PAGES

MISSING

The Canadian Architect and Builder

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" S. H. TOWNSEND, " "
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" W. H. ELLIOTT, Toronto.
" J. C. B. HORWOOD, Architect, Toronto.
" A. F. DUNLOP, R.C.A., Architect, Montreal.

Toronto Building By-laws.

IT is gratifying to learn that at last, presumably as a result of the loss of several firemen's lives by falling walls at the recent fire in a warehouse on Front street, action has been taken towards putting the building by-laws of Toronto in a more satisfactory condition. The Council have appointed Mr. A. F. Wickson, an ex-President of the Ontario Association of Architects, the City Commissioner and the Chief of the Fire Department, to revise the by-laws and recommend necessary amendments thereto. These gentlemen should and no doubt do know what changes are required to bring the by-laws up-to-date. They are now so far behind the times, that their proper amendment will involve considerable research and labor on the part of the Commission. We trust however that the subject will receive at their hands the attention which its importance demands, and above all that the Council will lose no time in adopting their recommendations and having the same printed in convenient form for the use of architects, builders and the citizens generally.

Fixing the Responsibility of Labor Unions.

THE fact is coming to be generally recognized that Labor Unions should be held responsible for losses sustained by employers by reason of interference by the Unions with their workmen, or the boycotting of their goods. A case in point is that of the Metallic Roofing Company, of Toronto. Because of a difficulty which recently arose between this Company and their employees, the Tinsmiths' Union have organized a boycott of their goods. The company have brought an action for damages in the courts against members of the Union individually, as well as against the Union collectively, with the object of finding out to what extent they can legally be held responsible. The result of this action will be watched with much interest by employers. If it should be decided that there is no legal redress to be obtained against the Unions or their members, then application will no doubt be made to Parliament to enact legislation under which labor organizations could be held responsible and liable for any damage or loss which their actions might entail. Meanwhile an organization of employers in all lines for defensive purposes has been formed.

Establishing a Building Site in Law.

A MOST remarkable case involving the legality of a building site, has just been adjudicated on at Gore Bay, Ont. Action was brought by the ratepayers of school section 2 of the Township of Allan to secure a declaration of the courts establishing the legal school site of the section upon a certain lot, known as "the old site."

The defendants were two of the school trustees sued personally and the Public School Board of the section, who maintained the legal site to be on a different lot known as the "old site." The trouble began as far back as December, 1899, when the ratepayers decided a new school should be built. The school board met and selected, subject to the approval of the ratepayers, the "new site." Then the ratepayers met again, and it is said approved of the new site, although the minutes of the meeting did not show that anything was done. The court on the strength of parole evidence affirmed that the ratepayers had approved of the "new site." This gave rise to dissention, and the dissentients appealed under the statute to the school inspector, who called another meeting of the ratepayers, at which the "old site" was chosen, and an arbitrator selected to act with the inspector. These published an award in favor of the "old site." While these proceedings were going on the Board of Trustees purchased the "new site," erected thereon a school building, and moved into it the school furniture. A motion to restrain them was refused. The courts also declared the inspector's action illegal. At the election of trustees in December, 1900, however, the advocates of the "old site" found themselves in the majority on the Board, and at once removed the school furniture back to the old building, whereupon three ratepayers applied for a mandamus to compel its return to the new building. Both parties then agreed to abide by the decision of the local judge, who declared the "new site" to be the legal site. The trustees acquiesced for the time in the view taken by the local judge, and returned the furniture to the new building, where the school was carried on until the summer of 1901. In April, 1901, however, at a duly convened meeting of trustees, a resolution was passed that the "old site" be selected as the school site for the section, and that a meeting of ratepayers be held on the 20th April to consider such selection. This meeting was held and the "old site" was adopted by a majority of seven. The court held as to this meeting that although the school site had been fixed by the action of the trustees and ratepayers in March, 1900, and a building erected on the site so fixed, it was competent for the ratepayers a year later to revert to the former site. In accordance with this view the action was dismissed and the costs declared against the plaintiffs. Nothing is said as to who must pay for the new school building, but presumably the School Board is the responsible party. In that case the new building will probably be allowed to remain idle, while the children are housed in the old one which several years ago was declared by the Board to be out of date. Such are some of the results of human perversity and legal wisdom.

Some Possible Results of the Coal Famine.

THE great struggle which is now going on between the owners and miners of the anthracite coal mines of Pennsylvania has resulted in placing the people of Canada and the United States in a very serious position. The inconvenience and discomfort which will be felt by all classes during the coming winter, should turn the attention of inventors and manufacturers to the necessity for heating apparatus in which fuel, other than coal, can economically be used. Unfortunately, central Canada, which contains the bulk of our population, has, so far as known, no coal deposits. Our coal mines are situated at the extreme ends of the Dominion—in Nova Scotia and British Columbia. The freights from these mines to central Ontario are prohibitive, so that we are obliged to depend for our supply on the United States. Wood has become too valuable a commodity in this country to be employed for fuel, except in country districts. Manufacturers of heating furnaces in Nova Scotia are adapting their apparatus to the use of soft coal, which fuel will no doubt come into general use to a much larger extent than formerly in the Maritime Provinces. In Ontario something else must be employed. The question suggests itself—why not petroleum or gas? Petroleum has long been used successfully on railway locomotives in Russia, and more recently, it is said, on railways in California, as well as on steamships, while in cities gas is already employed for cooking purposes. The designing of heating apparatus in which these kinds of fuel could be employed would seem not to be impossible, and we hope that the present situation will direct the energies of inventors to the problem. There is of course the further question of cost of fuel. Considering how large a percentage of coal is wasted, it would appear that either petroleum or gas might be supplied for the purpose at a reasonable cost. Heating by means of electricity would be an ideal method, provided the cost could be kept within reasonable limits. Thus far, however, it has not been possible for the electrical companies to supply at a reasonable price the necessary current and apparatus. Most of the central stations are operated by steam power, so that the cost is to a large extent based on the price of coal. In the United States central steam heating stations have been established in many towns. By this system steam is carried in underground conduits from central stations. This plan would seem to be better adapted for use in the business districts of cities than in residential districts. Steam, while undoubtedly the best heating agent for large buildings, is not as well adapted to house heating as hot water. A central heating plant was established at London, Ont., some twenty years ago, but proved unsuccessful and was abandoned. We observe that a Company in Montreal has announced its intention to establish a central heating station. Two or three years ago a number of companies were formed in different parts of Ontario to manufacture peat fuel, but the product has never been placed on the market, and some of the companies have abandoned the business. The difficulty in manufacturing this product is said to be found in connection with the drying of the material, after it has possed through the compressors. Natural drying is said to be necessary, in order to retain the most valuable constituents of the fuel, and this requires so much storage capacity and so long a period of time as to render the process unprofitable. We observe the announcement that a new process of drying is to be adopted by a Canadian company recently organized. This question is one of vital interest and importance in a climate like that of Canada and the United States, and we have confidence that in the near future methods of heating will be found which, if not cheaper, will be more cleanly and convenient than those which we have been accustomed to employ in the past, and it is hoped they will also render us less dependent upon one source of supply.

