which is sufficient without them. Nor can it be said that they represent the true line of pressure of the vaults; but to the eye they bring the weight of the roof down to the ground, and remove the appearance of a sideways thrust, which, if it caught the eye, would appear too great for the slender piers when the external buttressing cannot be seen.

Or to take an example that comes nearer home to us who see no vaulting, nor are ever likely to do any. A favourite feature in Venetian buildings is an angle column. They built in brick and reinforced their corners with deep quoins, their foundations being not so good

that they could dispense with precautions against bad effects from settlement. But they did not leave the quoins without a finish, and of all the many ways in which they might be finished they chose the expressive and stuck to it.

The Venetian angle is always finished by a column—an attached column I think always—and usually finished with a cap and base. One gets not only a well defined angle, but a vertically defined angle giving the idea of props at the angles, which is the very reason for which we insert quoins deeper than the building courses.

It occurs at once to us in looking into these matters that for the majority of our building there is little opportunity of using features of this kind. We can usually afford only plain building. That is true to a certain extent, and a repugnance to decorating with



VENETIAN SKETCH.

architectural features simple buildings which ought to be plain is just as much the impulse of an artist as the desire to elaborate important work. But there are two things to be said on the other side.

In the first place much use of features is seldom a good thing, it is only in the exceptional building that much elaboration of ornament is in order. If it is expression we are aiming at we shall find, I think, that there is always something to express; not often much; and that in all cases minor things must be subordinated and the principal expression given to those which are important. It is just like any other work of art—a picture, a story—a judicious reticence about minor points is the safest way to give due emphasis to those which are important. So that it ought not to require many features to make good work.

In the second place there is no doubt that the man whose habit of mind tends to pure design is in the best position to do a good thing at small expense. I feel no inclination to criticize usage without taking a long second look at it. Usage has for the most part practi-

cal reasons for what it does, but I think one can safely say that it often adopts features that are not expressive and which are expensive; and the designer who is accustomed to straightforward thinking will be most likely to see his way to a better thing that will cost less.

There is also a class of features which seem to suggest an economy of material which would, if on any considerable scale, go far to make up for the expense of a more ornamental way of accomplishing the same construction.

As the line of thrust of a roof runs down a buttress to its outer limit near the ground, there is a portion of the lower part of the buttress which may be removed if only there is a prop inserted to hold the wall above. This fact has been made use of in churches to gain space for the central portion by making a passage through the inner side of the bottom of the buttresses. In this case the necessary columns may fairly be said to pay for themselves.

To return, however, from speculating upon the effect of studying principles to the principles themselves.

A very important factor in architectural design, for those who like it, is colour. The scientific discoveries respecting the nature of colour perceptions are so exact that one would be led to believe—and some persons have been led to believe, unfortunately for their work—that it would be possible to form sound scientific theories about the use of colour. Such appears, however, not to be the case.

The gist of the discoveries appears to be that colour is a sensation, like sound. People like harmonious combinations of colour without knowing that the harmony is caused by a relation between the undulations of light from them, which causes every fourth undulation from one colour to coincide with every fifth undulation from the other. Proportion of form is different. It is a matter in which the mind is concerned as well as the eye. Questions of material and construction enter in as well as the mere outline. Proportion cannot be said to affect the eye. One may look for hours at an ugly object and be able to turn at once to a beautiful vase and draw its outline correctly; but if one looks too long at a bright red object the next thing one looks at will be over-cast with the complementary of red.

From this reason—that colour is a sensation and independent of the reason—it probably comes that the eye is a safer guide than theory. But one may get general hints from nature. One is that though in nature masses of the same colour are the rule and are not monotonous, if we consider them, to see why, we see that the monotony is made up of incessant slight variations. We recognize the same charm in old buildings, where time and the weather have produced a variegation of tint in the stones or tiles. It only remains for us to take the hint and see that the pains usually taken by builders, and sometimes specified, to secure uniformity of tint in walling, are labour thrown away.

Ruskin enunciates the principle of indefiniteness of boundary to colour, deducing it from the example of parti-coloured animals, shells, etc. The examples in nature are certainly abundant, and one illustration of it in building is certainly successful—the patterns of black brick which one so often sees in old English brick buildings. These patterns have no regular beginning or ending, and are worked so consistently in this way that the cause must have been intention, rather than, as it seems to be, an irregular supply of the black brick.

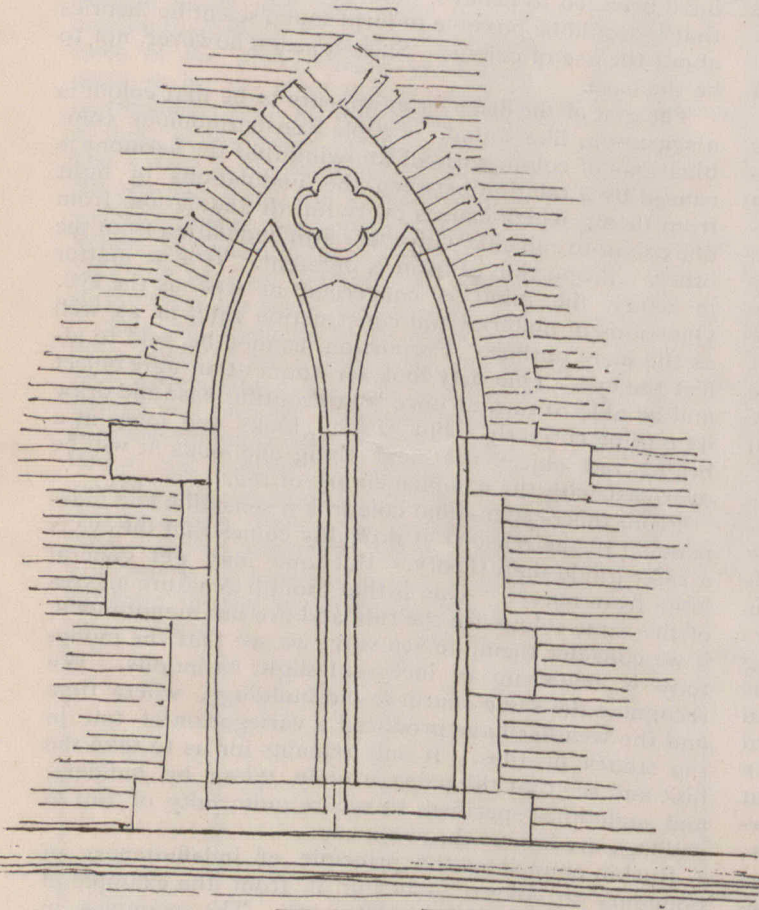
I have heard a proposal to abandon the use of a different-coloured stone for the jambs of doors and windows, as being too much definition in the boundaries of the coloured stone, and giving the idea that the jambs are not part of the wall. It is, however, so natural to use a different material for this purpose that it would be better to turn our attention to blending them with the wall, and this is obviously to be done by avoided regularity in the size and shape of the stones which form the jambs, and perhaps also in the voussoirs of the arches. (Fig. 10). This, as well as the irregularity of the brick pattern, is to be seen at Hampton Court. The irregularity of the stone would be considered extravagant if drawn.

The use of brick walling with bands of colored marble

is very common in Italy, and I remember being always especially pleased with the free way with which they abandon or take up the banding in the same wall. The tower of the town hall of Verona begins in bands of brick and marble, which is left off soon after it rises above the roof. In the church of S. Fermo, in the same town, the brick tower is even more capriciously and irregularly banded with white marble, and I remember being especially delighted with it, and thinking that it is not worth while to be anxious about a spotty effect from using stone for constructive convenience more in one part of a building than in another.

That is probably the safest lesson to draw from the success of colour combinations such as those which I have described as capricious. Whether they were intended to be capricious or not one cannot say, but I think it is not likely. It is not an effect which one gains by striving after. One can imagine an architect saying to his client or critic "I think I have succeeded in imparting some dignity to this front," but one cannot imagine his saying "Observe my capriciousness."

It is anxiety on either side that we should avoid. Nature seems to be careless how she splashes on colour, and we may consider ourselves exempted from petty



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anxieties in that direction. If constructive exigencies require stone in one part more than another, we need not be afraid of danger from want of uniformity of colour. Nor I think need we be afraid of colored trimmings or banding—provided we are not afraid of them and use them freely. There is plenty of example for it in old work, nor is it all irregular as in the examples I gave. I only cited those as illustrations of an extreme, which seem to prove the principle that colour should not be too definite in form. We cannot, of course, do anything like that in our own new work. If we go in for bands it is bands that must come out. It will not do to stop them and have our client's friends asking him whether it was funds that did not hold out or the quarry—nor indeed is there anything the matter with the effect of bands. What we really want is a motive for a natural irregularity. One is to be found in the interruption of openings; whether we allow the banding to run through without any reference to the openings, and so interrupt the banding constantly, or whether we disturb the regu-

larity of spacing in the bands by making some of them conform to the line of heads and sills.

But in the only Italian wall I remember studying there was another motive which answered perfectly. The marble bands were in all cases three courses of brick apart, but the bands themselves were of all thicknesses. Presumably with a view to economy of material and labour, the pieces were sorted so as to make courses of different heights with as little cutting as possible, and then laid at regular distances apart. There is a reasonableness about this which makes it satisfactory even when you discover it; and for persons who would not look for it nor discover it, I am sure it was none the less one of the contributing causes of the agreeableness of the wall.

## DISCUSSION.

Mr. Dick said that one point that occurred to him in connection with this irregularity, the breaking of bands, etc., was as to the difficulty of drawing the line between an apparently natural irregularity and the affectation of it. They sometimes saw pieces of stone work in brick buildings without any natural termination as it were, in which the brick was run into the stone work. Sometimes the effect was very good, sometimes it was not. Where it was good it was successful, he thought, because the effect appeared to be natural, as in the case of the tower that Mr. Langton referred to; but where the effect was unsatisfactory it was, he thought, because it conveyed the impression to the mind that it was the result of a studied affectation of irregularity. It was rather a difficult thing to do successfully.

Mr. Darling said that it had always struck him that our modern buildings failed in comparison with the old ones just because those who were responsible for their construction were so particular generally in having everything exactly to correspond. With the old men nothing was regular. There were no two sides of a church the same. There were no two arches alike. That no doubt, contributed largely to the interest one felt in the building when seeing it, although one might not be conscious of the reason at the time. When they turned to new work the difference was apparent at once. He thought, however, that studied affectation was worse than perfect similarity. How the old men arrived at these results he did not know.

