PAGES

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INDEX TO ADVERTISEMENTS

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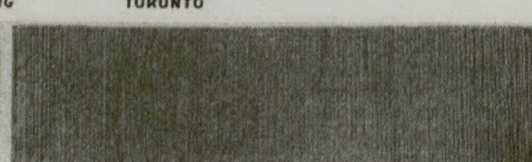

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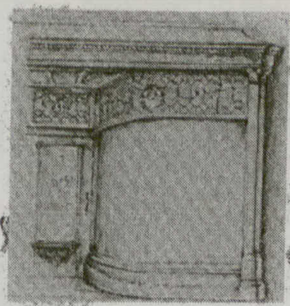

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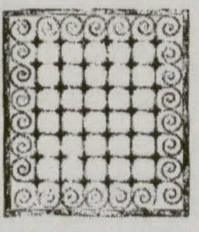

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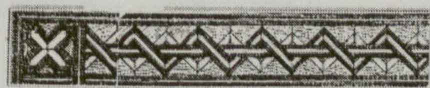

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The Canadian Architect and Builder

VOL. XVI.—NO. 192. DECEMBER, 1903.

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ADDITIONAL ILLUSTRATIONS IN ARCHITECTS' EDITION.

Drawings Accompanying Notes of Travel.
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" Prof. Percy E. Nobbs, Montreal.
" FREDERICK G. TODD, Landscape Architect, Montreal
" W. H. ELLIOTT, Toronto.
" J. C. B. HORWOOD, Architect, Toronto.
" A. F. DUNLOP, R.C.A., Architect, Montreal.
" FRED. T. HODGSON, Architect, Collingwood, Ont.

Our Students' Competition. Architects will confer a favor by directing the attention of their students to our Students' Competition, particulars of which are printed in this number. Every industrious and ambitious student should find it profitable to take part in this competition.

Giving Value to Waste Material. A few years ago brickmakers in Toronto threw away as useless a considerable quantity of what are known as "clinker bricks," i. e., bricks uneven in color and shape and exhibiting protuberances on their surfaces. These peculiarities are due to the bricks being placed in the arch of the kiln where they are exposed to the greatest heat. An architect in looking one day at a pile of these refuse bricks thought he saw possibilities in them, and forthwith bought sufficient of them to build himself a house. The appearance of the house was pleasing and in contrast to the ordinary run of work. Other architects then saw a value in the clinker brick and began to use them. The demand so increased that the brickmakers themselves came to see the value of what they had been accustomed to regard as a waste product and the price was advanced until now "clinkers" bring two dollars per thousand more than standard first quality.

Arbitration of Building Disputes. The Building Trades Council of Toronto have applied to the Ontario Association of Architects to have a clause inserted in all contracts providing that any disputes which might arise between contractors and workmen must be settled by arbitration. At the last meeting of the Toronto Chapter this request was fully discussed, after which a resolution was passed declaring that while the architects were heartily in favor of the principle of settling disputes by arbitration they could not advocate the insertion of an arbitration clause in contracts so long as the Building Trades Council or its component unions could not be held legally responsible for any agreement into which they might enter.

Fixing Responsibility. Where a number of contractors representing various trades are engaged on a building, an effort is made to shift responsibility for any neglect or damage from one to another. Under these conditions the architect, who of course cannot be constantly on the work, experiences great difficulty in placing the responsibility on the proper shoulders. He has sometimes to spend much time and effort to get the contractors together in order that the difficulty may be threshed out and if possible the blame put where it should belong. Even when a meeting is secured, the object is not being attained, and the guilty party goes free. Some architects have to a large extent got over this difficulty by including the roofing and tinners' work in the carpenters' contract. Some are now considering the advisability of making the roofer responsible for any damage which may be sustained by the carpenter or plasterer by reason of leaks in the roof.

The Value of Simplicity.

"The older I grow the greater is my admiration for simple things," said an architect of conspicuous ability to the writer recently. He added that as a rule people now-a-days do not want simple things. All sense of repose is destroyed by crowding modern houses full of ingle nooks, bow windows, fire places, &c. As a result there remained no wall surface, no place to put anything; "You can't sit on the fireplace, you know" he remarked, and characterized as "rot" the idea that a modern house should have a Turkish room, a Japanese room, etc. On the contrary the house throughout should have one character. Much of the recent architecture in the United States has actually been spoiled by the fact that the architects had too much money at their disposal, and therefore were not compelled to exercise restraint in their designs. That the public taste has been perverted is illustrated by the remark of a prominent citizen of Toronto, when referring to the new residence of another wealthy citizen, the exterior of which is characterized by simplicity of design, that he did not want HIS new house to look like a barn.

Up-to-Date Building Methods.

Swiftness is a predominating charactistic of this age. Every device that will save time and labor is eagerly sought for and when found is quickly adopted by progressive business firms. Sometimes we think that many things of perhaps greater importance are sacrificed to speed. However this may be, it is undoubtedly true that when the majority are aiming at accomplishing their work with the greatest possible despatch, the man or firm who pursues a leisurely gait, is likely to be left behind in the race. It is therefore gratifying to observe the builders falling into line with other departments of industry by adopting modern business methods. One of these is the placing of a telephone on the job, so that constant communication may be had by the foreman with the offices of the architect, the contractors and supply firms, and vice versa. The value of the time which may thus be saved is considerably more than the cost of the telephone service. Wide-awake builders are coming to recognize that by adopting every possible time saving device they may add considerably to their profits and be able to underbid the contractor who still pursues old fashioned and out-of-date methods.

Asbestos in Building

It is interesting to learn that the product of the asbestos quarries in the province of Quebec is in France being manufactured into bricks, roofing slabs and outside and inside lining material for buildings. At an Exhibition of dwelling houses held in Paris in August last, a model was shown of a modern house built entirely of asbestos bricks, which are claimed the advantage of being absolutely incombustible and unattackable by acids, while at the same time bad conductors of sound, heat, cold and electricity. They are composed entirely of asbestos, lime, and silica in strictly defined proportions, and the substances intimately mixed by special machines, are compressed in the form of ordinary bricks by powerful presses. The bricks are afterwards subjected to the chemical action of high pressure steam, owing to which a double silicate of lime and magnesia is formed. These new building materials, the structure of which is perfectly homogeneous, are said to be equal to the best clay bricks as regards resistance to crushing stress. They are easily cut with the trowel, and take mortar well, while the thickness of joint is reduced to a minimum owing to the perfectly regular form of the brick. The external appearance is that of dressed stone ; and, as the bricks can be colored unalterably while in the state of paste, they lend themselves admirably to polychrome decoration.

British Exports and Imports of Building Material.

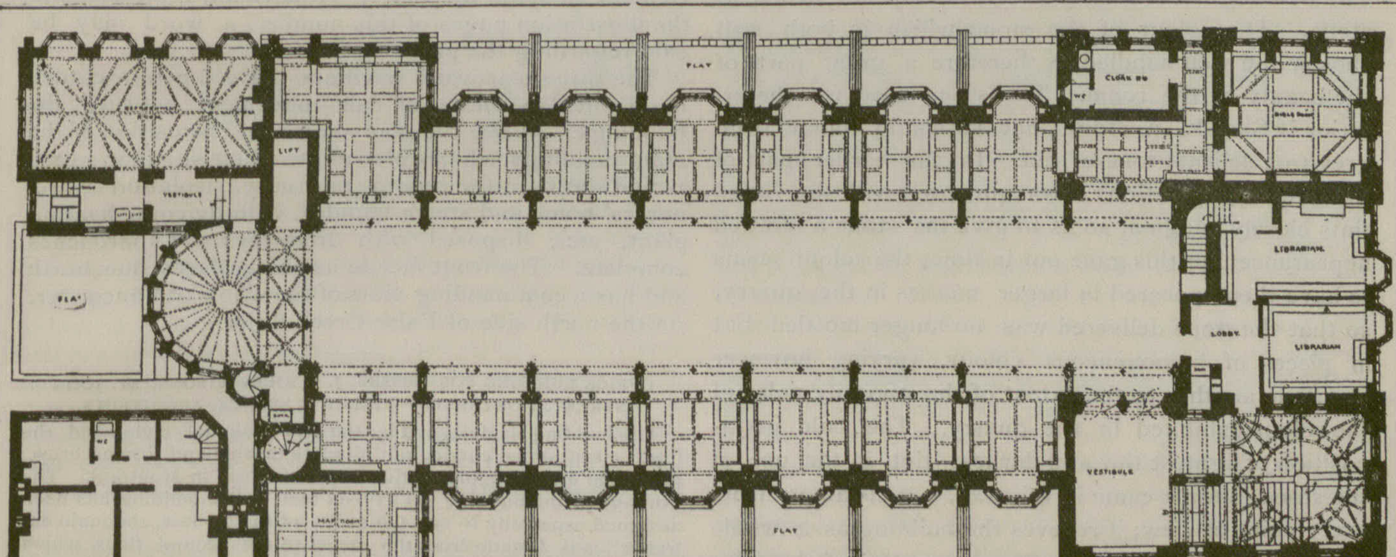
The Board of Trade have recently published a blue book, from which some particulars are extracted relative to this subject. One of the most startling facts disclosed from the British standpoint is the tremendous drop in the exports of cement; shipments to the United States in 1902 being only one fifteenth as great as in 1901 and to other foreign countries, about one sixth. While the exports to the colonies are reported to have been regular, it is a well known fact that the Canadian market has been largely supplied by home manufacturers and by the product of United States mills, while in 1901 Australia, Natal and the Cape are said to have purchased from foreign manufacturers to the value of £20,000. The shipments of bricks to the colonies increased by one half from 1892 to 1902. Very little if any of this material found a market in Canada, as our manufacturing resources in this line are ample. In painters' materials the exports both to foreign countries and to the colonies substantially increased. Increased quantities of manufactured articles of iron and steel were also sold in the colonies; as well as stones and slates. The foothold which foreign manufacturers of iron and steel are getting in the British market is shown by the import figures. The quantities of bar, angle, bolt and rod iron, unwrought iron and steel, iron and steel girders, beams, joists and pillars imported into Great Britain from Germany, Holland and Belguim increased from 99,942 tons in 1899 to 529,970 tons in 1902. The value of these imports increased during this period from £667,528 to £2,810,723. The imports from the United States increased from 71,608 tons in 1899 to 172,105 tons in 1900, but, owing to the extraordinarg home demand has felln in 1902 to 3,853 tons. The present slackening of this demand will no doubt lead to another vigorous assult on the British market. These statistics are now being very carefully dissected and considered by the Journals representing the various branches of trade in Great Britain, in the light of Mr. Chamberlain's preferential tariff campaign. Viewed from this standpoint they should also have an interest and a meaning for Canadians.