A TIME SAVING DEVICE FOR CONTRACTORS AND ARCHITECTS.

The primitive system of tendering for builders' work, which still obtains in this country; a system by which every man takes off the quantities for his own trade himself; has nothing that an ordinary person can see to recommend it except this one thing, that, if there is any mistake, the contractor has no one to blame but himself. The question is whether this advantage is an advantage; and, if so, whether it is an advantage sufficient to make up for the labour expended in taking off the quantities of innumerable jobs that he does not get.

It is quite possible for a contractor, who has not enough work, to take off the quantities of sixty or seventy buildings, in the course of a season. When one comes to think what this means for the principal trades, with the multiplicity of detail that has to be considered in connection with them, it becomes clear that there is in the system a great loss of labor to the community. A hundred men are occupied in doing the work which one could do, and do much better.

In the meantime while the contractors are playing at being quantity surveyors, their work is calling for them on the buildings upon which they are already engaged. Their current work is of necessity done without the care it ought to have. There is no time to really think about it. If the contractor can keep his contracts moving enough to keep the architect off his back, that is all he can do; and he cannot usually do this. There is no time for precision of work; for that love of seeing things done properly, which is bound to grow upon a workman who understands his work, and has time to think about it: and there is no doubt but that the standard of good work has been very much lowered for this reason.

It is left to the architect to oversee both the running of the work and its execution, neither of which matters are part of his function at all. An architect's function is to design buildings and see that the designs are carried out. If he, on his side, is conscientious about his work, and the circumstances demand it, of course this all comprehensive function has to be made to comprehend indefinitely. If a carpenter thinks a wire nail is as good as a tenon, the architect has to uphold the other doctrine. If the flooring has not made its appearance when flooring is due, the architect has to see that it arrives, and that it knows enough to come in out of the rain when it does arrive. But these are not properly parts of the architect's function at all. When an architect has supplied drawings for his design, and defined the quality of work required, it properly remains for him only to see that his drawings are understood. That he should have to see that the ordinary methods of good building are followed, or mingle himself with the contractor's business in order to have the work done with proper expedition, is in reality a disgraceful state of affairs; and it does not say much for "the dignity of labour" that contractors should be content with it. As long as contractors have not time to attend to their work, and are obliged to go about in fear of the architect, as naughty boys in fear of a schoolmaster; as long as the architect's attention is distracted from his designing; the standard of work is bound to be lower than it ought to be: and building, though one of the arts of peace brings anything but peace to those engaged in it.

To establish a system of tendering, which will relieve contractors of undue labor in that direction, is not likely to be a cure-all for bad work; but it will remove a condition of distracted attention which produces slighted work, from men who would tend naturally to do good work if they could give their minds to it; and it is safe doctrine to assume that these are in the majority.

The way out of the difficulty is evidently to have quantities supplied by a firm of quantity surveyors. Then the contractor need spend no more time over the

FROM THE MASON'S BILL.

Yards	Feet	In.			Rate	$	cts.
	1178		cube	Sills, scantling lengths 4 feet, 3 feet, 5 feet 9 inches, 7 feet, 7 feet 6 inches			
	811		sup	" labour only, preparatory top bed			
	560		"	" " , pitched face			
	545	6	"	" " , sunk chiselled splay			
	511	6	"	" " , groove for water bar			
			No.	184 " " , leave stool for jambs			
				Carried forward		$	

FROM THE CARPENTER'S BILL.

Yards	Feet	In.		WINDOWS	Rate	$	cts.
	1140		run	3 in. x 4 in. rebated and moulded window frame			
	344		"	2½ in. x 6 in. cedar rebated, weathered and grooved sills to last			
	1190		sup	2½ in. moulded rebated fixed sashes, and prepared for plate glass with shifting mouldings, cups and screws			
	344		run	Extra on moulded and throated transom to same 2½ in. x 3 in.			
	344		"	1½ in. x 6 in. facia, moulded one edge to window frames, scribed to arches			
	1055		"	1½ in. x 2 in. facia, moulded one edge to inside reveals, scribed to walls			
	344		"	1½ in. x 4 in. facia, moulded two edges to sills			
	344		"	Bed sills in red lead			
	344		"	⅛ in. x 1 in. metal water bar and bedding same			
						$	

drawings than would be necessary in order to understand the general character of the work and examine particular points.

It would pay the contractors, in view of the time saved to them, to purchase their quantities; but this is sometimes done by adding a percentage to the contract price.

The principal objection to the system, that is likely to be raised, is the possibility of inaccuracy on the part of the quantity surveyors. A builder thinks he can trust himself better than anyone else. That is true, no doubt, under ordinary circumstances. But we are talking now of scientific quantity surveying. A specialist is sure to leave far behind the individual efforts of contractors with their hasty methods of arriving at an estimate. Accuracy and only accuracy is what he is there for. He lives by accuracy, and is likely to attain to it with more certainty than anyone else, as his whole attention will be given to method in attaining to it.

A quantity surveyor's bill of quantities will read something like the accompanying example, taken from the bills of the new Parliament Buildings at Victoria, B.C.

There would be no occasion with bills of this kind for the wide variations that are sometimes seen in tenders, even for small amounts. Their use would probably be more profitable on the whole and certainly more straightforward for all concerned. There would be more certainty and less friction. Even if it cost the builders some trouble at first, to make such new analysis of cost as might be required to estimate in this detailed manner, it would save trouble in the end.

It would be a good thing if the Victoria government's plan, of publishing a volume of quantities, could be repeated in Ontario or Quebec, for the next important building that is erected, so that the system might have a trial.

WILL THE COAL FAMINE AFFECT HEATING METHODS?

In answer to this question addressed to a number of the leading Canadian manufacturers of heating appliances, the following opinions have been received :

BROCKVILLE, ONT., Oct. 8, 1902.

Gentlemen,—Replying to yours of the 6th inst., we beg to say that in our opinion the present coal famine being a temporary difficulty only, is not likely to have a permanent effect on the designing of heating apparatus in the future. There is no doubt that apparatus in which other fuel can be economically used can be produced and in fact have been produced already. There are at the present time in operation successful heaters using both gas and petroleum but the great bulk of the work is still done by the better known fuels of coal and wood, and we think the future will be as the past in this respect seeing that there is still a bountiful supply of both classes of fuel.

Yours truly,

THE JAMES SMART MFG. CO.

GUELPH, Oct. 8th, 1902.