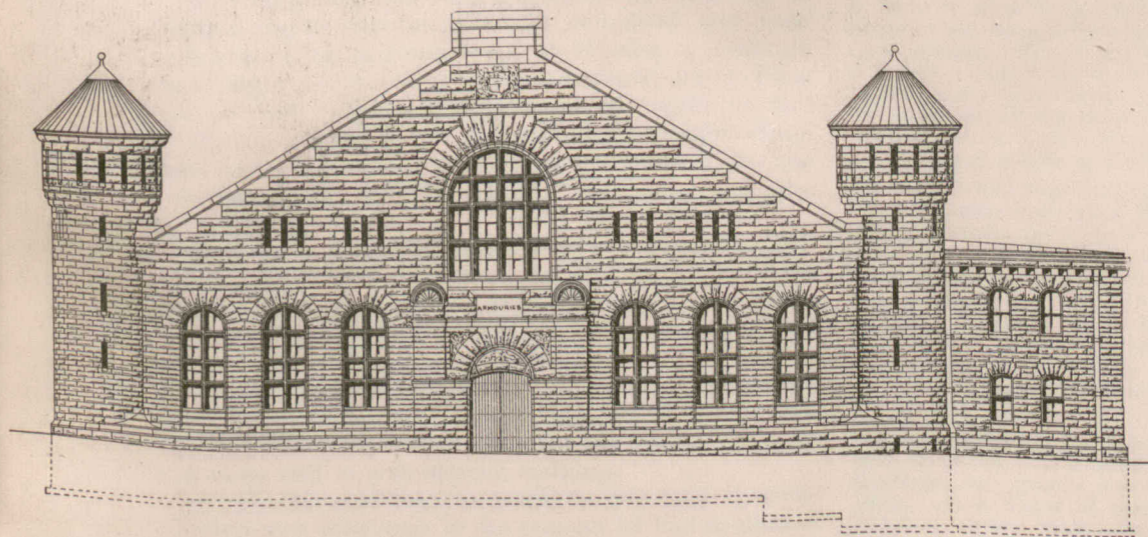
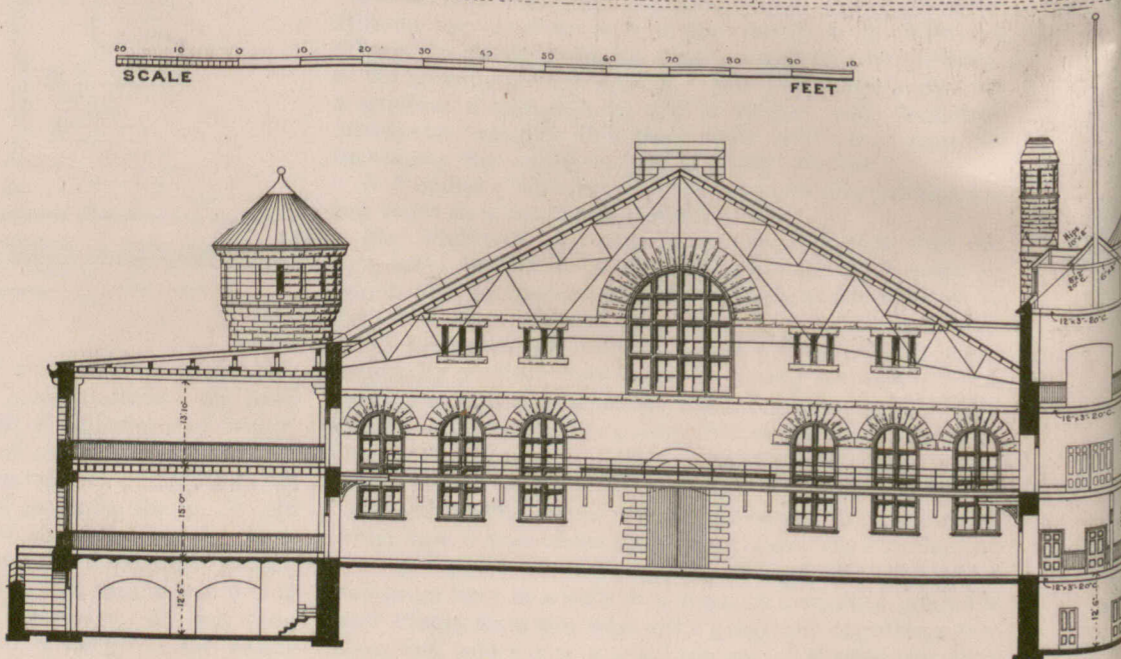
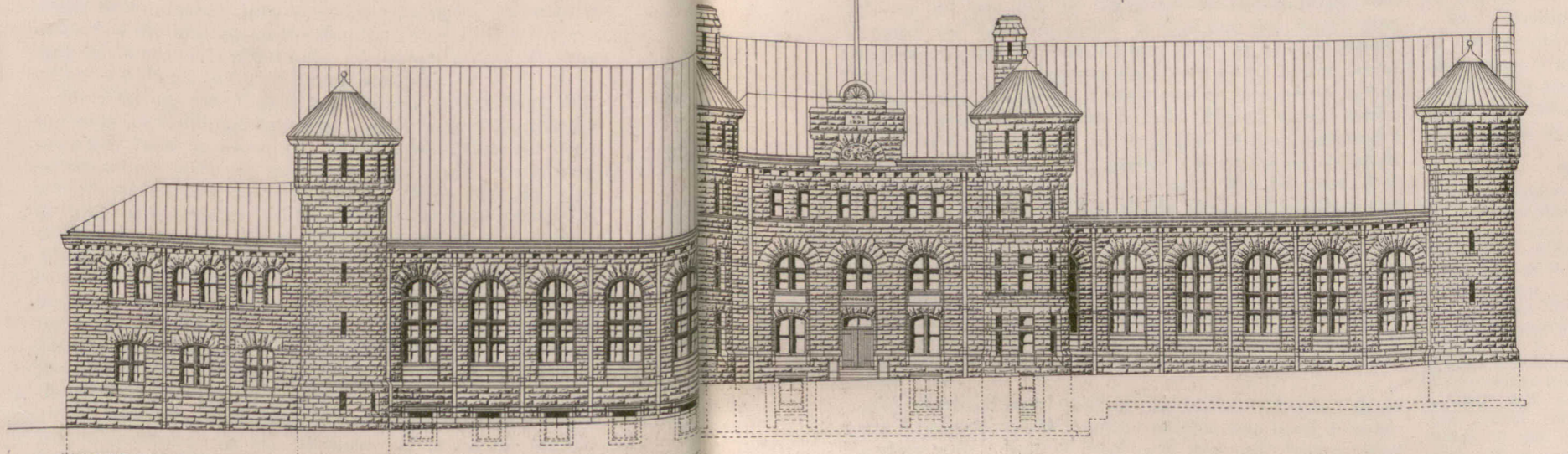
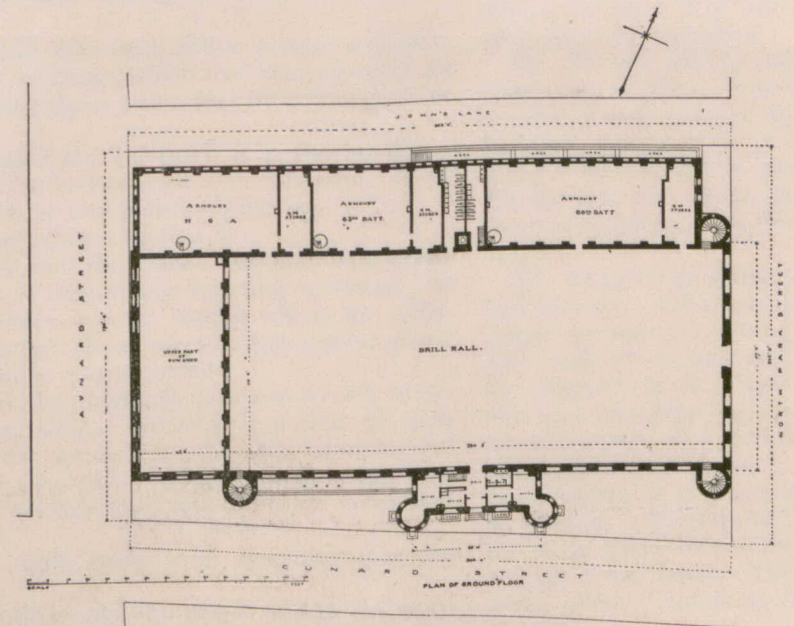
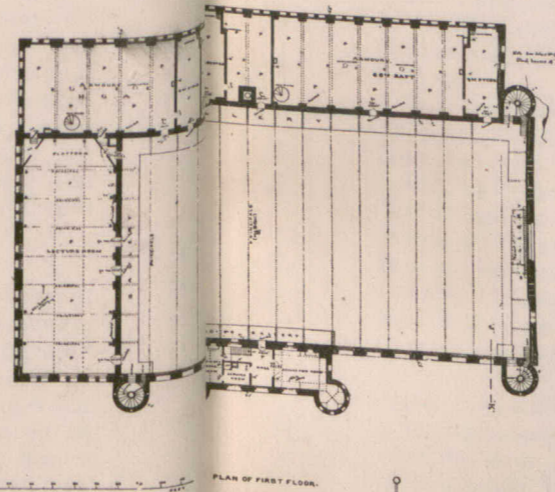
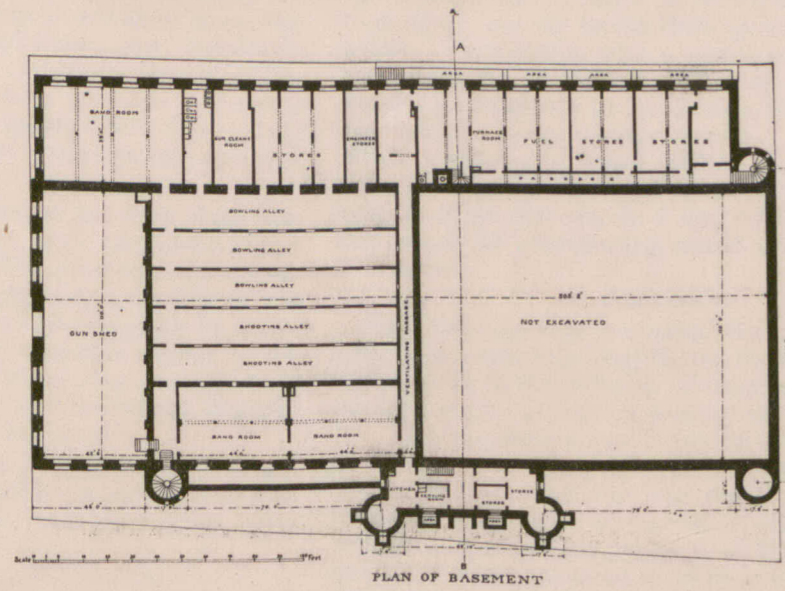
Mr. E. Burke, referring to a series of articles by Professor Goodyear on the features of some of the old basilicas said that that gentleman had for years been making measured surveys, in the course of which he had several times discovered a most remarkable irregularity in the spacing of the arches. But the irregularity was a gradual diminution in one direction and Professor Goodyear thought this was done with the idea of increasing the apparent length of the church.

A Member: This may be a gain from one standpoint but must be a loss from others.

Mr. Helliwell said that it occurred to him that the agreeable effects in these old buildings in Europe to which Mr. Langton had referred might be due to the action of natural causes. Time has a very softening effect on almost all materials, and will tone down what originally is discordant and in strong contrast. The architects of the present day had, of course, to deal with new buildings, and the colors that were introduced into them were often very harsh. Speaking of these bands of marble, he (Mr. Helliwell) had not himself had opportunity of seeing them, but he gathered that although when new it was of striking color, time had its effect on it as well as on other materials. They knew that in our buildings here in which they tried to introduce color the best effects were got where the greatest irregularity was observed, and where a great variety of shades was used too.

Mr. Darling said he was quite sure that those Italian buildings of red brick, black brick, and white marble built up together must have looked crude when first built.

The President remarked that he thought they had had an illustration of that in the building they had been looking at that day. While the smoke around the new city buildings was of course objectionable, it was bene-



SECTION AT A.B.

HALIFAX, NOVA SCOTIA.

NEW DRILL HALL

DEPARTMENT OF PUBLIC WORKS, OTTAWA.

THOS. FULLER, CHIEF ARCHITECT

ficial to them from an artistic point of view in toning down the difference between the two different varieties of stones.

Mr. Darling: Speaking of that tower at Verona, do you not think there must have been a very violent contrast?

Mr. Langton said there was still a violent contrast, but agreed that in buildings which had been scraped, as was sometimes done, there was a loss of colour and of harmony.

Mr. Helliwell asked Mr. Langton if in the buildings he had referred to he had noticed any difference as to color between the base and points higher up?

Mr. Langton replied that he had not.

Mr. Pearson said that the reason why the arch never sleeps was that it is continually exerting a thrust. It was not because there was no repose about an arch. He should imagine that there was as much repose about a curved line as about a straight line.

Mr. Langton said he might be entirely wrong in his statement of the principle, but it is true that an arch which has a different spring from the arch alongside of it is unpleasant to see, and he thought the principle was that the arch is a restless line, and must be composed with straight lines.

Mr. Darling: I think there is no question that you are right.

Mr. Gregg said he would like to get an expression of opinion on the use of white marble in buildings. In Ontario we have a great deal of marble, which was used, of course, for monuments, but not to any extent for buildings. In Toronto they seemed to avoid white marble—as a reminder of cemeteries or for some other reason that he did not know of. Now, would white marble be a good thing to introduce into our buildings?

Mr. Darling said if the question were asked, should it be used generally, he would say no. He believed that if a man understood his work it was possible to use white marble quite satisfactorily.

Mr. Gregg: We hear of white marble being used in Italy.

A member: We have not the same climate.

Mr. Paull remarked that there was one building in Wellington street where white marble was used to some extent, but at a distance it gave one the idea of white-wash.

Mr. Belcher said that in the south of Ireland there were buildings in which white marble was used in combination with a reddish trap rock they had there, and the effect was marvellously beautiful. The marble was, however, distributed in such a way that it was toned down.

Mr. Gregg said that there was some marble found in Ontario that he believed could be combined and used with great effect in some sorts of buildings. Though they might not be suitable for the smoky parts of the city, he really believed that grand effects might be got by the use of some of our light marbles in suitable situations—effects which had never been attempted by the principal architects. He thought the subject was one worth investigating.

Mr. Dick said that a great deal of white marble was used in Philadelphia in connection with brick, both for window-sills and steps, and the effect was that of being clean and tidy but rather glaring. He thought that white marble always had a blank appearance, like that of a newly whitewashed house. The marble palace in New York which was built by the late A. T. Stewart was most unsatisfactory as regards the effect. It never looked as well as a sandstone building.

Mr. Belcher said that the white marble used in combination with limestone in the manner he had spoken of had not the glaring effect the white marble used as in Philadelphia was said to have. The stone with which it was used was nearly red, a purplish or bluish shade through it. In the way in which they had been combined there was nothing glaring or offensive in any way; on the contrary, the two stones blended most harmoniously.