NOTES OF TRAVEL.—VII.

The John Rylands Library, Manchester.

If this is not the most interesting recent building in England, one would like to see the building which is of greater interest. Mr. Basil Champneys, the architect, appears to have had a pretty free hand in the matter of both expense and time, (the library was nine years in building), and, though a definite lead was given which suggested the style, it was a style which suited the designer and he has worked quite freely in it. It is gothic; but English gothic, which still seems quite at home in England, when properly handled. The plan is rather suggestive of a church plan and the style is early, yet the building has a thoroughly modern air; there is no archaic feeling about it.

The Library is rather a repository for rare books than a place for distributing current literature. Its strength is in early printed books, an "unrivalled collection"; a collection of Aldines, "believed to be the finest in existence"; a Bible collection comprising, besides some MSS., copies of the successive printed editions; in first editions of the classics of English literature; early maps and atlases; the Early Fathers; early Service Books; in fact in books which are the fountains of study in their various fields and are consulted only by scholars. For this purpose the building is perfect.



John Rylands Library, Manchester. Plan of Main Floor.

The plan of the main floor (taken from The Builder) which is shown here, shows the distinctive feature of the building in the way in which the body of the great Reading Room is recessed. The building is free on both sides, lying between two narrow streets; but ancient lights in the premises across these streets; and the need of abundant light in the reading room, required it to be set back about 12 ft. from the building line of the sides. The ground floor rooms are kept in the centre also; they are approached by vaulted corridors along the sides, (the roofs of which appear in the plan), which are kept down to 9 feet in internal height, so that there is space (some 10 feet) above them for lighting the ground floor rooms. These rooms are a lecture room—close to the entrance—committee rooms, and minor rooms for storage of books and for reading. The ground floor is one flight of steps above the entrance, which has a level of its own near the level of the street. The entrance, which takes the whole space under the Librarian's rooms in the plan, was intended to be imposing, but has failed because the stairs are not visible on sight and are in a chamber which is too close and contributes but little light to the entrance. If the stairs were open, and the light came from there, it would have been a fine entrance hall; as it is it is only a vestibule, large but gloomy. There is no hall.

The main floor, which is both reading room and book room, is shown in the plan and a photographic view is given in the illustration sheets. The books are contained in alcoves. There are two tiers of alcoves, each with a bay window filled with square leading of a delicately tinted whitish green glass, with a bull's-eye in every quarry. The upper alcoves are reached by a narrow stone gallery which makes below a sort of columned and vaulted vestibule or screen to the alcoves on the main floor. This gallery runs all round; the piers, or buttresses, which carry the vaulting, are pierced with openings for its passage. There is no continuous wall; the two stories of bay windows dispose of the continuity of the outer wall; the vaulting is carried on piers, about 2 ft. 3 in. by 6 ft., which are stayed by the gallery, by the arches and vaulted roof of the upper alcove, (which is itself buttressed between the bay windows), and by arches turned between the piers themselves, over the clear story windows. The alcoves are not divided by walls but arched openings filled by bookcases; and the floor between the two tiers, inside of the gallery, is of wood. The two tiers of alcoves are only 30 feet high and the main vaulting is 44, so that there is room for a large clear story window. No space is occupied by a wooden roof for there is none over either aisles or nave; the stone vaulting is finished to a level with concrete and covered with asphalt. There is no point of view from which the roof can be seen, except perhaps in front; and a pair of towers, with, I believe, a parapet wall between, obstruct any view from this point. There is something unusual also in the position of these towers. They are not set over the outermost area of the double squares, which flank the entrance on both sides, but over the inner square of each; the outer square in each case is a lantern, nestling, as it were, at the base of the tower, (an odd-looking arrangement,) and lighting in one case the staircase and in the other (apparently) the Bible Room. The towers have no internal significance. The explanation of their being set back in this way is the necessity of fitting the profile of the building to the angle required by rights of light on the opposite side of the way. The space between the towers, occupied by the Librarian's rooms, is roofed over at the gallery level; so that there is a large window, rising from the gallery to the apex of the vaulting, at this end as well as at the other.

To return to the interior of the Library proper which is the essential part of the building—the central portion of this hall, the nave as it were, is 20 feet wide 44 feet high and 125 feet long to the terminating window, or 148 feet long, counting in the apse, which exends the floor level but not the roof, as it is vaulted over to a lantern about the height of the gallery. In the same manner the alcoves extend the width another 20 feet on each side, counting in the projection of the bay windows The actual sitting space in the alcoves omitting the bay windows (6 ft. wide by 4 ft. 8in. projection), and the vestibule formed by the colonnade carrying the gallery, is 10 ft. by 12 ft. inside of the bookcases.

The bay windows of the alcoves are panelled in oak, (linen pattern) and the ceilings of the lower alcoves are beams and plaster, but this is the only wood that appears in the construction; all roofs are vaulted in stone and the tracery of the large windows is stone. The building is essentially stone and appears to be all stone. The colour of the stone which is both well chosen and well handled, is therefore a great part of the beauty of the room. The stone used for the interior is Shawk, a stone that varies in colour from grey to a delicate tone of red. In the earlier part of the building operations it was procured with the varied tints closely mingled, so as to give the stone a mottled appearance; but this gave out in time; the colour seems to have then appeared in larger masses in the quarry, so that the stone delivered was no longer mottled but in pieces of homogeneous colour, varying however from one another to the extent of the opposite poles of the colour exhibited in the quarry. The bold juxtaposition of lightest tint and darkest tint in the use of the stone, after it came in this way, is satisfactory from every point of view; it relieves the building as a whole from monotony of colour, and, as a matter of closer inspection, it brings out the jointing, always a great part of the beauty of stonework. If the accompanying illustrattion of one of the alcoves reproduces correctly the variation of tint in the stones, (which is even more delicate in the photograph than it is in reality, but it must be remembered that the colours are delicate) this will be seen. In the vaulting a banded effect was made, which also seems constructionally suitable there.

The statues, which stand on an attached column in the centre of each bay of the gallery, are of the same stone. They are portraits of eminent men of different countries and ages, in the several departments of Literature, Science and Art. The same idea is carried into the large windows at each end, which have each twenty portraits of intellectual lights, ranging from Moses to Thomas Carlyle. These are the only stained windows in the building, and in these it is only the figures that are stained. All other windows are leaded in squares, glazed with the most delicately tinted, whitish green glass, with a bull's eye in each quarry.

As to fittings :—The most noteworthy are the dust-tight doors of the bookcases. These are made of gun-metal, about an inch square, and carry a sheet of plate glass 2 ft. by 9 ft. 9 in., without crossbars; there can be none because, the shelves being set to varying heights it would be impossible to make the sash bars range with them always. The exclusion of air (i.e. dust) was perfected by insertion under a fillet, of rolls of velvet made elastic by the insertion of cotton wool. It appears, however, that the absolute exclusion of air, which doubtless means the prevention of change of air, is not good for the books. Air is filtered by means of cotton wool, as it enters the building, and arrangements have been made for the application of water sprays, if they are found necessary. Gas is absolutely excluded, the reason given—that it "takes all the moisture out of the air and forces off the backs of the books in an extraordinary way"—is worth noting for application in another direction; heating arrangements that take all the moisture out of the air must have provision, in a library for putting it back again. The fact is that the best way to make the air of a library suitable for books is to see that it is suitable for human beings; the best conditions for health seem to be the same for both the librarian and his books.

W. A. LANGTON.

ILLUSTRATIONS.

Referring to the competitive design for Vancouver General Hospital by John J. Honeyman, reproduced in the illustration pages of this number, a word may be said regarding the plan :

The three rear ward pavilions have open arcarded basements to allow of air movement between the buildings. While the plan shows the disposition of the main buildings, a block plan of the whole site (606'x400') would show in the rear a mortuary, isolation ward, nurses' home and steam laundry, with dynamo, heating plant, etc., disposed with driveways and approaches complete. The front facade as shown faces due north and has a commanding view of the whole of Vancouver, on the north side of False Creek Inlet.

OFFICE BUILDING FOR MESSRS. J. J. RILEY & SONS, ST. JOHN STREET, MONTREAL. —FINLEY & SPENCE, ARCHITECTS.

The building is designed in the Old Colonial style, and the front elevation is carried out in white marble and Roman brick; being the first example of this style of work in Montreal. The frontage of the building is forty-six feet. The building has been designed especially to suit the needs of the owners, the main entrance leads directly from the street to the ground floor, which forms a large public office fifty feet deep by forty feet wide, with the private offices of the firm to the left of the main entrance.

The first floor of the building forms a wide gallery which is carried around all sides of the building leaving a large area twenty feet square with a sky-light of the same size in the roof. As the only side lights to the building are the windows in the front elevation, this skylight gives a splendid light to every part of the building, and at the same time gives a very artistic effect, as the ceiling light is in the shape of a large dome of leaded glass giving a very handsome appearance. The balcony is reached by a wide flight of stairs in the rear of the offices ; the height from the ground floor to the balcony is fourteen feet and the height from the ground floor to the ceiling light is thirty feet, which gives the whole office a very lofty appearance.

The entire building is finished in quartered white oak. The counter dividing the clerks from the public is of a handsome design and finished on top with a bronze grille to a height of seven feet from the floor.

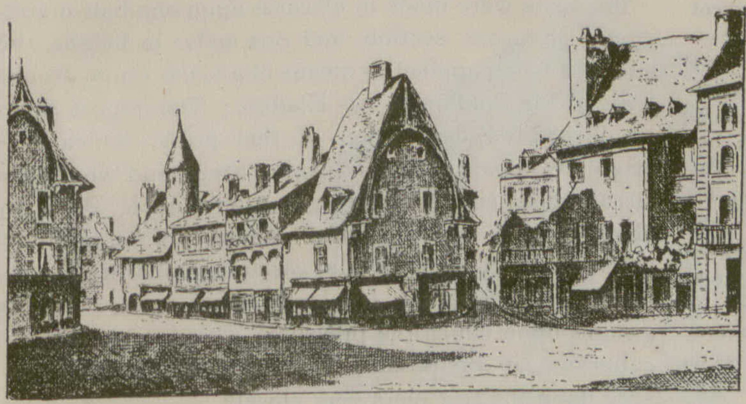
The electric fittings throughout were designed in conformity with the rest of the work and add very much to the general appearance of the building. In the rear of the offices are situated two tiers of vaults, each vault about ten feet by seven feet.

In the basement is situated the directors room, store-rooms for books, papers, etc., and private and public lavatories, heating plant, coal, etc., etc.