DEAR SIRS,—Answering your kind letter of the 7th inst. I would state that I do not think that it will be possible to invent a heating apparatus that will work satisfactorily with petroleum or gas. These materials are too expensive and the fitting up of the burners so as to work satisfactorily has been found to be very expensive. I have been in the business along while and have followed up every invention and suggestion that has been made and have come to the conclusion that a furnace using coal is the most economical in every way. Boilers have to be so arranged in their construction that it is necessary to have direct contact with the flame to secure the best results, and with gas or other fuel to do this the distribution of burners would be too great and consequently very expensive.

Yours very truly,

JNO. M. TAYLOR,

President Taylor-Forbes Co. and A. R. Woodyatt & Co.

TORONTO, October 13th, 1902.

Gentlemen,—Replying to yours of October 6th, we would say that we regard the present coal strike as of such a temporary character as not to affect in any large way the styles of construction prevailing in centers close to the anthracite regions. Anthracite coal is admitted to be so much better than any other fuel that in our judgment it will be used very largely notwithstanding the present unpleasantness.

The difference between ordinary furnaces for hard and soft coal is not very great, the chief difference being in size. The soft coal furnace requires to be at least one size larger for the given amount of work.

The burning of petroleum in furnaces can be very successful apart from the noise, which we think will be against it as applied to dwelling house, hospitals, schools, offices, etc., where it would be objectionable. In some New England kitchens, petroleum has been in use successfully for a number of years, but even in a stove it is noisy and objectionable for that reason.

Yours very truly,

EDWARD GURNEY.

LONDON, ONT., Oct. 7th, 1902.

In reply to your communication of the 6th, the present shortage of coal we conclude to be only of a temporary nature, and will only temporarily affect the process of heating as now conducted. There is an evolution going on in heating as well as in other lines, which will be regulated by the value of the fuel and the manufacturers will conform themselves accordingly. Up to the present there has been no more economical way of heating than by using anthracite coal, subsequently however the developments in the production of peat may be perfected to such an extent that it will make this fuel cheaper, and it is certainly cleaner ; developments in that respect however have not been as rapid as might have been expected, but the present shortage of anthracite coal may have the effect of urging producers in this line to place this article on the market earlier than they otherwise would do. The supply of oil for fuel is so limited and of so uncertain a nature that unless new fields are developed, no improvements in this line are likely to be forthcoming.

We are at present manufacturing furnaces that will burn bituminous coal and coke equally well ; the chief prejudice against bituminous coal being that it is not so clean to handle as anthracite.

THE MCCLARY MFG. CO.

MONTREAL, October 8th, 1902.

Dear Sirs:—In reply to your enquiry of the 6th inst., it is our opinion that there is no prospect at the present time of any other fuel or method of heating to supersede the use of Anthracite Coal for individual plants, private houses, etc.

The most economical method of heating is by hot water and anthracite coal can be more easily controlled and requires less care than any other fuel.

Most hot water boilers, especially large sizes, can burn soft coal to very good advantage, but more care has to be taken in firing, and more attention paid to keeping flues clean. Probably for large cities, central plant and heating by steam will be found more economical and more satisfactory to tenants.

It is possible also that non-illuminating gas can be made cheap enough to use in private houses for heating and cooking, but at the present time this does not seem practicable.

Reference is frequently made to the immense deposits of peat which are to be found all over Canada, but so far no process has been invented to expel the water from it, and fit same to burn, at a price that will compete with other fuels.

With regard to the use of petroleum, the supply of this is so limited and in so few hands that should there be any further extensive consumption of it, the price would be likely to rise in proportion. Therefore, for many years to come we must depend mainly upon anthracite coal for house heating, and no doubt when the present trouble is over, it will be sufficiently low in price to be within the reach of all.

Yours very truly,

H. R. IVES & CO.

ARCHITECTURAL EDUCATION AT UNIVERSITY COLLEGE, LIVERPOOL.

There are two courses open to students:—(a) The three years' course leading to the degree of B.A., with Honours in Architecture. (b) The two years' course, at the end of which the college certificate is granted to successful students. These courses are arranged for students to take before entering an architect's office. They are not intended to supersede pupilage, but to be preparatory to it. The two years' course has been in existence for eight years; the degree scheme was only started last season. (University College, Liverpool, is the only college in England in which students can study for such a degree, although such courses exist in all the principal universities in America).

The leading architects of Liverpool have signified their hearty approval of the schemes, and have agreed to shorten the term of pupilage and reduce the ordinary premium for students who have been awarded the college certificate or have taken their degree. The two courses are framed to prevent the waste of time which invariably results when a student enters an office without any previous knowledge of drawing, building construction, and the elements of architectural design. Students entering in October will have the exceptional advantage of being able to follow, from commencement to finish, the erection of the new laboratories for physics and topical medicine which are being built on college ground from designs by Messrs. Willink & Thicknesse and Professor Simpson. Candidates for the B.A. degree are required to pass:—(a) The preliminary examination of the university in five subjects: (1) English language and English history; (2) mathematics; (3) Latin; (4) elementary mechanics; (5) one of the following—Greek, German, French. (b) The intermediate examination for the ordinary B. A. degree in in the following subjects: (1) one of the following—Greek, Latin, French, German, Italian; (2) one of the following—ancient history, modern history, English literature; (3) one of the following—physics, pure mathematics, applied mathematics. Candidates are required to present certificates of having attended: (a) the approved classes for the subjects presented in the Intermediate examination; (b) courses of instruction in architecture and allied subjects averaging not less than five hours a week in the first year and fifteen hours a week in the second and third years. Such courses shall include all the subjects presented for examination. An attendance of not less than fifty hours in the department of engineering is required from all candidates.

The subjects of examination are:—(a) History of ancient and mediæval architecture; (b) history of modern architecture; (c) construction and planning of buildings, including sanitation; graphic statics; (d) architectural drawing. And any two of the following:—(e) Freehand drawing; (f) modelling; (g) decorative design; (h) applied mechanics; (i) art and theory of painting; (j) art and theory of sculpture. Students are strongly advised not to commence the three years' course until they have passed the Preliminary examination. Although it is possible for a student to be privately coached for the subjects of this examination during his first year, passing his Intermediate at the end of the second, such a course is not advisable, nor is it recommended.

The two years' course includes freehand and architectural drawing, construction and building materials, the history of ancient, mediæval and Renaissance architecture, perspective and sciography, graphic statics, engineering, &c.

Students who receive a first class certificate at the end of the course are specially exempted from the Intermediate examination of the Royal Institute of British Architects. This is the first college or institution in England to whom this privilege has been accorded.

OLD GOVERNMENT HOUSE, FREDERICTON, N. B.

LINEAR PERSPECTIVE.

