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CANADIAN ARCHITECT AND BUILDER,

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St. Lawrence Market Competition.

ONLY five sets of plans were submitted in the competition for designs for the remodelling of St. Lawrence market, Toronto. Good reason must exist for the lack of interest taken in this competition, the subject being well calculated to attract the attention of the best minds in the profession. The failure of the competition as regards the number of competitors can doubtless be attributed to the inadequate character of the rewards. Architects should not be expected to give services worth $4,000 for the chance of winning a prize of two or three hundred dollars. The opinion generally prevailed that the work could not be carried out within the limit of cost imposed, namely, $150,000. It will be remembered that Mr. Sheard, who was appointed by the Council to report on the cost of the work, estimated the price at upwards of $300,000. The result of the competition will probably not be known for two or three weeks. The examination of the plans will occupy considerable time, as full working drawings, embodying all details of construction, were required.

Signed Buildings.

AN enterprising Toronto paper, in the daily search for news, has discovered that the words "E. J. Lennox, Architect, 1889," have been carved in stone beneath the cornice around the four sides of the new municipal buildings. The announcement of this fact is headed, "Lennox's Gigantic Gall!" and we are told that "the well-taxed citizens of Toronto ought to present Architect Lennox with the new civic building and be done with it." The citizens, sensible people that they are, have declined to follow the newspaper's example by going into hysterics about so unimportant a matter. It is pertinent to inquire what crime has been committed. It is a recognized custom in Belgium for architects to affix their names to their buildings, and the practice has many advocates among the profession

and the public in Great Britain and other countries, as being one calculated to induce architects to put forth their best efforts, besides assisting to preserve a record of important buildings. In the present case it is said that the letters were cut by the stone carver while the architect was absent from the city. The letters are about seven inches deep and are spaced fifteen feet apart. Being 72 feet above the ground and imbedded in the ornamental carving, they are by no means conspicuous—indeed, only the closest scrutiny would discover them. As a public advertisement for the architect they would be pronounced a complete failure. This object could have been better served by an inscription placed so as to meet the eye of visitors to the building. Even had the architect gone so far as to have his portrait cut in stone on the buildings, he would have been able to point to local precedents for his action. A prominent feature of the carving of the main facade of the Ontario Legislative Buildings, at Toronto, is a group of life size figures of the architect, Mr. Waite, the late Minister of Public Works, Mr. Fraser, and several of the other cabinet ministers, while on the whole building there are said to have been carved the portraits of a score of prominent politicians. On the Toronto Custom House are also to be seen carved busts of the men who designed and built the structure.

The Ontario Association of Architects.

We direct the attention of architects to a circular, reprinted in another column, issued by the Registrar to the members of the Ontario Association of Architects, asking for an expression of opinion with regard to the advisability of entering upon certain specified undertakings in pursuance of suggestions and recommendations made at the recent annual convention. It is gratifying to observe that an effort is to be made to increase the usefulness of the Association, and we trust that in this effort the management will have the cordial co-operation and support of the entire membership. With the improved conditions now prevailing, the present is an opportune time for placing the Association on a more successful footing. The proposal to offer encouragement to students is one of vital importance, and we trust that ways and means may be devised of carrying it into execution. It is absolutely essential to the success of the Association that it should have the sympathy and support of the oncoming generation of architects. There are other matters not mentioned in the circular which should engage the attention of the Association. From the report of Mr. Totten, representative of the United States Government at the International Congress at Brussels, it appears that in Germany, Austria, Italy, Great Britain and France, it is the practice of the government to invite architects in private practice to submit designs in competition for important public buildings. This practice was also adopted by the Government of the United States some two or three years ago, and everywhere that it obtains, it appears to give satisfactory results. The International Congress of Architects above referred to, after carefully considering this subject, put on record the following opinion: "It is desirable that the construction of public buildings should be confined to private architects, chosen by public or private competition or otherwise, and that the architects superintend the erection of the works, but under the direction of the government." Why should not the government of Canada step into line with the governments of other countries in this regard? Would it not be advisable for the Architectural Associations of Ontario and Quebec to memoralize the government at its present session to throw open to competition important public buildings, thereby giving encouragement to the architects of the Dominion, and securing greater variety and excellence in the designing of our public buildings?

Workmen's Compensation Acts.

An act to amend the law with respect to Compensation of Workmen passed the Ontario Legislature at the recent session. It is the evident intention of the government to deal with the subject in a more comprehensive manner next year, as they have commissioned Prof. Mavor, of Toronto University, to study and report upon the operation of the British Act. Judging by the comments of our British exchanges, the operation of the law in Great Britain is anything but satisfactory. Regarding it The Builder has this to say: "The misfortune of the numerous decisions on the Workmen's Compensation Act is that they do not settle any principle. There arises in these cases the question whether certain facts bring the matter within the Statute. No sooner is one case decided than another, different in its circumstances, turns up, each decision tending to show how unfair is the working of the Act. Last Saturday the question which came before the Court of Appeal was whether painting a house was "repairing" it within the meaning of the Statute, and whether the rung of a ladder was a "scaffold." The Court of Appeal reversed the decision of the County Court Judge, and held that the case did not fall within the Act. We confess that we cannot see why painting is not repairing. Woodwork requires paint for its preservation; a roof requires slates put in. Yet, apparently, if a workman loses his life while painting a building he is not within the act; yet if he were putting a few slates on a roof, he would be entitled to compensation. Again, a carpenter who fastened a bit of wood to a window would be entitled to damages if injured—he was repairing the building. But if he painted it afterwards he would be excluded if injured at that particular time. The truth is, as we have over and over again pointed out, that the Act is most absurdly limited. There is no principle in it; there is an arbitrary limitation introduced simply and solely because the persons excluded had not sufficient electoral powers to make it worth while for the government to include them within the provisions of the Statute." The Builders' Reporter says that if the Act is to remain in force, a special dictionary of the English language will have to be prepared for the use of litigants, as the Court of Appeal has decided that a mortar mill is a factory within the meaning of the Act. In another case the question arose whether a wharf was a factory. These instances will suffice to show the loose construction of the Act, and the difficulties and hardships to which it must give rise. It is to be hoped, therefore, that Professor Mavor will be careful to learn the weak points of the measure, and thus be able to advise the Ontario legislators what to avoid. Laws of this character fall heavily upon workmen advanced in years. The entire responsibility for accidents is thrown upon the employer, who in turn seeks to protect himself as far as possible by engaging only young men who, because of greater activity, are considered to be less liable to injury.

HOUSE FOR MR. BRYDON, ESQUIMAULT, B.C.

J. G. TIARKS, ARCHITECT.

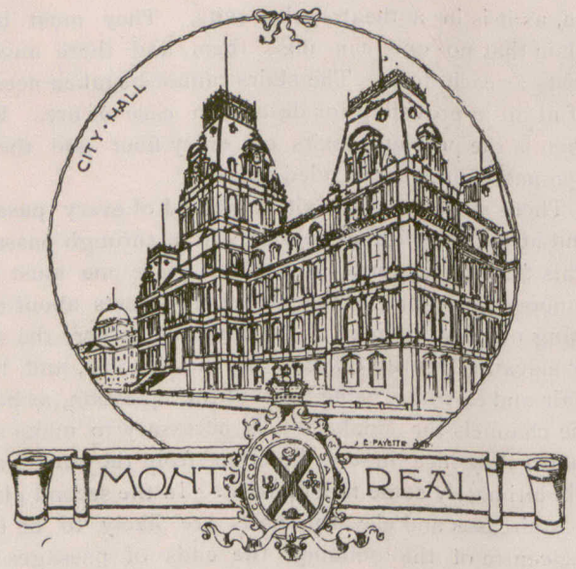
SAFETY FROM FIRE IN HOTELS.

The burning of the Windsor Hotel at New York has made conspicuous to everybody who reads the newspapers that it is of the first importance that a hotel should be fireproof. But this is no new idea to the public who use hotels; nor was it a surprise to Greater New Yorkers who have avoided the Windsor, when they wanted to put up for the night in town, that at last it has been the scene of a catastrophe. It was known to be a fire-trap and lost custom on that account. It is not merely to satisfy the building department that a hotel must be fireproof. Its custom depends upon its being so. The main difficulty is however not in making the building fireproof but in making it fireproof without detracting from that appearance of luxury which is considered necessary in the finish and appointments of a first-class hotel. If it were only a question of dealing with men, a thirteenth century fireproof severity with nineteenth century arm chairs might perhaps become the style of finish most popular for hotels: satisfying the mind by being evidently fireproof and the eye by a spacious, architectonic dignity. But women are not so one-sided. The same woman who lies awake at night in a hotel for fear of being burnt in her bed, would be anything but pleased with an incombustible interior finish. There must be, rightly or wrongly, in a hotel such elegance and luxuriousness of finish and furnishing that, even if the building is fireproof and will not burn down, we fill it with combustible material enough to cause death to its inmates from panic or suffocation or even from the spread of the flames. The Home Life Building is an example of the way in which fire can find food in a fireproof office building. One would expect a hotel to furnish more food of this kind rather than less; at any rate its carpets, curtains and upholstery will be the source of an easily produced and pungent smoke, which is in itself a danger. How much smoke will produce suffocation or how little smoke a panic we cannot tell. But it is necessary to make provision to prevent either danger. In other words no matter how thoroughly fireproof the structure of the hotel may be, the system of fire exits must be as complete as if the building itself were combustible. It would be safe to say that, tried by a genuine standard, any one of the usual precautions is ridiculous. The rope which is to be found beside the window in every bedroom of a New York hotel suggests nothing but the fulfilment of the letter of some by-law. The only persons who could possibly use such a means of exit from an upper window are the young men who are usually to be found in the cheaper rooms which look into interior courts—the last place one would like to lower one's self into in case of fire. The skeleton iron fire escapes on the outside would, above a certain height, be bad enough for most men, in the hurry and whirl of a fire, and impossible for women. But more than this they would not be easily found. There is in New York, tacked upon the inside of the door in every room, a small plan of the building with stairs and fire escapes colored red, which presumably satisfies a by-law, but in case of need would mock an architect. Nor are the notices "to the fire escape" at the turning of a passage, certain to be of use in the midst of hurry and fear and smoke, unless the way they indicate is so obvious that it is apparent without their aid. The first essential in providing for safety from fire in a hotel is a simple plan and obvious exits. Indeed it is not too much to say that the backbone of a hotel plan must be, as it is in a theatre, the exits. They must be so plain that no one can miss them, and there must be exits at each floor. The stairs cannot be taken account of at all in providing for descent in case of fire. Here then is the problem—exits on every floor and the old gymnastic fire escape ruled out.

There must be a fire exit at the end of every passage and at each end if the passage is a through passage. This for two reasons. In the first place one must presuppose ignorance on the part of the guests about anything more of the plan of the hotel than where the stair or elevator lies in relation to their rooms, and, both stair and elevator being out of the question, as being the channels for smoke, it is necessary to make sure that if they flee in any direction from the smoke they will ultimately come to a fire exit. In the second place, as staircases and elevator shafts are likely to be near the centre of the building, the ends of passages are more likely to be especially free from smoke, than especially sought by it. The end of every passage should open upon a balcony large enough to safely accommodate a number of people at once. Over the door to the balcony may be, framed in iron, heavy glass of the luxfer prism order, sufficient to illuminate the passages, but not likely to be soon injured by heat. All other openings should be kept as far as possible away from the balconies, so that they may come in the centre of a vertical band of blank wall as wide as possible. They will thus be as free as possible from smoke.

If then we may assume that the inmates are safely got out of doors, and are there in safety for the moment, it only remains to get them to the ground. This is comparatively easy. The balconies should communicate with a tower large enough to contain an easy and expanding staircase, with a door and landing at the level of each balcony and a door at the bottom to the street. Here is a means of descent cut off from the fire by solid walls, and with its openings for light and its door of exit looking away from the fire, with nothing to burn in its own structure and no direct communication with the source of smoke. The guests of the hotel ought, even in haste and fear, to feel a consciousness of security when they get this far, and descend without panic to the level of the sidewalk. It would be easy to contrive a pair of doors at the bottom which would be closed to entrance from the street but would fly open outwards when approached from the inside. As to the other doors at the ends of the passages, there is no occasion why they should ever be locked. They should be spring doors opening outwards in the thickness of the wall, and should have painted on them in letters that he who runs may read, "fire escape—push." With a legend like this at the end of every passage, no guest could go to and from his room without learning what to do in case of fire; and, if we are right in supposing this is to be a good plan and its use became common, every traveller would be so familiar with it that in case of fire the guests would act together with some approach to the precision of drill.

From the designer's point of view there is no doubt that the towers and balconies would form an admirable external motive. There is usually more inclination for towers on the part of designers than reasons for their introduction. Here is a reason which not only demands their introduction but indicates that they should be conspicuous, both to call the attention of present guests to their use, and to remind the public, as possible guests, that here they will be safe from fire.



(Correspondence of the CANADIAN ARCHITECT AND BUILDER.

THE ROYAL CANADIAN ACADEMY.

The official opening on April 7th of the 20th Exhibition of the Royal Canadian Academy by Lord and Lady Minto at the Art Galleries, Montreal, was a decided success.

The President, Mr. Robert Harris, in his opening address gave a sketch of the history of the institution, pointing out the struggle upwards it has had since the day of its inauguration by the Marquis of Lorne and H. R. H. Princess Louise, twenty years ago.

Lord Minto in his reply congratulated the academy on the success of the exhibition and then urged the necessity of national character in art. "Let Canadian art" he said, "be typical of Canadian scenery, Canadian life, Canadian thought and character." This idea should also be borne in mind by architects and let them make their branch of art typical of Canada and suited to its climate, with its necessities and restrictions.

In glancing over the exhibition as a whole one may say that the standard usually seen at these galleries is well kept up, though perhaps not eclipsing one or two of its predecessors. The president shows two portrait canvasses, one a group of Mrs. Porteous and her young children, the other a single portrait of the late Robert Hamilton of Quebec. Both will bear comparison with Mr. Harris' former works and seem to be very popular. Mr. Brymner only shows one canvas, which no doubt the public regret. The scene depicted is a quiet pastoral landscape with a decided tendency toward the modern French school. Mr. Homer Watson has three strong landscapes in his usual style. His "Crossing the Ford" would be improved somewhat by a different treatment of sky. Mr. Maurice Cullen shows a view on St. Catharine street, Montreal, with the tower of St. James Methodist church (of which so much has been heard of late) in the distance—the scene is by moonlight, and shows this artist at his best. The water-color room shows a very good collection of drawings of which we might mention the work of Mr. O'Brien and Mr. Manly, while from an architectural standpoint, the drawings of most interest will undoubtedly be those of Mr. Martin. One should specially note his "Roman Arches at Verona" and his view of Dieppe Cathedral.

The architectural drawings are few in number and it is a surprise to see so many firms not represented, several well known names being absent. This may be accounted for somewhat by the fact that these drawings are generally relegated to the stairway or some obscure corner, but still this can hardly account for the seeming lack of interest on the part of exhibitors.

To take the drawings in detail in the order in which they hang on the walls, we first come on ascending the staircase to two water-colour drawings by Saxe & Archibald, (a young firm of Montreal architects,) one on each side of the doorway. These drawings are strong and full of life, though there is a slight tendency to too much of what might be called the "scenic." Let the drawings be strong, but not at the expense of a quiet and dignified character. The coloring of the front of the Apartment House is too strong while the projecting columned portico does not stand out sufficiently. Next to these is a pen and ink rendering of an office building, also by one of the younger members of the profession, Mr. Gardiner. The rendering is good, while the design is of a quiet but effective character. Above it hangs a drawing by Mr. Dick, of Toronto, an exterior view of the Toronto University Gymnasium. This drawing is somewhat flat, and can hardly be called a good example of pen and ink rendering. Next come two drawings in monochrome, one the new Chemistry and Mining Building at McGill University, the other a recently constructed branch for the Molson's Bank at Vancouver. Better work than either of these drawings has been shown by their author, Mr. A. T. Taylor, of the firm of Messrs. Taylor & Gordon, and in the case of the McGill building, at any rate, hardly does justice to the structure.