No expense has been spared in order to make the building thoroughly first class and up-to-date in every respect.

The building was designed and carried out under the supervision of Messrs. Finley & Spence, architects.

Mr. J. Wilson Gray, architect, is one of the twelve candidates selected by the Citizens' Committee for the New Educational Board of Toronto.



OLD FRENCH HOUSES.

TORONTO MASTER PLUMBERS' ASSOCIATION.

The first monthly entertainment meeting of the master plumbers and supply men of Toronto was held on the evening of November 23rd in the association rooms, 21 Richmond street west. The room was handsomely decorated with flags. About three hundred members and friends assembled. The meeting was called to order by Mr. Fred. Armstrong, who, after expressing thanks for the large attendance, gave due credit tc Mr. Clapperton, who had been the means of having instituted such social gatherings every alternate meeting. Mr. Armstrong then delivered the following address, which was listened to very attentively by all present :

At a meeting of the Association it was moved by one of the members that each alternate meeting night of the Association be set apart and devoted to social purposes. This idea emanated from a feeling that it would be wise to vary the ordinary routine of business so that it would not become monotonous. At the same time it was not thought desirable to stray too far from our proper field, but to always keep in view the fact that our Association was formed with some definite object in view and for some beneficial purpose. So it was suggested that part of the evening should be devoted to the reading of a paper or the delivering of an address and part to social or entertainment features upon which the committee would decide. I have been honored by the chairman of the committee in being requested to deliver the first address and to take charge of the first night's proceedings, and I may very frankly confess that I accepted this task with no little trepidation, realizing that much of the success of future meetings would depend upon the success of this the inaugural one.

In discussing matters relative to these meetings it was thought advisable that a paper should be read upon some trade question, but I have looked carefully into the matter and have come to the conclusion that upon this occasion it would be better that we should simply have a heart to heart talk upon a subject which is most interesting to every member of the Association, and if what I can say will interest the members I have no doubt it will lead to further addresses or papers being read on trade subjects by the other members of the Association who are more able than I to deal with such weighty matters.

For to-night, therefore, we will talk about our Association, its objects and aims, and apply what I have to say to all those who are interested, directly or indirectly, and endeavor to prove that an association such as we have formed is beneficial not only to master plumbers but to the supply man, to the architect and to the general public. I only regret that more of these are not present to-night so that they might learn that the master plumbers of this city whom they have for some time regarded as a band of pirates sailing on the high sea of commerce holding up the public and making them walk the plank to the tune of higher prices is a body of men intensely interested in the uplifting and upbuilding of a calling which through neglect has fallen from the high position it should occupy until it is looked upon by many with much ridicule and made the butt of every cheap wit. It is our work to alter that opinion, but we must first learn to respect ourselves before we can hope to command the respect of others.

Let us consider the Association as it appeals to and is of interest to the supply man. But first let me say at by Association I do not mean any body of men who are gathered with the sole object in view of enhancing the value of any public commodity. Such a combination was never intended. When the Master Plumbers' Association was formed and since its formation the members have endeavored to discuss every question from an ethical and social as well as a commercial standpoint. Its members are willing to learn and have been taught by the experience of others that in order to do business it is necessary to consider all of the details in connection with that business. They have learned that the question of percentage is a most elusive one and that there are certain fixed charges which must be added to the first cost of an article before it becomes marketable or before they can arrive at the real cost. The object of the Association is therefore to discuss these matters, to consider the proper amount to be charged as a natural and uncontrollable expense in conducting business; to point out the shrinkage which occurs, to make provision for uncollectable accounts, and then consider what is a fair and equitable charge.

The manufacturer and supply man can surely rest assured that they will be paid for their goods when dealing with a body of men thoroughly conversant with business principles, taught the value of doing business in a business-like manner, and not engaged in any system of ruinous competition.

It is also apparent that where all of the men engaged in the business gather together to talk matters over, there will be a general desire to uphold the character of the goods they are handling and no striving for cheap products. Every man in the business will endeavor to use as good an article as the means of his client will permit. It will not therefore be necessary for the supply-man to take chances in the production of cheap articles of uncertain character when he knows that every member of our Association will hesitate to recommend anything that does not comply with what the Master Plumbers' Association deem essential for the making of a thoroughly good job. If the supply-men have only to supply good material which they are certain will give them no trouble, to men who understand their business and do their work properly and receive a fair compensation therefor, it is certain that risks are reduced to a minimum, and if they make concessions to members of our Association, it is because they recognize the great benefit it will be to them in conducting their business.

Let us for a moment turn our attention to the architects. We are largely indebted to the good services of these gentlemen for much of the progressive and up-to-date plumbing which is installed in dwellings to-day, and it should not be necessary to use any arguments to convince them that an Association is a good thing. In the city of Toronto there are I believe two associations of architects and every reputable member of that profession belongs to either one or the other. Possibly the most convincing argument which they use is the statement that membership in their Association is an evidence of the ability of its members. If imitation is the sincerest kind of flattery, we pay these gentlemen a compliment in following the good example they have set us in forming an Association where we are just as discriminatory regarding our membership as they could possibly be. We take no man into our Association who is not duly accredited and ultimately hope to arrive at that state where membership in our organization will also be an evidence of a man's real worth and ability.

But there is another phase of the question. The architect designs and prepares specifications but the construction is in the hands of the contractor, and unless there is harmony of interest between the architect and the contractor the best prepared plans and specifications may result in defective work. How can we best effect that harmony of interest. I answer by our Association. Let us endeavor to interest the architects. Let us show them we are proud of our Association ; explain the good work we are doing ; solicit their assistance, have joint meetings ; discuss technical features of plumbing, heating and ventilation and apply our practical knowledge. The result will be that the very best class of work will be done in the city of Toronto. It is good to-day but we can make it better, and who shall say that an association of interests such as I have described will not be a benefit to the architect.

The general public as a rule look with distrust upon combinations, trusts and associations. They say they prevent competition. We answer that our Association does not prevent honest competition but only that which allows a man to figure on work at less than its cost and take a chance that he will be able to scamp it to recoup himself for the loss. It prevents the competition that induces bad work, endangers the life of the occupant of the house and brings many other evils in its train: but fair and honest competition is just as keen as ever it was. The Association merely says that a man shall receive sufficient for his work to enable him to give his undivided attention to every detail in connection therewith, so that when the work is finished it will be perfect in all its parts—an evidence of the ability and skill of the plumber and a credit to the association to which he belongs. There are many other advantages which will accrue to the general public from our Association, but if they receive no other benefit than the fact that they will be assured of good and sanitary plumbing then our association will have accomplished a great deal and the public will have received a most inestimable benefit.

And now let me ask the members present, is the Association a benefit to you? Have we done well in forming our Association? Has it stopped the habit of scrambling after the pennies and awakened you to a full realization of the position you should occupy?

Do you not find that to be a good member of the Association you must make a careful study of the laws of hygiene and sanitation and that you must be familiar with heating and ventilation in all its branches, that you must understand the physics of your profession as well as the practical application of all rules that govern our trade. If you are a good member you will become an expert in all its branches, be reliable and trustworthy. Your best efforts will be given to the uplifting and upbuilding of your business. Your best services will always be at the command of the public but you can demand, and will receive a fair compensation therefor. You lose nothing by being a member of the Association and you have everything to gain. It enlarges your mind and your vision is not dimmed by the petty jealouises that sometimes exist between competitors in the same business. All are equal in the Association. One man is as good as another. A healthy rivalry exists and competition is based on real merit and ability and each man's business grows and prospers according to his individual efforts. Such is the work of our Association. May it continue to grow and prosper. It has had great growth, wonderful development and will grow until it reaches the ideal state I have outlined, if every member is true to himself, true to his organization and obedient to the laws of our Association.

The programme of the evening consisted of songs, recitations and speeches by members, aided by Mr. Bert Harvey. The speakers of the evening included Messrs. Fiddes, McMichael, Anthes, Malcolm. After expressing their gratitude for the enthusiastic way in which the members had worked to organize the Association they touched upon points in Mr. Armstrong's address and expressed their desire to see the Association grow so that it would not only be of benefit to themselves but to the general public.

A unanimous vote of thanks to Mr. Armstrong for his able address was adopted.

The singing of the National Anthem brought to a close a very enjoyable evening.

TESTS OF MASONRY PIERS.

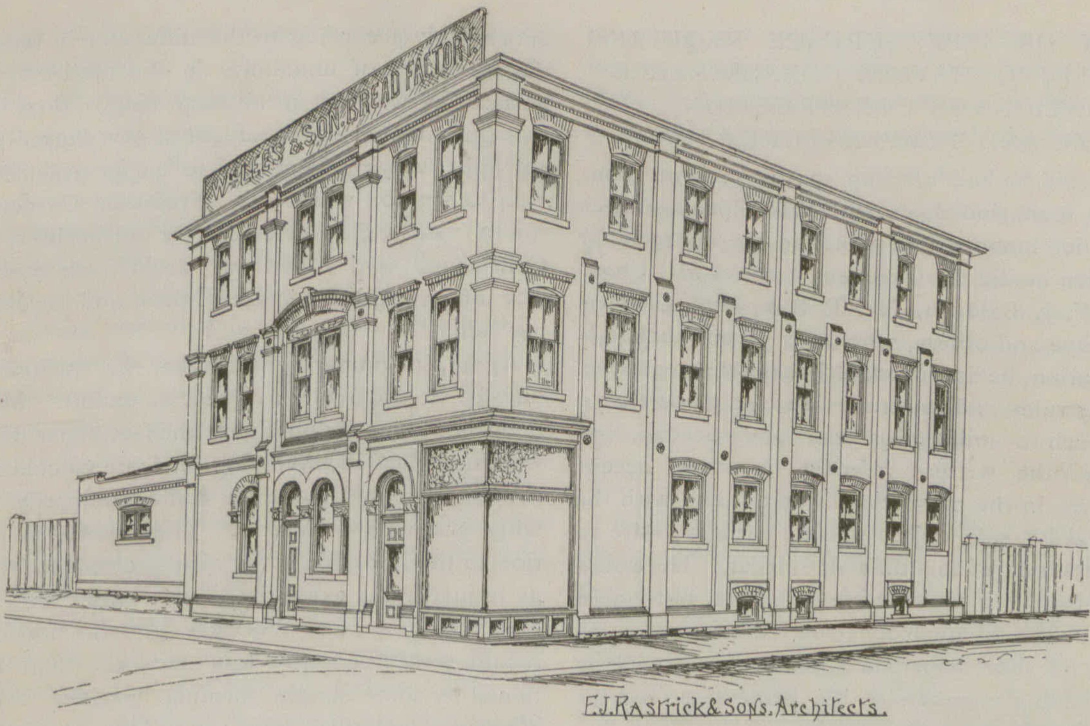
Several years ago the Austrian society of engineers and architects made a very important series of tests of full sized arches brick, stone and concrete, and the report of these trials, together with the accompanying analysis, proved a most valuable contribution to engineering literature. This work has now been supplemented by some important tests upon the strength of masonry piers, the tests being made under the supervision of the same committee which conducted the arch tests, the results being published in a recent issue of the Zeitschrift des Oesterr Ingenieur and Architekten Vereines.