At a recent meeting of the Association Section of the Edinburgh Architectural Association Mr. Robert F. Sherar, gave an interesting lecture on linear perspective illustrated by photography. After briefly tracing the history of the science from the conventional representations of the ancient Egyptians to the finished realism of the Middle Ages, he said that the researches in the science as such had been practically exhausted by Dr. Brook Taylor and successive writers in the eighteenth century; however, it was always possible to improve on the methods of stating facts and of teaching. The lecturer condemned the confusion of ideas expressed by the somewhat ambiguous term "picture-plane," and then discussed a few questions arising perennially from this confusion. Among these questions was that this he laid down the rule that the perspective appearance depended on the position of the spectator, and on this only; and that the perspective image depended on the surface on which it was delineated, whether it was a picture-plane vertical or otherwise, or a picture curved as a panorama, &c.

In dealing with the distance a spectator should be from the the object in order to produce an agreeable result, he showed three very interesting photographs of the east end of Prince Street with the Calton Hill in the distance, and said he had often heard it remarked that photography did not give correct perspective of distant hills, &c., as it always rendered them too small. The first photograph above referred to showed the Calton Hill about a quarter of the height of the buildings, the second showed it the same height, and the third showed

OFFICERS' SQUARE, FREDERICTON, N. B., SHOWING SOME OF THE MAGNIFICENT ELMS WHICH ADORN THE STREETS.

of vertical parallel lines converging towards a vanishing point as they receded from a spectator. Having proceeded so far in a critical manner, he then described the different uses and applications of the science as an aid to the architect or painter, and with the aid of pho tographs taken for the purpose he very lucidly described the elementary conditions on which the science depended and was distinguished between the perspective appearance of objects as seen and the perspective image as drawn on paper. He showed two photographs of the same building taken from the same spot which were quite different in the perspective lines, and explained that they were both equally correct records of the perspective appearance as we saw it, but records only. To prove this he then showed a photograph of the first of these two pictures taken with the camera placed in front of it, so that its image fell on the left-hand side of the photographic plate instead of the right-hand side, and the result was the same as the second picture. From it twice the height. This, he said, all depended on the distance the spectator or photographer was from the object to be represented, The choice of the distance was one of the most important preliminaries of picture-making, whether by photography or other means. He agreed with all the later writers on perspective that no rule could be laid down except in a general way in order to guide the artist, the conditions varying so much in each individual case. He laid great stress, however, on the fact that these conditions should be thoroughly understood, and said they were the very things that were not clearly defined in modern books on perspective.

It is announced that Mr. Louis Hebert, the Canadian sculptor, will soon return to Montreal to reside permanently.

Mr. S. G. Curry, architect, who at the last municipal elections was elected a member of the Toronto City Council, is doing excellent service. As an illustration may be cited his business-like resolution for an appropriation of $50,000 by the Council for the purchase of fuel to be so'd at cost to the citizens.

COMPETITION FOR McKINLEY MEMORIAL.

Charles J. Cohen, Secretary of Committee, 320 South Broad Street, Philadelphia, invites competitive designs until March 2nd, 1903, for a memorial to the late President McKinley. The memorial is to cost $30,000 and is to include a portrait statue with suitable accessory architectural features. Five premiums of $500 each are offered. The author of the successful design will be given the execution of the work, if in the Judgment of the Committee he be competent. The designs are to be shown by models to a scale of one and one-half inches to the foot. The jury of award is composed of Wilson Eyre, jun., Theophilus P. Chandler, Edward H. Coates, Charles E. Dana, J. Q. A. Ward, Paul Bartlett and Frank Miles Day.

BY THE WAY.

The rumor that an American Building Trust is to be formed with a capital of $66,000,000, to undertake the reconstruction of old London, has inspired the following from Punch:—

Say, are you sure that your Combine
(Or is it Combine?) will be grounded
In all the classes of design
With which we love to be surrounded?
Can you, for instance, emulate
Our Ludgate Bridge's gorgeous gilding,
Erect the Fleet Street Griffin's mate,
Or beat the Admiralty building?

Can you prepare us plans to rank
With British Art's supreme creations?
Could you have built the Birkbeck Bank,
Or Paddington and King's Cross Stations?
Will you, when decorating walls
(Like some with whom we're well acquainted),
Declare the frescoes in St. Paul's
Are not so bad as they are painted?

If so, we greet you—oh, but stay,
It's only right for us to mention
That others in the building way
Are giving us their best attention;
And so we fear you cannot come,
Unless the Trust that you announce 'll
Put by a fairly handsome sum
To pension off the County Council.

× × ×

The City Hall tower, which is the most prominent architectural feature of Toronto, has narrowly escaped destruction by lightning. An electric discharge struck the apex, destroying the terra cotta finial and tearing off a considerable quantity of the tiling. Mr. E. J. Lennox, the architect of the building is reported as having said that he does not approve of placing a lightning rod on the tower. The most direct way to ground would be down the face of the tower which would be a disfigurement. If carried to ground over the roof of the building the rod might prove a menace to the whole structure. An attempt to protect the building would probably require the placing of conductors at numerous points. There is an old adage, to the effect, that "lightning never strikes twice in the same place". If true, the City Hall may be now considered safe for the future. The subject of the protection of buildings from lightning is one on which there appears to be great lack of exact information. It would be interesting to know with certainty whether a tall building, or projecting features such as towers and spires, are more liable to lightning attack than dwellings and other buildings of ordinary height. The fact that the recently destroyed Campanile at Venice was on numerous occasions damaged by lightning is evidence in favor of the theory that height adds to the danger. It will be remembered that soon after its erection the top of the Washington Monument was damaged by lightning, whereupon it was surrounded by a number of lightning conductors and has since escaped attack. Whether or not its immunity is due to the protecting device is of course an open question. On the other hand the results of ordinary observation would seem to prove that height has nothing to do with the matter as apparently low structures are as frequently struck as high ones. It is no doubt true that a building may be protected by means of lightning conductors, if they are sufficient in number and properly constructed to carry off the discharge, but if not, they are but an additional source of danger.

THE CATHEDRAL AT FREDERICTON N.B.

This building, an illustration of which is given in the present number, is a conspicuous feature of the capital of New Brunswick. It occupies a trangular site of considerable size in the centre of the city, and is surrounded by some of the magnificent elms which adorn the streets.

The structure is entirely of stone with the exception of the spire, which is of wood, covered with metal. The architects were Messrs. Butterfield, of London and Wiles, of Exeter. The dimensions are length, 159 feet, breath across transepts, 70 feet, height of roof 62 feet, height of spire, 178 feet. In the tower are hung a chime of eight bells, weighing 2800 pounds, cast by Warner, of London.