Messrs. Hutchison & Wood are represented by a good water color drawing of the front of the proposed "La Presse" building at Montreal. The tone of color is very good, but no trace could be found of the draughtsman's name.

Mr. C. H. Capper, the Professor of Architecture at McGill, shows a pen and ink drawing of an extension to University Hall at Edinburgh. This drawing shows a very good example of the English school of pen and ink work. Mr. Gustav. Hahn is represented by three decorative panels, while Mr. Chaloner shows a pencil cartoon sketch of a panel for one of the Richelieu & Ontario boats, representing a tribal chief giving orders to his Indian followers.

By the above notes it will be seen that the exhibition is not strong in architectural works, and exhibitors should bear in mind that if they want the general public to take an interest in their work they must make their drawings interesting to the public. This probably can be achieved by exhibiting colored perspective sketches of exteriors and interiors of rooms, while details of decorative work are generally interesting. The general public, as a class, enjoy what they can see as a whole, and the effect the building, whether exterior or interior, would have in reality. This, as a rule, can be obtained by color easier and more effectively than by pen and ink rendering. Far be it from the writer, however, to persuade architects to drop pen and ink rendering, as this class of work is fully appreciated by the profession if not by the public, and it is also better for reproduction. The question which naturally comes up is whether an exhibitor sends his drawings for the general public or for those who really understand and can appreciate good architectural draughtsmanship and work which will not appeal to the public. It is hoped in future exhibitions that there will be a stronger and better collection of architectural work, and that we may see work of a decorative character, or what might be called the Arts and Crafts Class, shown by drawings. This class of work has been almost entirely neglected.

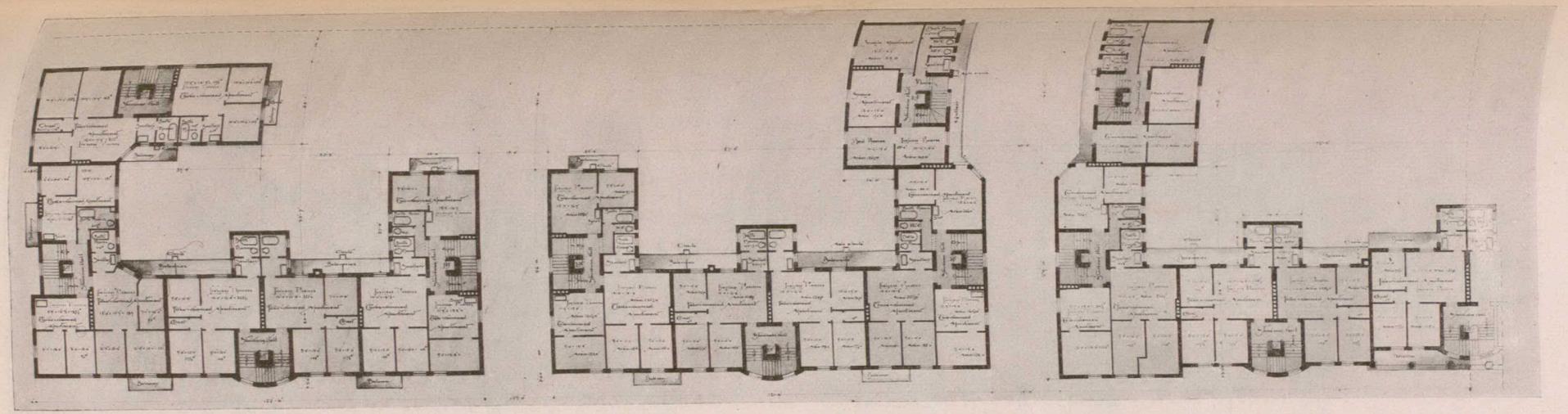
COLLAPSE OF THE NICOLET CATHEDRAL.

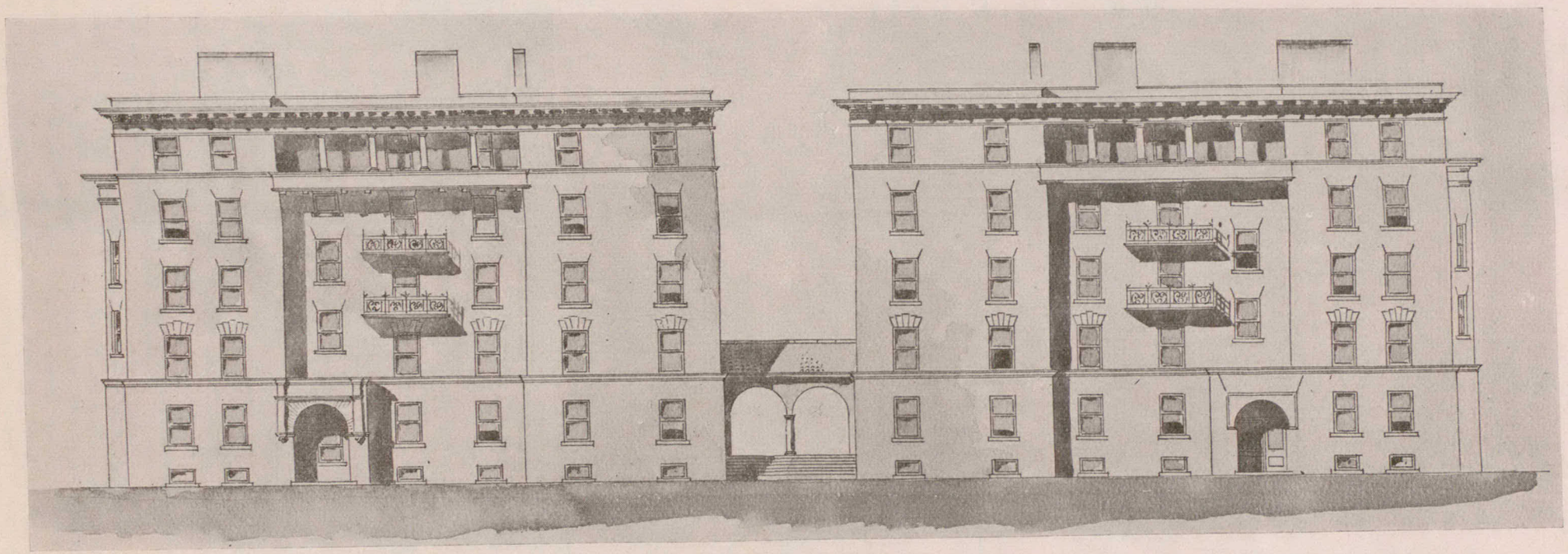
This cathedral, situated at Nicolet, Que., about fifty miles from Montreal, was just about completed and the workmen were putting on the finishing touches when one of them noticed that the columns and piers were giving way. They immediately proceeded to brace them up with chains and planks, but before their work was completed one of the piers gave way, letting down the central portion of the structure, followed later by other sections, and according to reports the dome and rear part will also have to come down as some of the columns are broken. The damage is said to amount to $40,000.

The columns are said to be constructed of concrete, with an iron core, and the piers were of brick laid in cement mortar. It has been reported that the brick piers were not large enough, and that they were put up during frosty weather, which caused the cement mortar to freeze. Lately there was a fire built to thaw out the basement and it is explained that the heat striking the piers on one side caused that side of them to settle and throw the columns out of plumb, with the result that, not being of regulation metal, they either broke or slipped off the base. But more definite information will be obtained when the experts appointed to look into the matter have made their report.

The following gentlemen have been appointed as experts and visited the place on Thursday: Messrs. S. Lesage of the firm of Perrault & Lesage, and C. Dufort of Rodden & Dufort, on behalf of the Bishop, and Mr. Jos. Haynes, C.E., on behalf of the architect, Mr. St. Jean. The contractors, Messrs. Paquet & Godbout, have refused to accept the manner of proceeding, as being irregular, and were not represented at the examination of the ruins. It is more than likely that the question will find its way to the court and there be thoroughly ventilated, which will probably be the most satisfactory conclusion to all concerned.

It is understood that the Bishop consulted Mr. S. Beaudin, Q.C., on the subject, and the learned counsel informed his Lordship that the architect and contractors were jointly and severally





One Quarter Typical Floor Plans—Scale ⅛ Inch = One Foot.

PLANS FOR SHATTUCK PRIZE FOR COMPETITIVE DESIGNS FOR ARTIZANS' HOMES (LIMITED COMPETITION).

A. FRANK WICKSON, ARCHITECT, TORONTO.

SYLLABUS OF CONTENTS OF TYPICAL FLOOR PLANS.

Rentable Space occupied by Dwelling Rooms, with their attached Bath Rooms and Sculleries—	51,580	square feet,	being	32.2307	%	of	the	entire area of the Site.
Bath Rooms, W. C's and Sculleries common to several apartments	1,920	"	"	1.200	"	"	"	"
Staircases	8,492	"	"	5.307	"	"	"	"
Corridors	672	"	"	0.420	"	"	"	"
Walls	9,752	"	"	6.095	"	"	"	"
Partitions	2,120	"	"	1.325	"	"	"	"
Open Spaces	85,464	"	"	53.415	"	"	"	"
Total	160,000 = 200 x 800			99.9927				

liable according to law and the investigation must proceed on that line.

NOTES.

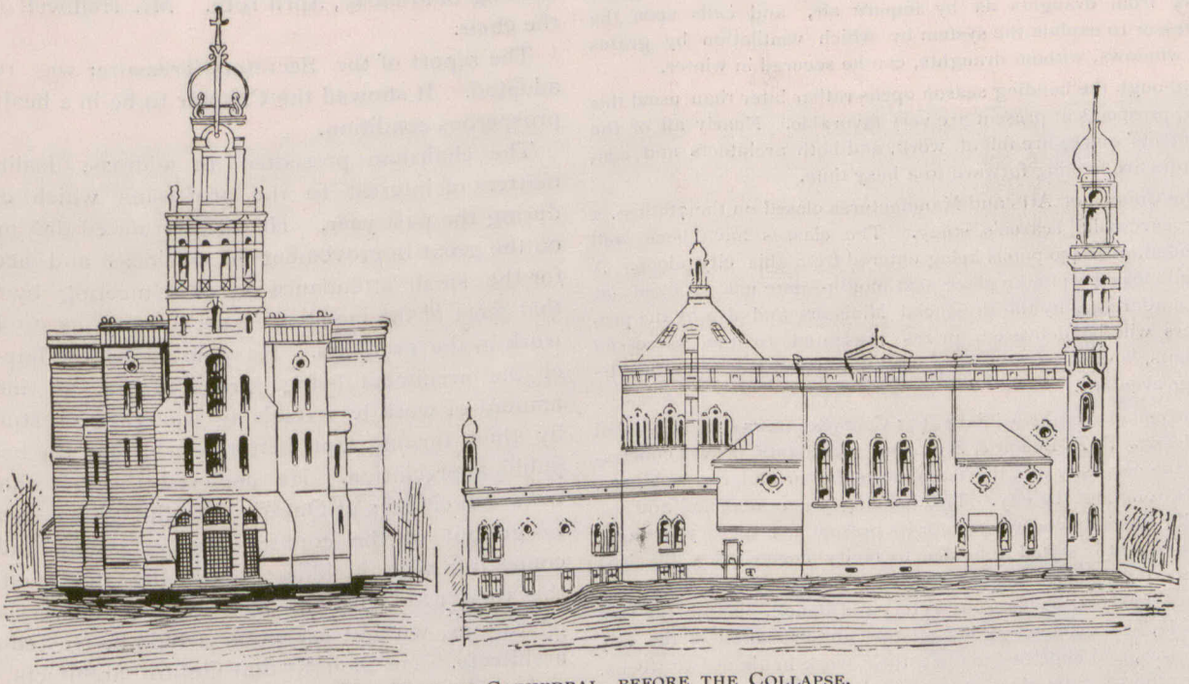
The extensive manufactory of Messrs. Garth & Company, at 542 Craig street, was recently damaged by fire to the extent of about $60,000. It is understood that the loss will be almost covered by insurance.

The La Prairie Pressed Brick and Terra Cotta Company of this city have decided to liquidate their business, and have appointed as liquidator Mr. T. Westbrook. The total liabilities, including liability to shareholders, is placed at $150,443.

The chief of the fire department and the building inspector are engaged in making an inspection of all public buildings, including convents, colleges, hotels, etc., to ascertain if they are provided with necessary appliances to enable the inmates to escape in case of fire.

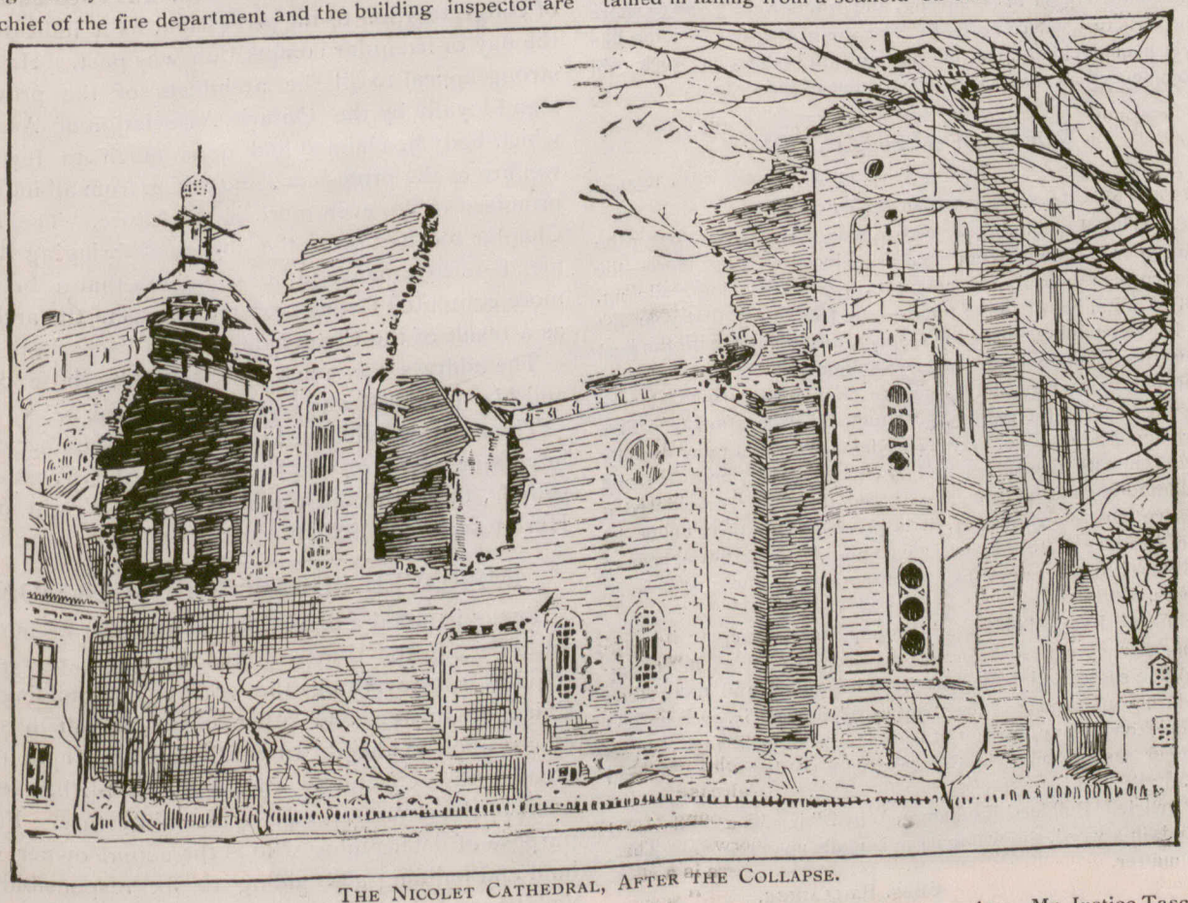
The Merchants' Bank of Canada have invited Messrs. Hutchison, Hopkins, Maxwell and Taylor to submit competitive designs for the remodelling of their building at the corner of St. James and St. Peter street. It is the purpose to add four additional storeys to the building.