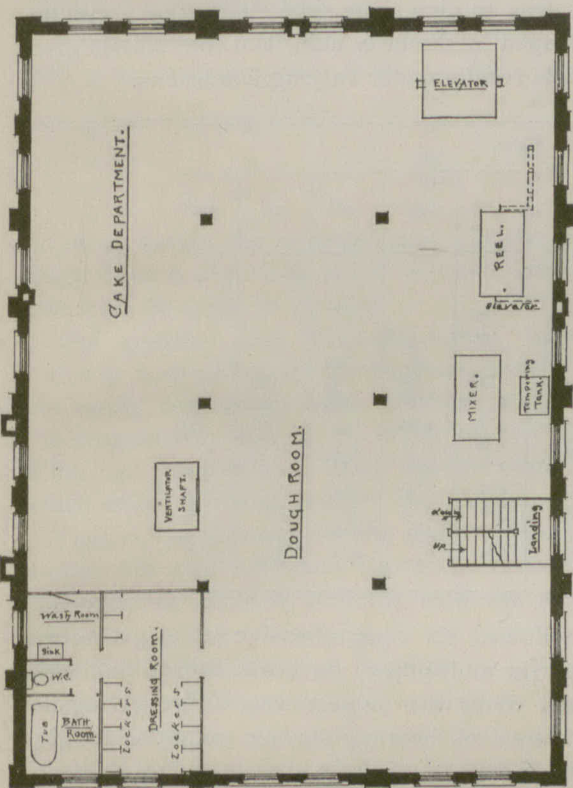
The tests were made in all cases upon one-half metre square in cross section and one metre in height, the pressure being applied by means of a 1,200 ton hydraulic press at the Poldihutte at Kladno. The report gives an illustrated description of this press, which was originally constructed for forging steel, and which had already been employed for testing on similar work by Herr Ludwig Huss, former member of the arch-test committee. The press was carefully calibrated to determine its internal frictional resistances, and the guages upon which the pressures were read being also calibrated, it was possible to determine the true pressure upon the test piers very closely.

Various kinds of piers were subjected to the tests, for the details of which the reader must be referred to the original report. Among those tested were piers of granite, sandstone, concrete, common and reinforced, and brick. The reinforced concrete construction was tested in two different types, one having embedded in it vertical wire rods 12 m in diameter, and the other containing wire cages, of which the principal members were parallel to the surfaces of pressure. In all cases much care was taken to insure that the load should be central, with the exception of certain tests which were purposely made to determine the effect of eccentric loading. The records were taken at the moment of the appearance of the first cracks, and at the time of ultimate crushing, these results being fully tabulated in the report.

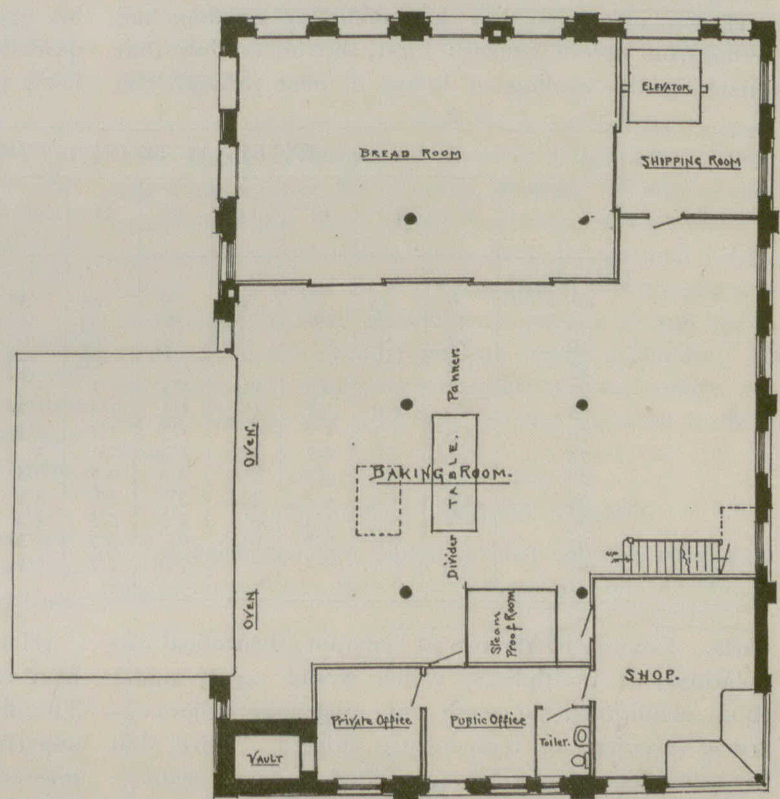
The tables are very full in details and but a few results can be given here. Thus a pier of hard bricks laid in Portland cement sustained, after six months, a load of 1,365 pounds per square inch before cracks appeared, and crushed under 2,275 pounds. Granite blocks laid in Portland cement crushed under 8,100 pounds per square inch, while piers of sandstone rubble, laid in Portland cement, showed cracks under a load of 2,750 pounds, and crushed under 3,200 pounds.

The most interesting tests, however, were those which showed the resistance of ordinary and reinforced concrete piers. A pier of solid concrete after 3½ months, crushed under 1,780 pounds per square inch, the rupture taking place almost without warning cracks. A similar pier reinforced by the insertion of vertical wire rods held together by circumferential bands, and tested also after 3½ months stood a pressure of 2,470 pounds per square inch before the appearance of cracks, and crushed only after the application of a load of 3,800 pounds. Even then the pier did not altogether give way, the core remaining partially unbroken. The results of these tests showed the importance of placing the metal reinforcement where it can act to the best advantage. A moderate increase in the strength of the circumferential bands would have added greatly to the strength of the whole pier without adding appreciably to the cost, while the large margin of strength remaining after the appearance of the first cracks show how structures constructed on this principle may be made free from sudden disaster. The care with which these tests were made, and the fullness with which the results are recorded, render this report a valuable document, worthy of association with the large report of the same committee upon arch tests and it adds one more to the many contributions to engineering knowledge by the Austrian Society.



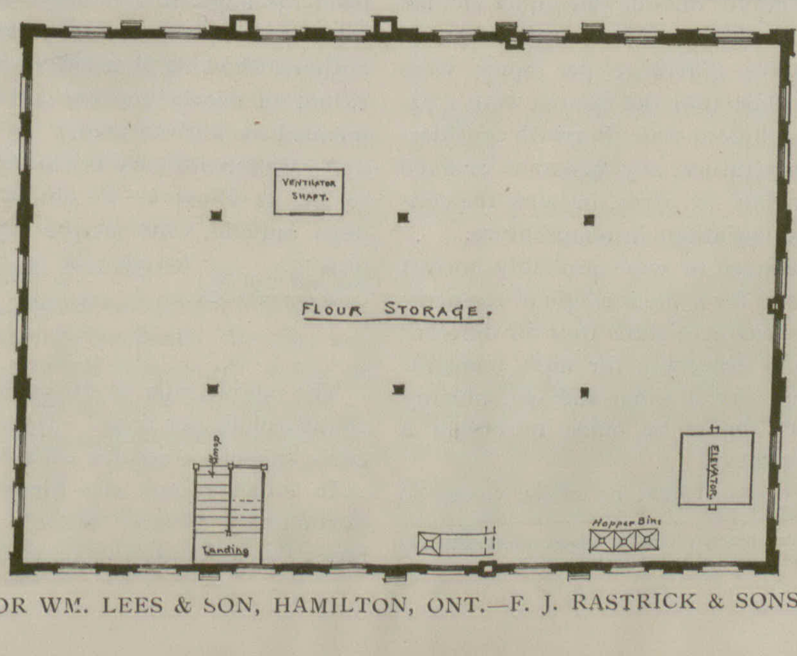


PLAN OF SECOND FLOOR.



PLAN OF GROUND FLOOR.

PLAN OF THIRD FLOOR.



BREAD FACTORY FOR WM. LEES & SON, HAMILTON, ONT.—F. J. RASTRICK & SONS, ARCHITECTS.

RADIATION OR PIPE SURFACE REQUIRED FOR BUILDING, HAVING CONSIDERABLE VARIATIONS IN CONSTRUCTION, SIZE AND TEMPERATURE.*

Mr. Jones said he had not, up to the present time, met with any work that dealt with this difficult subject in an exhaustive manner, and whilst no one appreciated more fully than he did the excellent work of Mr. Chas. Hood, Mr. W. J. Baldwin, Mr. T. Box, Prof. Carpenter, Mr. F. Dye and others, who have given much valuable information, he has also felt that the discrepancies in the various rules and formulæ were so great that a nearer approach to uniformity was sorely needed, and he trusted that the writers referred to would accept these criticisms in the most friendly spirit, and with the assurance that his sole object was an earnest desire to approach a solution of this difficult subject. He would not confine himself to destructive criticism, but would endeavor to crowd as much constructive information as possible into his short paper, in a manner so specific as to give the leading members of his profession food for thought and ample scope for criticism.

He was of opinion that the conflicting opinions had arisen from several causes: First, the uncertainty that existed in the cooling or losses of heat through the glass. Second, by the use of constant, theoretical calculations, or multipliers, which would apply under equal conditions, but were only misleading where extreme variations of temperature existed. Third, that the calculations had not been verified by actual tests.

The results of experimental cooling tests with an iron tube and a glass tube of approximately the same size, exposed at the same time to outside air under similar conditions, were that, with a cast iron tube, the units per super foot, per degree difference per hour, were 1·99, while with the glass tube the figures were 1·72.

What he desired to point out was, that with considerable variations in temperature, any constant or fixed multiple was sure to result in error, because the conditions change with the variations in temperature.

All the authorities referred to were probably correct for stated conditions, and for a small range of temperatures, but he would endeavor to show that for different classes of buildings, and especially for high temperatures, the discrepancies were so great and so confusing that a combined effort should be made to obtain a nearer approach to accuracy.