The windows are of stained glass, chiefly by Wailes, of Newcastle-on-Tyne. Those in the north and south aisles, recently placed, are by Clayton & Ball. The pews are of butternut and the pulpit of oak. The many handsome gifts to the Cathedral include an elaborately carved stone font, a brass lectern, carpet of needlework, altar cloth, alms dishes, communion plate, and a Bible presented by King Edward on the occasion of his visit when Prince of Wales.

The Cathedral was begun in 1845 and completed in 1853, the founder being Bishop Medley, first Bishop of New Brunswick whose marble cenotaph occupies a place in the transept.

GREEK COLUMNS.

So far from employing pedestals to columns, which some have considered as forming as essential a part of an order as the entablature, the Greeks placed their columns immediately on the floor or uppermost step, the whole temple being generally raised on a low platform, to which the ascent was usually by three deep steps or gradini, serving as a base to the edifice; the depth of the steps was not accommodated to the human stature, but regulated so as to accord with the dimensions of the column. It is therefore conjectured that either a sloping platform of wood or lesser steps of the same material were employed as the real ascent to the temple. The Greeks invariably placed their columns singly, never in pairs, as has frequently been done by modern architects, and which, if not utterly indefensible, ought never to be resorted to unless required by positive necessity; for instance, where wider intercolumns than the scale of the order will properly admit are required; in which case, by affording additional support to the entablature, coupled columns not only excuse the width of the intervals, but take away the air of poverty that would result from single columns placed at the same distance from each other. Coupled columns are most of all offensive when forming a prostyle colonnade, especially if it be one with a pediment, since that disposition approximates so closely to that of the front of an ancient temple as to render any incongruity the more striking.

AN ARCHITECT'S TOMB.

The accompanying engraving represents the tomb of the late John G. Howard, architect, of Toronto, and his wife. It is situated in High Park (formerly Howard Park) in the western extremity of the city. This

magnificent natural park of 160 acres was given by Mr. Howard to the city and will ever remain a memorial of his liberality and public spirit.

The late Mr. Howard was born in England, July 27th, 1803, and served as articled clerk for three years with Messrs. Ford and Paterson, architects and civil engineers, London. On Sept. 14th, 1832, he arrived in Toronto. In February, 1833, he won in competition the appointment of Drawing Master of Upper Canada, and held the position for 23 years.

Between 1834 and 1844 he was awarded premiums for plans submitted in competition for laying out the market block, Toronto, for gaols and court houses at Toronto, and London, Ont., for market and Queen's College, Kingston, Ont., and for Provincial Lunatic

Asylum, Toronto. The latter building was erected under his superintendence in 1856.

For a number of years Mr. Howard occupied the position of City Surveyor. He was also a member of the Committee of Management of the first Artists' Society formed in Toronto, in 1834.

The following description of his tomb is reproduced from the London Builder of October 16th, 1880 :— The cairn is constructed with granite boulders. Mrs. Howard was a Scotch lady, which accounts for the cairn. Mr. Howard himself "is a Masonic Knight Templar.—therefore the double pedestal, terminating with the Maltese cross." The consecrated ground on which it stands is inclosed with some of the old iron railing which surrounded St. Paul's Cathedral, London, England, for 160 years. The cost of erecting the tomb, including vault and iron railing, amounted to $3,120. The granite boulders are all bedded in Portland cement against a brick shaft in the centre, which supports the marble pedestal. This weighs over 10 tons, and came from the Rutland Quarries, Vermont, U. S. Engraved on a brass plate, and fixed round one of the gateposts of the old iron railing, is the following inscription :—" Sacred to the memory of John George Howard and Jemima Frances, his wife. John George, born 27th July, 1803 ; Jemima Frances, born 18th August, 1802, died 1st September, 1877. Aged 75 years." On a brass plate fixed round the other iron gate post :—

"St. Paul's Cathedral for 160 years I did inclose.
Oh ! stranger, look with reverence.
Man ! man ! unstable man !
It was thou who caused the severance.
J. G. H.

Nov. 18th, 1875."

The vicissitudes of the railing are curious. After its removal from St. Paul's it was purchased by Mr. Robert Mountcastle, Waverlyplace, St. John's-wood, London, of Mr. J. B. Hogarth, iron merchant, London, and shipped by him in good condition, on board the steamship Delta, for Toronto, on the 14th of October, 1874. The Delta went on shore about five miles below Cape Chat Light, on the 8th of November. A portion of the railing was recovered from the wreck, and sent to Montreal by the salvage men in the spring of 1875, in a very mutilated state, but was brought from Montreal by Mr. Howard, 17th of August, in that year, and arrived in Toronto on the 21st of the same month. It was repaired by Messrs. William Hamilton & Son, at the St. Lawrence Foundry, Toronto, and finally fixed on the stone curb where it now stands, on the 18th of November, 1875.

CORRESPONDENCE

A LEGAL POINT.

To the Editor of THE ARCHITECT AND BUILDER:

A. J. B., Woodstock, Ont., writes: Last spring I gave the contract to build a house, the contractor for the carpentry work signing an agreement to do the work according to plans and specifications, he finding all materials except hardware. The job is now nearly completed, but the carpenter refuses to put in the cistern which is clearly shown on the plans and marked "cistern," but is not mentioned in the specifications except in the excavations. Can I compel him to put in the cistern? If so can I order one put in and stop payment from contract on his refusing again to put it in? By answering this you will greatly oblige.

ANSWER: It is a difficult question that is asked, with the slender data given; the writer does not say whether the house is of brick, stone or wood. If of brick or stone, the cistern, which we understand is in the ground, and eihter stoned or bricked up, then it is clearly the mason's duty to make the cistern. If the building is of wood, then there is a doubt that can only be cleared up by a close reading of specifications and agreement. If the carpenter agreed to do all work mentioned or shown on plans and specifications, then he must make the cistern. One thing is certain, the owner cannot order the cistern to be made by a third party and deduct cost from contractor. If, however, there is a doubt, the owner may refuse to pay up the contractor until the work is finished, which will throw the onnus of entering an action on the contractor. Another and a better way, would be to have the architect settle the matter, if owner and contractor will agree to this method.

The London Builders' Merchant reproduces from the June number of this journal the illustration of interior of St. Annes des Plaines Church, Que. Of the CANADIAN ARCHITECT AND BUILDER, our British contemporary is kind enough to say:—"The journal is in every way of the highest class, beautifully printed on good hot-pressed paper, while the reading matter is well written by experts in the various subjects. The illustrations are also good, and include some excellent photogravures on separate sheets, in addition to photo-blocks in the text. The illustration which we give will show to our exporting readers that as the most artistic work is expected in Canada, so similar materials are necessarily in demand."