Several serious accidents have occurred in this province lately, due to the collapse of buildings. The latest of these took place in this city on the 10th inst., when a provision warehouse on Commissioner street tumbled into ruins. The collapse in this instance was due to the weight imposed by a large stock of flour and provisions on the upper floor. A workman who was in the building at the time was seriously injured.



THE NICOLET CATHEDRAL, BEFORE THE COLLAPSE.

A laborer named Robillard recently brought an action against Mr. Peter C. Wand, a well known contractor, for injuries sustained in falling from a scaffold on one of the McGill University buildings while in the defendant's employ. Mr. Justice Taschereau awarded the plaintiff the amount of two and one half years' wages, less 25 per cent., this deduction being made because it was shown that the plaintiff had been imprudent, and had contributed to the accident by jumping on the scaffold from a brick wall. The accident was caused by the breaking of a board which the court decided was not strong enough for the use for



THE NICOLET CATHEDRAL, AFTER THE COLLAPSE.

which it was put. Judgment was given for the sum of $712.50 with costs.

Referring to a recent lecture by Professor Cox, in which the importance of ventilation and the use of open grates was emphasized, a correspondent pertinently enquires if the inmates of houses in this climate would not be likely to suffer as great injury from draughts as by impure air, and calls upon the Professor to explain the system by which ventilation by grates and windows, without draughts, can be secured in winter.

Although the building season opens rather later than usual this year, prospects at present are very favorable. Nearly all of the architects' offices are full of work, and both architects and contractors are looking forward to a busy time.

The Council of Arts and Manufactures closed on the 7th inst. a very successful season's study. The classes have been well attended, over 450 pupils being entered from this city alone. A formal closing will take place next month—date not yet fixed—at which addresses by the Provincial Ministers and also by the professors will be delivered, prizes presented to the successful students, and an exhibition given of the work done during the winter evenings.

The collapse of the building at 71 Commissioners street occupied by Messrs. F. X. Benoit & Son, flour merchants, proves conclusively the necessity of a thorough inspection of all large buildings, etc., throughout the city. This building was remodelled and the interior specially constructed for its present use three years ago. The accident is stated to be due to faulty construction, the iron girders only being embedded about four inches in a brick wall. Messrs. Lacroix, building inspector, and Benoit, chief of the Fire Brigade, will commence immediately an inspection of the city structures, and hope to complete their work in about two weeks. Their report will be given in our next issue.

The civic hospital was visited on the 12th inst. by the special committee appointed by the Health Committee for that purpose, viz., Ald. Prenoveau, Ames, Turner, Gallery & Dufresne ; the Medical Health Officer, Dr. Laberge, and the architects, Messrs. Perrault & Mann. The object of the visit was to ascertain the condition of the building, and after a thorough inspection had been made it was unanimously decided that the building was not in immediate danger of collapsing, and orders were given to shore up the structure where needed. The site of the new building has not yet been decided upon, but no time will be lost, as work will be commenced as soon as the frost is out of the ground.

WORDS OF APPRECIATION.

QUEBEC, March 29th, 1899.

To the Editor of the CANADIAN ARCHITECT AND BUILDER :

SIR,—While I cannot agree with you as to the present being the closing year of the nineteenth century, since one year more—the year 1900—is required to complete it ; every 100 being made up, not of 99 units, but of 100 of them—I am free to say that your last issue is a splendid one in every respect, and replete with the best of literature on many most pertinent subjects.

I would more especially refer to Gambier-Bousfield's paper under the heading (at page 58) "Students' Department." This paper should be read not only by students, but, and more usefully so, by architects themselves, and by each and every architect, and re-read and committed to memory ; and if I have considered it necessary thus to signalize it, it is precisely because under its present heading of "Students' Department," it may not appear to appeal as it really does to the attention of the professional members.

Architects, I say, should read this paper and act up to its suggestions, for my extensive term of experience enables me to say that all the suggested difficulties have happened and more than once during my time, and the "my wife" element is, as Bousfield says, creative of any amount of trouble ; as well the fact of firms disowning responsibility in the case of a not legally authorized agent.

The article "Builders' Exchange, Why ?" is also a well timed one, and, in a word, the whole issue is made up of readable, interesting matter.

CHAS. BAILLAIRGE,
Consulting Engineer and Architect, Quebec.

TO PROTECT IRON STRUCTURES FROM RUSTING.—Mix one part of quicklime with five parts of water, stir it up to allow the lime to settle ; then pour off the clear water, and mix the lime with sufficient olive oil to make a thick cream, and paint this over the iron surfaces to be protected.

ONTARIO ASSOCIATION OF ARCHITECTS—TORONTO CHAPTER.

The regular and annual meeting of the above Chapter, was held at the School of Practical Science, on the evening of Monday, April 10th. Mr. Helliwell occupied the chair.

The report of the Secretary-Treasurer was read and adopted. It showed the Chapter to be in a healthy and prosperous condition.

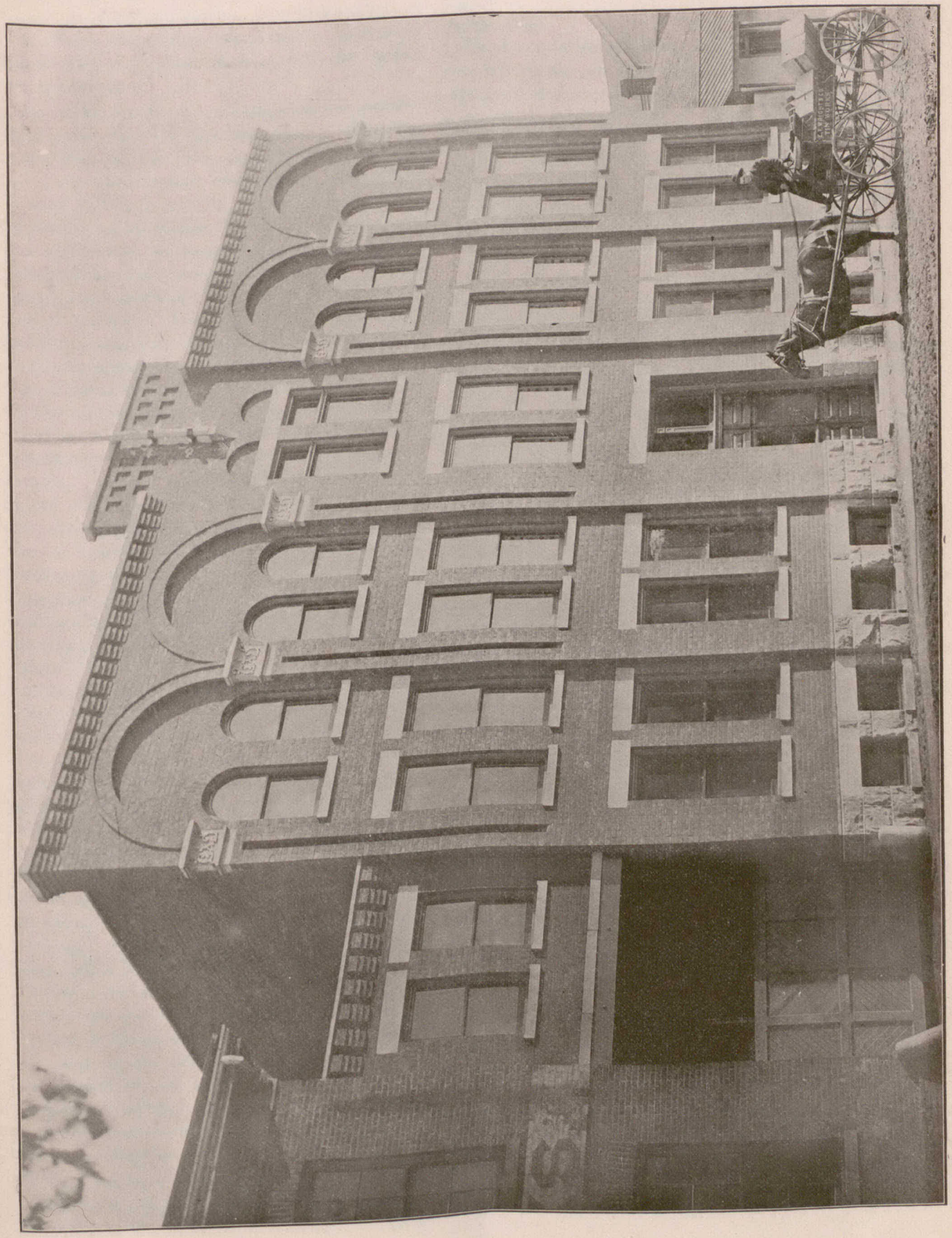
The chairman presented an address, dealing with matters of interest to the profession which occurred during the past year. He congratulated the members on the great improvement in business and accounted for the small attendance at this meeting by the fact that most of the members were so busy as to have to work in the evenings. He pointed out the importance of the architects being prepared for an increased amount of work by exercising thought and study, and by thus turning out better work, reap the benefit of public appreciation. He deplored the fact that there were still citizens of Ontario who thought it necessary to go out of the country for professional advice in connection with building operations, and trusted that the time was close at hand when the very largest operations, without exception would be trusted to our architects. He thought that Ontario architects should at least be given an opportunity of showing what they could do in every case before foreign advice was sought. The matter of competitions was touched upon, and a recent competition in which the conditions were not in accordance with the principles of the Ontario Association of Architects, and for which a ridiculously small number of architects had entered, was cited as a matter of congratulation to the profession, as it indicated that the day of irregular competition was past. He made a strong appeal to all the architects of the province to stand loyally by the Ontario Association of Architects, which body he claimed had done much to further the welfare of the profession, and which from all indications promised to do even more in the future. The Toronto Chapter too had been the means of bringing the local members together, and he was sure that a better and more contented feeling existed between the architects, as a result of the Chapter meetings.

The address was much appreciated by those present, aud Mr. Helliwell was warmly applauded.

The meeting adjourned after seeing a number of most interesting lantern views, taken in the West Indian islands, thanks to the kindness of Mr. Wright and Mr. Harkness, of the School.

IMPROVED BUILDING REGULATIONS.

THERE is noted a disposition on the part of municipal authorities in the United States to pay greater regard to regulations governing the erection of buildings. In Chicago, Boston and other cities a limit has been placed upon the height to which new buildings may be erected, thus effectually checking the further development of the sky-scraper style of architecture. For the purpose of determining who is the actual owner of the land and building and aiding to fix responsibility for violations of the building law, a regulation has recently gone into operation in Boston which requires the owner to sign each application for a building permit. The application must also be accompanied by a deed of the property or a certified copy thereof. Permits will no longer be granted, as in Canada, on applications signed by the architect and builder.



WAREHOUSE FOR THE E. T. WRIGHT CO., HAMILTON, ONT.
W. W. LACHANCE, ARCHITECT.

TESTS OF FIRE-RESISTING MATERIAL.

At the station of the British Fire Prevention Committe, Regents Park, London, Eng., a test was made on Feb. 15th last to ascertain the fire-resisting merits or otherwise of a floor by the Expanded Metal Company, Limited, London, and to record the effect of a smouldering fire of fifteen minutes' duration, of a temperature not exceeding 600 deg. Fahr., followed by a fierce fire of one hour, gradually increasing to a temperature of 2,000 deg. Fahr., followed suddenly by the application for three minutes of a stream of water, and the consequent rapid cooling.

The area of the floor under investigation was 100 feet superficial in the clear (10 feet by 10 feet). The floor was loaded with 140 lbs. per square foot. The time allowed for the construction and drying of floor was three months (winter), and the result of the test was that the plaster ceiling below the floor remained intact until the application of water. There was a slight deflection of floor and ceiling. The concrete of floor was slightly and superficially cracked. The fire did not pass through the floor. The chamber was constructed of stock bricks, with lime mortar, and measured 10 feet by 10 feet internally. The ceiling of the floor tested was 7 feet 6 inches above the pavement of the chamber. The hut was roofed in with galvanized iron. The door opening on the south side measured 2 feet 6 inches by 6 feet 6 inches, and was closed by an iron sheathed wooden door. The fuel used was gas produced at the station, and the supply was regulated by valves and dampers. The gas was admitted through two mixing chambers of firebrick, each 10 feet by 3 feet super. Two Roberts-Austen pyrometers were used for recording temperatures, the first to take a continuous record and the second to take four observation records. The load was of pig-iron distributed evenly on the surface of the floor.

The system adopted for construction of the floor tested was as follows :—On November 14, 1898, three rolled steel joists, 6 inches deep, 3 inches wide, 14 lbs. per foot, were put across the chamber. They ran north to south and rested on the 4½-inch set-off. The two outer joists were placed 1 inch from the east and west walls respectively, and the third was placed in the centre, making the distance between the centres of the three joists 4 feet 9½ inches. Provision for air was made by cutting holes 4 inches by 4 inches between the floor and ceiling in the exterior walls.

On November 16 three wooden bearers were put up in each bay, 3 feet 4 inches centre to centre, by 6 inches deep, 2 inches thick, and covered with 1-inch boarding, as centering. On the top of the centering and covering three-quarters of the entire surface of the floor expanded metal was laid, of the kind known as 3-inch mesh, ¼-inch by ⅛-inch strand ; at the centre the metal overlapped 18 inches. At the north-east corner a quarter of the area was covered with ¼-inch by three-sixteenths inch metal, same mesh as before.

On the same day the concrete floor was put in. The cement used was Portland. It was not specially selected for this test, but was delivered in the ordinary course of business. The furnace ash (or cinder) came from gas works at Bank Hall. One cubic yard of furnace ash (or cinder)broken up small enough to pass through 1½-inch ring was placed on a platform prepared for that purpose, and then covered with four sacks of cement, each sack conaining two bushels. The material was turned over three times dry. The concrete was then divided into four equal parts for convenience of mixing, and one part mixed at a time. The quantity of water used was 58·18 gallons for the whole, and the concrete was well mixed. The concrete was then carried in pails on to the centering and laid over the entire surface, great care being taken to have the meshes of metal well filled. The concrete was trodden down or beaten with the flat side of an ordinary shovel. The concrete was put in 3 inches thick.

On the same day (November 16) while the concrete was still damp, one half of its upper surface (west side) was covered with ½ inch cement and sand in equal proportions, similar cement being used as for the concrete. The sand was good, sharp, unwashed pit sand. On the following day (November 17) the remaining half of the floor (east side) was covered the same proportions of cement and sand being used. The total thickness of concrete and cement was 3½ iuches.

On November 28 the centering was taken down.

On November 30 the expanded metal for the ceiling was put up. Bars ⅞ inch by ¼ inch thick were placed at right angles to and below the joists, 12 inches centre to centre, supported by steel clips 3-32 inch thick by ¾ inch wide, which were secured to bottom flanges of the joists. The expanded metal was then secured to bars with steel clips. The metal lathing used for the ceiling is known as ⅜ inch mesh, 3-32 inch deep in strand, Siemens-Martin steel.

On December 5 the ceiling was plastered with coarse stuff, ½ inch thick, below the expanded metal, the materials being mixed in the proportion of 1 of lime to 2 of sand with about 1 lb. of dry, long, well-beaten hair to every 3 cubic feet of coarse stuff, the coarse stuff being brought ready mixed on to the ground.

On February 14 the gas was lighted in the hut at 1.30 P.M. and kept very low until the test began. The roof was removed in the afternoon. The floor was loaded with pig-iron, equal to an evenly distributed load over the entire floor of 140 lbs. per square foot.