Mr. Gregg said he certainly thought that some very bad use had been made of this material. For instance,

in Chicago he had seen buildings that were veneered with white marble an inch thick. A person who does that would not produce a very handsome design; but he (Mr. Gregg) thought that for situations where there was no smoke or dirt to spoil the effect there was a chance, in the use of white marble, for the erection of very pleasing buildings.

Mr. Darling said he thought that if there was one material they ought to frown down the use of more than another it was pressed brick. He had never seen a building constructed of it that would not have looked many times better if common rough brick had been used. He thought that one of the charms of English and continental buildings was that the latter material was used in them.

Mr. Langton said that that was one of the things he had noticed. (The marble in the buildings he had referred to was not white, by the way, but yellowish). The brick which was used in combination with it was of the roughest kind. Speaking of pressed brick, once when he was ordering some common brick at the kiln the kiln-owner said that three years before, in order to compare with his own a brick from one of the pressed brick works, he had exposed a specimen of each brick on a fence. He showed him (Mr. Langton) a brick on the fence which he said was his own. It was as hard as ever it had been. The other, he said, he had to put under glass; and showed it inside the porch going all to pieces.

Mr. Darling repeated that he thought the architects of this country ought to set their faces against the use of pressed brick. They could not get a pretty wall out of it. The beauty of a wall constructed of the old brick was that when the sun struck it there were no two places in it that looked alike.

#### WORKS OF CONSTRUCTION.

A new Baptist church has been completed in New Glasgow, N. S., from the plans of Mr. H. H. Mott, St. John, N. B.

The new biscuit factory being erected in St. John, N. B., by the Queen Biscuit Co., is nearing completion, and will be ready for occupancy by the end of the month.

Mr. Kivas Tulley, C. E., has prepared plans of a scheme to connect the Toronto Island with the main land by means of a tunnel, instead of the proposed swing bridge. The crown of this tunnel will be eight feet below the level of the rock, and that portion of it lying immediately under the gap will be on the level. Those sections leading down from Bathurst street and up to the sandbar will be on a grade slightly steeper than five per cent. The tunnel will be lined throughout, and will be twenty feet in width, 16 feet in height, capable of carrying two lines of street cars. It is also suggested that a water main, with convenient manholes, be built below the floor of the tunnel.

A large opera house is to be erected in Ottawa, at a cost of \$100,000, the contract for which has been given to Mr. E. E. Horn, of New York. The architects are Messrs. B. McElfrick & Son, of New York, specialists in theatre building. The structure will have a frontage of 186 feet and will accommodate 1,500 persons. The stage will be 32 feet across, and the same in height. The drop curtain will be made of asbestos, so as to be fire proof, and the divisions between the theatre and the stage on each side of the drop curtain, clear out to the walls of the building, will be of solid brick and also fire proof. From front to rear the stage will be 34 feet 8 inches deep.

Extensive buildings have been erected at Niagara Falls, Ont., for the Niagara Falls Metal Works Company. The buildings are brick and stone, and were erected by Messrs. Newman Bros., of St. Catharines, who built and finished everything complete. There is a main building, two stories high, and 40 feet wide. The front is 120 ft., one wing 40 ft., and the other 120 ft., all floors 5¼ in. thick. There are six detached buildings, a boiler and engine building, a wood working building, for making wood hames and turning handles, a building for tinning and japanning, and one for storing steel, a malleable iron foundry, and a building for the annealing ovens.

A new addition to the School for the Blind, Halifax, N. S., has been completed. It is 72 by 46 feet, built of brick, with freestone finishings and granite foundation. On the main floor are the offices of the board of managers and superintendent, the male teachers' sitting room, three sitting rooms for boys of different ages and a commonplace band room. On the second floor are seven small dormitories, four larger ones and a lavatory. The basement contains the tuning and electric rooms, boys lavatories, laundry, checking room and furnace room. The entire building contains in all one hundred rooms. A beautiful corridor runs behind the main building and connects the east and west wings. The general contractor for the new wing was Mr. Samuel Marshall, and the sub-contractors as follows: Messrs. Harris & Son, carpenters; Longard Bros., plumbers, and Martin & Moore, painters and glaziers. The heating apparatus was supplied by MacDonald & Co.

## BUILDING IN CANADA IN 1896.

## REVIEW OF OPERATIONS IN MANY OF THE LEADING CENTRES.

To give our readers a fair idea of the extent to which building operations were carried on during the year 1896, a brief review of the principal centres will be found below. The conditions which prevailed throughout the year were not favorable to any great expansion in the building line, and taking the Dominion as a whole, it must be admitted that very little progress was made. In the two principal cities, Montreal and Toronto, there was very little money available for investment, and projects which early in the season seemed almost a certainty, failed to materialize when the expected time was reached. At other Ontario cities, on the contrary, there has been quite a revival in the building trades. The report from Ottawa is most favorable, and shows a large increase in the number of residences erected by persons for their private purposes. To a less extent this is also the case in London, Hamilton and Guelph. Winnipeg passed through an unusually quiet year, and in the cities of the Pacific coast province the season is regarded as only an average one. No improvement is reported from the maritime provinces. Brick has been largely used as a building material where wood was formerly employed, resulting in the erection of a better class of buildings. Prices of both material and labor were slightly lower than in 1895.

What conditions will prevail during 1897 is as yet regarded as somewhat uncertain. Architects have considerable work in prospect which may or may not be carried out, but it is earnestly hoped that the period of depression has been passed and that funds will now be forthcoming for long-projected undertakings.

## MONTREAL, QUE.

The building trade in Montreal, in common with all other lines, has suffered from the financial depression, and the showing for the year 1896 is not one of entire satisfaction. There were erected several buildings of some prominence, but unfortunately for the profession of architecture in Canada, many of these were designed by American architects. Additions and alterations to existing buildings were an important factor, a fact which would seem to illustrate the desire of capitalists to obtain modern buildings with as little expenditure as possible. Building has been more prosperous in the suburbs of Montreal, particularly in Westmount, where several new structures of neat design were erected. Less of the speculative spirit entered into building operations in 1896 than for some years, and this is regarded as a source of congratulation, and will result in the erection of more substantial and properly-constructed buildings.

The proposed east end depot for the C. P. R., now in course of construction, and the Victoria College for Women in connection with McGill University, the latter of English architecture and built of limestone, were constructed from the plans of Mr. Bruce Price, of New York. The masonry contractors were P. Lyall & Son. The Canada Life building, corner St. James and St. Peter streets, built in Ohio sandstone, was also erected from the plans of an American architect, Mr. Waite, of Buffalo. Mr. P. Lyall also executed the masonry contract for this building, Mr. H. Beaumont being the sculptor.

Among the most important buildings designed by Montreal architects may be mentioned the following:—

The Montreal Diocesan Theological College, of English architecture, constructed in yellow sandstone and pressed brick, and English in character; the chemical and mining buildings, McGill University, now in course of erection. These buildings were designed by Mr. A. T. Taylor, F. R. I. B. A., of Messrs. Taylor & Gordon.

The Bell Telephone Company's building, corner Notre Dame and St. John streets, and R. J. Tooke's building, St. Catherine street, are two of the many business blocks erected by Mr. Edward Maxwell. The former has its ground floor built in terra cotta, and the other stories of pressed brick. It is five stories high, and the whole crowned by a well-studied and artistic cornice of Renaissance style. The ground floor will be utilized by the Bank of Halifax, and the other stories laid out as offices. Mr. Peter Wand was the contractor for the terra cotta and pressed brick work. R. J. Tooke's block is a three-storey building of yellow sandstone. The contractor for the masonry was Mr. J. H. Hutchison.

The Ogilvy dry goods store is one of the most extensive establishments of the kind in the city. It is situated at the corner of St. Catherine and Mountain streets, built entirely of limestone and designed by Mr. David Ogilvy.

The Lachine Rapids Hydraulic & Land Co.'s power house, a brick and steel structure, was designed by Mr. W. McLea Walbank.

The Young Women's Christian Association building, corner of Dorchester and Stanley streets, has been entirely remodeled. A front of red sandstone was added, as well as an addition to the rear. The interior is specially designed and elegantly finished.

Mr. A. C. Hutchison was the architect. Mr. Hutchison also built Messrs. Watson & Foster's wall paper factory and warehouse at Maisonneuve, and made additions to Dr. H. B. Yates' residence on Peel street.

Messrs. J. B. Resther & Son were the architects for Mr. J. M. Fortier's cigar factory on St. Maurice street; they also erected two handsome cottages in Gothic style for Estate Masson.

Among the ecclesiastical and educational buildings erected during the year may be mentioned the St. Louis of France church, situated at the corner of Laval avenue and Roy street, and built of limestone. It is of Romanesque style, and was designed by Messrs. Roy & Gauthier. The convent of the Holy Cross on Mount Royal avenue is also of limestone, and was erected from the plans of Messrs. J. B. Resther & Son. Messrs. Brown, McVicar & Heriot were the architects for the Protestant School at St. Louis du Mile End. A public school at Westmount was constructed from the plans of Mr. Edward Maxwell.

The number of residential buildings erected was not large, principal among which is the residence of Mr. C. Faucher, corner of Dorchester and St. Matthew streets, built of limestone, of Romanesque architecture, and elaborately decorated. The inside is elegantly finished in Renaissance style. The plans were prepared by Mr. A. Raza, architect. Mr. Joseph Levy's house on Laval avenue is a fine residence in red and buff sandstone and pressed brick. Messrs. J. & H. C. Nelson, architects. Mr. Robert Findlay designed the residence of Mr. W. R. Miller, on Stanley street, built in sandstone and brick, of domestic Gothic architecture. The interior is finished in the old colonial style. The house of J. L. Morris, on Drummond street, is in French chateau style. Messrs. Wrighton & Morrison were the contractors for the masonry. Apartment houses have been erected on William street for Mr. H. B. Ames. These buildings were constructed after the design of Mr. Robert Findlay. Other residences were those for R. J. Pringle, H. Watson, C. Stevens and J. A. Prevost.

The prospects for the building trades in 1897 are considered better than a year ago. It is probable that some large commercial buildings will be erected, as architects have already been commissioned to prepare plans for considerable new work.

## TORONTO, ONT.

The total number of building permits issued by the City Commissioner of Toronto last year is given as 410, having a total value of \$657,168, against a value of \$1,346,810 in 1895. These figures, however, cannot be taken as a fair comparison for the two years, inasmuch as the permits for 1895 contained \$550,000 for the buildings erected to replace those destroyed by the great fire of the winter of 1894, as well as \$130,000 for the Foresters' temple. The only work of signal importance executed last year was the large extension to the Foresters' temple on Bay street, which is down on the permit book for \$100,000. Below are the complete figures of permits granted:

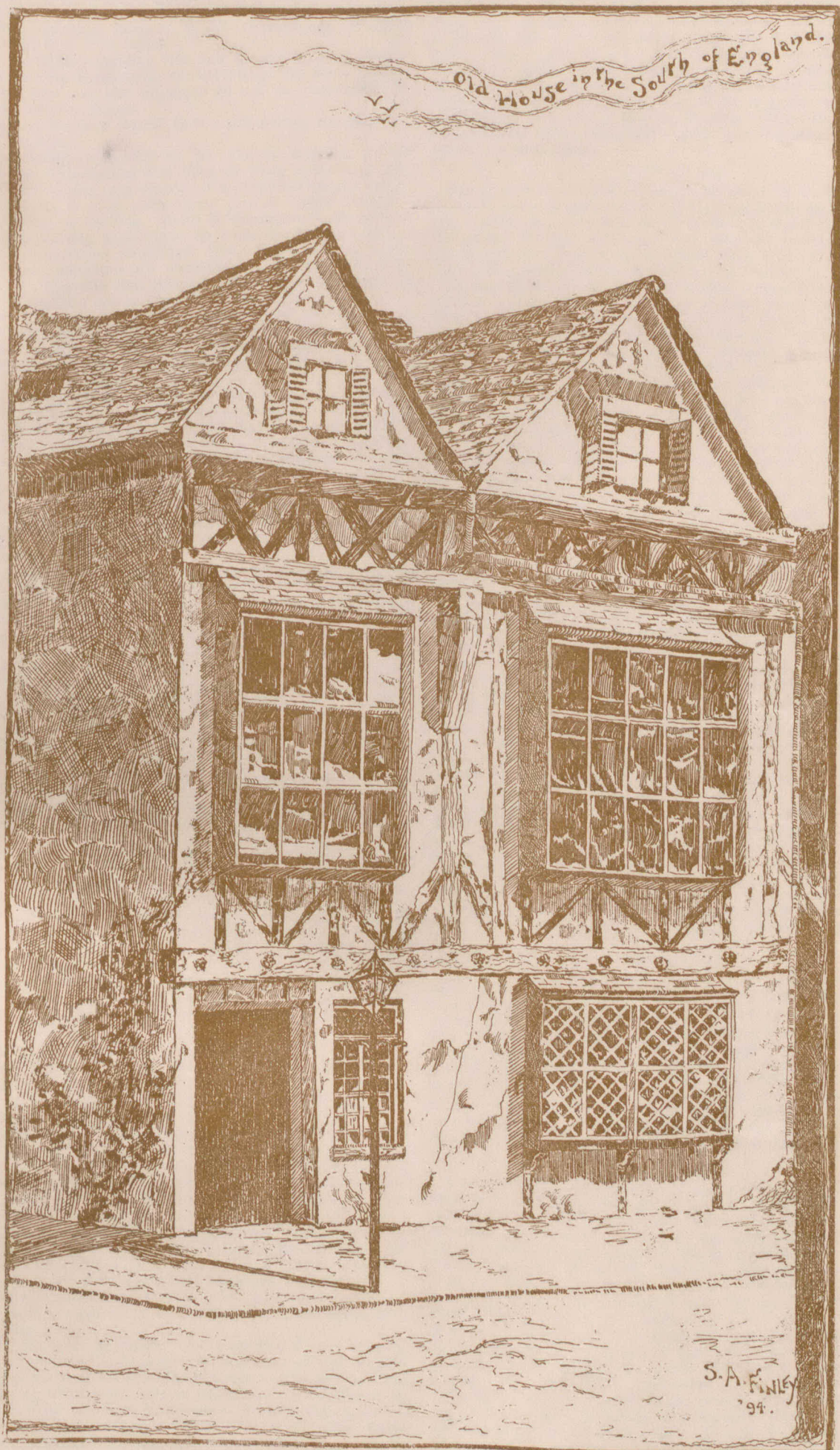
## BUILDING PERMITS GRANTED, 1896.