—THE—

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

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At the County Court, Westminster, on December 17, a plaintiff referred to a debtor as a man "with twenty trades, your honour," and produced his billhead to prove it. His Honour, looking at the billhead, said: "Is this what you mean—builder, decorator, paperhanger, gasfitter,' and so on?" "Yes, your Honour," replied the plaintiff. "Well, that's only one trade," said the judge. "I thought you meant he was a Jack-of-all-trades."—Plumbers' Review.

BUILDING PROGRESS IN THE NORTHWEST.

WINNIPEG, Oct. 6th, 1902.

To the Editor of the CANADIAN ARCHITECT & BUILDER.

SIR,—With your permission I will run briefly over the building operations both Architectural and Engineering that have come under my notice since I arrived in the City some six months ago.

In Architecture little can be said from an aesthetic point of view, as the artistic side, owing to the conditions that govern all new cities, is still inchoate, and criticism in this direction must be touched upon very judiciously. Constructionally, work is good as is exhibited in the warehouses, etc., that have been built during the past two or three years. Previous to this time the importance of good foundations was overlooked and there are very few buildings that can boast of no cracks. The settlement in most of this work is caused by a substratum of very spongy-clay—something of the nature of a quicksand—about 6″ thick and found at a depth of anywhere between ten and fifteen feet below the surface. Up to quite recently the practice has been, generally speaking, to disregard this altogether. Below this stratum a good hard clay is obtained which extends down to any necessary depth.

Apropos of clay, I think I might say a word about it, regarding the local brick. Whether it is the quality of the clay or the fault of the burning I do not know, but the "kiln run" that is generally used is a very inferior brick. Unless extreme measures are taken and a great percentage of what is delivered, rejected, very poor work is obtained. Also, as all local brick is of a yellowish gray color, a very hard, cold looking building is the result, and no soft effects can be secured, which are so helpful to many designs, especially in domestic work, when the red brick is used. A red brick is manufactured at Lac du Bonnett and Rat Portage, but the former is extremely soft and useless for good work, while the latter is just a trifle better. In stone, the same remarks regarding the cold hard effect of the brick may be applied to the local material (Tyndal). It is a hard grey limestone with iron colored streaks occasionally showing. It is a splendid stone to use where construction is the primary object, but not satisfactory for carving or fine or monumental work. It is being used extensively this year and the stone from some quarries shows considerable improvement on what has been used previously.

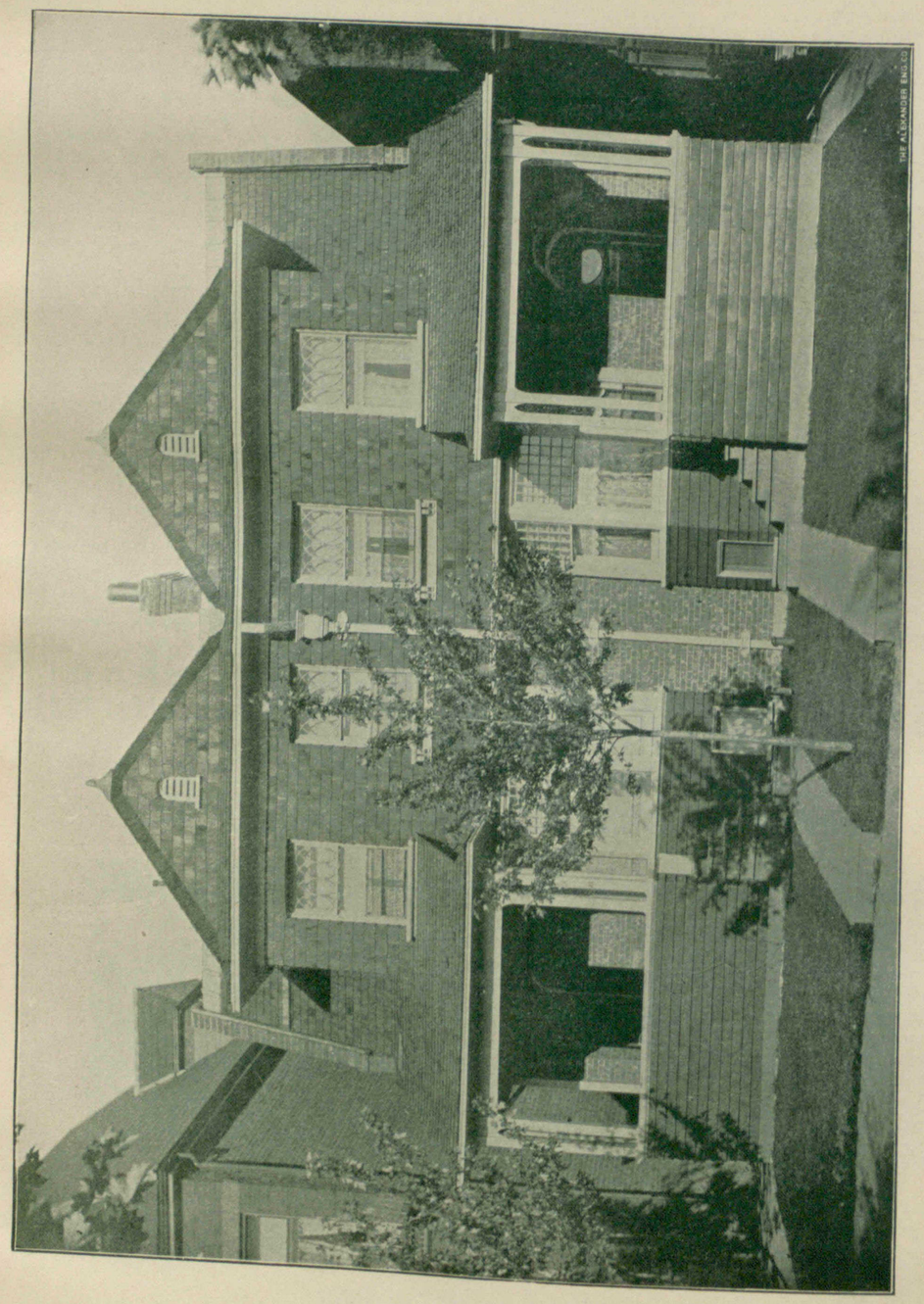
The season opened up so late this year that few buildings are in such an advanced stage as to allow of criticism touching design. The most important block, and the only one that can be said to be anyway in course of completion is the Merchants' Bank office building, (A. T. Taylor, F.R.I.B.A., Architect, Montreal.) This will be ready for occupancy persumably, about the end of the month, although the Bank are in possession now. This is a seven storey building and stands out very prominently as a modern office building and might almost be termed a "sky scraper" if comparison with surrounding work was to be considered. It is built of red pressed (Milton) brick and Bedford stone, the effect of which is at once bright and harmonious and the workmanship throughout is of the first order. A colonnade is formed above the height of the two top floors, with engaged columns supporting a copper entablature. The total depth of this is I think a little too great for the tout ensemble, but otherwise the exterior is generally pleasing. I enclose a photograph by which you may notice the points I have mentioned. The plan, generally speaking, is that of a good office building with two elevators. The ground floor is occupied, principally, by the Bank. In the Banking room proper an elaborately ribbed elliptical ceiling is used, which is very affective, but it is perhaps just a trifle overcrowded. The finish of the wood work in the fittings is excellent and challenges the work of any outside firm.