On Friday 15 the test was undertaken. The follow- is the log of the test :—

At 2.40 P.M. the floor and ceiling were intact. At 3.25 P.M. vesiculated water vapor from the evaporation of water remaining in the concrete commenced to rise from above the concrete on the south side. At 3.55 P.M. evaporation showed itself strongly from all over the floor. From 3.10 to 4.10 P.M., at ten minutes interval, the surface of the ceiling was viewed from the observation hole. No change in the floor or its ceiling was observed. At 4.10 P.M. the gas was shut down and the door opened. The ceiling was intact. A slight deflection of the soffit was observed. From 4.13 to 4.16 P.M. a jet of water was applied, the pressure ranging from 40 to 20 lbs., gradually decreasing. On application of water to the ceiling, the portion of the plaster struck immediately fell down—the portions not touched remained in position. From 4.10 to 4.25 P.M. the temperature rapidly decreased. At 4.25 P.M. the test was closed, the floor, excepting for the plaster referred to, remaining intact.

On February 16 two photographs were taken of the floor from below. Some fine cracks in the underside of the concrete are observable from these. On February 16 the deflection of the centre joist was measured and found to be 1⅜ inch at the centre of joist. The eastern joist was deflected 5-16 inch at centre. The western joist was not affected. On February 21 the iron load was removed. Some fine cracks were observed in the cement surface of the floor. They did not penetrate the coating of cement. On February 23 a general photograph of the ceiling was taken from below, and likewise a photograph of the floor from above. On February 24 the floor was further examined, and it was found that the fire had not penetrated the floor at any point. No further observations were made.

MURAL DECORATION.

Mr. G. A. Reid, R.C.A., has been pretty constantly engaged for several months past on the mural decorations for the new Municipal Buildings at Toronto. A few days ago, these decorations were placed in position, and the effect is most satisfactory. The final touches are now being put to the work, and the public will have an opportunity of inspecting the same at an early date. In our May issue, we hope to be able to present to our readers illustrations and a further description of this important work.

ONTARIO ASSOCIATION OF ARCHITECTS.

The following circular has just been issued by the Registrar to the members :

" As you are aware, at the last Convention of the Ontario Association of Architects, held in January, 1899, a Special Committee was appointed to confer with the Council as to the best means to be taken to improve the condition and increase the prosperity of the Association.

The Committee in conference with the Council, is of the opinion that action should be taken to make Registration more attractive, and of more practical benefit to the members, to those who may register in future, and to our students. In a matter of so much importance it was thought well to have a letter sent to each member, setting forth the suggestions made by the Committee and Council and enclosing a stamped envelope for reply, so that the opinion of the whole Association may be obtained, and future action based on such opinion.

The suggestions are as follows :

1. To rent in a central situation a room, or rooms, suitable for meetings of the Association. The rooms to be kept open, for the use of members, from 10 a. m. to 6 p. m. on all week days and, on the occasion of meetings, in the evening also. The Library of the Association will be kept in these rooms, and they will be made as convenient as possible for the use of members not residing in Toronto, who may want to use them for business or other purposes when visiting Toronto.

2. To make the office of the Registrar and Libarian an honorary one, and to appoint an Assistant, whose duty will be to take charge of the rooms, library, correspondence, etc., etc., under instruction from the Honorary Registrar.

3. To hold a regular meeting of the Association one evening in each month, except during the summer, for the purpose of reading and discussing papers, etc., etc.

4. To have the proceedings of the Association recorded and issued in pamphlet or book form each year ; to the members free of cost, to all others at a price fixed by the cost of publication. This volume to contain all the papers read during the year with the discussions upon them, and full information, medals, scholarships, library, business matters, etc., etc.—all the proceedings of the Association, complete.

5. That a certificate of membership, adapted to be displayed in the offices of members, be issued, and that all members be requested to adopt the words " Member of the Ontario Association of Architects " as their distinguishing title.

6. To arrange for an annual course of popular public lectures on architectural subjects, with a view to advancing public taste in Architecture.

7. To provide a suitable medal out of the funds of the Association annually, to be competed for by students of the Association, and to found a travelling studentship, to go with the medal, by some means, possibly the following :—

To select twenty-five wealthy citizens of Toronto and to ask each to give the sum of $200.00, upon condition, that at least 20 of those asked consent. It is hoped in this way to acquire the use of a fund which, well invested, should produce at least $200.00 per annum ; this to be known as the " Toronto Travelling Studentship," and to be paid to the student who is presented with the Association medal, to enable him to travel in Europe for the purpose of studying architecture. By this means it is thought the students will be given an inducement to present themselves for examination and registration.

8. To provide a travelling card for the use of all students travelling abroad whereby they may identify themselves as registered students of the Ontario Association of Architects and obtain the privileges which are accorded to students of art in the art galleries of Europe.

9. To make the annual fee for members resident in Toronto $10.00, and for all others $5.00, except the fee for travelling members which would be $3.00.

The Treasurer's statement at the last Convention, " That financially we would, in the course of a few years, cease to exist unless radical changes were made," should convince every one of the importance of our taking immediate steps to prevent such a catastrophe.

You are requested to give the foregoing your serious attention, realizing the importance of the matter, and to express your approval or disapproval of each item by number, and if you can suggest anything further towards improving our condition, it will receive careful consideration.

The above proposals are not intended to supply the place of the necessary amendment to our Act, which we still hope for, but are matters desirable in any event.

N.B.—Please return an answer before May 1st next."

PUBLICATIONS.

" Sanitary Engineering of Buildings " by Wm. Paul Gerhard, C. E., etc., Wm. T. Comstock, publisher, 23 Warren street, New York.

The first part of this work, which is to be published in two volumes, has just been received. Part 1, inclusive of index, comprises 454 pages, with 103 illustrations and 6 plates. The twelve chapters treat of Defective Plumbing and Sewer Gas, Traps and Systems of Trapping, Drainage and Sewerage of Buildings, Plumbing Fixtures, Sewage Removal and Disposal, Principles of Scientific House Drainage and Plumbing, Improved Method of House Drainage, Proper Arrangement of Water Closet and Bath Apartments, Sanitation in Factories and Workshops, Drainage of Tenement Houses, Testing House Drains and Plumbing Work, Simplified Plumbing Methods. The author is a well known sanitary aud consulting engineer, and writer on sanitary subjects.

A shipment of radiators valued at $2,000 was recently made from Toronto to Norway, and another valued at $1,000 to Great Britain.

The death is announced in Toronto of Mrs. Alexander Stewart, mother of Mr. Wm. Stewart, architect, Hamilton. The deceased lady came to Toronto in 1812, having been driven out of Buffalo by the British troops.

The Metal Shingle and Siding Company, Preston, Ont., have just completed the erection of a new building, in addition to their works, 112 x 50 feet, and have recently put in the necessary machinery for manufacturing a complete line of metal ceilings, interior decorations, etc., and also corrugated iron and standing seam, and other flat roofing.

ILLUSTRATIONS.

HOUSE FOR MR. BRYDON, ESQUIMAULT, B.C.—J. G. TIARKS, ARCHITECT.

WAREHOUSE OF THE E. T. WRIGHT CO., HAMILTON, ONT.—W. W. LACHANCE, ARCHITECT.

DESIGNS FOR ARTISANS' DWELLINGS, SUBMITTED IN A LIMITED COMPETITION FOR THE SHATTUCK PRIZE OFFERED BY THE MASSACHUSETTS CHARITABLE MECHANICS' ASSOCIATION.—A. FRANK WICKSON, ARCHITECT.

The author submitted with his designs to the secretary of the committee in charge of the competition, the following memorandum :

DEAR SIR,—Competition work in the midst of the year's busy season usually carries with it the liability to suffer from being somewhat hastily rushed through, and before submitting the following memoranda relative to the accompanying plans, allow me to express to your Committee regret at my inability to devote that amount of personal attention to the work which a subject of so much and universal interest demands. I refer more particularly to the details of the design, for in the general scheme adopted in the elevations, of varying the heights of the several blocks and slightly changing the design of each to avoid monotony, there lie, I believe, with proper study, possibilities of a satisfactory treatment.

I beg to briefly draw attention to the following points in the plans to which, I may say, I have paid the more attention :

1st. Comparative absence of corridors.

2nd. Privacy, there being generally but two and never more than three apartments opening off one staircase on each floor.

3rd. Every apartment having at least one aspect either on to a large court, or one of the streets, and in the majority of cases having both.

4th. Rooms so arranged that all others opening directly off the living room are easily heated.

5th. In place of laundry tubs in each apartment, there would be a set to each block, with a drying room attached, a small fee being charged for the use of a tub, hot water and the drying room, large washings with no proper place for drying being undesirable.

6th. Staircase halls heated from the same boiler as the laundries and drying rooms.

7th. Basements fitted with lockers for coal, the same being received through small pavement areas.

8th. Hand-lifts in each staircase.

CONSTRUCTION OF BUILDINGS.—The construction would be that described as "Second Class" in the Boston Building Laws, with outer and division walls of brick, partitions of framing, or preferably of the steel and metal lath type, if the cost were not too excessive, and the floors of wood, excepting the first floor of the small six storey portion in the centre of the long sides, which would necessarily be fire proof. The staircases should be of incombustible construction. The exterior would be pressed brick with terra cotta string courses, sills and bed moulds to the cornices, the latter themselves being of metal.

COST OF BUILDINGS AND RETURNS FROM SAME.—

The buildings figured up at 9 cents per cubic foot, or $5.26 per square foot for the five-storey blocks and $4.25 per square foot for the four-storey blocks would cost	$373,500
Add value of land	240,000
	$613,500

Income from rentals :

176 four-roomed apartments, at	$2.50		$440	per week
132 three " " "	2.00		264	"
180 two " " "	1.50		270	"
68 one " " "	1.00		68	"
			$1,042	"
Or per annum			$54,184	

Allowing $14,184 for running expenses, repair fund, etc., the net revenue would then be $40,000, this being 6.52% on the capital.

Yours respectfully,
A. FRANK WICKSON.

ETHICS OF DESIGN AND COLOR IN DECORATIONS.*

INASMUCH as design plays so important a part in interior decoration, I may not be out of place in making a few remarks on the ethics of that portion of our subject. Somebody has said that a plain sheet of white paper is more beautiful than any pattern or painting ever worked on it. This statement belongs to the popular class of depreciations that the incompetent have to hurl at those who attempt. If such a statement is true, it is only so in the sense that silence is golden is true. Would knowledge have advanced if all practiced golden silence? If we all had adopted the cult of the white paper, where had art come in? Fallacies are the sheet-anchor of matter-of-fact persons. Common sense (as Philistia understands it) is based upon the lack of understanding, whether pattern or politics happened to be concerned. To be satisfied with nothing is the pride of those who cannot obtain anything. Therefore, as we are not satisfied with bare walls, we must have design. If we have design we must endeavor to realize the purpose to which the particular design is applied. The first is to grasp and adhere to the fact that walls are perpendicular and that the surfaces are flat. Also, let it be continually borne in mind that, almost without exception, a room has its definite purpose. It also contains, as a rule, doors, a fireplace, windows and recesses. The wall spaces are broken up by the fittings, furniture, hangings and pictures. Therefore the continuity of the design is certain to be interfered with in the ordinary course of things. These conditions are emphatic, and must be accepted and likewise turned to advantage.

Let us briefly consider the various purposes of the various rooms. A sensitive worker is necessarily influenced by different emotions in sympathy with the character of the rooms for which the design is being prepared. It is only by realizing acutely what these are that a fit and proper result can be achieved. For the mistress of a house to superintend the culinary arrangements when attired in evening costume is quite as reasonable as to attempt to take motives suitable for a lady's boudoir and apply them to a design for a kitchen wall paper. The cauliflower and jessamine will not lie down together.

The dining room should suggest breadth, solidity and hospitality; the library a physical repose and an inducement for study ; the drawing room should be stimulating and yet refined in detail; the boudoir should express dainty forms of facile and easy invention, and conduce to the charm of confidential exchanges ; the bedroom is for slumber, therefore we do not want nightmares in the flat, nor complete oblivion, but the song of the lullaby in pattern. For the nursery and its innocent, fresh with the breath of life, what genius is too lofty to design for this humble purpose? He would be unworthy the name of "artist" who felt this work beneath him and ignored the opportunity for a never-ending influence in fancy, form and color, associated with the vastly important fairy tale or legend. What a genius of the first rank can do with a fairy story you may all see in Sir E. Burne-Jones' pictures of "The Briar Rose." The possessors of imaginative gifts, who realize their ideas both for the finer and "coarser" arts for the advantage of the little ones, give to them a groundwork of an education ; an education which is as important and permanently influential as it is unconsciously received. Or for

* From an address delivered before the Royal Institute of British Architects by Arthur W. Silver.

the same idea in the simplest materials, take Walter Crane's nursery wall papers. The charming refinement and character of these designs is only equalled by the absolutely masterly skill with which practical limitations are turned to positive advantage.

Not all parts of the house are so obvious in their suggestiveness, yet the staircase may symbolize an upward direction. Its walls exhibit large and unbroken spaces, revealing, in its various flights, rooms which have distinctive and separate uses, so the imagination may take note of such suggestions in conjunction, and thereby produce a design of stability and breadth which shall include and embrace all the others, as well as striking a key-note to the whole. Staircases need not be too archaeological. Some people treat them pre-historically with weird marble papers, or Egyptian symbols, or possibly Medieval allegories. The staircase should not be the place with a past, but the ladder for the future.

For all these purposes the design is of the first importance.

A good design really exercises an effect almost hypnotic. A designer must be a first cause for these effects. The suitability of an idea for a purpose is insistent. For instance, scullery utensils upon a grand piano decorated with gesso are out of place, and lead to unpleasantness—but not more so than a finely conceived decoration, gorgeous and full of idea, carried out in mean materials for a back passage.

So far I have dealt chiefly with form; we now approach color, a still more important subject. What methods of economic production most nearly comply with the requirements of high art (so-called)? By the requirements of high art I mean a decoration which will offer you an uninterrupted line combined with infinite possibilities of color. I think stencilling fulfills these demands. By no other means short of hand painting, whether in fresco or other material, can you give the worker so much scope to his fancy for varied color. To talk of color is practically impossible. Its nomenclature conveys nothing beyond a vague general notion. If I ask for a scheme in red, I may obtain something as hot as fire, or an effect as dry as sand would be to the mouth. Therefore, on this I must perforce be brief; and yet I should like to say something which has a very definite bearing on this matter, for if the form of design is important, surely color has far more claims.

The most joyous of designs may be saddened by color, and yet a sombre motive may be treated with dignity in a scheme of bright red, which is supposed to be most exhiliarating. I say "supposed to be exhiliarating," for, after all, it is more the association of ideas than the raw color which affects you. If we examine the rooms we live in, and the scheme of decoration appropriate to each room, one of the questions which almost naturally arises is, "Why should a dining room be always dark red?" Is it to match the underdone beef-steak which continental prejudice believes to be our favorite diet? But, on the other hand, why should a drawing room be colorless? It it thus a foil to the conversation, which is often highly colored? Nor need a breakfast room be too simple and virtuous. The early morning suggests innocence and candor, it is true, but it brings also letters and depressions. Gay colors seems to me as needful to begin the day as to end it. A sunrise is often as charmingly schemed as a melodramic sunset.

Ought we not at this time to consider very seriously the relative positions of English artists as designers and colorists? Latterly, the pure invention of pattern which the designers of this country have evolved has attracted European attention. I say this because I know it, and am proud of it; for even in my own humble sphere the manufacturers of almost every European nationality have given me commission for goods, ultimately to be disposed of in the English market and their own. But this is not sufficient. I firmly believe we do "hold the field" above all nations for originality and invention in design; but as regards color, that is another matter. I would not venture to claim our supremacy in that respect. A merchant can commission the English designer for something "new" in form and idea, and be sure he gets it; but when the stuff is made a designer must often own to his sorrow that his scheme of color has been greatly improved by the printer and manufacturer. Indeed, this is a matter sometimes left entirely to the buyer, the designer only supplying the outlines. This is not as it should be, and I have often wondered whether there are causes other than merely climatic reasons for this shortcoming. We have schools of design where invention of a kind is cultivated, but as for teaching pupils to emphasize the development of a finer sense of color, there seems to be none.