	Cost.
83 Brick dwellings .....	\$236,900.00
9 Brick-front and rough-cast dwellings...	6,650.00
2 Frame dwellings, Island .....	1,500.00
186 Alterations to dwellings .....	55,695.00
10 Brick stores .....	20,400.00
38 Alterations to stores .....	67,823.00
4 Factories .....	42,000.00
13 Alterations and additions to factories ...	27,400.00
1 Warehouse .....	7,000.00
7 Alterations to warehouses .....	10,000.00
7 Office buildings .....	4,950.00
2 Schools .....	6,500.00
5 Additions to churches .....	4,540.00
4 Hotels .....	24,800.00
1 Addition to brewery .....	1,500.00
1 Addition to bank .....	1,500.00
2 Club buildings .....	10,500.00
1 Power house .....	5,000.00
1 Cold storage building .....	7,000.00
1 Dining hall .....	1,500.00
26 Stables .....	8,935.00
2 Additions to fire hall .....	4,500.00
1 Addition to Foresters' temple .....	100,000.00
3 Miscellaneous .....	575.00
410	\$657,168.00

A visit among the architects furnishes the information that the dwellings erected were of a substantial and modern character, the absence of speculative building so common in the days of the "boom" being a feature of the year. In church and school building the sum of \$11,000 represents the total expenditure, which is less than one-tenth the cost of such buildings in 1895. The few buildings erected in the city has necessarily restricted the amount of work secured by local architects. Many of them have, however, erected buildings at outside points, and in the particulars which follow some of these are referred to.

The addition to the Foresters' temple, above referred to, was erected by Mr. Geo. W. Gouinlock, architect, who has had charge of the entire structure. The contractors were Messrs. Oakley & Holmes, the Dominion Bridge Company supplying the structural iron and steel work. The building stands out somewhat unique, in that it is the highest building in the city. Mr. Gouinlock also remodelled a large residence on St. George street for Mr. Geo. R. Warwick, erected conservatories, storehouse, etc., for the Steele-Briggs Seed Co., at a cost of \$15,000, and completed the Toronto Lithographing Company's building,





corner King and Bathurst street, cost \$25,300, besides executing several other commissions.

The Dental College on College street, erected from the plans of Mr. D. B. Dick, architect, was commenced in 1895 and completed last year. It is quite an important building of brick and stone, costing in the neighborhood of \$40,000. The contractors were: stone work, Jas Crang; carpentry, Wm. Simpson; plastering, C. R. Rundle; plumbing, Maguire & Co.; tinsmithing, Douglas Bros.; painting, R. J. Hovenden.

The principal factory building was that for the Cobban Manufacturing Co., on the Esplanade, executed from the plans of Mr. E. J. Lennox, who was also engaged during the year with the new city hall and court house.

Additions were made to the T. Eaton Company's warehouses, at a cost of \$25,000.

Among the buildings erected by Mr. Henry Simpson, architect, were a neat little factory and office on King street west for the Metallic Roofing Co., cost \$7,000. Contractors, James Crang, brickwork; Young & Co., carpenters; James Casey, painter; Wheeler & Bain, tinsmithing; Keith & Fitzsimmons, plumbing. Hotel for Jethro Worden, Adelaide street west, cost \$10,000; bricklayer, Robt. Robertson; carpenter, Wm. Simpson; plasterer, F. P. Lockwood; plumbers and steamfitters, Purdy, Mansell & Mashinter. Mr. Simpson also erected a Presbyterian church at Hillsdale, cost \$5,000; Amos Train, of Flos, contractor.

Mr. G. W. King completed the town hall and fire station at Carleton Place, built of local stone, cost \$23,000; Mr. Ryan, of Smith's Falls, contractor; also the Methodist church at London, cost \$35,000; Robert Robertson, bricklayer; Coxhead & Co., carpenters, both of Toronto.

Messrs. Curry, Baker & Co.'s work was largely residential, among which the following are worthy of mention: Brick residence for E. F. B. Johnson, Q. C., on Spadina road, cost \$7,000; bricklayer, Jos. Yorke; carpenter, G. B. Clements; heating, Maguire & Co. Residence for Mr. Geo. Ross, Madison avenue, cost \$5,000, brick and cut stone; masons, Davidge & Lunn; carpenters, Baumhard & Co.; heating, Maguire & Co.; painting and decorating, J. W. Knott; heated by Gurney "Oxford" apparatus. Same architects also had charge of the alterations to the Collegiate Institute on Harbord street, and a new wing to the General Hospital, Guelph.

The local work of Messrs. Burke & Horwood included remodeling the residence of Dr. J. B. How, alterations and new elevators in the Simpson building, cost \$10,000, alterations to the armory for the Cold Storage Company. The contractors for the latter were: mason, Cannon & Son; carpenters, Moir & McCall; iron work, St. Lawrence Foundry Co.; piling, Medlar & Arnot. Also improvements to the east wing of Osgoode Hall, the contractors being C. C. Witchall, mason; J. C. Scott, carpenter; W. J. Hynes, plasterer; steamfitting and electric lighting, Keith & Fitzsimmons. Of the outside work Knox church, Woodstock, cost \$35,000, Mackintosh & Griffiths, contractors, and a residence at Sackville, N. B., for Prof. Hammond, are worthy of mention.

Two good residences in Rosedale for Messrs. A. E. Walker and H. H. Ardagh, cost \$5,000 each, were erected from the plans of Mr. J. Wilson Gray, who also finished another pair on Jamieson avenue for Messrs. J. H. Ford and Alex. Hay, at the same figure, and a \$3,000 house on Broadview avenue for Mr. David Selway.

Mr. C. J. Gibson was architect for a large four-storey warehouse on the Esplanade for the Toronto Knitting Works; brick by day work; R. Johnson, carpenter; C. Davies, painter; R. Rennie, roofer; also for two residences in Rosedale, and one in Parkdale; St. George's church, Lowville; bank and business block, Gananoque; St. Thomas' church at Bracebridge, and a residence in Orillia for Mr. W. B. Tisdale; T. A. Ouderkirck, contractor for the last two works.

Messrs. Langley & Langley completed a residence in Rosedale for Mr. Jas. George, brick and stone, cost \$8,000; and two residences on Lumsley place for Mr. R. Elmsley, cost \$5,500 and \$6,500.

A modern residence was built in Rosedale for Mr. Hermann Simmers, the architects being Messrs. Gordon & Helliwell; mason, W. J. Hill; carpenter, Thos. Robinson. The same architects also erected a residence at Goderich for Dr. Holmes, and an Episcopal church at Woodlands, Man.

Among the principal works executed by Messrs. Strickland & Symons, architects, were: Additions to warehouses on Bay street for Geo. R. R. Cockburn, cost \$4,000; stable and driving house for the Verral Cab & Baggage Transfer Co., cost \$7,000; additions to residence of O. Mackle, Esq.; additions to Bay street fire hall; Methodist church, Grand Valley, cost \$8,000; additions to MacGowan & Kents' warehouse, Front street; remodeling of National Club, cost \$15,000; remodeling and decorating residence of J. L. Morrison, Jarvis street; pair houses, corner Bloor & Jarvis streets, for J. L. Morrison, cost \$16,000.

The Page departmental store on Yonge street was rebuilt by Messrs. Gregg & Gregg, architects. The alterations represent a value of \$15,000.

Mr. F. H. Herbert, architect, has contributed very largely during the past year to the domestic architecture of that largely built-up section situated north of Bloor street and known as "the annex." Among other work may be mentioned the residence on Madison avenue for W. Rein Wadsworth, Messrs. Dancy Bros., contractors; detached residence, Bedford road, for Mrs. Annie Hill, Messrs. J. Bedford & Son, contractors; both being works which reflect credit on our local builders. Other residences in this neighborhood finished during the year include a detached residence on Walmer road for Rev. Thos. Goldsmith; a semi-detached on Spadina road for A. Nelson, and a detached on Huron street for Mr. Caleb Evans. R. C. Clute, Q. C., will soon

be in possession of his residence and stable on Walmer road and Castle avenue, built by the same architect, who is also completing the residence immediately to the north of this estate for William Wellwood. The remodeling of the recently acquired property on Walmer road for B. Homes Dixon, and of the residence on Prince Arthur avenue for Æmilius Jarvis must also be included in the year's work. Mention might also be made of the recently finished bijou residence on Bloor street west, occupied and owned by T. A. Rowan, and that of his legal parter, Mr. J. L. Ross, who has under construction a new home on Lamport avenue, Rosedale. These are some of the buildings entrusted to the skill of Mr. Herbert, which, added to the many store and other buildings carried out under his supervision, make a good year's record. The coming season, we are also informed, will see the commencement of some more important works, and the present prospects are very encouraging.

## OTTAWA, ONT.

The year 1896 was one of rapid progress in Ottawa, the number of residences erected and the character thereof going to show that the citizens have determined to provide homes for themselves. Altogether 318 new buildings and substantial alterations were completed, totalling in value about \$500,000. The residences were principally brick, brick-veneer, and frame.

Among the most important structures erected during the year were A. J. Stevens' brick block on Sparks street, cost \$14,000; Orme's brick block on Sparks street, cost \$18,000; three buildings on Sparks street for Currie & Slater, cost \$30,000; and W. H. Rowley's residence on Queen street, cost \$15,000. Early in December last, fire destroyed C. Ross & Co.'s large building on Sparks street, at a loss of \$225,000; Holbrook's building, loss \$55,000; and E. P. Hartney's building, loss \$25,000. Contracts were let during the month of January for replacing the burned structures, and this has brightened the outlook for 1897. Among the other new buildings projected are a large opera house to cost \$100,000, and an addition to the Protestant Hospital, contracts for which have just been given. It is also probable that a system of main drainage will be arranged for. Taken altogether, there is reason to anticipate a prosperous building season in Ottawa this year.

## HAMILTON, ONT.

In Hamilton, according to the report of the Building Inspector, the number of building permits issued in 1896 was 214, having a total value of \$414,455, an increase of \$117,385 as compared with the previous year. Of the buildings erected 142 were brick and 16 frame, while there were 82 alterations to existing structures.

The principal building constructed during the year was the Ontario Collegiate Institute and Normal School, from plans prepared by William & Walter Stewart, architects. It is a three-storey building, 460 x 280 feet in size, to accommodate 1,000 scholars. The basement and first story is built in Credit Valley brown stone, and the interior finished in black birch and red pine, cost \$120,000. The contractors were: Brick and stonework, Geo. Webb; carpenter work, Reid & Halliday; plastering, James McKee; electric work, Lowe & Farrell; cast iron work, R. G. Olmstead; slate boards, T. Irwin & Son; galvanized iron, slate and tile work, Irwin & Son; steel structural work, Hamilton Bridge Works; steam heating, Fairley & Stewart; plumbing, W. J. Walsh; painting and glazing, K. J. Sculley. A large number of average-sized dwellings were erected, the work being pretty evenly divided among the different architects. The construction of sewage interception works is now under way, and will cost, when completed, nearly \$100,000. Prices of materials have been higher than in 1895, and labor was also in better demand.