Of the other work in progress the Strathcona Apartment Block (Geo. Brown, Architect) in perhaps the largest. It has a foundation to about ten feet above the ground level of Tyndal stone and over this grey brick. This building is on the site of a foundation that was laid for an Hotel some twenty years ago, but the work owing to the boom and other reasons never advanced above the level of the ground, and it remained there till this spring. This building will be ready for the roof very shortly.

The Canada Life Assurance Company are having extensive alterations made to their premises, and in fact, as the work proceeds, it is hard to understand why any of the old building was left standing at all. The only portion remaining intact is the wall on Main street and Portage avenue, from the level of the first floor joists to the top of the second floor windows. The whole of the ground floor wall is to be taken out. Two stories are added to the old work, and with an extra thirty feet to the south a large five storey building will be ready for occupancy about the 1st January.

St. Stephen's Church, Portage Ave., which is being entirely built of Tyndal stone is well under way, also St. Mary's Academy which covers a large area, and when completed may be considered a great addition to the educational buildings of the city. The number of small houses in course of construction in the suburbs is astonishing, but the better class of residences is as yet very much in the minority.

Regarding engineering work, I think that very little is being



SEMI-DETACHED HOUSES, TORONTO.
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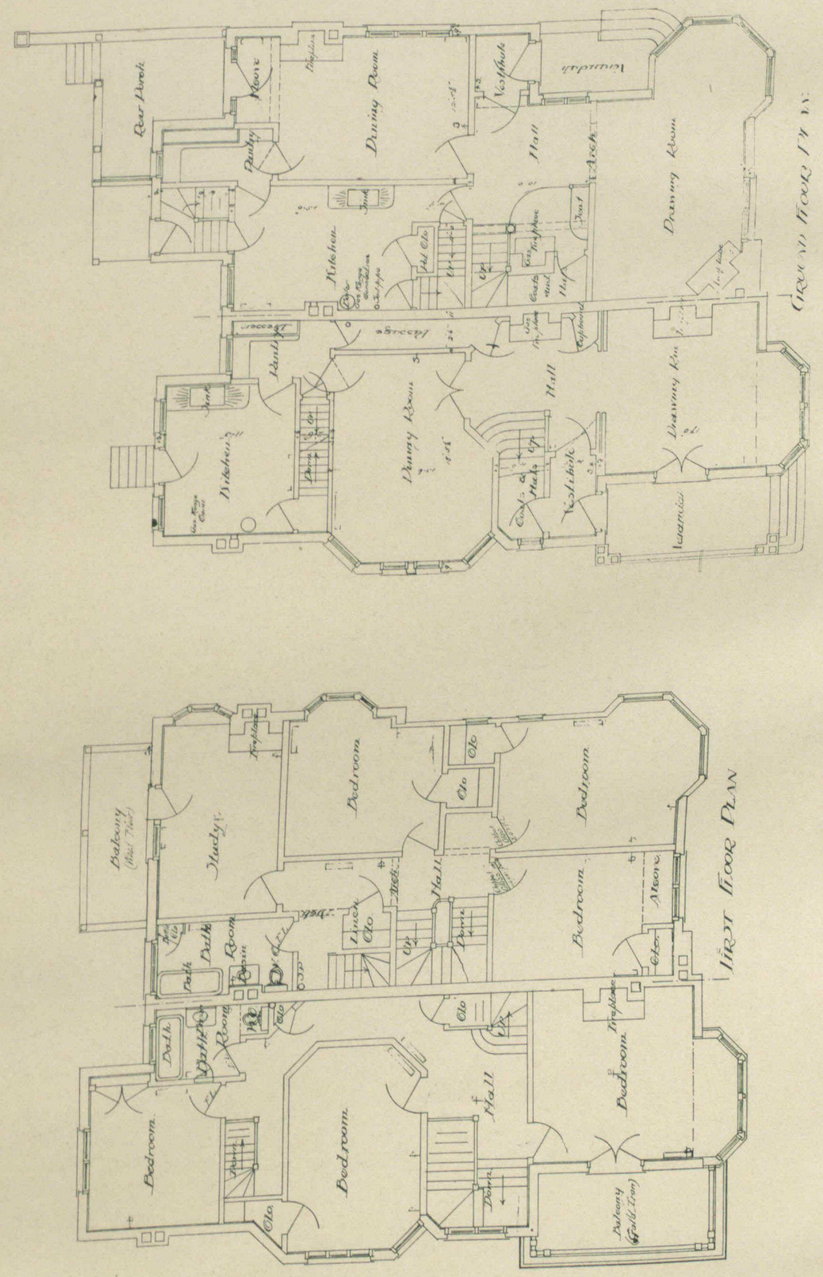