I am here following in the wake of my friend Alex. Millar, who, in a lecture on carpet designing given recently at the Society of Arts, called special attention to this deficiency in our national art of training. He made a suggestion that seemed to me to be of the greatest value. In fact, I cannot lay too much stress on the stupendous importance and influence which it might have if carried out thoroughly. It was that "color"—as distinct from form—should be taught as a separate subject—taught as thoroughly, and held of equal importance to form. Neither is complete without the other; but we take the one very seriously, and leave the pupil to pick up the other anyhow. For a long time after 1851, when men were supposed to have changed all this, the designing capacity of this country continued at a low ebb. During this period anything good of its sort was invariably produced abroad.

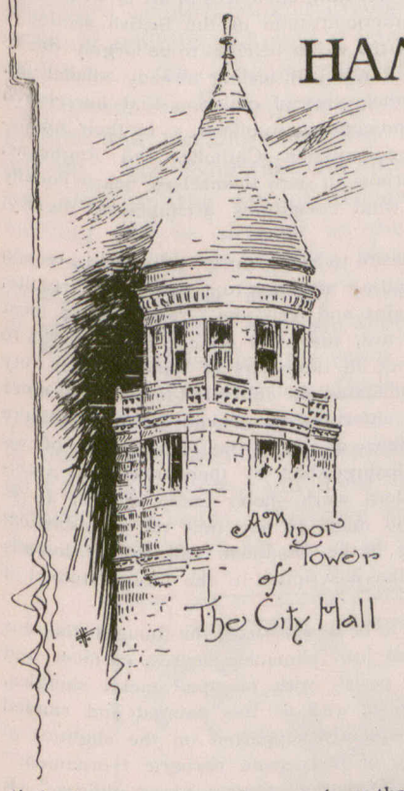
Indeed, manufacturers would hardly deign to look at an English design. Now that our designers have attracted European attention, I feel more anxious than I can well express that the onward march to the maintenance of our national supremacy in industrial design should not be crippled and hampered for the lack of that charming companion, color. Form, beautiful as it may be, is but as dry bones, the mere skeleton of an idea. It must be clothed with life, and color is to form what breath is to the body.

TO ARCHITECTS AND DRAUGHTSMEN.

THE publishers of the CANADIAN ARCHITECT AND BUILDER have opened a register in which to record the names and addresses of architectural draughtsmen in want of positions, and of architects who may require assistance. Architects and draughtsmen are invited to make use of this department, which is placed at their disposal without charge, and which we trust may be found to be of service.

Boiling paraffin is now applied to floors, especially those of hospitals, to make the wood impermeable, and unaffected by acids or alkalies. The treatment is considered effective from a hygienic point of view, and lasts for several years.

HAMILTON



(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

I suppose the inhabitants of this city of undeveloped possibilities could not be expected to be alive to their interests in any one direction more than another. If they cannot be brought to develop natural resources they could not be brought to consider the necessity of the preservation of their own creations. If they will do nothing towards making Hamilton a summer resort, can it be expected of them that they should do anything to prevent the total destruction of their city by fire? And yet perhaps that is the very reason for their supineness. It certainly is no use developing a place that is expected to be destroyed. They have their fire by-laws and they have a living inspector, who has told me that they have a pretty solid kind of city, from a building inspector's point of view. I wonder if it has ever occurred to the City Council, that after having passed and approved of plans for building—facit per alia facet per se—and after having in theory, if not in fact, approved the building when completed, if a serious fire should occur, resulting in injury or death to any of the public, the corporation is in danger of being mulcted in damages? But in the happy-go-lucky way of doing things, so very characteristic of corporations generally, it is to be concluded that if the constituents don't care, their representatives need not worry. Now Mr. Anderson is not only a living inspector but he has the advantages of youth and activity, a keen eyesight and a well developed sense of smell, and it is no doubt due to his natural capacity for his position that Hamilton should be as he says it is, so solid. No matter however, how brilliant a young man may be, he cannot be expected to shine if he is put under a bushel, and city authorities are usually more weighty than a bushel. But after all, especially with the experience of other cities before us,—by-laws cannot avert destruction by fire, especially when they are pigeon-holed and their provisions disregarded.

One clause of the by-laws says that "every elevator shall be constructed with brick walls" (sizes given) "with iron doors at each opening," the walls to be carried up 5 feet above the roof. It does not say whether the "elevator shaft" means the space occupied by the car in its ascent and descent or whether the "shaft" may be large enough to include a staircase winding round the car well, which is an arrangement so well calculated to cut off all means of escape in the event of fire. And with reference to the iron doors it does not define whether they shall be solid, of sheet iron, or of open ironwork—it is a question for the city solicitor to say whether a "grille" is an "iron door." Another clause says "or," and that little word is capable of filling us with renewed hope for our safety, until we know whether what follows it is carried out—"or shall be made with sides consisting of bars of iron open on each storey, and shall have horizontal fire proof doors on each flat, which shall automatically close the elevator opening in the floor when the building shall be heated by any fire," etc., etc. Now we have departmental stores and we have office buildings, warehouses and other places of business where the "shaft" has been taken to include the staircase and that staircase is made of wood, and where the elevators are inclosed with iron railings and no horizontal fire doors exist. Another clause says that the outer walls of "every building or part of a building" shall be of "iron, stone or brick," consequently frame gables, brick nogging, half-timbered work and such picturesque details are at a discount, but at the same time we have in the centre of the city, and newly built, a departmental store with the front of its upper story of wood, between piers of iron faced with brick. It is true the greater part between the piers is of glass—but the lights being circular headed have large wooden spandrils and abutments of wood, exposed to the elements. But what do the public care; we may all be burnt as we frequent these places but that does not trouble us; we are far more interested in the "Gore Park" (which of course is so well known I need not describe it, although it, like chickens and kittens, owes its beauty—no doubt—to its minute proportions.) However we are happy at last because the block paved triangular space which has served as a cab-stand for so many years, eastward of the confines of the present enclosed portion, is to be made into a flower bed as soon as the weather permits, and as there is nothing in the fire by-law referring to the construction of flower beds, we need not worry.

R. W. GAMBIER BOUSFIELD.

THE INFLUENCE OF THE MODERN CHRISTIAN CHURCH UPON THE ECCLESIASTIC ARCHITECTURE OF THE DOMINION.

Why has the church of the present day an evil rather than an elevating influence over the architecture of this colony? This is a question over which many a thoughtful architect must have pondered sadly enough; the contrast to be drawn between the magnificent temples that are an honor and a glory to Christian Europe, marking the devotion of her peoples, and representing as well the elevated taste, culture, and persistent effort of the clergy of the Christian church, whose buildings reveal not only the highest ideal in architectural design but the greatest of constructive skill—the contrast to be drawn between such an ecclesiastical architecture on the one hand, and the temporary, and too often trumpery and wholly inartistic, nature of church building in Canada, is indeed a painfully strong one.

In speaking of the church it must be understood as having reference to the Christian church as a whole, embodying all denominations, none escaping the reproach that is levelled against our sacred edifices—far too dignified a term to apply to the great mass of churches, chapels, meeting houses and so forth.

That the great dissenting bodies should worship in buildings in no wise calculated to inspire any other feeling than that of horror at the general disregard, sometimes amounting to an almost savage disregard, of the beautiful, is perhaps traceable to that old Puritanical creed which held it and Idolatry to be nearly akin, a creed which would appear to be still held by those who have the regulation of the building operations of these bodies. This old Puritan spirit evidences its existence in the dedication to the service of the Almighty of buildings which are mere travesties of architecture. The spirit which promotes this unfortunate objection to the beautiful is the same as that which prompted the barbarous destruction by English Puritans of an untold wealth of sculpture, carving, painted glass, pictures, tapestries, iron and brass work, etc., which had been accumulated during the long centuries when the church was well nigh the only repository of such treasures, a loss of inestimable magnitude from an art and historical point of view, the wicked and wanton destruction of which doubtless is largely responsible for the degeneration in English applied arts from which we have only comparatively recently began to recover. Until the Dissenters in the Dominion realize that the Almighty is the greatest of architects, that all His works are beautiful, and that in consequence lovely buildings, fine carving, noble sculptures, grand frescoes and indeed anything and everything in the production of which there is necessarily evidenced a strong love and patient study of the sublime in nature, cannot be distasteful to Him. I say until the truth of this is borne home to them they will continue to disfigure His lovely world with their architectural aberrations in the vain belief that they are thereby gratifying God.

But how is it with the Roman Catholic and Anglican churches? Do they in their works show that they strive to emulate the splendid example of their predecessors? Very many of the clergy of these two great divisions of the church are men who have been educated at Rome, Oxford, Cambridge, Durham—places steeped to the core in art, places in which it would seem impossible for any ordinarily observant person to live for a single year without bearing away with him a love and a reference for the grey old churches, chapels, colleges, libraries and galleries with the countless treasures they contain. But how much more

true should this be of men about to become priests in the church which created or directed, or ministers in the church which inherits these glories of mediaeval art. Any one not conversant with the facts would confidently expect every little up country parish or mission church, as well as the more important edifices to bear some impress of the splendid associations amidst which the officiating clergy were reared. So far from this proving to be the case, one finds almost as little to admire, or rather, almost as much to disgust, in the sorry apologies erected under their auspices, as in those built by those branches of the church which lack the romantic traditions and noble heritage of the Romans and the Anglicans.

Why should nearly every building committee with its priest, parson or minister at the head, deem it necessary to place tin pinnacles on wooden boxes all painted and sanded with the too evident intention of hoodwinking the Architect of the Universe into mistaking them for massive stone? It is not merely very ridiculous, but worse still, savours almost of blasphemy. Wooden walls barely 6" thick contain openings with wooden arches and, oh! shade of William of Wykeham! those openings are not infrequently filled with wooden tracery. Roofs are covered with stamped tin tiles and imitation shingles, wooden label moulds are spiked onto weather boards; wretched imitation is heaped on wretched imitation until it might reasonably be deducted from this multiplication of absurdities that the building is dedicated to a great God of Sham; one lives in apprehension of seeing hollow rustic weather boarded flying buttresses and lath and plaster fan vaulting added to this already formidable list of absurdities.

Is it necessary that church builders should ape "Gothic" in the senseless, soulless manner which poses for Gothic that is? There probably are scarce a score of architects in Europe who can successfully reproduce that lost chord, for the workmen of the middle ages carried the secret of their art with them to the grave, and the machine-made, eight-hour-a-day mechanic of these days cannot recover it; the trade unionist and the Gothic worker have no resemblance—nothing in common. It is impossible, absolutely and undeniably impossible, to invest our work in this very prosaic brand new country with the charm and mystery with which the devout builders of the Old World imbued their creations. The fault, or difficulty, call it what you will, lies with the changed times, with the altered conditions of life and thought, facts which our church builders would do well to accept once and for all, and by directing their efforts with a due regard for these altered conditions they will, in time, produce something more worthy of the age in which they work.

Architecture is the history related in stone of a nation; art and literature stamp its intellectual level and mark its standard with unfailing truth; what has the Christian Church in Canada produced in the nature of ecclesiastical architecture to save her from oblivion? Judged by the standard of our places of worship, what will be thought of the religious devotion and artistic perception of the people who were satisfied with them?

It is srtange indeed to find the Church setting an example least to be expected from such a source by substituting cheap sham for the truth; our forefathers only built just so much of a cathedral or a church as they could afford to build, adding to or enlarging and beautifying as their resources permitted; or they built a portion, the nave or perhaps but an aisle of an ambitious scheme which occupied centuries to develop; thus it is that one of the most charming of studies in the whole range of architecture is that of archæology, tracing the origin and growth, the vicissitudes, the gradual advance towards fulfilment and—decay, of an old church building. How different is the story of a modern church—rushed up with an almost indecent haste on the lump sum contract principle with one desire only uppermost, to get the job paid for; debt frequently nearly overwhelms the congregation. Sometimes a church is erected and financed on joint stock principles. Think of that! seeking heaven by means of a few shares in a Joint Stock Co.!!

Poverty is the hackneyed excuse trotted out as the cause of the present pitiable condition of ecclesiastical architecture, but in the face of all the expenditure wasted on bad imitation and on fake ornament such a plea cannot be accorded any consideration. An utter failure to realize the appropriate and the fit, a desire for decorative features at any cost, even of stability, together with an apparent reluctance to trust to the generosity or to the piety of future generations to carry on and complete any work we may commence, impels the rash erection of a work in a season which might with great advantage have been allowed a century to develop in.

That the immediate descendants of that race which has made France famous as the mother of so many great artists in stone, should be so blind to the elevating influences of art is even more astonishing than the apathetic attitude of the British section of the people, whose apathy the writer believes to be largely due to the survival of the old Puritanical feeling already alluded to. And yet it is not by their sins of omission that her church builders have offended and continue to offend, as by their infinitely more awful sins of commission—Catholics and Anglicans, Methodists and Presbyterians all show themselves nearly equally lacking in a sense of what constitutes architectural dignity, beauty and repose.

It is not so much my desire to discover or to assign a reason for this indifference as to draw attention to it and its evil results, that it may be fought against and overcome. Perishable as most of our modern buildings are, they will endure long enough to exercise a baneful influence on the habits of taste that do duty with most people for educated or cultivated taste. The more solid constructions may unfortunately remain for an indefinite period to mark the decadence of art in the oldest colony of two peoples almost equally distinguished by their mediaeval architecture and whose modern work shows every sign of a re-awakening. It is not too much to say that the ecclesiastical architecture now existing in the Dominion will convey lessons only of a decidedly negative description to the future student of archaeology.

There is some comfort to be derived from the thought that our machine-made galvanized iron pinnacles, bosses, cornices and what not, will quickly perish with stamped metal shingles, ceilings and other rubbish, and as this painted and sanded "ornament" is not infrequently supported on the slightest of substructures the decay of this same barbaric "ornament" implies the possibly early dissolution of our "sacred edifices." It is impossible to hope that many of the young architects upon whose endeavors the future of Canadian architecture rests will be able to enjoy the great pleasure and innumerable advantages derivable from a few years sojourn among the works of the giants of the past, for the study of ancient buildings is of incontestable value to the student, representing as these do what has been aptly described as the accumulated experiences of past ages; but a healthy regard for the appropriate utilization of materials and a stern refusal to countenance a cheap and flimsy mockery of detail which well nigh defies repetition even in living hands working on honest materials, will do much to lift us out of the abyss into which we are fallen. When necessary to build with great economy let them learn to build honestly in those simple lines and measures which confer dignity of purpose, and leave the rest to the future. One beautiful piece of window painting is of more true worth than acres of gaudy meaningless stained glass so commonly found in Canada. Let it be impressed upon the young architect that restraint is a far finer trait than fussy effusiveness; they in their turn may do something to impress this upon the laity, and then there may indeed arise a hope for a national architecture, worthy of ourselves, worthy of the two grand races that begat Canada.

ROBERT M. FRIPP.

LEGAL.

RAT PORTAGE LUMBER CO. v. AHLBERG.—Chadwick, assignee for benefit of creditors of defendant Ahlberg, appealed from certificate and finding of local Judge at Rat Portage in a summary proceeding to enforce a mechanics' lien. The plaintiff supplied lumber to defendant Ahlberg in June, 1897, and then registered a lien against the land. There were three mortgages against the land, amounting to $1,800. Plaintiffs proceeded under section 31 R. S. O., ch. 153, against both defendants, Ahlberg having after registration of lien assigned for creditors. The lands were sold for less than the amount due under mortgages. The local Judge found that Chadwick was properly added as a party. The mortgage sale took place in November, 1897, and the assignee contends that the plaintiffs should then have proved their claim against the estate, and not proceeded with the action, because the lien had ceased to exist, and also that the mortgagees should have been made parties to the lien proceedings, and that the costs of a proceeding like this should be saddled in the estate against the other creditors. Appeal dismissed with costs.

Objection has been made by the architects of Hamilton to the city building inspector being allowed to enter into competition with them by preparing specifications and superintending building contracts.