## LONDON, ONT.

The permits issued for the city of London show a value of \$476,150, a slight increase over 1895. There has also been considerable building done for which permits were not taken out, and 20 per cent. could fairly be added to the above estimate. Brick has predominated. Residential buildings represent \$173,850, business \$73,300, and public \$229,000. In the latter is included the Grand Trunk car shops, which will cost, when completed, \$100,000. Geo. Mills, of Hamilton, is the contractor. The Hiscox office building, H. C. McBride, architect, cost \$40,000, and the Y. M. C. A. building, Moore & Henry, architects, cost \$25,000. The prospects for 1897 are looked upon as promising.

## GUELPH, ONT.

Guelph has not fallen behind in the matter of building, as the total value of \$120,000 for the year 1896 would show. Some of the principal buildings were: New brick wing to General Hospital, 40 x 60 feet, three stories and mansard; Curry, Baker & Co., architects; contractors, plumbing, gasfitting and ventilating, Purdy, Mansell & Mashinter, Toronto; stone and brick work, T. Irving; carpenter work, Dominion Art Woodwork Co., Toronto Junction; plastering, Hoidge & Son, Toronto; painting, Moffatt Bros.; tinsmithing, J. R. Jackson & Co.; roofing, R. Rennie, Toronto. Estimated cost, \$20,000. Chemical laboratory to O. A. College, white brick, two stories and basement, 75 x 50 feet; contractors, Mr. Matthews, brick; Wideman & Clemens, carpentering; Mahoney Bros., plastering; J. S. Moffatt, painting; J. R. Jackson & Co., tinsmithing; Brown Bros., Brantford, slating; College men, plumbing and heating; Douglas Bros., Toronto, ventilation. Cost \$10,500. Two-story business block for McLean & McLean, 30 x 78 feet., pressed brick with white stone trimmings; architect, John A. Trimble, Brampton; contractors, T. Matthews, brick and stone work; G. Steven, carpentering; Mahoney Bros., plastering; J. S. Moffatt, painting; roofing, Brown Bros., Brantford; Feek & Phillips, plumbing and heating; Guelph Light & Power Co., lighting; Goldie & McCullough,

vaults. Cost \$7,000. Additions to Chalmers church, Langley & Langley, Toronto, architects; Geo. Steven, contractor. Addition to convent for Sisters of Loretto, two stories, stone, 41 x 71 ft., G. R. Bruce, architect; contractors, F. McQuillan, stone; John Hughes, carpenter work; Mahoney Bros., plastering; W. Scriven, painting; Geo. Howard, tinsmithing; Feek & Phillips, plumbing. Cost, \$5,000. Stone addition to store of Frank Dowler Co.; contractors, T. Irving, D. Young, A. Cormie, and Burr Bros. Cost, \$5,000.

B. Klepper's residence is one of the finest in the city. It is two-and-a-half stories, pressed brick, 33 x 56 ft. Architect, G. R. Bruce; contractors, H. Chubb, brick; F. W. Darby, carpenter; Mahoney Bros., plastering; J. Goss, painting; J. R. Jackson & Co., tinsmithing; Feek & Phillips, plumbing. Cost, \$4,000. A double semi-detached pressed brick residence was also built for John Hutton. Architect, G. R. Bruce; contractors, H. Benallick, John Hughes, Mahoney Bros., A. Cormie, D. E. Rudd, Feek & Phillips. Cost, \$4,000.

#### QUEBEC, QUE.

While in 1894 building in Quebec reached in value \$500,000, and in 1895 only \$350,000, the year just passed shows a still further reduction, the figures being given as a quarter of a million dollars. In the 1895 estimate, however, was included the new city hall, so that the comparison is more favorable than would appear at first glance. Residential buildings account for about two-thirds of the amount, and business establishments and churches for the balance. There has been some activity in building in the towns adjacent to Quebec, particularly in churches, in which over \$200,000 has been spent. The buildings were constructed about one-half each of brick and stone. The creation of a new park, with a conservatory, etc., cost in the vicinity of \$30,000. Among the principal contractors were Jos. Gosselin, Jos. St. Hilaire, L. Moissau, Hubert Morin, Edward Matte, Caliste Dion, Olivier Michaud and Jos. Moageon.

#### ST. JOHN, N. B.

The permits issued by the Building Inspector of St. John last year were 78, against 82 the previous year. The total value was \$154,940, against \$187,625 in 1895. The High School building was the principal structure, and cost \$40,000. The architect was G. E. Fairweather, the masonry contractor B. Mooney & Sons, and the carpenter John Duffy. The Pender nail factory, the Murphy carriage factory and the Thorne warehouse were other important business premises. The dwellings were constructed principally of wood. The contract has been let to R. D. Boss for a biscuit factory, 92 x 47 feet, with brick boiler house. Very little change occurred in the prices of materials or labor. The average wages for masons was \$3 per day, and for carpenters \$10 per week.

#### HALIFAX, N. S.

While, perhaps, there were fewer buildings erected in Halifax in 1896 than during the previous year, they have been of a better class, and the total expenditure is greater, being about \$700,000, or an increase of \$100,000. The details are: Residential, 100—brick 2, wood 98; business, 23—brick 7, wood 14; public 8—wood 1, stone 4, brick 3. The drill shed, commenced in 1895, was completed last year, and cost \$200,000; J. E. Askwith, contractor. Other prominent buildings are those of Gordon & Keith and Geo. Wright on Barrington street, the immigration buildings at deep water terminus, the new Gerrish engine house, and Barnstead & Sutherland's building on Barrington street. The principal residences were those of Senator David McKeen, cost \$30,000, and Mr. Payzant, cost \$10,000. The architects for the different buildings were J. C. Dumaresq, Elliott & Hopson, Henry Busch and W. T. Whiteway. Some of the contractors were Messrs. Askwith, S. M. Brookfield, McArthur, Marshall, Curry Bros. & Bent and Rhodes, Curry & Company.

#### WINNIPEG, MAN.

Winnipeg has just passed through what is to be hoped its final period of depression, for its showing last season in the building trades, outside of road-making, is lower than ever, hardly reaching the \$450,000 mark.

A goodly portion of the business done during 1896 has been "cobbling," that is, alterations, repairs and stone foundations to buildings erected during the boom years. However, there is every reason to expect an improved state of things in 1897, when once more the Hub City of the Dominion will again be able to hold her own in building matters with any city in Canada of a similar size. Mining operations on the east shore of Lake Winnipeg will, it is believed, stimulate building operations.

The largest contracts were the Assiniboine Block alterations and additions, which cost \$35,000; Chas. H. Wheeler, architect; John Shaw & Co., builders. The sum of \$30,000 was spent on the exhibition buildings; Mr. Burgess, architect; Kelly & Co., Andrews, Robinson, Thompson & Co., Murray & McLeod, and others, being the contractors. The new telephone building, Kelly & Co., contractors, cost about \$18,000. The Wyatt block, constructed by Thil. Burnett, cost \$16,000. Then there were new residences built for Messrs. Wm. Blackwood, cost \$8,000; W. H. Culver, cost \$11,000, and W. Tupper, which are referred to in a correspondence below. Mr. Griffith, architect, erected several residences, as well as Mitchell's photograph building and Ryan's new block. The Dufferin and Argyle schools were completed in 1896, C. H. Wheeler being the architect, and Kelly Bros. and John Shaw & Co. the builders. The Gurney Co. erected a new warehouse at a cost of \$17,000; Kelly & Co., contractors.

C. H. Wheeler designed new residences for D. Lennox and John Plaxton, the contractors being J. C. Gilker and S. B. Ritchie respectively; also a warehouse for R. R. Taylor, P. Burnett, contractor. Mr. Greenfield erected several residences, as well as alterations. The price of brick and wood has been about

the same as in 1895, but stone has advanced about 5 per cent.

There is one important matter which should receive the attention of the contractors in Winnipeg, and that is the low prices for which work has been taken during 1896. There is scarcely a builder in the city who has more than held his own in figuring on contracts, the competition being so lively and keen as to cause considerable cutting; the result being either loss or "as you were before." No profit in contracting was the catch word in the trades last season. This "cutting" process makes it very difficult for architects, especially at the commencement of a season, to estimate the cost of new buildings. Scarcity of work as a rule means low prices; an abundance, high prices.

A correspondent sends us the following communication relating to building operations in Winnipeg:

While the year 1896 has not been one of great activity in the building line in Winnipeg or the province, yet there has been a general advance along the line, especially in the erection of stone foundations under and modern improvements in buildings erected during and since the now historical "boom," by persons whose chief object was to build to sell, or mortgage to such an extent that they might drop out with profit to themselves and let the loan company take possession. Most of the improvements to the old buildings are not being made from philanthropic motives, but are prompted by a desire to protect the interests of the owners, who realize that we are becoming a fastidious people, and now insist on enjoying the conveniences and comforts enjoyed by our sisters, cousins and aunts in the eastern cities. When a house has not these conveniences, the inevitable notice, "To Let—Rent Low to a Desirable Tenant," is to be seen, week in and week out, in the window or on the door post.

Many frame and brick residences have been erected, principally in the south-western and western portions of the city, all on stone foundations, with basement full size of house, properly sewered. The old method of erecting a frame or brick building on a wood sill, supported by plank set on the sod, has been abandoned. It was found that a foundation formed in this manner decayed in six to ten years, which naturally seriously affected the stability and value of the superstructure, as well as making it very difficult to heat during the cold snaps that occasionally visit Manitoba.

It is only a year or two since the majority of dwellings here were entirely frame, a few frame and brick veneer, and an odd one here and there of solid brick. Now a brick veneer house is an exception, and the number of solid brick dwellings is increasing every year.

The construction of sewers and a waterworks system during the past few years, combined with the efforts of the loan companies, which now loan only on buildings constructed according to modern ideas, the amount advanced and the interest charged, has been the means of improving the character of the buildings constructed, as well as the character of the builder, so it may be said, "Virtue is its own reward," and has also the advantage of being able to secure a large loan at the lowest rate of interest.

Mr. W. H. Culver, Q. C., has had erected a very fine residence on Edmonton street. The exterior walls from grade line to window sills and lintels are of Calgary sandstone. The exterior walls of the superstructure are local buff brick, the principal apartments of ground floor being finished in oak and the windows glazed with plate glass. Cost over \$11,000.

Mr. William Blackwood has also had erected a large residence on Colony street, stone foundation above grade line, faced with random coursed Stonewall stone, the exterior walls above being local buff brick. The principal apartments are trimmed with oak, remainder with British Columbia fir, with doors framed with cedar panels and B. C. spruce stiles. Cost about \$8,000. Mr. George Browne was architect of both the above houses.

Another fine residence has been erected for Mr. W. J. Tupper at Armstrong's Point, from plans prepared by Mr. Walter Chester-ton, architect. The foundation above ground line is faced with random coursed local limestone, and the exterior walls above are red pressed brick, with the gables in the half-timbered style. S. B. Ritchie was the contractor.

These three are the principal residences erected last year. The others, although good of their kind, are of the ordinary design.

Two or three business blocks have been erected on Main street. The principal one, erected by Messrs. Wyatt & McDonald, near the Bank of Montreal, is a good solid brick building of two stores, three stories in height, and treated in a plain manner, evidently with the intention of receiving maximum of revenue for minimum of expenditure, regardless of the wish of the citizens to have the principal retail street of the city lined with edifices of an ornamental character. The large plate glass windows have a fine effect, especially at night, when all ablaze with light. But the same mistake is repeated here that has been made in most of our shops, viz., the window reveal is too deep and the square iron pillars which carry the front wall are so large and so placed that they cut off a proper view of the goods in the windows. It is strange that this objectionable method of constructing show windows, and which is obsolete in up-to-date eastern towns, should still be followed, particularly in a city of progressive ideas such as this is.

A commercial building of some importance and which is sure to become a factor in the prosperity of the country, and known as the Parsons cold storage warehouse, was commenced last year and completed this. It is built at the river bank, next the transfer railway, and is a well-constructed substantial building, stone foundation and brick superstructure, three stories and basement in height, planned after the latest and most improved system by a Chicago architect who makes a specialty of cold storage warehouses; cost \$20,000. Mr. S. Frank Peters, architect, superintended the work.

The only church work of any importance executed this year was the addition and improvements to the Roman Catholic Church of St. Mary, admirably located in a thickly-settled portion of the Hudson's Bay Co.'s reserve. The edifice was considerably increased in size by extending it in front almost to the street line, and its appearance was improved by a new stone and brick front, with granite columns at each side of the entrances. The south-east corner is flanked by a square tower of bold design topped out with a spire, and the south-west corner by a circular tower. The church being in the Norman style, the spire does not seem to harmonize with the rest of the building, and if the spire had been omitted and the roof of the tower carried up to a greater height than at present, the effect would be much better. Cost about \$18,000. Mr. S. Hooper, architect of the improvements.