The cooling atio, or loss of heat by glass, varied so enormously according to the difference in temperature, that the want of unanimity in the tables by different authorities was not at all surprising. Box, T, gave a loss (in units per sq. ft. of glass, per degree difference per hour) varying from ·306 to ·41 for greenhouses and ·504 to ·53 for windows. Professor Carpenter gave ·91 to ·98, while various other authorities, English, Continental, and American, varied from ·776 to 2·248. The difference between the highest and lowest was 630 per cent.

Again, in comparing formulæ, the various authors differed to practically as great an extent. Most of the published rules for obtaining the feet super of radiation were complicated, involving intricate calculations, and occupying more time than could ordinarily be given when preparing estimates. There would be no objection to this, providing the results obtained were such as to justify the extra time and trouble, but, so far as his experience went, this was not the case, for the results were frequently less accurate than those obtained by some simple formula, besides which complicated calculations were apt to lead to mistakes, and his object was to give some simple data that could be quickly grasped by the busy man, and that should give fairly reliable results under varying conditions.

EXTERNAL TEMPERATURES. Fahr.

Inside Temp.	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°	55°	60°
40° Fahr.	·8	·75	.65	·56	·5	·45	·38	·34					
45	1·	.89	·8	·72	·62	·55	·48	·42	·36				
50	1·2	1·1	1·	·88	·77	·68	6	·54	·46	·4			
55	1·4	1·3	1·2	1·1	1·	·88	·76	·68	·6	·5	·44		
60	1·7	1·6	1·5	1·4	1·3	1·1	1·	.88	·76	·65	·55	·48	
65	2·	1·9	1·8	1·6	1·5	1·3	1·2	1·1	1·	·88	·75	·62	·52
70	2·5	2·3	2·1	2·	1·8	1·7	1·5	1·4	1·3	1·12	1·	·86	·75
75	3·	2·8	2·7	2·5	2·3	2·1	2·	1·8	1·6	1·5	1·3	1·15	1·
80	3·8	3·6	3·9	3·1	2·9	2·7	2·5	2·2	2·	1·9	1·7	1·5	1·3
85	4·6	4·4	4·2	4·	3·8	3·6	3·3	2·9	2·7	2·5	2·2	2·	1.9
90	5·7	5·5	5·3	5·	4·7	4·5	4·3	4·	3.8	3·4	3·	2·8	2·5
95	7·5	7·2	6·8	6·4	6·	5·7	5·5	5·1	4·7	4·5	4·2	3·9	3·5
100	8·3	8·9	8·1	8·	7·9	7·7	7·5	7·	6·4	6.	5·7	5·4	4·8

(Here followed six comprehensive tables giving the heat ratios [or multipliers] for horticultural buildings. The figures cover the subject very fully, giving the superficial area of heating surface required to give internal temperature of from 40 degs. to 90 degs. Fahr., with external temperature of from 0 degs. to 50 degs., with the water at six different temperatures, from 150 degs. to 200 degs. Fahr. Following these tables are explanatory examples, also reference to other authors, showing that different authorities vary to the extent of nearly 100 per cent. in the radiation recommended for a given area.)

A rule for ordinary brick buildings Mr. Jones stated to be as follows:—To obtain 60 degs. inside when 30 degs. outside; water at 170 degs.—

Glass (G.) feet super. ÷ 6
Exposed Wall (W.) " ÷ 12
Cubic Capacity (C.C.) " ÷ 120 } = Feet super. radiation for 60 degs. inside when 30 degs. outside.
For rooms under 5,000 c.ft. capacity.
" " " ÷ 140 " 5,000 to 25,000 " "
" " " ÷ 150 " 25,000 to 100,000 " "
" " " ÷ 160 " over 100,000 " "

The above rule is for ordinary ventilation with one change of air per hour. If two or more changes, add cubic capacity ÷ 200 for each additional change.

In small rooms the glass and wall surface is proportionately greater than in large rooms, and in the latter the walls are thicker and the loss proportionately

*Abstract of Paper by Walter Jones, presented before the Institution of Heating and Ventilating Engineers of Great Britain.

less, so the divisions are proportioned to meet these changed conditions.

EXAMPLE.—Suppose a room has 50 ft. of glass, 500 ft. exposed wall, and 5,000 ft. cubic capacity.

G.	feet super.	30 ÷ 6 = 8	84 ft. super. radiation to give 60 degs.
W.	"	500 ÷ 12 = 41	= inside when 30 degs. outside and
C.C.	"	5,000 ÷ 140 = 35	water 170 degs.

Suppose the same room requires two or more changes of air per hour, then C.C. 5,000 ÷ 200 = 25 ft. extra radiation for each additional change of air.

A rule giving the relative pipe surface required for varying temperatures in ordinary back buildings, taking water temperature at 170 degs., inside temperature at 60 degs. and outside temperature at 30 degs. as unity. To be used in conjunction with the preceding rule.

Mr. Jones stated that in comparing the radiation given by various authorities for attaining the high temperatures required in drying-rooms the greatest possible variation in figures is found.

In giving a diagram (which cannot be reproduced here) plotted out with the rise in temperatnre to be expected with a given area of heating surface, when the outer air is at different temperatures, the results obtained are briefly these :—

The radiation required to give from 0 degs. to 45 degs. will give approximately from 10 degs. to 50 degs.

,,	,,	,, 20	,,	55	,,
,,	,,	,, 30	,,	60	,,
,,	,,	,, 40	,,	65	,,
,,	,,	,, 50	,,	70	,,
,,	,,	,, 70	,,	75	,,

In other words, the radiation that will give a rise of 45 degs. from 0 deg. to 45 degs. will only afford 15 degs. rise from 60 degs. to 75 degs.

The question now naturally arises, why the heat ratios or multipliers for horticultural buildings should not apply to ordinary brick buildings, and why should the progressive ratio in the table for brick buildings differ so materially. Three reasons might be given, which would probably account for this :—

First.—The data or starting point differs ; the conditions are also different ; hence the ratios or calculations must be made to conform with the altered conditions.

Second.—The radiation required to give 60 degs nside, when 30 degs. outside, in ordinary buildings, is approximately 15 ft. super. per 1,000 cubic feet, and for glass buildings it is about 50 to 70 ft. super. per 1,000 cubic feet, or four times the amount to obtain the same temperature.

Third.—Mr. T. Box, in his excellent treatise on heat, gave what appeared to Mr. Jones to be conclusive evidence that the losses from large glass surfaces are proportionately less than for small glass surfaces, or about ·306 units of heat per square foot per degree per difference per hour for greenhouses, as against ·504 units for ordinary windows.

BY THE WAY.

The Japanese method of house construction is said to be to put on the roof as soon as necessary supports are in place, and afterwards build the lower part. Some of the modern skyscrapers are being built on this plan—the casing of the steel skeleton commencing at the top.

x x x

When an attempt was made to start the furnace in a church at Pelee Island, Ont., the other day, the apparatus would not work. Investigation revealed that during the summer a swarm of bees had taken up their abode in the chimney, and stored up therein so large a quantity of honey as to completely block the flue.

x x x

Apropos of the article in November issue of this Journal on the new Majestic Theatre, Toronto. A daily paper's report of a recent performance states that "the sensational fire scene and rescue brought down the curtain of the third act amid tremendous applause," I shall not be surprised if some day there should be a still more sensational fire scene which would not only bring down the curtain but also the building.

x x x

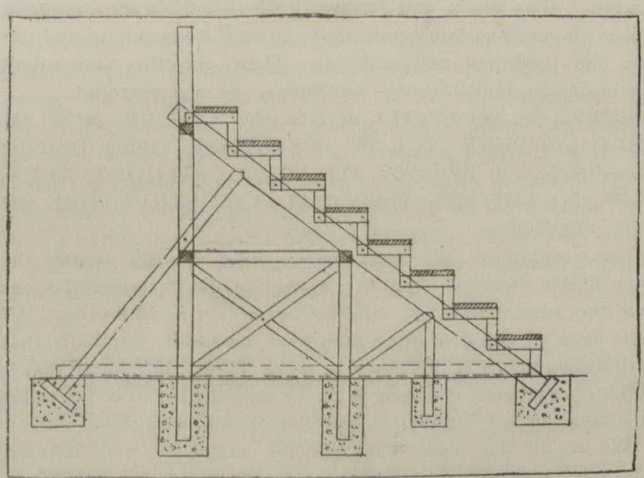
Two serious explosions of acetylene gas occurred in Western Ontario last month. In one instances a commercial building was wrecked, while the other resulted in the collapse of a church during the progress of an entertainment, and the serious injury of a number of persons, including the minister. It is quite time that the Insurance and building regulations were so amended as to compel acelylene gas generators to be installed in separate buildings at a safe distance from inhabietd structures.

x x x

A British Architectural Journal indignantly refutes the statement of Mr. Yerkes, manager of the London twopenny tube, that English workmen cannot build tall chimneys from the inside as is done by German bricklayers. In proof of the absurdity of the statement it declares : "German workmen are just as fat and heavy as our own, and require just as much scaffolding to hold them up ; while, as for agility and intrepidity, we do not suppose any workmen surpass our own scaffold fixers."

PLAN FOR A GRAND STAND.

Attention has been called in these columns to several serious accidents which have resulted from the failure



DESIGN FOR A GRAND STAND.

of heavily loaded grand stands. The proper construction of such stands should therefore be a subject of interest to architects and builders.

We reproduce herewith a sketch for a stand contributed by J. Barsley to an English publication. The uprights below ground level are proposed to be well tarred and set in concrete. The dotted lines indicate additional bearer if it is not proposed to fix the structure to the ground.

MATERIAL AND TECHNIQUE IN DESIGN.

By Prof. Percy E. Nobbs.

Note by the Author:—These three short papers (1) Drawing and Architecture; (2) The Styles of Architecture; (3) Material and Design; are intended as an introduction to the study of Architecture for students assumed to possess no knowledge of the subject, and the themes are treated with regard to their bearing on study only. They were delivered at McGill University this September.

We have dealt thus far with the two great branches of architectural study (and by architectural study we must understand training in those things which lead up to the art of designing. In drawing we have the written side of our language; in building the living words with which the artist in stone and mortar speaks to his public. The idea of an artist without a public is, by the way, impossible: still there are wondrous few outside the architectural profession who understand. By the styles in the common acceptation, we must understand the traditional metric forms in which to string our poems; by style in the higher sense, we mean all that makes for character in work—good or bad. To-day it is with the proper structure of our architectural language that we have to deal,—that is the fundemental basis of design.

All modes of expression have one purpose—the conveyance of ideas from one man to another by means of the senses: and it is hardly necessary to add, true ideas. This power was not evolved that man might deceive his brother. The entire advance of man to the position we find him in to-day is based upon the acquisition of power to convey ideas to be accepted as true, or perhaps honest is a better word, for truth is after all a comparative affair—between the scientific truth of to-day and "the happy truth the careless angels know" there is a great gulf still fixed.