REGULATIONS OF THE PARIS EXPOSITION.

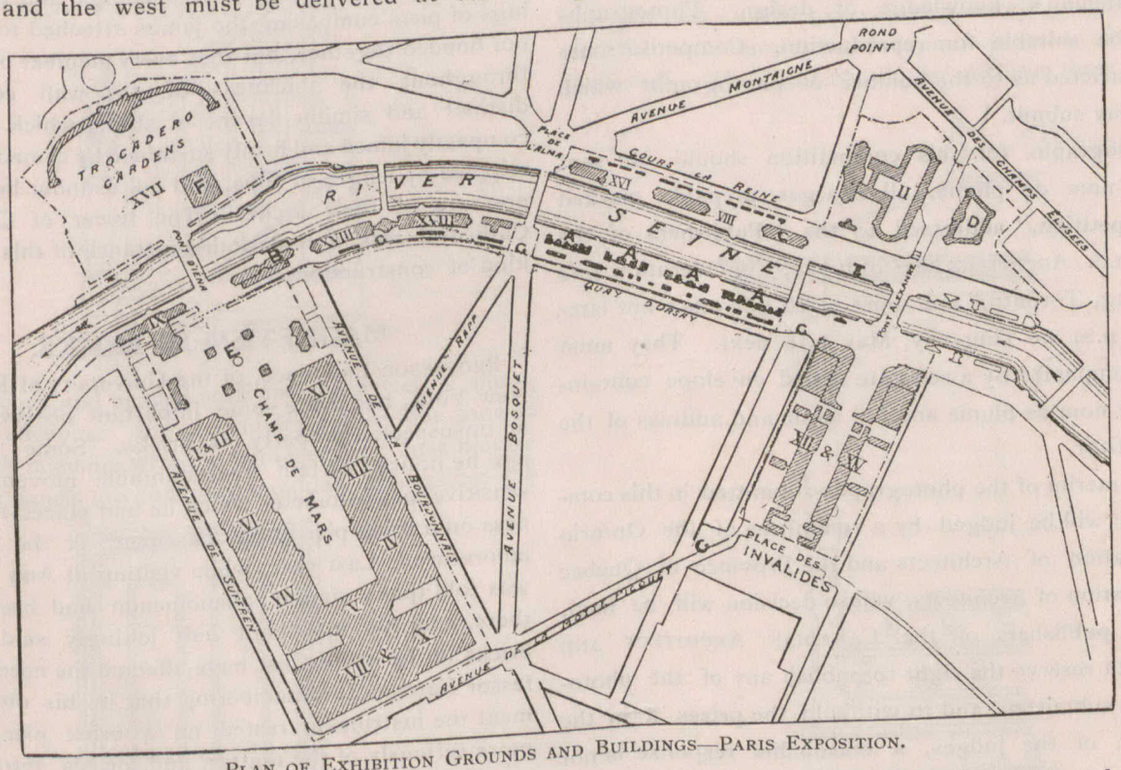
THE Canadian Commission for the Paris Exposition of 1900 have issued a booklet giving regulations, classification of exhibits, and general information for intending exhibitors. The accompanying plan, which is herewith reproduced, shows the arrangement of the Exhibition grounds and buildings, and will no doubt be found of interest. The Exhibition will open on the 15th of April and close on the 5th of November. The Colonial building will be situated on the Trocadero grounds overlooking the Champs de Mars, not far from the Great Eiffel tower, and will cover 36,000 square feet, of which 27,100 feet has been allotted to Canada.

Forms of application for space must be returned to the Canadian Commission, Department of Agriculture, Ottawa, not later than June 1st, 1899. It is the desire of the Commission to secure the best possible exhibit of Canadian goods, and there will be no charge to exhibitors for space. Accepted exhibits from Quebec, Ontario and the west must be delivered at the exhibitor's expense at Montreal or Quebec not later than November 1st, 1899, and exhibits from the Maritime provinces at Halifax, N. S., not later than November 15th. These will be shipped to Paris by the Commission free of charge. Exhibitors are expected to dispose, in Paris, of their exhibits when these have a commercial value, as only valuable collections of objects of special character will be granted free return transportation. The exhibits are divided into eighteen groups, which are again subdivided into numerous classes.

Group two includes works of art, divided into four classes. Class 7 contains painting on canvas, panel, metal, enamel, china, earthenware, various glazes, by all direct processes, on oil, wax, tempera, etc.; water color paintings, pastels, cartoons for frescoes, tapestry and stained glass; drawings of all kinds. In class 9 will be placed sculpture of figures and animals in alto-relievo or in baso-relievo; models in plaster, clay or wax; originals and copies in stone, marble, bronze, wood, ivory, metal, etc. Class 10 includes drawings, photographs and models of works already carried out (public and private buildings); designs of buildings; restorations from ruins or from documents.

In group six is placed all exhibits relating to civil engineering, including the following: Building materials, such as lime, cement, plaster, artificial stone, etc.; plant and method used in the production of these materials; methods used for testing building materials; plant and method employed for earth work; plant and methods used in making foundations, public streets, etc.; models, plans and drawings relating to public works, such as water supply, gas lighting, canal construction, bridges and viaducts, railways, etc.

In group twelve is placed exhibits of decoration and furniture of public buildings and dwelling houses, including the following: Plans, designs and models of fixed decoration; carpentry; ornamental joinery; fixed decoration in marble, stone, plaster, papier mache and cartonpierre; decorative sculpture; ironwork and locksmiths' work; decorative paintings on stone, wood, metal and canvas; stone or marble mosaic pavements; enamel mosaic for walls, vaults and domes; stained glass windows; specimens of various kinds of glass used for decorative windows; models of window frames; wall papers and paper hangings; apparatus and processes for heating and ventilation; apparatus and processes employed for lighting, other than electric lights. Group sixteen includes plans and specimens of workmen's dwellings, such as single houses built by employers, workmen's flats, furnished lodgings for unmarried artisans, etc.



PLAN OF EXHIBITION GROUNDS AND BUILDINGS—PARIS EXPOSITION.

ARTIFICIAL SANDSTONE.

AN artificial sandstone made at Uccle-Calevoet, Belgium, is a silicate of lime obtained by imitating the supposed conditions of nature. A mixture of 80 per cent. of clean coarse sand and 20 per cent of hydraulic quicklime is placed in an iron mould, which is introduced into a boiler filled with hot water, and is kept for three days under a pressure of six atmospheres and a temperature of about 329 degrees F. The resulting block is at first soft, but hardens quickly in air. The stone is absolutely homogeneous, absorbs little water, has four times the crushing strength of French freestone, and at the cost of ten cents per cubic foot is cheaper than the natural product.

STUDENTS' DEPARTMENT.

STUDENTS' AND DRAUGHTSMEN'S COMPETITION.

THE publishers of the CANADIAN ARCHITECT AND BUILDER invite architectural students and draughtsmen in Canada to enter a competition for architectural photographs. The subject is a constructed residence costing $10,000 or under. Photographs must show a perspective view of the entire building. They must not be less than 4 × 5 inches in size, and must be accompanied by a brief memorandum descriptive of the location, site and aspect of the building and the material and coloring, together with the name of the architect, if obtainable. The photographs will be judged from an architectural standpoint as exhibiting specimens of good design—the object being to test the student's or draughtsman's knowledge of design. Photographs must be suitable for reproduction. Competitors are not restricted as to the number of photographs which they may submit.

Photographs for this competition should be sent under nom de plume, all charges prepaid, marked "Competition," addressed to the "Publishers of the CANADIAN ARCHITECT AND BUILDER, Confederation Life Building, Toronto," and must reach this office not later than 5 p.m. on Thursday, May 25th next. They must be accompanied by a separate sealed envelope containing the nom de plume and full name and address of the competitor.

The merits of the photographs submitted in this competition will be judged by a committee of the Ontario Association of Architects and the Province of Quebec Association of Architects, whose decision will be final.

The publishers of the CANADIAN ARCHITECT AND BUILDER reserve the right to publish any of the photographs submitted, and to withhold the prizes if in the opinion of the judges, a reasonable response is not made on the part of the students and draughtsmen to this invitation.

The first prize will consist of architectural books to the value of Ten Dollars and the second prize of architectural books to the value of Five Dollars. The psrsons to whom the prizes shall be awarded will have the right to select such books as they may desire within the above mentioned limits of cost.

NORMAN CONSTRUCTION.

THE skill of the Norman builders in the science of construction is attested by the strength and durability of their structures. The three essential ingredients of which they composed their walls—squared stone, rubble and cement—when combined could be equally relied upon for their firmness against pressure, or their resistance for a very long period to the operations of time and weather. The system, therefore, of bonding or tying together the ashlarwork on both sides of the wall was very rarely practiced, and there is not an example of it in a wall of great thickness. The practice would have been useless; solidity and capacity were indispensably requisite to Norman construction, and the concrete was so dexterously composed that it would have derived no advantage from the introduction of blocks in a transverse direction. For the same reason neither timber nor iron were concealed in walls thus composed. The rugged, rock-like aspect of many buildings which once exhibited a well-wrought surface of stonework mingled with the elegant ornaments of architecture proclaims the toil with which their strength had been secured. Fountains Abbey and St. Pancras Priory at Lewes are interesting and deplorable examples; but in still stronger confirmation of the durability of ancient cement, there are places in the walls of Conway and Bamborough Castles, where the stone has been forced from the mortar, which protrudes in large and prominent masses, and which are not in any perceptible degree injured by the weather. Another peculiarity occasionally observable in the construction of Norman masonry is that the angles of openings and the mouldings of piers composing the jambs attached to them are not bonded together, but that every member of the jamb throughout the thickness of the wall consists of distinct and similar layers of stone, which when not compactly joined and firmly sustained by cement, become crippled by length of time, and fall asunder beneath the pressure of their arches. The tower of Canterbury Cathedral was a remarkable instance of this imperfect kind of construction.

MAGNETISM IN BRICKS.

PROFESSOR Lawrence, of the University of Rochester, New York, has made some important observations on an unsuspected property of bricks. Some two years ago he noticed certain unaccountable movements of a sensitive magnetometer which he had placed for steadiness on a brick pier in the basement of the university laboratory. Last year, while visiting at Ann Arbor he was told that a similar phenomenon had been noticed there, and his informant half jokingly said that the bricks in the walls must have affected the needle. Professor Lawrence, remembering that in his own experiment the instrument rested on a brick pier, thought more seriously of the matter, and, on his return to his own laboratory, began a series of experiments to determine whether bricks really could be magnetic. Collecting a large number of samples of bricks of different kinds, and testing them with a delicate magnetometer, he found that nearly all red bricks, and some white ones, were appreciably magnetic, a brick of the strongest sort, a brownish variety made near Rochester, giving a power equal to that of wire as large as a knitting needle, and 1 in. long, completely saturated with magnetism. The only brick which was absolutely free from magnetic power was a white one, also made near Rochester, but a yellowish one, from some place not specified, was also nearly free from it, while another white one, from Washington, was very nearly as magnetic as the Rochester brown one.

THE CHICAGO ARCHITECTURAL CLUB.

THE catalogue of the Twelfth Annual Exhibition by the Chicago Architectural Sketch Club, held at the Art Institute, Chicago, from March 30 to April 16th, comprises 136 pages of letterpress and illustrations, the latter representing the work of architects in various parts of the United States. It is disappointing to find so few illustrations of the work of members of the Club. There is printed as an introductory article a paper on "Modern Architecture," by George R. Dean.

THE BUILDER

[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.]

Some Odd Bits of Finish.

A very simple, yet neat finish for a main stairway is shown at Fig. 1. The newel is plain, balusters square, and the stairstring unpretentious. The spandel is fitted in

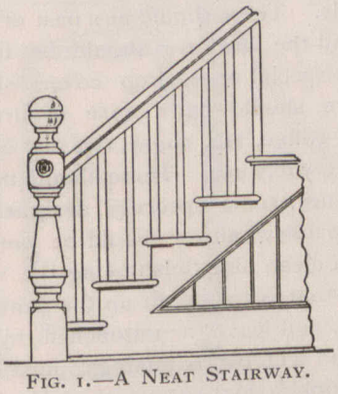


FIG. 1.—A NEAT STAIRWAY.

with matched and beaded stuff and the newel is plain, neat and effective. Fig. 2 exhibits a plain four paneled door, with machine wrought trim head and base blocks. The door panels are sunk and moulded, casings are 4½

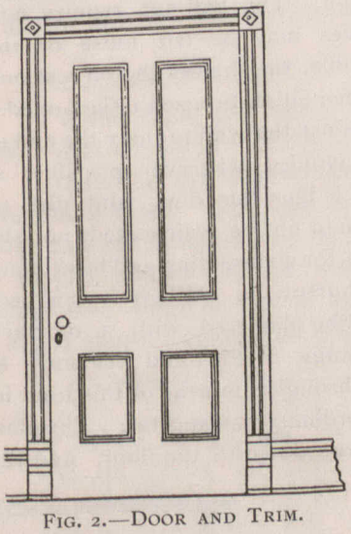


FIG. 2.—DOOR AND TRIM.

inches wide and ⅞ inch thick; head or corner blocks are 1⅛ inches thick and have a small diagonal ornament placed or nailed on them. The base blocks or plinths, are 1⅛ inch thick and the same width as the casings, the top mouldings projecting above the base. The base is eight inches wide, moulded on top. A carpet strip is nailed in against the base and is mitred around the base blocks. This door and trimming is well suited for ordinary country work or suburban cottages. In keeping with the stairway and door and finish, is the verandah finish shown at Fig. 3. The whole work is plain and within the range of most workmen. The posts are turned from 5 x 5 inch stuff, and the plate, which forms part of the finish may be formed of a 5 x 5 inch timber, or it may be built up of dressed one inch stuff. The brackets are sawn out of two inch plank with a jig or band saw. The roof may be covered with shingles or with tin or galvanized iron. The cresting, where such is required, may be cut from one inch pine or cedar and the rails and balusters may be wrought by hand or machine, out of pine, as may be thought best. The top rail may be 2½ inches thick, and the middle and lower rails may be made from two inch stuff. The frieze should be not less than an inch

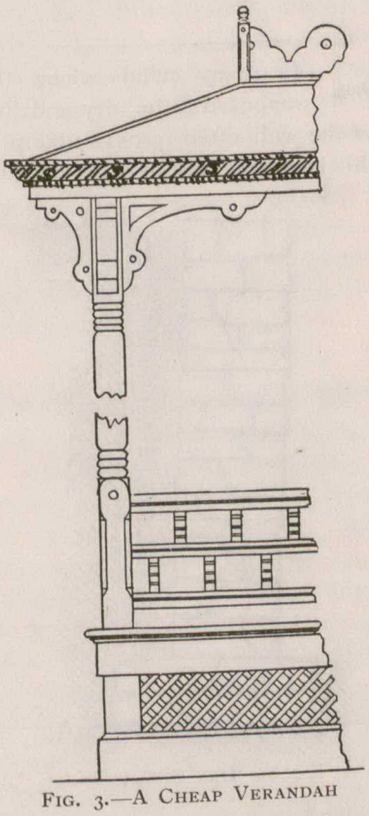


FIG. 3.—A CHEAP VERANDAH

wider than the joists and should project down low enough to receive the lattice strips. The base may be any width to suit the position. The lattice strips should be ⅜ inch thick and about 1¼ inches wide. The gutter or trough forms the finish for the cornice, and is made of tin or galvanized iron. The design is very simple, low priced, and withal attractive.

Foundation Footings.