One or two office buildings are promised us for next year. Of these, I understand, have been prepared by Mr. George W. Gouinlock, architect, of Toronto, and, therefore, we may expect that it will be an ornament to the city, and a credit to the designer. A first-class office building would fill a long-felt want, and without doubt yield a good return on the investment.

In the early part of the summer a number of leading citizens formed themselves into a committee of ways and means for the erection of an opera house, and decided to give a bonus of \$10,000 to any one who would erect and equip an opera house in an approved location, size and style. The result was that opera house builders became as thick as mosquitoes in a Manitoba swamp in summer time and just as hungry, with as little to fall back upon. The committee became bewildered at the number of "dainty dishes" set before them, each dish being recommended by its friends as being the only original and long-desired article. After many meetings and much discussion the committee seemed to dissolve into space, and the new opera house is numbered among the things that might have been and yet may be.

#### VICTORIA, B. C.

The sum of \$500,000 will cover the cost of buildings erected in Victoria, this being about the same as in 1895. On the new parliament buildings \$125,000 was expended, and on the post office \$75,000. The other principal buildings were the Bank of Montreal, a four-story stone building, cost \$40,000; F. M. Rattenbury, architect; McGregor & Jeeves, contractors; additions to St. Joseph's hospital, 4 stories, cost \$25,000; S. Maclure, architect; brick warehouse for S. Leiser & Co., three stories, cost \$20,000; A. Ewart, architect; Humber & Sons, contractors; brick warehouse for James Yates, three stories and basement, cost \$15,000; C. Ewart, architect; Thos. Catteral, contractor. Several good dwellings were erected at a cost ranging from \$2,000 to \$3,500. The materials used were largely brick and stone, which were lower in price than in 1895.

Mr. Thos. C. Sorby has submitted a comprehensive scheme to the City Council for the improvement of the harbor, which, if carried out, will not only prove a boon to the city, but will provide employment for a large number of workmen.

#### NEW WESTMINSTER, B. C.

Considering the present period of depression, some advance was made in New Westminster, and indications are not wanting that 1897 will see still further improvement in the building line. The large armory and drill shed was completed early in the year, at a cost of \$7,000. The Roman Catholic seminary, corner of Third avenue and Seventh street, is another important structure, costing in the neighborhood of \$10,000. Nelson's brewery at Sapperton has been completed at a similar cost. The city market has accounted for an expenditure of \$6,000. A number of substantial residences were built during the year, chiefly those of Messrs. Jas. Kennedy, W. Myers Gray and Geo. Calbick. The buildings and wharf of the Automatic Can Company will cost, when completed, fully \$100,000.

#### STRATFORD, ONT.

The sum of \$85,000 represents the building improvements in Stratford. Repair work and residences have predominated, but, notwithstanding, a few other buildings of some merit were erected. Among the list are: House of Refuge, cost \$16,000, H. J. Powell, architect, W. Clark, Toronto, contractor; Catholic Hall Association, alterations, cost \$15,000, D. G. Baxter, architect, W. Daly, contractor; two kindergarten schools, D. G. Baxter, architect, J. Becker, contractor; brick residence for R. T. Orr, cost \$4,000, Thomas Orr & Sons, contractors; improvements to Albion Hotel, cost \$4,000; stable and residence for D. M. Fraser, cost \$3,000, H. J. Powell, architect, J. L. Youngs, James Stamp and William Daly, contractors; residences for A. J. McPherson, cost \$4,000, H. J. Powell, architect, Weber & Litt, A. Oswald and Porteous & McLagan, contractors. Considerable work was also carried out in the neighboring towns by Stratford architects. The St. Mary's Methodist church, built by Mr. Baxter, cost \$14,000, J. Near, contractor. Prices of materials were generally lower, particularly of brick. The erection of several buildings as soon as spring opens is said to be in contemplation, and if the work holds out the coming season is likely to be rather active.

#### BRANTFORD, ONT.

The value of buildings erected in Brantford in 1896 is given as \$125,000, and is regarded as a fair showing. A large portion of the buildings erected were for residential purposes. The principal work was carried out from the plans of Hewitt & MacLaren and A. H. Mellish, architects.

#### ST. CATHARINES, ONT.

The sum of \$62,000 as the total value of building in St. Catharines shows a large increase as compared with the previous year. Of this \$28,000 was residential, \$20,000 business, \$11,000 public

and \$3,000 sundries. Newman Bros.' store cost \$3,500; McSloy's residence, \$7,500; stone addition to knife works, \$6,000; addition to Welland Vale tool works, \$6,000; rebuilding opera house, \$5,000; general hospital addition, \$4,000; two double tenement houses, \$6,400. The architects were Messrs. Wm. B. Allen and S. G. Dolson, and the contractors Messrs. Geo. Wilson, Newman Bros., W. H. Drysdale, Ed. Hudson, John W. Carl, Jas. McBride, E. Stapleford, E. C. Nicholson and others.

#### CHATHAM, ONT.

Some improvement is reported in building operations from Chatham, the sum expended being \$74,500. Two schools were erected at a cost of \$33,000, and 1 residences to the value of \$37,500, besides one hotel costing \$4,000. Brick is represented by \$55,000 and wood by about \$20,000. C. R. Oldershaw was architect for one of the schools, the hotel, a terrace of twelve houses, and several residences. The contractors were J. Darling, Robertson & McKie and William Blight. Materials have been lower in price.

#### CHARLOTTETOWN, P. E. I.

In Charlottetown, P. E. I., fifteen residences, two business places and one public building were erected, at an approximate cost of \$100,000. In this is included the Roman Catholic cathedral, of stone, erected from plans of F. X. Berliquet, Quebec, by Paquet & Godbout, of St. Hyacinthe, Que., at a cost of \$60,000. The only other building of any note is a brick store block on Grafton street, cost \$12,500. C. B. Chappell was the architect and Parkman & Crabbe the contractors. There is very little work in view for 1897.

#### OTHER TOWNS.

Reports from a number of other towns are not of a very encouraging character. In Barrie \$75,000 was spent on buildings, \$15,000 on streets and cement sidewalks, and \$4,000 on sewers. There were erected 9 residential buildings, 4 public and 1 business, all brick, principal among which were the public school, Methodist church, theatre, and agricultural buildings. Architects, Smith & Bird and Thos. Kennedy & Co. In St. Thomas the principal buildings were the Jackson & Brierly block, cost \$6,000, and the Disciples' college, cost \$4,000. Architects, J. Z. Long & Son. Contractors, Wm. Reath and H. Lindop. A few substantial buildings were erected in Collingwood at a cost of about \$20,000, but as a rule architects were not employed to prepare plans. Some \$12,000 was expended on cement sidewalks. It is reported that a number of new buildings are contemplated this year. Twenty-five new residences were erected at Fort William, besides other business places, and a large \$10,000 block is to be commenced as soon as spring opens. Buildings were erected in Berlin to the value of \$189,770; Rat Portage, \$100,000, in which is included the Cowan block, \$8,000, and the Lauren block, \$6,000; Preston, \$20,000; Smith's Falls, \$40,000; Listowel, \$15,000, including Anglican church, cost \$8,000, Frank Darling, Toronto, architect, W. E. Binning, superintendent, and residences for Mrs. W. G. Way and Mr. F. W. Way, cost \$2,000 and \$2,500 respectively, Bamford Bros., contractors; Newmarket, \$18,000, including 3 residences, 2 blocks of stores and 1 public building, built of brick and wood, Wm. Bunney, architect for most of the buildings; Sarnia, \$25,000, included in which is the county poor house, \$18,000, H. G. Phillips, architect. The general hospital, which cost \$25,000, was completed last summer, J. C. Robertson, architect. Prices for labor have been somewhat lower, owing to little demand. Calgary, N. W. T., spent \$50,000, the most important building being the Indian industrial school, a stone structure costing \$15,000, built with the object of adding thereto, Child & Wilson, architects; Brandon, Man., \$25,000, two-thirds brick, balance wood, W. H. Shillinglaw, architect.

#### CHIPS.

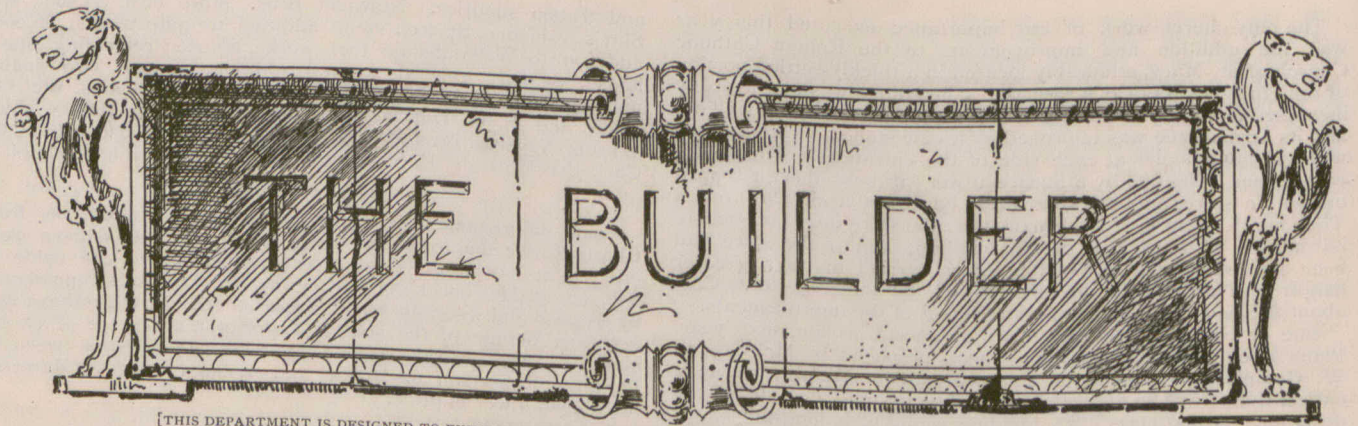
Robert Robinson, contractor, Toronto, who died last month, left an estate valued at \$12,770.

The Ontario Radiator Manufacturing Company, of Toronto, are reported to have secured premises in the northern part of the city and will shortly commence operations.

The corporation of the City of Toronto is applying for legislation to compel owners and other persons interested in buildings, other than private dwellings, more than two stories in height, to provide proper fire escapes thereon, and to prevent the occupation of such buildings unless such fire escapes are provided.

An interesting exhibition of views of English ecclesiastical architecture was given at the School of Practical Science last month by Mr. Jos. Keele, fellow in the Department of Architecture. Mr. Keele took great pains in explaining the technicalities of the buildings, the photographs of which were taken by himself.

Professor Capper delivered an interesting lecture at McGill University recently on "Christian Architecture." He began by showing that its beginnings showed a decided backward movement in point of construction from Pyzantine and Roman architecture. The characteristics of the Christian basilicas, as distinguished, in the lecturer's opinion, from the Pagan were explained and several examples thrown on the screen. The division into apse, transept, nave and atrium was illustrated by numerous plans and views, and attention was also drawn to the practice of raising the altar end of the church. Architecturally the earlier Italian churches came in for rather severe condemnation, and there were some very interesting criticisms of the Cathedral at Pisa, with its leaning tower, or campanile. The influence of the Pisan front on neighboring churches was shown by some interesting views.



[THIS DEPARTMENT IS DESIGNED TO FURNISH INFORMATION SUITED TO THE REQUIREMENTS OF THE BUILDING TRADES. READERS ARE INVITED TO ASSIST IN MAKING IT AS HELPFUL AS POSSIBLE BY CONTRIBUTING OF THEIR EXPERIENCE, AND BY ASKING FOR PARTICULAR INFORMATION WHICH THEY MAY AT ANY TIME REQUIRE.]

**Quarried Stone.** A CONSIDERATION in the use of stone for important buildings is that of having it quarried, stored and seasoned some time before being worked and placed in the walls. By these means the natural sap is allowed to evaporate and the stone tested as to its quality. This would add slightly to the cost, but the money would be well spent if this precaution prevented the wasting of stones from the rains, frosts, or atmospheric influence, which, especially in this country, soon act on the surface of a newly-quarried stone. Stone that is quarried one day, and built in the wall the next, is in a "green" state and unfit for use. It is not in condition, as its pores are open and ready to absorb moisture or destroying gases, which would tend to its early destruction. Every stoneworker knows that the polished surface on a stone that has been seasoned is very different from what he gets on one fresh from the quarry; and this of itself should be sufficient evidence to warrant the precaution recommended, which is, to thoroughly season stone before using.