It will take us years of study to really appreciate this truthful quality in all great architecture, and it is only with a small side of this truthfulness that we have to do to-day, but it is necessary to understand something of this from the beginning of our studies in order to be on our guard against the lie in design. If we were simple XIII century craftsmen there would be no such need, but we are sophisticated XX century students, and the world is full of untruthful design, and when a lie is repeated often enough we are very apt to take it for gospel.

Now the particular type of lie we have to consider is the lie of material. The very basis of all design is knowledge of material (and the idea of material necessarily carries with it the process by which that material can be wrought—the technique, that is.) Of course before we design a thing we must thoroughly understand its purpose, but that is not the basis of design. That knowledge is shared equally at least by the client or the man who will use the thing, and there are men who know what is wanted to perfection, but who cannot design, and incidentally it is well for the professional designer that this is so (Mr. Kipling's "Story of Ung" contains the most brilliant exposition of this in our language). The state and form with which a designer invests an object depends at every turn upon the stuff it is made of and the way the workman will make it. There are other things than this in design, but this is the touchstone, the one essential.

THERE IS NO SUCH THING IN NATURE, NOR IN ARCHITECTURE (NOR IN ANY OTHER ART I THINK) AS ABSTRACT BEAUTY OF FORM, WITHOUT RELATION TO THE USE, MATERIAL AND STRUCTURE OF THE OBJECT.

The world of art has been mazed long enough among the unprofitable theories, about art appealing direct to the emotions and the glorification of the work of art for its own sake. We must have a good deal more than pure reason in anything that is designed before it becomes a work of art, but where that is lacking as a basis, the thing is fit for nothing but to be regarded as a more or less interesting exercise of skillful fingers.

We are all of us aware that building materials have differen characteristics without taking a scientific course on the subject.

Stones are heavy and vary in size; Bricks are all of one size. Wood is obtainable in great lengths, cuts well, has strength of different kinds in different directions and shrinks. Steel has enormous strength in tension and considerable in compression. Wrought iron and cast iron have very different characteristics of strength and technique. Plaster is worked soft and set hard. Sheet metal bends. So with every material we can call to mind—we find differences in strength, texture and manipulation, all interdependent. This is what is meant when we speak of the genius of the material.

Truism No. 1—Some materials are more suited to certain purposes than others. We blush to indite anything so obvious, yet designers habitually ignore this fact or acknowledge it only by imitating in one material, another which they consider obviously the more suitable for the purpose.

Truism No. 2—Each material has its own process by which it may be reduced to serve a suitable purpose.—As obvious as No. 1 and yet mere frequently ignored in design.

Next year we shall go through a course on the techniques for all materials the architect comes in contact with,—stone, plaster, wrought iron, stained glass, mosaic and the rest, and our study will take the form of preparing detailed drawings, for the trades using these materials. This will be of great profit to us if we can draw well enough by that time. This by the way.

To reduce our present enquiry to a brief lecture hour we shall consider wood and stone only. There are hundreds of kinds of each, and every kind has its particular genius for beauty if used the right way, and a very important part of the designer's work is the study of woods and stones on this account.

It is to wood in general and stone in general that we shall confine our attention as an illustration of the axioms above laid down.

After stone has been broken into our service by such rough weapons as blasting powder, the pick and the hammer, it is reduced to shape by use of the point held in the mason's left hand and the mall or mallet wielded in his right. The stone is chipped or powdered away till the desired form is reached. This is the general process of reducing stone to our purposes and is illustrated happily on the coat of arms of Melrose Abbey in Scotland—it is a "canting coat" and may or may not contain the derivation of the name. In chief is a rose and below it a mell—thus happily symbolizing the delicate and intricate beauty of that wondrous Abbey and the mason's simple tools which wrought the fair plain ashler and the moulded piers, the traceried windows and the crockets and bosses so "bellysh ycarven";—they are better carved nowhere.

In wood, we find in the grain and fibre a natural structure so different from that of stone that it is only rational to expect a totally different technique and a totally different kind of strength. Where the one breaks the other bends and tears. It will serve no useful purpose to work out the comparison here; we need only think of the two things to realize a thousand essential differences. The saw, the axe, the chisel, the plane, the fibrous chips and the long and curling ribbons, and above and beyond all the circumstance that wood shrinks and warps and if exposed to be wet and dry alternately rots, are all facts full of meaning which throng the mind when we bestow a thought upon the matter.

Obvious as all this is we must note it down and decide to keep it ever in view before submitting to be influenced by those same styles we considered last time, for in their study there lurk a hundred subtle temptations to us to forget those differences of materials.

"Let your wood be wood and your stone be stone," is the architect's application of the great yae and nae commandment.

In pointing out a few local examples of this tendency to forget the natural way to treat materials it must not be supposed that this is a specially Canadian vice. It is as widespread as the tendency to pretend we are better than we know we are, and quite as futile.

Gothic window tracery as we find it in its fullest and finest development about 1500 A.D., is perhaps the purest one-material-evolved class of work within the realm of architecture. In the early XII Century churches narrow, lancet headed windows were used and in gables it scon became the practice to group these in twos, threes or fives, or even sevens side by side, as in the north transept at York Minster. The wall between each light was still kept the full thickness. The next step was to put circular windows over the heads of the range of lancet lights. The next development was the constructional arch to span the space occupied by all these lights as the wall was so much cut up. Then the space within the arch was made thinner than the rest of the wall, the lights come nearer together and the circular hole in the axpex of the arch gives way to such forms as trefoils or quatrefoils fitting more closely between the lancet heads. For ease in construction large slabs of stone 8 or 10 inches thick came to be used and these openings were pierced in them. This is plate tracery. As the construction became more skillful less and less of the plate was left, the piercings fitted closer into the spaces between the heads of the lights, etc., and real tracery is the result about 1250. Through the development of cusps and orders it is unnecessary here to go; enough has been said to prove the stony pedigree of the gothic window.

We have around us churches making more or less claim to be characterized as Gothic buildings and in a great many cases the tracery is of wood, reproducing to the best of its ability the forms which of right belong to stone and the "solecism" is none the less because such windows are painted to match the surrounding stonework. In matters of taste there is a right and a wrong as elsewhere, and anything sham about a building is as much to be reprehended as anything sham about an individual. When this sort of thing is done by way of embellishment to a place of worship the artifice seems peculiarly misplaced. Had such windows been frankly designed for wood construction no offence would have been there—they might or might not have been well designed ; that is another matter. The reason why they were executed in wood was presumably economy or conceivably on climatic grounds. The reason why the shapes, sizes and design of stone windows was followed is that the building was to be "Gothic." The letter not the spirit of the law is here manifest, for the spirit of Gothic work is this above all things—Truth in construction, truth in materials and obvious, potent, exposed truth at that. That is the main reason why we shall study Gothic work here. It will habituate our minds to constructive and material honesty in design.

There are many kindred cases to the one above which meet our eyes in any modern town. It is wonderful how little of the ordinary common building that is done does not stand the test of this question of the material honesty.

We shall soon see in studying the evolution of architectural forms how great a part this translation of features from one material into another has played in the production of new forms when rightly done.

Forms originally evolved in wood may be translated to stone and vice versa with the happiest results, but they must not be wholesale imitations, with intent to deceive but rational adaptations.

The Greek Doric for instance was originally a wooden style of construction and the wooden forms still remain though they have lost all wooden meaning and appearance. Nothing that has been built has a more stony appearance than the Doric temple.

A case of the translation of stone to wood on the other hand is presented in Gothic screen work. We have seen how window tracery developed till it became the joy and glory of the church builders and the forms evolved within the mullioned window are found in screens, organ cases, wall panelling and stall canopies, but with very marked differences which make them perfectly suitable in their new places. The reduction of these stone forms in scale and their adaptation to wood construction and carvers' tools is what renders them at once right and beautiful.

A peculiarly futile type of hypocrisy manifests itself in such buildings as have different materials on their different fronts. Of course in city streets where buildings stand "cheek by jowl" ; where the back is only the side of a light well—stone to the street and glazed brick to the back is obviously the best thing that can be done. It is usually the intensely respectable villa residence that is guilty of the enormity under consideration. Why so many corner houses should have stone fronts to a main street and brick fronts to side streets has never been clear to me. Nothing possessed of powers of locomotion and sight can be deceived by this depraved tradition (for it has become a tradition).

These sort of things pervade our modern surroundings and they will testify to our children's children of a great deal of hollowness and lack of ingenuousness in XIX and possibly in XX century life. We need not heap up examples. Once we set ourselves to seek for honest work it is extraordinary how much that is spurious and mean will assail the eyes. Where ignorance is bliss it may be folly, but it certainly is a duty to be wise.

To sum up these three opening lectures in a sentence—the study of these things which lead up to the art of designing may be enumerated in three words corresponding to these three lectures—Drawing, Old Work and Construction ; by means of the first we study the second and thereby realize how truly the third may be said to be the fundamental basis of our art.

The new Cathedral in Liverpool will be built of red sandstone.

The method advocated of determining the thickness of plate glass for windows to withstand wind pressure and vibration from traffic is to proportion the shearing sectiou (the marginal or bearing length multiplied by the thickness) so as not to exceed the safe tensile strength.

NOTES.

The Architects' Registration Bill has been carefully revised, and the British Society of Architects will spare no effort to secure its passage.

Mr. Chas. Baillairge, who for many years has ably discharged the duties of City Engineer of Quebec, recently resigned the position, and is succeeded by his son, Mr. W. D. Baillairge.

Many new ceilings are whitened before they are quite dry, the result being that they have a smeary appearance when finished. Should there be any sign of moisture on a ceiling it is not in a proper condition to be whitened.

Prof. Capper, late of McGill University, Montreal now professor of architecture at Owens College, Manchester, has given the first of a series of lectures at that institution on the work of the monastic orders in relation to architecture.

The fourth international conference for testing building material is to be held next year at St. Petersburg, Russia, in the month of Angust. Herr Fetmager, professor of the technical high school at Vienna, Austria, has been chosen president of the conference.

A course of six lectures will be given during the coming winter in the gallery of the Montreal Art Association. These will include an address by Mr. Edward Robinson, curator of the Boston Museum of Fine Arts, on Greek Sculpture, and by Dr. R. Tait Mackenzie, on Artistic Anatomy.