In putting down footings it is essential that the mason get good flat bed-stones for his first course and that he lay the best side with its face on the flat earth. Spawls should not be used in packing up the first layers of footings between the earth and the stone, as this practice is sure to cause unequal settlement, and is, moreover, likely to result in more serious damage, particularly in clay grounds. Before laying in the footings, particularly where the foundation walls are not more than from two

to four feet below the grade line, the bottom of the trench should be tamped down with a heavy tamping block of some kind, in order to give a solid bed to the footings. A good tamping block may be readily made out of a piece of timber eight or nine inches in diameter and twelve or fourteen inches in length. Have the lower end cut square and smooth, bore a two inch hole in the centre of the other end into which insert a hard-wood handle, leaving it about two feet long from the block. A cross-handle may be attached to this, at such height as may be suited to the person who is to use it. It will then be somewhat like a paver's rammer. If this rammer is used all over the bottom of the trench it will so harden the bottom that very little settlement will take place. The first layers of footings down, the use of spawls is, to some small extent permissible, but judgment should be exercised in their employment. If the wall is to be built on a solid sandy bottom, tamping will be unnecessary, as a foundation of sand is as good as can be desired, providing it is not disturbed by the removal of the earth or sand around it. The foregoing refers chiefly to common rubble work as generally employed in the construction of foundations for country buildings.

The Cellar Wall.

In many cellars where the ground is supposed to be dry and well drained, the inside of the wall often proves damp and sweaty. Generally this is caused by the earth on the outside of

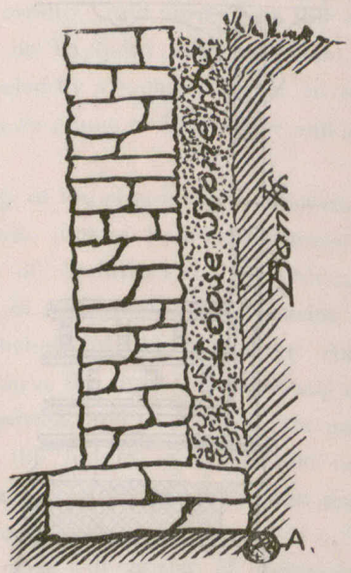


FIG. 4.—DRY CELLAR WALL.

the wall containing moisture and transmitting it to the stone forming the walls of the cellar. This fault may be prevented if proper care is taken when the wall is being built. The cellar should be excavated six or eight inches lower all around than the size of the foundation wall; then, after the footings are in place, the wall should be "drawn in" to the dimensions required, and, as it is being builded, the space between the outside of the wall and the bank should be filled in with broken stones, coarse gravel or broken bricks, and this filling continued until the grade line is reached, as shown in Fig. 4. This plan of making a foundation where there is to be a cellar, will, to a very great extent, insure dry cellar walls; but, should the earth be of a moist nature, it might be as well to lay a course of weeping tiles around the bottom of the footings as shown in the cut at A. These tiles need be no other than ordinary field tiles, laid butt and butt together. This precaution will insure a dry cellar on high land. The loose stones will allow all the wet to drain from bank down to the footings before it can reach the stone-work, and if it cannot drain away from that point it will be caught and carried off by the weeping tiles. The extra expense of building a cellar wall in this manner, over the usual method, would be a small matter compared with the advantages and comfort derived by having a dry healthy cellar.

Fitments For Pantry.

Every house has, or ought to have a pantry in it, situated near the kitchen, and for economy, labor-saving and sanitary reasons, this pantry should receive much more attention than it usually gets from either the designer or the builder—and we might also add, the owner. A pantry should be well lighted, should have some means of thorough ventilation, and should be fitted up inside with ample shelving, drawers, spice nests, bins, and baking boards. There should be a nest of small drawers for spices, and the drawers should be lined with tin, and for some special ones, drop covers should be provided. There should be a case of drawers, made especially for coffee, tea, sugar, rice and other groceries that are in every day use. There should be wide shelves and narrow ones, some specially designed for canned goods. No paint whatever should be employed inside the pantry; a clean pine finish being the very best that can be done, that is to say, fit up the pantry altogether in white pine, and leave it untouched by oil or paint. If the door and window trimmings must be finished in something, apply a coat or two of good shellac varnish on the bare wood. Shellac leaves no taint or disagreeable smell after it. All shelves and drawers should be so arranged that they can be taken down or out of their places, scrubbed or cleaned, and exposed to the sun for awhile. This will not require much ingenuity, as the shelves may be left loose on their bearings. Where possible, the shelves should rest on iron brackets that have been either bronzed or japanned. The nailing of cleats against the wall to carry the end of the shelves, should be avoided wherever possible, as the cleats often have ledges for dust and dirt to rest upon. Pantries should not be wainscoted, nor should the base be very deep, for wainscoting and base offer opportunities for mice to burrow in. Where it can be afforded, the walls should be plastered with a mortar containing a large percentage of Portland cement. Rats or mice cannot cut through a mortar of this kind in like manner as through ordinary lime mortar. The plastering should in all cases run down to the floor, and the floor itself

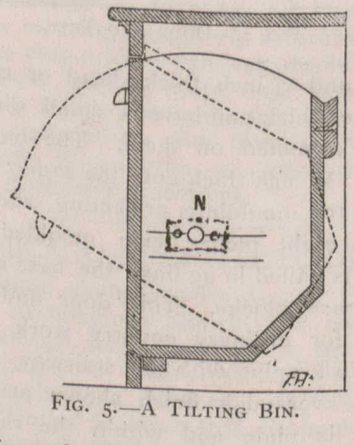


FIG. 5.—A TILTING BIN.

should be formed of concrete and cement. There should be one or two tilting bins in the pantry for holding flour or oatmeal. As a rule these "tipping

bins" are not known so well as they ought to be, and the illustrations given herewith are presented in order to show the construction and enable any intelligent mechanic to understand their anatomy. Fig. 5 shows a method of construction where the bin is swung on a pivot, the pivot being shown at N. This pivot or pin may be formed of hardwood, or it may be an iron teat screwed to the side, being first riveted into an iron plate provided with screw holes. If the pivot is of hardwood, it may be inserted from the outside through the case and the bin in such a manner that it may readily be taken out so that the bin proper can be moved at will. The pivot must be placed a little to the front in order to admit of the bin swinging back properly to its place. The dotted lines show the bin when it is tipped so that its contents may be got at readily, the shaded line showing it when closed. Another style of tilting bin is shown at Fig. 6. This method of construction permits

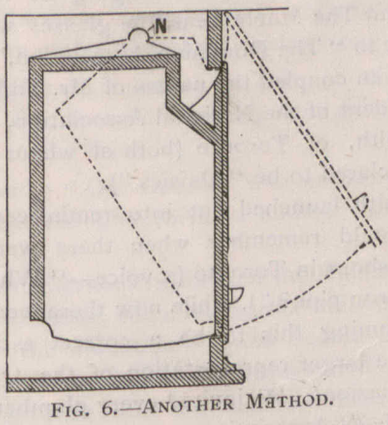


FIG. 6.—ANOTHER METHOD.

the bin to remain open without being held, whereas, that shown at Fig. 5 requires to be held slightly to keep it open, as it drops to its place automatically by force of gravitation. The method by which it is swung (Fig. 6) is shown at N. Any further description is unnecessary.

Shingling Hips.

While there are many hip roofs all over the country, there are very few of them that are finished over the hips in a proper or scientific manner. Nothing looks so ugly and unworkmanlike as a hip being finished off with two ridge boards and topped with a roll. A well shingled hip requires no ridge roll, ridge boards or other like contrivances. Fig. 7 shows a method of shingling that is

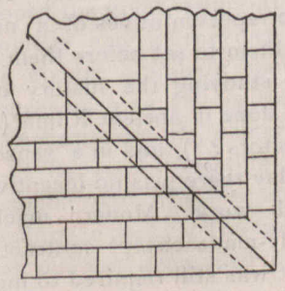


FIG. 7.—SHOWING RIDGE BEFORE IT IS SHINGLED.

handsome when finished, and quite effective in turning the water. The dotted lines show where a line has been struck on the roof-boarding, about four inches from the ridge line and parallel with it. In laying the shingles put the corner of each course to the line as shown. The tops of the shingles are then trimmed to correspond with the line, then the hip itself is shingled as shown with the grain of the wood running parallel with the ridge line as shown at Fig. 8. This method of laying the shingles excludes all danger of curling up as most shingles do that are cut to a point in the usual method of covering hips. At first sight this method has a different look, but when tried in actual practice it will be found easy enough, and every joint will be well broken. The trimming off of the top of the shingles

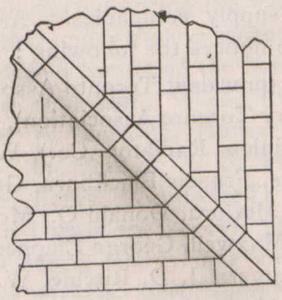


FIG. 8.—SHOWING HIP WHEN FINISHED.

must be done of course, on the line of the ridge, and this, together with the proper adjusting of the corner of the first shingle in each course, is the secret to the solution of the whole problem. In covering a roof by this method, it is always best to start the shingling of the hips on the opposite ends of the same side of the roof together, then the line can be drawn from butt to butt, thus insuring uniformity in the weathering of the shingles. A hip-roof finished in this manner always impresses the looker-on with an idea of neatness and tightness. If the roof is painted, the shingles on the hip may be made a different color to the body of the roof, though the colors should not form too strong a contrast. There are many other methods of covering hips—some good, and more not so good—which may be described and explained in future issues of the CANADIAN ARCHITECT AND BUILDER.

COATINGS FOR DAMP WALLS.

THE Plumber and Decorator is authority for the following:—The wall must be thoroughly cleaned and the plaster renewed if found to be impregnated with so-called "wall nitre" or efflorescence. The surface is then brushed over twice with a 50 per cent. solution of waterglass (silicate of soda), followed after a thorough drying with three coats of the following mixture: 100 parts of mastic dissolved in an equal weight of absolute alcohol; 200 parts of gelatine dissolved in 1,000 parts of water by cold steeping for six hours and subsequent boiling; 100 parts of 50 per cent. spirit; and a hot solution of 50 parts of ammoniacum in 250 parts of 50 per cent. spirit, the whole being well stirred and kept warm over the fire for five minutes. It should be freshly prepared for use. When this coating is dry it is overlaid with a coat of oil, or oil-lacquer paint. The sweating or efflorescence of fresh brickwork may be prevented in a similar manner, but substituting distemper or limewash for the oil paint. Newly built walls intended to be prepared can be prevented from sweating by two or three coats of the gelatine solution, which will preserve the paper from discoloration; and dirty patches arising from smoke, soot, etc., in kitchens and corridors can also be covered over with the same liquid, and so kept from showing through the fresh coat of paint.

Carmine is readily affected by heat, turning to dull brown, and metallic salts have an injurious effect upon it. Exposed to strong light it is not permanent, fading away completely in less than six months, unless well protected.

MASTER PLUMBERS' BANQUET.

A JOLLY evening was spent at the banquet given at McConkey's restaurant by the Toronto Master Plumbers' Association, on the 7th inst. There were present about one hundred persons, including representatives of the Hamilton and London associations, and of the manufacturing and supply companies. Among those in attendance were noticed the following :

J. H. Wilson (president Toronto Association), W. G. Ritchie (secretary Toronto Association), John M. Taylor (manager Dominion Radiator Co.), W. H. Meredith, W. H. Meadows, Francis Blackburn, Geo. W. Verral, W. Walker, S. McCord, Donald Q. McCulloch, David Carlyle, Frank Maxwell, George Clapperton, Samuel S. Clarke, E. A. Rogers, J. D. Ritchie, W. B. Anderson, Dundas C. World, A. H. Richardson, C. M. B. World, Adam Taylor, Robert A. Morrison, A. S. Bates, R. T. Robinson, E. H. Roulitt, T. Worthington, Samuel Muirhead, D. J. Glynn, W. B. Malcolm, J. Matthews, W. J. Spence, W. A. Fenn, James M. Sinclair, Harry R. Flett, George H. Cooper, L. L. Anthes, Alex. Fiddes, Charles E. Morrison (James Morrison Brass Mfg. Co.), J. Edward Fisher, Bert Harvey, A. Taylor, John J. Main, M. P. Huffman, Wm. Mansell, S. Wright, James Sherlock, C. H. Mortimer (CANADIAN ARCHITECT AND BUILDER), D. O. McKinnon (Hardware and Metal), A.

THE CHAIRMAN,
Mr. James H. Wilson, President Toronto Master Plumbers' Association.

McMichael, W. S. Jackson, A. W. Mann, J. R. Foster and S. Topping (the James Robertson Co.), Henry Hogarth (Fiddes & Hogarth), F. J. Taylor (the Gurney Foundry Co.), M. R. Wright, J. Wright, James Ellacott, L. B. Spafford, Fred. H. Pim, H. W. Anthes (Toronto Foundry Co.), Joseph Wright, J. H. Patterson (Toronto Hardware Co.), Fred. Armstrong, A. S. Purdy, A. E. Burroughes, J. L. Pincombe, C. E. Pickard, John T. Aggett, James B. Fitzsimmons, Benjamin Kirk, P. Davy, Toronto ; W. J. Clark (president Hamilton Association), R. Rogers, James Stewart, Charles E. Marks, Geo. H. Taylor (Gurney Tilden Co.), Hamilton ; William Smith (president Dominion Master Plumbers' Association), F. H. Leigh (secretary London Association), B. Noble (treasurer London Association), London ; Alex. Saunders, Goderich, Ont.

Mr. Jas. H. Wilson, President of the Association, occupied the chair.

Letters of regret were read by the Secretary from Messrs. E. H. Russell, J. A. Johnson, C. F. Needham, Joseph W. Chambers, J. Hazlett, Jas. Greenway, W. H. Heard, London ; J. W. Hughes, Montreal ; J. McKinley, E. B. Butterworth, John Higman, John O'Neill, Ottawa ; A. Chatfield, St. Catharines

The company first turned its attention to the following :

MENU :

Cream a la Princess

HORS D'OEUVRE

Lettuce — Radishes

Spanish Olives

FISH

Filet de Sole, Plumbers' Style — Pomme Parisienne

ENTREES

Sweetbreads aux Champignons
Tenderloin of Beef a la Lead Pipe Cinch

VEGETABLES

Pomme Chateau — Creamed Corn

Green Peas
Salade de Saison

DESSERT

Surprise Ices — Assorted Fancy Cakes
Wafers — Meringues
Fingers
French Decorated Pastry
McLaren's Imperial Cheese — Black Coffee—Steam Heated

Following which came a brief list of toasts, interspersed with music vocal and instrumental. The health of Her Majesty and the Governor-General having been pledged, accompanied by the singing of the National Anthem and The Maple Leaf, the glasses were charged for a toast to "The Dominion Association," with which the chairman coupled the names of Mr. Smith, of London, President of the National Association, and Mr. W. H. Meredith, of Toronto (both of whom were unanimously declared to be "Daisies").

Mr. Smith launched out into reminiscences, saying that he could remember when there were only four plumbing shops in Toronto (a voice—"Where did you buy your iron pipe?"), while now there were said to be 97. Presuming this to be a correct estimate, there should be a larger representation of the trade present on this occasion. He invited every plumber, whether a member of the Association or not, to attend a meeting to be held at 2 p.m. on the following day, when he would be prepared to talk about the Dominion Association. At 4 p.m. they would be pleased to meet the manufacturers to discuss matters of importance to all concerned.

Mr. Meredith assured his hearers that the National Association was in a good, strong condition from end to end of the Dominion, and working unitedly for the benefit of the trade and the Manufacturers' Association. He emphasized the invitation extended by Mr. Smith to attend the meeting to-morrow.

In response to the toast to "The Dominion Supply Association," Mr. A. Saunders, of Goderich, said he was once a plumber, and had to shape traps with a dresser and lay traps for customers. He referred to the plumbers as the representatives of a noble profession, and counselled them to set before them a high aim. He had lately been studying the history of the excellent plumbing work done in ancient Rome (a voice—"Any plumbing inspectors?"), and in a sense regretted that in the present day there was no incentive to the workman to do such work. Modern machinery produced everything ready-made except contracts ; considerable individual effort was still required to make them. The present had been aptly described as a "growing time" in Canada ; there were dollars for the plumber, and he should see to it that they found their way to his pocket.