PLANS OF SEMI-DETACHED HOUSES, TORONTO.
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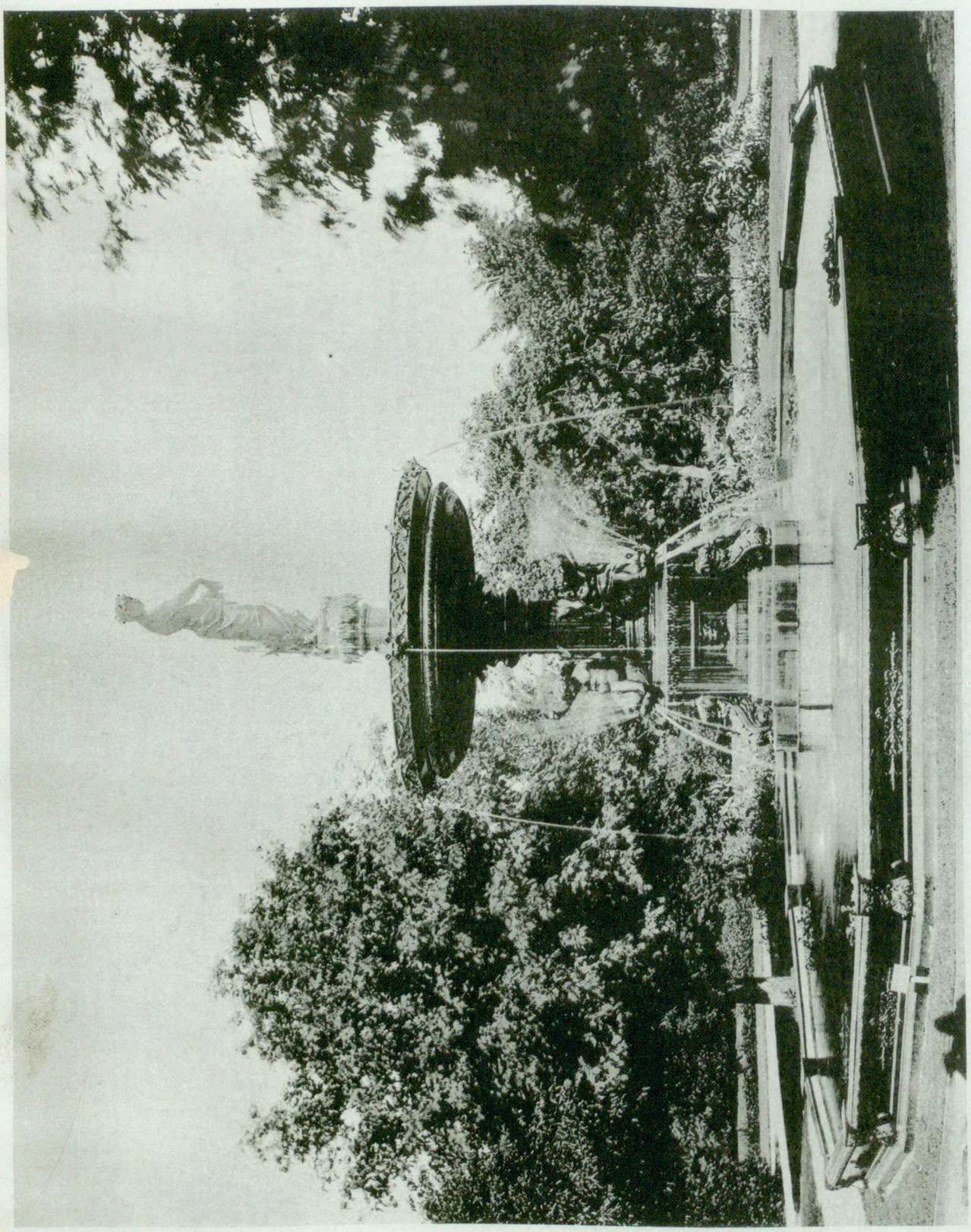

FOUNTAIN IN PUBLIC GARDENS AT HALIFAX, NOVA SCOTIA.

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ANGLICAN CATHEDRAL AT FREDERICTON, N.B.

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ST. HILDA'S COLLEGE, TORONTO.

EDEN SMITH, ARCHITECT.

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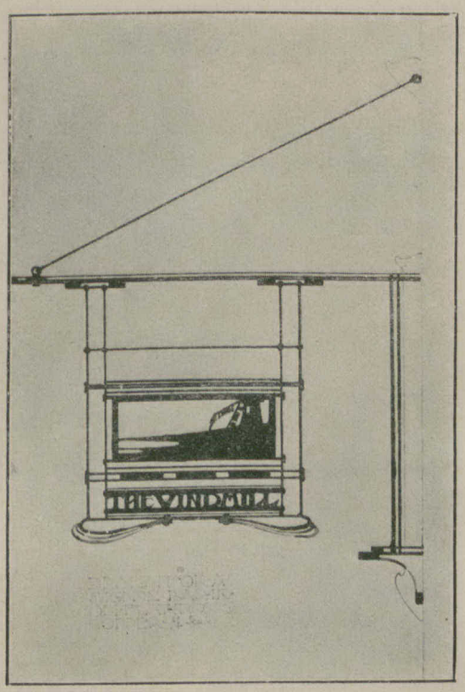

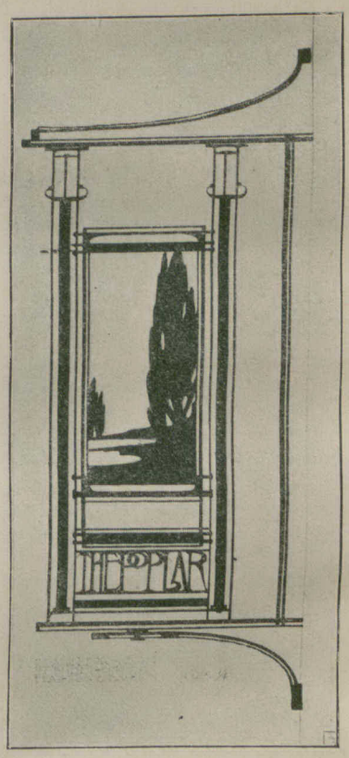

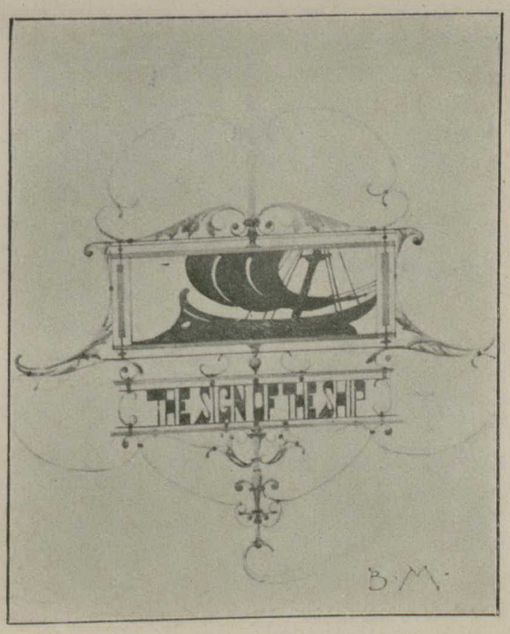

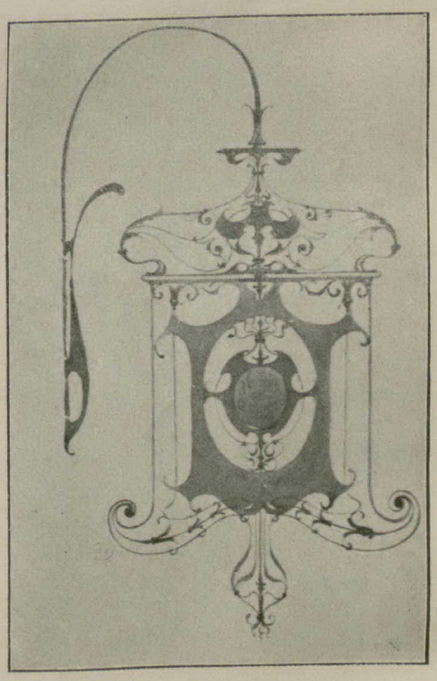

DESIGNS FOR METAL SIGNS.

BY G. S. LEMASNIE.

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