The late Viollett-le-Duc wrote that one of the most interesting examples of architecture in all France on account of its simplicity, perfect shape, and harmony of detail, was the Cathedral at Chartres. The north steeple of this unique piece of twelfth century architecture has lately shown signs of decay, but fortunately the Government architects have now taken in hand its restoration. The "old tower" of the cathedral, surmounted by an octagonal spire, is 350 feet high, being shorter than its sister (built in the sixteenth century by Jean de Beauce), but far more interesting.

The attention of Canadian architects and architectural students is directed to the advertisement appearing in the present number referring to the Annual Examinations of the R.I.B.A. It was a matter of regret that no Canadian candidates presented themselves for these examinations last year. It is hoped that a number will go up for examination in 1904. Any information required regarding these examinations will be cheerfully supplied by Mr. Andrew T. Taylor, F.R.I.B.A., 80 St. Francois Xavier st., Montreal, who is the representative in Canada of the Royal Institute of British Architects.

"The requirements of modern civilization are so varied and complex, and we live at such a rapid pace, that even the practice of architecture has been invaded by 'specialists' who apparently imagine that a thorough knowledge of technical details will compensate for a lack of knowledge of the art of their profession. There are hardly any modern pretenders so lacking in justification by their works as that of the architectural expert or specialist. It may be argued that this is the only scientific method of dealing with modern complicated requirements ; if so, its scientific efficiency hardly justifies its artistic barrenness. My earnest advice to you is to make your practice cover as wide a field as possible; shun specialism, however lucrative it may appear."—Mr. J. S. Gibson.

A man whose business it is to sell sash ventilators claims to have made an interesting discovery the other day, says the New York Engineering Review. He was equipping an office, on about the fifteenth floor of one of the tall office buildings, where he found that his ingenuity could not succeed in drawing in any outside air. After spending considerable time and visiting the various floors he states that he found on the lower floors a very strong influx of outer air through the window, passing through the room, out of the transom above the door and into the hallway. There he says it was sucked up by the elevator, which is rather doubtful, because the elevator presumably sucks downward as well as upward. At all events, there was a strong current of upward air through the ventilator shafts and, there being no outlet at the top of the shaft, it found its way out through the windows of the offices on the higher floors. The effect therefore is that the occupants of those upper floors are breathing the discharged air from the lower floors. This is quite likely to be the case under many atmospheric conditions.

THE ONTARIO ASSOCIATION OF ARCHITECTS

Arrangements have been made for the annual convention, which will be held in Toronto on Tuesday, January 12th and Wednesday, January 13th, 1904.

Upon the afternoon of the first day an address will be given by Prof. R. C. Carpenter, of Cornell University, upon "Heating," a subject upon which he has written a book well-known as a standard volume.

On Wednesday morning, Prof. Percy E. Nobbs, A.R.I.B.A., of McGill University, Montreal, will give a paper upon "The Delineation of Architecture," and will give examples of various methods of rendering. It is hoped that a very full discussion will follow this address.

The Wednesday afternoon meeting will be addressed by Prof. J. Mavor, of Toronto University, on "Recent Developments in the Planning and Improvement of Cities in Europe and America" and Mr. Frederick G. Todd, of Montreal will, describe the "The Advantages of a Park System." The exhibition of architectural drawings will be opened on Tuesday evening and upon Wednesday evening there will be a banquet in the King Edward Hotel. It is expected that members of the Association from many places in Ontario will be present.

HEIGHTS OF FAMOUS BUILDINGS.

		Feet
1.	Old St. Paul's, London	534
2.	Cologne Cathedral	517
3.	Rouen Cathedral	492
4.	St. Nicholas, Hamburg	473
5.	Anvers Cathedral	472
6.	St. Peter's, Rome	469
7.	Strasburg Cathedral	465
8.	Great Pyramid	460
9.	St. Stephen's Cathedral, Vienna	441
10.	St. Pollux Chimney, Glasgow	435
11.	Salisbury Cathedral	404
12.	Antwerp Cathedral	403
13.	Chartres Cathedral	403
14.	Friburg Cathedral	385
15.	Amiens Cathedral	383
16.	Florence Cathedral	376
17.	St. Paul's, London	360
18.	Houses of Parliament (Victoria Tower)	331
19.	Campanile of St. Mark's, Venice	323
20.	Mechlin Cathedral	319
21.	Norwich Cathedral	309
22.	St. Genevieve, Paris	274
23.	Chichester Cathedral	271
24.	Campanile, Florence	266
25.	Lichfield Cathedral	252
26.	Canterbury Cathedral	235
27.	Taj Mahal, Agra	220
28.	The Monument, London	202
29.	Porcelain Tower, Nankin	200
30.	York Cathedral	198
31.	Crystal Palace (central transept)	198
32.	Baptistry, Pisa	190
33.	Leaning Tower, Pisa	183
34.	St. Sophia, Constantinople	182
35.	Colosseum, Rome	157
36.	Albert Hall, London	154
37.	Pantheon, Rome	143
38.	St. George's Hall, Liverpool	85
39.	Temple of Trexor, Egypt	70
40.	Parthenon, Athens	66

Mr. Henry Simpson, architect, has announced himself a candidate for the Board of Education of that city.

The carpenters' strike in Pretoria is over, and the men's demand for a standard wage of £6 19s per week of forty-eight hours has been agreed to.

CORRESPONDENCE

FOREIGN RECOGNITION OF CANADIAN SKILL.

DEC. 11TH, 1903.

To the Editor of the CANADIAN ARCHITECT AND BUILDER.

SIR,—In your issue of November under the heading of "Foreign Recognition of Canadian Skill" you refer to a Canadian artist receiving several commissions for memorial windows from the United States—and express astonishment at the fact that "an order amounting to about $10,000.00 for memorial windows to be placed in a church in Montreal was given to a U.S. firm" and that the duty of 30% paid on these windows was afterwards refunded by the Government; and your article suggested that "an explanation should be demanded of the Canadian Minister of Customs."

Apropos of this the writer wishes to say that very little blame can be attached to the Minister of Customs, (the Hon. Mr. Patterson,) although the facts are as you state. The Minister was interviewed and the facts as he gave them are, that for many years back, previous to the present Liberal administration, this custom had been followed, and by special Order-in-Council the duty was refunded, and it was difficult to draw the line without apparent discrimination to the particular ecclesiastical body that made the application. And further that the application for the refund of duty required had always been accompanied by a sworn declaration that it was impossible to execute this work in Canada. Let us hope that the ecelesiastics, on the supporters of religion, sinned in ignorance.

The Minister promised, and we believe he has carried out his promise, that this should cease. No fault can be found if the work should happen to have been that of a professional artist, such as Mr. Holiday, Frank Brangyn, Mr. Richardson, and others,—but these refunds were asked for and given on purely "commercial work," that is to say—work where the identity of the artist was sunk in the firm carrying out the order. Productions executed by artists of the "status" of these gentlemen would only benefit the taste for good productions in stained glass, and rightly so, might be admitted free, but all of the work carried out by "commercial stained glass firms" either in the United States, England, the Continent—the price being equally good, could be executed here.

Before concluding the writer would like to add that a prominent protectionist in Montreal, a gentleman who is about to seek the suffrage of the "electorate" with the purpose of imposing upon the people of Canada a high protective tariff was largely instrumental in placing the above order referred to in the United States.

This, I think, Mr. Editor should illustrate the insincerity of the "proteetionists" who are "free-traders" for themselves, but "protectionists" when "others" are the purchasers.

Trusting this explanation will clear the present Minister of the blame your article imposes upon him.

I beg to remain,

Yours very truly,

"VERITAS."

VENTILATING SYSTEMS.

TORONTO, December 4, 1903.

To the Editor of the CANADIAN ARCHITECT AND BUILDER:

SIR,—I note a letter in your November issue, calling attention to the ventilation of the McIntyre Building at Winnipeg. The writer of the letter invites criticism and states that a discussion on the subject might be interesting and instructive. I quite agree with him on that point, but believe that the discussion should be on the ventilation of this building in particular, rather than on the system in general.

In order to discuss it intelligently it would be necessary for us to know the size of the building, its sub-divisions, the nature of business carried on, apartments and the number of occupants, the size of the vent shafts and the openings into the different apartments, together with their location. What provision is made for the admission of fresh air and have we to depend on gravity alone for the draft in the flues, or is artificial means provided?

We would also have to agree on a definition of ventilation which I understand to be the admission of fresh air in sufficient quantities to diffuse, dispel or drive out all vitiated air, or air containing more than from two to four parts of carbonic acid, in 10,000 parts, the air to be taken from a reliable source and to be distributed in desired quantities throughout the different apartments, according to their requirements ; the entire system to be positive in its action and under the control of the operator.

In taking this matter up I think it would be well to have an approximate estimate of what the installation of this system cost; we would then be in a position to make a comparison of the costs of the various systems. My own opinion is that a mechanical device could be installed for a little over the cost of gravity ventilation, while the cost of operation would be very small if you take the results into consideration.

I take this matter up as I am interested in ventilation and I would be very glad to see a general discussion upon this question.

Respectfully yours,

VENTILATION.

NORTHWEST LETTER.

WINNIPEG December 14, 1902.

Although the winter has now thoroughly taken hold of this country and the thermometer has already registered as much as 25 degrees below zero on several occasions, building operations have by no means come to a standstill. It is most satisfactory to note this, for at no distant date it was universally considered, and is so yet by those not acquainted with the actual conditions, that for a period of some four months duration building of all description was compelled to cease. Work is now progressing in all trades and although the severe weather makes the cost much in excess of normal prices, on account of heating, etc., required, the cold weather does not prohibit the carrying out of good work. If these points were more widely advertised it would dispel the illusion many people hold, that because the thermometer at times registers as much as 40 below zero, work of all kinds must be suspended for the whole of the winter. This belief is held more particularly by those in the "Old Country," and if these facts could be brought to their notice it would help materially in encouraging good mechanics to immigrate to these western provinces. A present difficulty in building, on account of the great amount of work in hand, is the scarcity of skilled labor and much work has been hampered this year for this reason. The enormous amount of building, compared with former years, and the lack of labor will necessitate, for the completion of same to be realized before spring, the carrying on of the work throughout the winter months, and although it may be a loss to contractors in many cases, it will benefit the country at large, in that it will not only give continuous employment to the trades but it will more establish the truth and destroy the fallacy regarding building in winter.