**Piece-Work vs. Day-Work.** It has never yet been satisfactorily decided whether it is better to have work done by the day on buildings, or by piece-work. It is quite natural for men who are receiving a certain definite price for a piece of work, and when the price has been cut down to the smallest limits, to put the least amount of labor upon it which will make it acceptable. We may deplore or condemn this disposition as much as we choose, but that will not help the matter, because it is founded in human nature. Men do not, as a rule, work for the sake of work. Labor is not in itself desirable; it is the results or the products of labor which we desire, and which constitute the sole natural incentive to labor. This universal and inherent disposition of mankind to supply their wants with the least possible exertion, which is in itself right, and to which we are indebted for all our progress and improvements, is the prime cause of all slighted piece-work. But some builders leave it to their customers to discover this before the work is accepted from the workman, while others have men as overseers whose special business it is to find out the faults before the work is passed; and herein lies the whole secret of the success or failure of piece-work. Payment by the piece is, perhaps, the fairest way to have work done if everything is honestly and properly done on both sides, because each workman is then most likely to be paid in exact proportion to his ability; but it is all-important that there should be some definite standard of workmanship which the finished work must conform to, and it is equally important that

an honest judge should see that that standard is maintained and uniformly adhered to. The disposition of workmen to slight piece-work, and do it in the poorest possible manner so long as it is accepted, is supposed by many to be fatal to the production of the highest grade of work. And yet it is a notorious fact that much of the best work done in this country and the neighboring Republic is paid for entirely by the piece, and the men doing the work find little to say against the system. Notwithstanding all this, conditions will arise in and about a new building, for which no provisions have been made, nor could be made, that seem to point out that it would have been better to have had the work done by the day. If all men were honest and trustworthy, work by the day would be the proper thing; then the owner would receive full value for his outlay, and the workman would receive a just remuneration for his labor and his skill. Doubtless, Providence intended that all work should be done by the day, but the perverseness and selfishness of mankind have so ordered matters that an honest day's work can only be obtained under fear of the lash. Hence the failure of the day-work system.

**Building Brick Piers.** THE reason why so many brick piers give out or prove unsatisfactory is not because of their containing enough brick, but because of their not being properly constructed. The only way to build a good and substantial pier of brick is to lay each course the full size of the pier, and not, as is often done by careless workmen, to build up the outer four inches of the pier seven or eight inches high and afterwards fill in the interior, as it is impossible to get proper bed or bond; bricks of the hardest quality only should be used when heavy weights have to be sustained. Avoid bats and use as little mortar as is necessary to get solid work. Make the size of piers so that whole bricks can be used to obtain proper bond; tamp each brick after it is laid in position with a hammer until it rests solid on its bed. In small piers lay the brick on a bed of mortar and flush up solidly every course; in larger piers make a joint or rub on the bed and lay headers every fourth course. If bond stones are to be inserted, the joints should not be too tight; the larger the pier the larger the joint and bedded high in the centre, and in no case should a bonding stone be bedded on the outer edges of the pier only, as it would then be likely to crack and crumble with the weight it carried. Use cement in all mortar in connection with lime, and wet the bricks in all cases where there is not any danger from frost; when iron plates or columns are set on the bonding stones, and

the plate should very nearly cover the whole stone when possible.

WHEN a contractor estimates on the cost of carving and other ornamental work, when in stone or in wood, he often runs considerable risk, unless there is a plentiful supply of large scale details to form the basis of his estimate, or unless he is thoroughly familiar with the style in which the architect is in the habit of having his work carried out. In an open competition, where the lowest tender is to be accepted, there is little doubt that the differences between estimates are often largely due to vague drawings or the absence of provisional sums for the ornamental work in the specifications. Marginal sketches in the specifications are great aids to the estimator, and ought to be made more use of than they are—especially in these days of rapid work, when it often happens that there is not time to draw many details before the contract is signed. Contractors should not be asked to spend too much time in figuring on a job they may not get, and to aid them the architect should make everything as plain and as easily understood as possible. An inexperienced man who secures a contract in a competition may well doubt if he has not engaged in an unprofitable undertaking; and because of his lack of knowledge, and hurried figuring, may even come to envy those who have given time and thought to the preparation of estimates which have not been accepted. There can be no successful estimate made of carved work if each piece is not dealt with in detail, and this cannot be done if time is not allowed for the purpose.

THE present manner of laying brick in dead walls gives one the impression that the quantity of bricks laid is of far more importance than the quality of the work done. The only way to obtain good solid brick walling is to either flush the joints solid with mortar every course, or make a shove joint; the former method takes too much time and material, and the latter is very rarely done except in very heavy buildings. The custom generally adopted is to spread the mortar on the bricks (a portion only of which gets in the joints) and lay the bricks on top, each succeeding course being bedded in mortar, but the longitudinal and cross joints are only partially filled, the butting joint of the brick receiving a little dab of mortar gathered on the point of the trowel by cleaning the surplus mortar from the outside joint. Grouting with cement mortar every two courses in height might be adopted for basements and first stories of buildings when great strength is required. Full headers for face bricks are better than clippings and should be specified for all heavy buildings. The face bricks are often built up fifteen or twenty courses high before the backing up is done, a custom that should not be permitted as it leaves the wall subject to many defects, as it cannot be well bonded or tied together sufficiently strong to be able to resist unequal strains successfully. For good strong work the mortar joints should never exceed five-sixteenths of an inch in thickness.

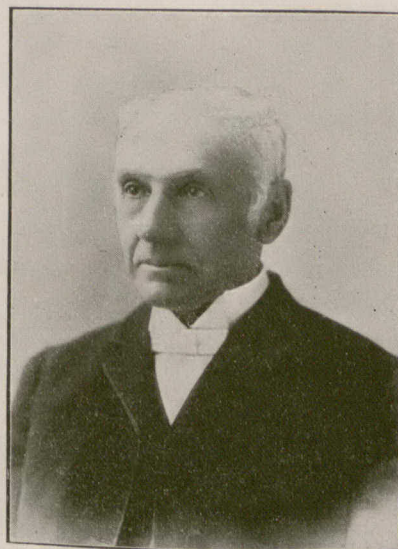
The annual election of officers of the Toronto Master Plumbers' Association held early in February, resulted as follows: President, W. J. Burroughes (re-elected); 1st vice-president, J. B. Fitzsimmons (re-elected); 2nd vice-president, J. Wilson; secretary, F. W. Armstrong (re-elected); corresponding secretary, M. P. Huffman; treasurer, A. Fiddes (re-elected); door-keeper, W. B. Inwood.

## THE LATE PETER BALFOUR.

THERE passed away on the 21st of January last one of the best known and most popular citizens of Hamilton, in the person of Mr. Peter Balfour, who had been at the head of the city assessment department for nearly thirty-five years. Mr. Balfour was taken ill about three weeks ago with erysipelas, which finally resulted in his death. During his life-time he had enjoyed ordinary good health, but since a severe illness three years ago his constitution had shown signs of weakening.

The late Mr. Balfour, a portrait of whom we have the pleasure of presenting on this page, was a warm-hearted and generous Scotchman, having been born in Fifeshire, Scotland, in 1819. Coming to Canada when a youth, he settled in Hamilton in 1842, and shortly afterwards, in partnership with Mr. John Waugh, commenced business as builder and contractor. Subsequently he carried on a similar business for himself, and was also the representative of several large milling institutions.

About 1856 Mr. Balfour entered public life, being elected a councillor in the days when the city's affairs were in the hands of aldermen and councillors. In



THE LATE PETER BALFOUR.

1857, when the construction of the Hamilton water-works was undertaken, he was chosen one of the water commissioners, and served until the works passed into the hands of the city.

Early in the sixties Mr. Balfour was appointed assessor, in conjunction with the late Mr. Tendill. He was subsequently made chief assessor, and in 1883 received the appointment of assessment overseer. Upon the re-arrangement of the assessment department in 1890 he was made assessment commissioner, a position which he occupied with much efficiency and credit to himself. He was thoroughly acquainted with every inch of land and every building, and was an expert in calculations. He was noted for his sterling honesty and quiet, genial disposition. Four daughters and two sons survive him, the latter being Mr. James Balfour, architect, and Mr. Peter Balfour, of the Victoria Mutual Fire Insurance Company.

His funeral was attended by the City Council in a body, and by the city officials.

The plumbers of Ottawa are urging upon the City Council the necessity of appointing an inspector of plumbing in order that defective work may not be permitted to enter into building construction. The Builders' Union have also taken steps in the same direction.

## PLUMBERS IN SESSION.

AN important meeting of the Executive Committee of the Dominion Master Plumbers' Association was held at the Victoria Hotel, Quebec, on the 22nd of January. Mr. Jos. Lamarche, president of the Executive, presided, and there were also present: Mr. W. J. Burroughes, Toronto, vice-president; A. Fiddes, Toronto, treasurer; J. W. Hughes, Montreal, secretary; Wm. Smith, London, vice-president, Ontario; O. Matte, vice-president, Quebec; J. H. Doody, vice-president, New Brunswick; J. Borton, vice-president, Nova Scotia; P. C. Carroll, president Montreal branch; E. C. Mount, Montreal; and the following local members: R. Sampson, president; O. Matte, treasurer; A. Pickard, secretary; F. E. Chamberland, assistant secretary; A. Forrest, L. Z. Trudel, O. Plant, John Walker, Chas. Vezina, C. Langhan, D. Rousseau, C. Lamontagne, F. Lagace, and other members of the craft.

At 10 a. m. a secret session was held, at which the

Messrs. Lamarche, Burroughes and Smith were appointed a committee to confer with the Toronto association of manufacturers and dealers in plumbing and steam-fitting supplies.

Toronto was the choice for the next annual convention of the Dominion Association, which will be held on July 2nd next.

A letter of congratulation was read from the Naveland Master Plumbers' Association, England.

In the evening the delegates and friends were entertained at the Frontenac by Mr. Sullivan, representing Warden King & Son, of Montreal.

On Saturday morning a photo of the members in attendance, and the representatives of the leading supply houses, was taken, which we have pleasure in reproducing. This was followed by a drive to the many interesting parts of the city, tendered to the delegates by the local jobbers.

The usual vote of thanks were passed to the local com



MEETING OF THE EXECUTIVE COMMITTEE OF THE DOMINION MASTER PLUMBERS' ASSOCIATION, QUEBEC, JANUARY 22ND, 1897.

1. John Borton, Halifax, N. S.
2. E. C. Mount, Montreal.
3. A. Fiddes, Toronto.
4. D. Rousseau, Quebec.
5. F. E. Chamberland, Quebec.
6. C. Lamontagne, Quebec.
7. W. J. Burroughes, Vice-President, Toronto.
8. A. Pickard, Quebec.
9. R. Sampson, Local President, Quebec.

10. C. Sullivan, of Warden King & Son, Montreal.
11. A. Huot, Quebec.
12. Jos. Lamarche, President, Montreal.
13. O. Matte, Quebec.
14. O. Plant, Quebec.
15. J. W. Hughes, Secretary, Montreal.
16. J. P. Briere, Montreal.
17. J. E. Martineau, Quebec.
18. John Walker, Quebec.

19. L. Parent, Quebec.
20. Wm. Smith, London.
21. J. H. Wynne, of H. R. Ives & Co., Montreal.
22. P. J. Carroll, Montreal.
23. W. H. Wiggs, Quebec.
24. J. H. Doody, St. John, N. B.
25. L. Z. Trudel, Quebec.
26. A. A. Belanger, Montreal.

minutes of the meetings of the sub-committees of the Executive were read and adopted, as well as the treasurer's report. A committee, consisting of Messrs. Jos. Lamarche, W. J. Burroughes, R. Sampson and O. Matte, was appointed to confer with the Quebec manufacturers and dealers in plumbers' and steam fitters' supplies, and after a conference with the wholesalers the latter signed the resolutions as adopted at the Montreal convention last summer.

A motion was adopted instructing the Legislative Committee to draft a report and scheme, to be submitted at the next annual convention, regarding the advisability of having the association incorporated and adopting a seal. The vice-presidents of the different provinces gave reports of the work done, which showed the association to be gaining in strength. Local associations were being formed at Windsor and Stratford.

mittee, Messrs. Warden King & Son and H. R. Ives, after which the meeting adjourned.

## WOOD IN ARTISTIC WORK.

WOOD in artistic work is of prime service when of the right quality, flawless, and well seasoned. On this subject, a specialist writing in the Century points out some of the essentials called for, in particular that the material be white, free from gum, and soft also; white for the contrasts that will be wanted and free from resin that it may not turn black with age. As it is the fibre of the wood which is blackened or carbonized, it is obvious that the freer the wood is from gummy substances the better. The most satisfactory fire etching has been done on panels of white poplar, which is soft, white, close-grained and free from gum. Then, too, the common whitewood, or yellow poplar of America, yields readily to treatment with the hot iron, and can be successfully used in conjunction with harder, rarer woods, becoming rich and solid under the touch of the burning tool. Beautiful results are obtained by thus combining the two opposite qualities and tones of different woods.