Mr. J. M. Taylor, manager of the Dominion Radiator Co., referred to the fact that 21 years had slipped away since as a lad he started in the plumbing supply business with Mr. James Morrison, who was the father of the business in Toronto. The Manufacturers' Association was so harmonious that they only required to meet once in fifteen months. Mr. Taylor concluded by rendering

in excellent style a recitation, in which some clever hits at well-known plumbers were introduced.

Mr. Anthes, of the Toronto Foundry Co., who was greeted with "Daisy Shaker Just Now," said he had some good news for the plumbers. In Montreal a few days ago the manufacturers of soil pipe had raised prices 20 per cent. He remarked ironically that the plumbers should now raise their prices from 25 to 30 cents per hour.

Mr. Patterson, of the Toronto Hardware Co., assured his hearers that his firm always made it a rule to have a 4-inch hole in their pipe. He hoped the plumbers' banquet would be made an annual affair, so that the manufacturers and the members of the trade might become better acquainted.

Mr. Geo. Taylor, of the Gurney Tilden Co., expressed his regret of the unavoidable absence of Mr. Tilden, and wished success to the Plumbers' Association. Mr. Chas. Marks, of the same company, in lieu of a speech, favored the company with a German drinking song.

Mr. McMichael, manager at Toronto of the James Robertson Co., in response to repeated calls, also briefly responded to the toast.

The toast to "Our Guests" was enthusiastically received, and brought forth a number of interesting replies.

When Mr. Clarke, President of the Hamilton Association, rose to speak, some inquisitive individual inquired "Where's the mountain?" and subsided on being assured that it was in its old accustomed place. Mr. Clarke stated that while the Hamilton Association was as yet in its infancy, it nevertheless included in its membership about all the bona fide plumbers of the city. Previous to its formation the trade was in a very bad condition. Mr. Clarke was followed briefly by Mr. Stewart, of the firm of Fairly & Stewart, another representative of the Hamilton Association. Mr. Roger, another member, said the Hamilton Association owed much to the untiring efforts of Mr. Clarke.

Some wit cried "Remember the Maine!" as Mr. John Main of the Polson Company took the floor. After remarking that the plumber was envied when he comes to collect his bill and admired when the pipes freeze, Mr. Main secured release from further speech-making by telling several funny stories.

Mr. Maxwell, President of the Journeymen Plumbers' Association, hoped the good feeling at present existing between the master and journeymen plumbers would continue. The master plumbers should meet for consultation the journeymen as well as the manufacturers. The National Association of Master Plumbers of the United States at its recent meeting had appointed a committee to confer with the journeymen. Why not have such a conference here? The apprentice question and many other matters demanded consideration and adjustment.

Mr. Leigh, of London, and Mr. Anderson, of the James Morrison Mfg. Co., responded briefly.

The city plumbing inspectors, Messrs. Kirk, Meadows and Copping, replied on behalf of the toast to "The Medical Health Department." They bore testimony to the improved relations now existing between the Department and the plumbers, and to the fact that they had least trouble with the men belonging to the Plumbers' Association. The more associations there were, and the higher prices went, the less trouble the inspectors would have. Mr. Copping suggested that there would be a great saving in expense and trouble if the plumbers had testing machines and made it a rule to test work before sending it out.

The proceedings closed with votes of thanks to Mr. Joseph Wright and his coadjutors on the committee for their successful efforts to bring the various branches of the trade together under such pleasant auspices. The following gentlemen composed the Banquet Committee: Joseph Wright, chairman; W. G. Ritchie, secretary; A. Purdy, Wm. H. Meredith, Mungo P. Huffman, K. J. Allison, C. E. Pickard, J. B. Fitzsimons, Henry Hogarth, J. S. Bates, W. Mansell; and they are to be congratulated upon the success of their labors.

At intervals during the evening songs were sung in capital style by Messrs. Bert Harvey, W. G. Ritchie and —. Matthews. Mr. Spafford also gave a humorous reading.

It is understood to be the intention of members of the Supply Association to tender a return banquet to the Master Plumbers at an early date.

CONDITIONS IN THE PLUMBING TRADE.

One of the objects in view in getting together the Master Plumbers and representatives of the manufacturers and dealers in plumbers' supplies at the banquet held last week, was to give an opportunity of adjusting certain difficulties existing between the plumbers and supply companies. It will be remembered that at the Plumbers' Convention held in Quebec last year, the members of the Supply Association signed an agreement that they would not sell goods to any but legitimate plumbers. Complaint has of late been made that some of the supply houses were violating the terms of this agreement. On the day following the banquet, a meeting of the plumbers and representatives of the Supply Association was held in Toronto to discuss this matter, and we understand that the result of the conference was entirely satisfactory, the supply companies having pledged themselves to stand by their agreement.

THE IMPERIAL BRICK COMPANY.

A new company is seeking incorporation under the above name, to manufacture common and paving brick on a large scale at East Toronto. A number of well known capitalists of Toronto and Brantford are the promoters of the enterprise, which has already advanced to a point which admits of no doubt that it will be carried to successful completion. The necessary buildings and equipment will be provided at an early date, an experienced manager having already been engaged. The manufacturing appliances will be of the latest improved description. The intention is to operate the works throughout the year. The works will be situated in the midst of the clay deposit, thus obviating the expense of cartage. Shipping facilities by rail and water will also be provided. The character of the manufactured material was foreshadowed by one of the projectors of the company, who remarked that it was the intention to make a common brick which could be handled less carefully than eggs. The present would seem to be a favorable time to launch this enterprise, as a distinct revival in building seems to have set in, and stocks of common brick have run low while the demand for paving brick is said to much exceed the capacity of the present Canadian factories.

BUILDERS' ACCOUNTS.

III.

By A. O. Kittredge, F.I.A.

There remains for consideration, before bringing this series of articles to a close, the matter of a "going balance sheet," and a consideration of those facts which have to do with closing the books. A going balance sheet, however, does away with closing the books, as that term is ordinarily understood. With a going balance sheet the books are always open and always closed, and therefore it may be declared that for our purpose the first of these matters includes the last.

In all that has preceded the underlying thought has been a showing of results at every step. The culmination to be effected in this regard is the going balance sheet. At the outset the builder's attention was drawn to a balance sheet of the conventional form, the illustration employed being of the simplest possible character. Resources were put in one group and liabilities in another, and the difference between the two, it was pointed out, represented the builder's investment or his net worth, commonly called capital. A

Banquet of the Toronto Master Plumbers' Association, April 7th, 1899.

going balance sheet is only the arrangement of the accounts shown in such a schedule as just described, in a form to permit constant and regular additions to them, with the opportunity to strike a balance in each account, or in all the accounts, as often as they may be desired.

There are varions ways in which this arrangement of accounts may be effected, and therefore it will be better to devote all the space at our command to a discussion of principles rather than to use a part of it for an illustration of a special method. Suffice it to say in passing that what is known as the "Balance Sheet Ledger," which is arranged in vertical columns for the necessary accounts, and in horizontal spaces for the records of given dates, thus permitting posting each day, or at other regular interval the results or totals of the business transaction, is that which is in most general use for the purpose, and which gives the best satisfaction.

Right here let us pause long enough to contrast the new method with the old. A moment's consideration of the difference between the two will serve to illustrate the special points that are to be presented. The old plan, with respect to balance sheets, as intimated at the beginning of these articles, was to make out one at the commencement, showing resources, liabilities, and net capital, and another at the end of the business period under review, showing similar items. A comparison of the latter with the former served to show whether a profit had been made and how much, or a loss and the amount of the loss. In the interval between the dates of the two balance sheets thus compared many changes of course had occurred. Some assets had been converted; the amounts in the asset column has been varied as between the different accounts represented; in one case, perhaps, there was more cash and less book accounts, and in another case very much less cash and a corresponding expansion in book accounts. In one case there may have been very small liabilities, and in the other larger liabilities. The two balance sheets simply took cognizance of the conditions at their respective dates, and indicated by the difference between the two capital amounts the net result of the transactions which had occurred. Each transaction had resulted either in a profit or a loss. In all probability some of them had been productive of a gain and others of a loss, and therefore the difference shown between the two balance sheets was composed of both profits and losses, but of these details the usual comparison of balance sheets shows nothing.

Now with respect to the new. Instead of taking the beginning and the end of a considerable period of time for comparison, the going balance sheet presents the condition of the business at all times. Any given day may be compared with the preceding day, or a given month with a preceding month, as may be desired. The intervals recognized by the going balance sheet may be days, weeks, or months. For all practical purposes a month is the best unit. Particularly is this the case in the building business. In mercantile operations it is sometimes advantageous to reduce the period down to days. Let us now consider the form of the going balance sheet.

Suppose that we have the accounts composing our balance sheet at the beginning of the business period, and that these are spread out in a horizontal line, that is, instead of the amounts of the accounts being opposite the names in a vertical table, such as was presented in a previous article, the amounts are run along in a horizontal line, properly spaced, with the names of the accounts they represent written directly above them. Each transaction that is made results either in a loss or a gain.

We cannot do business without making an expense. Every change that we make in our assets, for example, like paying cash for materials, changes the balances in our balance sheet. Our balance sheet, therefore, varies day by day, in an amount corresponding to the amount of our transactions, and our assets and liabilities vary according to the profit that is being made or the loss sustained. Having the accounts, therefore, of the balance sheet spread out as above suggested, and arranged in a form that permits other amounts to be placed directly under them, thus adding to the debit or credit side of each, as the case may be, we shall be in a position to record day by day our transactions in a way to add to the figures representing our business at the outset, and to leave the amounts always in a shape to show up by the balances in the accounts the real condition of our business at any date that examination may be made.

In referring to the old style of balance sheets above, it has been asserted that what takes place between the dates of two balance sheets, made out for purposes of comparison, is lost sight of in detail, and that only the result is shown. The business has produced either a loss or a gain, but the record of that loss or gain is covered up, save only as the net result affects our capital by increasing it or diminishing it. The loss or gain, as the case may be, is the last thing shown, and we dispose of it by carrying it to capital. Now, in the going balance sheet, we must eliminate this profit or loss item, as the case may be, day by day, week by week, or month by month, according to the interval that is chosen for the purpose, but instead of carrying the result to capital, it is better to carry it to a special account, as will be explained a little later.

A balance sheet, with the amounts arranged as above described and posted to from time time, as also explained above, will be a truthful representation of our business condition, at any date it is examined, except only so far as the element of profit or loss may affect it. Therefore, in addition to what has been described, we must manage the accounts in such a way as to take out the profit or recognize the loss, as the case may be, as often as we want to know just what our business condition is, with respect to resources available to pay our debts.

In a previous article certain diagrams of accounts were presented. For example, there was first given the formula of a contract account. Such an account is to be debited with materials, labor, all specific outlays, and its pro rata of general expenses. It is to be credited with materials left over. The net cost of the contract thus recorded, we specified, is then to be transferred to Selling Account. Selling Account, in turn, is credited with the contract price and extras of the same contract. The difference between the two sides of Selling Account then is the profit or loss, as the case may be, that we are making upon our work. This principle of determining profit and loss result must be carried into our balance sheet to the extent of closing up our accounts as fast as our contracts are completed, and taking out of those accounts which represent our transactions—namely, those which take the place of the old Mercandise Account—whatever there is of profit and loss, and carrying it over into the accounts which are specially arranged for the purpose.

I appreciate the difficulties under which I am laboring in endeavoring to make the builder's bookkeeper understand this matter without numerous illustrations and a very much longer description. However, at least one diagram is necessary to make the point sufficiently clear for the bookkeeper's use, and that is presented herewith. It may be described as a chart of accounts necessary to the building and contracting business, for conducting a going balance sheet and for keeping the business so analyzed as to show the profit or loss on each individual job, the profit or loss on the entire business, and the builder's position with respect to resources and liabilities at all dates.

The accounts necessary to open, it will be seen by reference to the chart, divide first into two leading classes, namely, the accounts of the transactions and the accounts of the proprietorship. It is necessary to discriminate between these two. The lack of keeping these classes separate and distinct has before now, in many cases, resulted in great confusion and the worst of jumbles in account keeping. The transactions are one thing and the ownership of the business another. Each requires its own separate accounts.

The proprietor or owner is responsible for the expenses of doing business, by which is meant those expenses incident to a general oversight of the transactions and which are outside of expenses of production, or those that by rights are chargeable to the several jobs in hand. In turn, having borne the expense of the business, and taken all the risks, he is entitled to the gains ; or, being responsible for the management, he is obliged to suffer the loss if it is running behind.

A comparison of expenses of doing business with the losses and gains incident to that business shows the net profit of the business or the loss of the business, as the case may be. If the business is making a profit, then there is a credit to be carried to the account called dividends and divisions, through which the profit is divided among partners, paid out in dividends, or withdrawn by the single proprietor, as the circumstances may be. In turn, if the business is running at a loss, then capital is being impaired, and therefore there is a charge against impairment account. If a profit is being made and is not being withdrawn in full, then capital is being increased and there is a credit to surplus account. Since impairment is a debit and surplus is a credit, these two accounts are combined in one called " Impairment and Surplus."

This scheme of analysis answers whether the business that is being conducted is that of a single individual, a firm, or a joint stock company. Capital, it is argued, should be considered a fixed amount, and to be left in the account without variation, except as additional capital is supplied, or as a portion of the capital is withdrawn. Whatever the business produces over and above the profits that are taken out should be carried to the surplus account, thus always maintaining a statistical showing of what the business is doing.—The Bulletin.

USES OF CEMENT.

THE field for the employment of cement is constantly and rapidly expanding. In recent years large quantities of Portland cement have been used in Canada in the construction of sidewalks and concrete foundations for asphalt pavements for streets. It has also entered largely into the construction of basement floors, and of late is finding employment to a much larger extent than formerly in the foundations of buildings, and in fireproofing systems. In Europe, and particularly in Germany, it finds a still wider range of employment. It is said that in the latter country concrete tile floors are made in artistically colored designs, and capable of resisting acids. Cement roofing tiles are also manufactured on a large scale. The higher priced tile are inlaid with various designs, the colors being ground in special machinery. The manufacturers are said to have succeeded in securing any desired shade or blend of colors. These cement tiles are said to have superseded to a large extent the burned clay tile.

THE PREPARATION OF MORTAR.

A recognized American authority, Edward Wolff, says the slackening operation should be done in a water-tight box made of boards, and so much water should be mixed in that the contents will never get dry, and a sheet of water will remain on the top to prevent access of air. If the box will not hold the entire quantity of lime required, the contents may be emptied into a cavity made in the ground close to the pan and this process may be repeated. This should be done at least two weeks before sand is added, or before the mortar is prepared for use. Slacked lime prepared and kept as stated, has been found free of carbonic acid after many years, air and gas not having been able to find access. Instead of following the procedure in slacking lime recommended above, we see in this country a faulty process adopted, which consists in loosely mixing the sand with the slacking lime immediately after water has been added and forming a dry heap on the surface of the ground, which is left lying there several weeks to give time for complete slacking before the sand is worked in evenly and the mortar considered ready for use. This heap arrangement is perfectly adapted to circulating air through a material which should be guarded against contact with air. The sun heats the surface of it, makes the air escape after it has given up its share of carbonic acid gas, while at the base of the heap and at the shady side a fresh supply enters to fill up the vacuum after it has circulated through the heap and has been robbed of its share of carbonic acid gas. That this procedure really happens in such a heap we can easily see when we place a lump of freshly slacked lime in a wine glass, and in another glass place a small quantity of material taken from a heap such as described, and which has been prepared a few days before. Fill both glasses nearly up with water, and add a few drops of muriatic or sulphuric acid to each. In the first glass nothing can be observed, while in the second glass we will see in the shape of small bubbles the carbonic acid escape, which has been absorbed by the lime from the atmospheric air circulating in the heap.

SKETCH MODEL FOR TERRA COTTA, BROWN BROS.' WAREHOUSE, TORONTO.
By W. J. Hynes, Toronto. Beaumont Jarvis, Architect.

PAGES

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