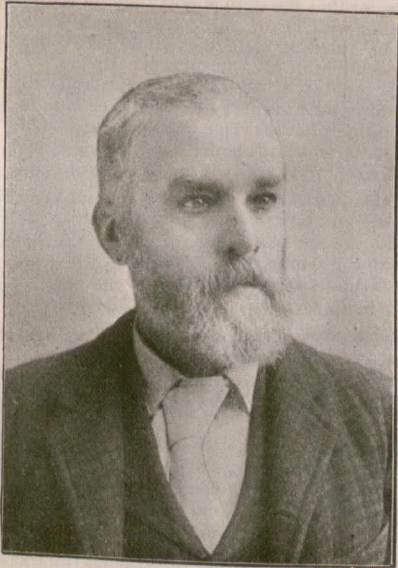
## LONDON MASTER PLUMBERS.

THE interest manifested in association work by the master plumbers of London should serve as a precedent to other branches of the Dominion Association who are less active in this respect. Since organization, which was effected in April last, much important work has been accomplished, and to-day every plumber in the city is a member of the Association. It is our privilege to present in this number the portraits of Mr. R. J. Haslett, past-president, and Mr. W. H. Heard, the present incumbent, who was elected to succeed Mr. Haslett at the annual election of officers in December last.

MR. R. J. HASLETT.

When the London association was first organized in the spring of last year, Mr. Haslett was chosen as the chief executive officer, filling the position with honor until the close of the year. In his work he was ably assisted by Mr. Wm. Smith, vice-president, who has been re-elected for 1897.

Mr. Haslett was born on December 16th, 1842, in Plymouth, Devonshire, England, and at the age of 15 years was bound for seven years with Philip Marshall to learn the trade of plumbing, gas and steam fitting, thus securing the thorough training characteristic of the mother country. Finishing his trade, he remained for three years with the same employer, during which time he was foreman of plumbing, etc., at the Imperial Hotel, Torquay, which required two and one-half years to execute the work. All material used was made by hand, even to some of the sheet lead, of which 40 tons was used on the roof alone. He next went to Falmouth, Cornwall, and fitted up a very large hotel there, and finished up at the Duke of Cornwall Hotel in Plymouth, Devonshire. Leaving England for New York City in September, 1867, he remained in that city for a time, then removed to Albany, N. Y., later to Rutland,

MR. R. J. HASLETT,  
Past-President London Master Plumbers' Association.

Vt., and afterwards to Montreal, where he worked for one year. The following year he removed to London, Ont., working for thirteen years with E. Rogers & Co., and only leaving them upon their retiring from business. In 1889 Mr. Haslett started in business in that city for himself, and by perseverance and energy has established a snug business. He has lately been given the plumbing contracts for residences for Messrs. J. Shaw, W. D. Eckert, Thos. Barcroft, J. Harwood, John Wilkie, Rev. Geo. Wickett, and Mrs. R. Munroe, in London, and

the "Brown House" at Aylmer, Ont., and is constantly extending his connection.

In the year 1872 Mr. Haslett paid a visit to England, where he married Miss Fanny M. Grep, returning to London the same year. His only son is now engaged with him in his business. In the year of the Queen's Jubilee he again took a pleasure trip to his native country, it being also his parents' jubilee, they having been married fifty years.

MR. W. H. HEARD.

The subject of this sketch was born in the city of St. Thomas, Ont., in 1858, where his father was engaged

MR. W. H. HEARD,  
President London Master Plumbers' Association.

in the building trade. At the age of eight years he moved with his parents to a farm overlooking that city, where he remained until 1877, when he commenced the plumbing trade with Messrs. Essex, Murray & Jolliffe, of London. His ability was early recognized, and in 1880 he was appointed foreman of the establishment. His enterprise led him to connect himself with the London Steam Supply Company, which operated the Holly steam heating system, but this venture did not prove a financial success, and in 1881 he formed a co-partnership with James Greenway, which continued until 1893, when Mr. Greenway retired. Mr. Heard has since continued the plumbing business under the old style of W. H. Heard & Co.

Mr. Heard moved his place of residence in 1892 to the beautiful old homestead, which has been converted into a modern fruit farm. He is an enthusiast on the subject of fruit culture, and is an expert in the spraying of fruit, a subject at present so interesting to the fruit growers. He is the inventor and patentee of a spraying apparatus that has proved to be the winner of the spraying contest held under the Government auspices in 1896. In this the practical training received at the plumbing trade was the cause of his success, combining as it did the expert knowledge of the mechanic with the practical experience of the orchardist. The device makes it possible to do cement covering and whitewashing of buildings at a cost but little dearer than the price of the materials. He is manager of the Spramotor Company, which business is carried on in the same premises with his plumbing and heating trade, which, with his fruit farm, keeps him a busy man.

Mr. Heard is the chairman of the sanitary committee of the Dominion Association of Master Plumbers, president of the London association, and is an energetic



worker in anything tending to advance the interests of the plumbing trade. Although a young man, he has been past master of the A. F. and A. Masons since 1883.

A correspondent sends the ARCHITECT AND BUILDER the following communication regarding the London Association :

The greatest enthusiasm prevails in association matters in London. All the manufacturers have signed the Montreal resolutions, and there is every prospect of a new era in the plumbing business in this city. If some bright and sparkling genius could unfold a plan whereby a profit could be obtained upon work, he would be a benefactor to a trade that gets from the public the name of getting rich on each job let, yet the fact remains that it is one of the most difficult operations to make money out of the plumbing business. If the public were educated to discriminate between good plumbing and bad it might be different, but in cities the size of this the process is exceedingly slow.

We hope, however, that the coming year will see a good practical plumbing and inspection by-law enacted, that must prove beneficial to the best class of plumbers; and if it drives the other class out of a business requiring only the best ability, the result would be a great gain to the citizens as well as to sanitary science in its relation to plumbing. London Master Plumbers' Association will always be found in the foremost rank.

### THE UNDERPINNING OF HEAVY BUILDINGS.\*

BY JULES BRECHAUD.

THE writer refers to the great difficulties experienced in preventing injury, by settlement of heavy buildings, when it is necessary to excavate and build on the immediate adjacent building site.

The specific case treated is of a building which was to be carried 30 feet (2 storeys) below the street level, over one-half of which had to be made water-tight, as it was below water level. The total depth of foundation being 45 to 50 feet below the sidewalk, these foundations consisted of close fitting rectangular pneumatic caissons all around the exterior of the new building site and cylindrical intermediate ones for columns.

As every square foot of the property had to be built upon, the problem was to pin the adjacent buildings up during caisson sinking and construction periods. This was accomplished by placing vertical cylindrical iron columns in slits in the walls, extending from the foundation upwards. These were founded at the bottom on rock or very hard hard-pan, and at their tops the bearings were spread out by transverse horizontal slits in the walls, in which were placed nests of I beams on top of the columns.

The cylindrical columns were 10" to 30" in diameter, the smaller ones being forced down by a 60-ton hydraulic jack, in sections 5 feet long at a time, to proper bearing; some also were partially sunk by water jet. The larger ones under the heavier building were sunk by compressed air, as neither the water jet or jack would force them through a layer of hard pan to the rock.

The larger columns were first made of cast iron, but after one becoming injured by forcing past a boulder, the rest were made of rivetted steel sections.

These columns were filled, after sinking, with Portland cement concrete.

The writer then details several similar cases where the application has been successful, and concludes by stating that while this method is not (evidently) of universal application, it will be found the best means of transferring the load of an adjacent building to a lower foundation with a minimum of obstruction to the building site about to be used; also, that as these underpinnings are left in place, there is no danger of that slight subsidence which takes place when other kinds of temporary underpinning are removed.

\*Reference before the Can. Society of Civil Engineers to Proceedings Am. Soc. C. E., Vol. XXII., Dec., 1896.

### THE DUTY ON BUILDING MATERIALS.

BEFORE the Tariff Commissioners at Montreal Mr. W. C. Trotter, president of the Standard Drain Pipe Co., of St. Johns, Que., asked that the present duty of thirty-five per cent. upon drain pipes be maintained. Any reduction, he claimed, would be detrimental to the Canadian industry.

Mr. F. B. Dakin, representing the pottery works at St. Johns, asked that the duty on all white Rockingham and cane ware be replaced to 35 per cent., as it was before the last revision; that the duty on all printed, decorated, and china ware be advanced to 40 per cent., and that all raw material be admitted free. It was pointed out that if there was no change in the duties a French company would invest more than a million dollars in the works, and manufacture fine pottery on an extensive scale. The deputation also complained about improper valuation, and suggested that expert appraisers should be appointed by the Government.

The first representative of the cement industry was Mr. Thos. M. Morgan, who desired the present duty to remain. There were three manufactories in Canada, producing about one-fourth of the cement used in the country, but he thought there was no reason why Canada should not produce all the cement required for home use. Mr. Wm. McNally, representing cement importers, submitted the following statement:

Of the total importations of this article about 25 per cent. comes from Belgium and 45 per cent. from England, in casks weighing 350 lbs., 375 lbs., and 400 lbs. gross each. During the year 1895 the total consumption in Canada was about 255,000 casks, or, with the Government requirements, 282,000 casks, of which quantity over 223,000 casks were imported. The present duty is 40 cents per cask, specific. The standard weight of casks is 375 pounds gross. Extra duty is charged proportionately on 400 lbs. casks, but no allowance is made from the duty of 40 cents on 350 lbs. casks. The present sterling f.o.b. values range from 3s. 2d. per cask of 350 lbs. on good Belgian cements to 5s. 1d. for 375 lbs. casks in high grade Belgian and English makes—making present specific duty of 40 cents per cask equivalent to 33 per cent. to 52 per cent. ad valorem. This present duty was initiated March, 1886, the duty previous to that date having been 20 per cent. ad valorem, or equivalent to from 22 to 30 cents per cask on the sterling costs at that time, and to from 16 to 25 cents per cask on present sterling costs. Owing to improvements in process of manufacture, and more economical cost of production, the sterling costs of cement have been so reduced since 1885 that the advance from 20 per cent. ad valorem to 40 cents per cask specific, instead of being an advance of 35 to 85 per cent. in the duty (as it was at that time), now represents at present sterling costs an advance of from 60 to 150 per cent. over the 20 per cent. ad valorem duty. We submit that the present duty is abnormally high and unwarranted, and we petition for its reduction to a more reasonable and equitable rate. Such reduction would bring about a much larger consumption of Portland cement in Canada, replacing lime and other inferior mortars in Government and municipal public works, railway and bridge, and general building construction, thus raising the standard of such works to the level of similar classes of work in Europe and the United States.

On behalf of the New Rockland Slate Co., Mr. T. B. Bacon, secretary-treasurer, presented the following facts, requesting that no reduction be made in the present duty on slate:

The present duty on black roofing slate is 30%, but not to exceed 75 cents per square, so that the duty is 30% only on slate selling at \$2.50 per square or less, which is of the lowest quality. On some of the better qualities of American slate 30% would give a duty of \$1.50, were it not for the specific limit of 75 cents per square. On roofing slate other than black the duty is 30%, but not to exceed 90 cents per square; on red roofing slate, for example, the price is as high as \$8.50 to \$10.50 per square, on which price 90 cents is only a duty of 8 3/4% to 10 1/4%; "Sea Green" slate, which does not keep its color, is the cheapest produced, and the higher duty was put on this to stop its use in Canada.

We ask that the duty remain at not less than 75 cents per square on black roofing slate and 90 cents per square on other qualities, as we cannot compete with the low grade slate produced in the United States. Slate produced in the United States of quality equal to ours realizes as high, and in many cases a higher, price at the quarry in the United States than ours in Canada.

The duty on slate slab work is also 30%, and we ask that no reduction be made in this, as our slate, being tough and solid, is much more expensive to work into shape than the soft American slate with which we have to compete; and the extra cost is warranted, because, being tough, solid and non-absorbent, it is far superior to the soft and porous American slate for sanitary and similar work, in which it is largely used. Our slate compares with American slate very much as hard wood compares with soft, and its extra cost is all in the labor expended upon it.

We present herewith copies of and extracts from several letters from users of slate, who also state that they do not wish any change to be made. You will note that the Mr. Ferguson referred to in these letters is the Canadian agent for United States quarries, and naturally desires a reduction in the duty in Canada, on which his business depends.

We may say that the village of New Rockland, Que., has been built up and is entirely dependent upon the slate quarry for its existence, and the closing of the quarry, which a change of duty would bring about, would depopulate this village municipality and shut off the local market for farm produce which the village affords.

Canadian patents have recently been granted to J. M. Gander, of Toronto, for plaster board material, and to J. S. Jackson, and F. J. Travers, for steam and hot water radiator.

As the result of a conference between the special committee of plumbers appointed at the Quebec meeting and the Toronto wholesale dealers and manufacturers of plumbers' supplies, the latter have signed the agreement adopted at the Montreal convention last summer relative to the sale of goods to legitimate members of the trade. This, it is hoped, will result equally beneficial to both manufacturers and plumbers.

**PAGES**

**MISSING**