The carpenters' strike which took place late in the summer retarded work to some extent. The disturbance was the usual several complaints of the Union, viz: a nine hour day from seven to five, a minimum wage of 35 cents and the recognition of the Union. No prolonged lockout took place and in a number of cases the employers agreed to the demands of the Union immediately upon receiving a notification specifying their requests. In some instances the men were out several weeks, but these cases were rare. Some seventy-five, more or less, masters have up to date agreed upon several points demanded by the Union, which agreement holds both parties for one year. The employers who refused to submit to the demands number about fifteen and include some of the large firms of the city. As no association of master carpenters exists in Winnipeg, the difficulty found by the Union was that each contractor had to be notified individually and each acted according to his own judgment. The advisability of setting the minimum wage at 35 cents appears on looking into the matter to be questionable. Taking a nine hour day with eight hours Saturday at 35 cents, gives a weekly wage of $18.55. This amount for a minimum appeals to one as rather high. There must be many instances in the carpentering trade where rough work is done, especially in a growing country such as this, where the labor cannot possibly be worth that amount. Many men there are who are worth no more than say 30 cents but who can perform this rough class of work as well as a thoroughly experienced man. It would be different if work was scarce and labor plentiful and where the good men would be frequently discharged in favor of the cheaper ones, but this is not the case. When such time arrives then the Union can protect the best mechanics but in the meantime the contractor or public must pay the price and consequently building becomes more expensive and the class of work stands still.

The subject of trade unions brings to one's mind the desirability of a "union" among architects. Not on the lines of protecting themselves as is the case of the trades, but for the protection of the public and the advancement of the art. On this theme I should like to bring to your notice some points that have impressed me as illustrating the great need of such an association to be formed in Winnipeg. Things in the profession are at present being carried on in a very loose way. Some years ago the resident architects in the province submitted a bill to the local Legislature petitioning them to grant a charter to an association formed of resident architects empowering them to prevent any outside architect practising without first becoming members of the provincial association and thus making it a close profession. This idea of "union" is not of a very high order as it was apparently one meant, I am given to understand, not to further the interests of the profession but only to act as a barrier against outside men from entering the province. What is needed is an association formed on the basis of the Ontario Association or other similar body with the direct object of raising the standard of architects and of work done. This can only be accomplished by educating students of the rising generation by the help of the Association and by making it compulsory to pass certain examinations before being allowed to qualify as architects. This might be done by an association being formed and a bill being authorized which would make it necessary for such qualifying examinations to be passed before one would be allowed to practice and for the measure to take effect say five years from the date of the introduction of same. This procedure has of course been ineffectually placed before the Ontario House on several occasions but Quebec has been more fortunate and Manitoba might do likewise. The present manner of practising architecture necessarily reduces work to the very lowest standard and it seems an injustice to the public that any man on the street can, when the whim takes him or when a prospective job looms up, place the word Architect after his name and publicly practice as such. It would be most unfair to cause those who were not architecturally educated to a specified level to cease from practising the profession, but it would be most just to compel those who were not competent from the public safety standpoint, to withdraw the designation "architect" from their names. The free use of the word by such a nondescript class has become such that in some cases, with a certain public, it is simply synonymous with "Jerry Builder." This does not exaggerate the prevailing practice in any way or form, and in fact one would hardly dare to describe the exact condition of affairs in this direction. The course now open is, for those architects who feel that the exigencies of the case demands it, and regard the profession as one worthy of protection and who can realize the effect of the continuous practice as now prevalent, to join in forming an Association as above for the repression of a system that can do nothing but lower the status of all concerned.

Taking leave of "Unions'—the city of Winnipeg tax papers are now being presented and show a rate of 21.50 mills made up as follows: schools 4.38, municipal commissioners .23, public parks .50, municipal expediture 16.39. Total amount of taxes levied $779,878.10 on an assessment of $36,264,920. To keep the rate of 21.50 mills throughout the "business tax," is arrived at in a strange manner. It is done by multiplying the actual annual rental by four or five so that although the rate is really 95.50 mills it reduces it to the 21.50 mills required. The tenant of an office or a shop having a rental of say $1000 pays $91.50 on shop or office. This business tax is of course in addition to the regular tax of 21.50 mills on the assessed value of the building and land. It is hard to obtain information as to the reason of this apparent extortion, but of course there is a reason, and that is supposed to be sufficient information for the taxpayer. To carry on the administration of the city's wants it requires that the amount of money expended must be paid, but the equity of proportioning the taxes in this manner looks on the face of it doubtful.

The prospects of building for 1904 look very cheerful. Although the total amount of building permits issued in 1903 aggregated to something like $6,000,000 the feeling at present is that this amount will probably be doubled next year. The C.P.R. improvements, the agreement of which has now been finally signed by the city, will entail an expenditure of something like $2,500,000. The whole of this project may not be proceeded with next year but the building of the subway is definitely settled.

MANITOBAN.

A SUGGESTION.

Toronto has recently rounded out her suburban park system by the purchase from the Dominion Government of the garrison common extending along the lake shore to the exhibition grounds. When improved this will form a combined park and driveway unsurpassed probably by any on this continent. The city is still in urgent need of one or more squares in the business district. The Council having decided that the proposed new Public Library building shall be located down town, the opportunity is afforded of placing it in the centre of a public square convenient to the business district. In order that the building may form one of the prominent architectural features of the city, and be well lighted, it should have an ample site. Why not as it were kill two birds with the one stone, by purchasing a site which would add to the appearance of the library building and of sufficient area to meet the requirements of a public square? The opportunity should not be missed of thus accomplishing both objects at a minimum cost.

TESTED FIREPROOFING.

To the Editor of the CANADIAN ARCHITECT AND BUILDER.

SIR,—A publication in Chicago which represents the Tile Manufactures, has been making a record for itself in attempting to belittle all other forms of fireproofing and is especially bitter in condemnation of concrete as a fireproofing material. They make use of some mishaps during construction, to argue that concrete is unreliable and lacks strength as a fireproofing material.

A great many accidents have happened to brick or terra cotta blocks, but that does not condemn their use in buildings.

After all the real test of fireproof construction and the test upon which one can form a correct judgment is an actual fire in a building, and from the effect of such a fire upon the materials used one can judge as to whether the construction is reliable or not.

We propose to print cuts showing the effects of fires in a number of buildings, some of them where terra cotta was used as a fireproof material and some buildings where the concrete system was adopted.

Illustration 1 shows the Horne building in Pittsburg, Pa., where the fire burnt out the woodwork and contents, but was not hot enough to destroy the stonework on the front; it was hot enough to destroy the terra cotta floors throughout a great part of the building, necessitating rebuilding of all the floors.

Illustration 2 it is a case where a small fire occurred in a pipe shaft in the Old Colony Building, Chicago. There was supposed to be nothing combustible in the shaft, but there was some pipe covering and some pieces of board and these caught fire. Even with this small confined fire, the heat was sufficient to displace the terra cotta partition, adjoining the shaft.

In another issue we will illustrate some cases of fire in buildings where concrete systems were used.

F. W. BARRETT,
Manager Expanded Metal Co., Toronto.

FIG. 1.

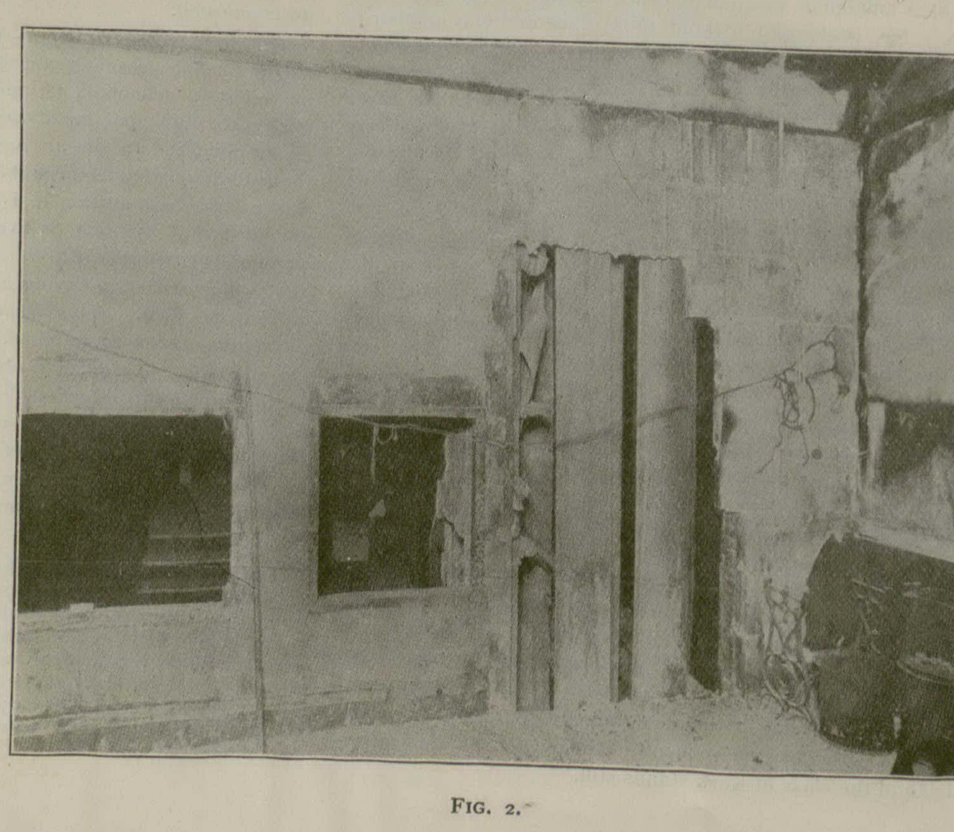


FIG. 2.

BUSINESS NOTES.

Architects and others should be interested in the announcement in this number of Messrs. Sheldon & Sheldon, of Galt, Ont. It has reference to their hot blast system of heating for schools, hospitals and other public buildings, factories, etc. They are successors to the McEachren Heating and Ventilating Co. and have had a long experience in this line. Particulars regarding their method of heating will be furnished any reader who will drop them a post card mentioning this journal.

EXAMINATION TO QUALIFY FOR ASSOCIATESHIP
—IN THE—
ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The Royal Institute of British Architects desiring to give facilities for those in the Colonies to qualify by examination for associateship in the R.I.B.A., will hold the fourth examination from June 24th to July 1st, 1904, in Montreal. Applications, fees and probationary work must reach London by the first mail arriving after April 9th, 1904. Intending candidates who must be not less than 25 years of age, can obtain application forms and copies of the previous examinations on application to

ANDREW T. TAYLOR,
Hon. Sec. R. I. B. A. for Canada,
North British & Mercantile Building,
80 St. Francois Xavier St., Montreal

All who are full members of the Province of Quebec Association of Architects and the Ontario Association of Architects by examination, are exempt from probationary work.

—THE—

CANADIAN ARCHITECT AND BUILDER

A Monthly Journal of Modern Constructive Methods,

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

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ADVERTISEMENTS.

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

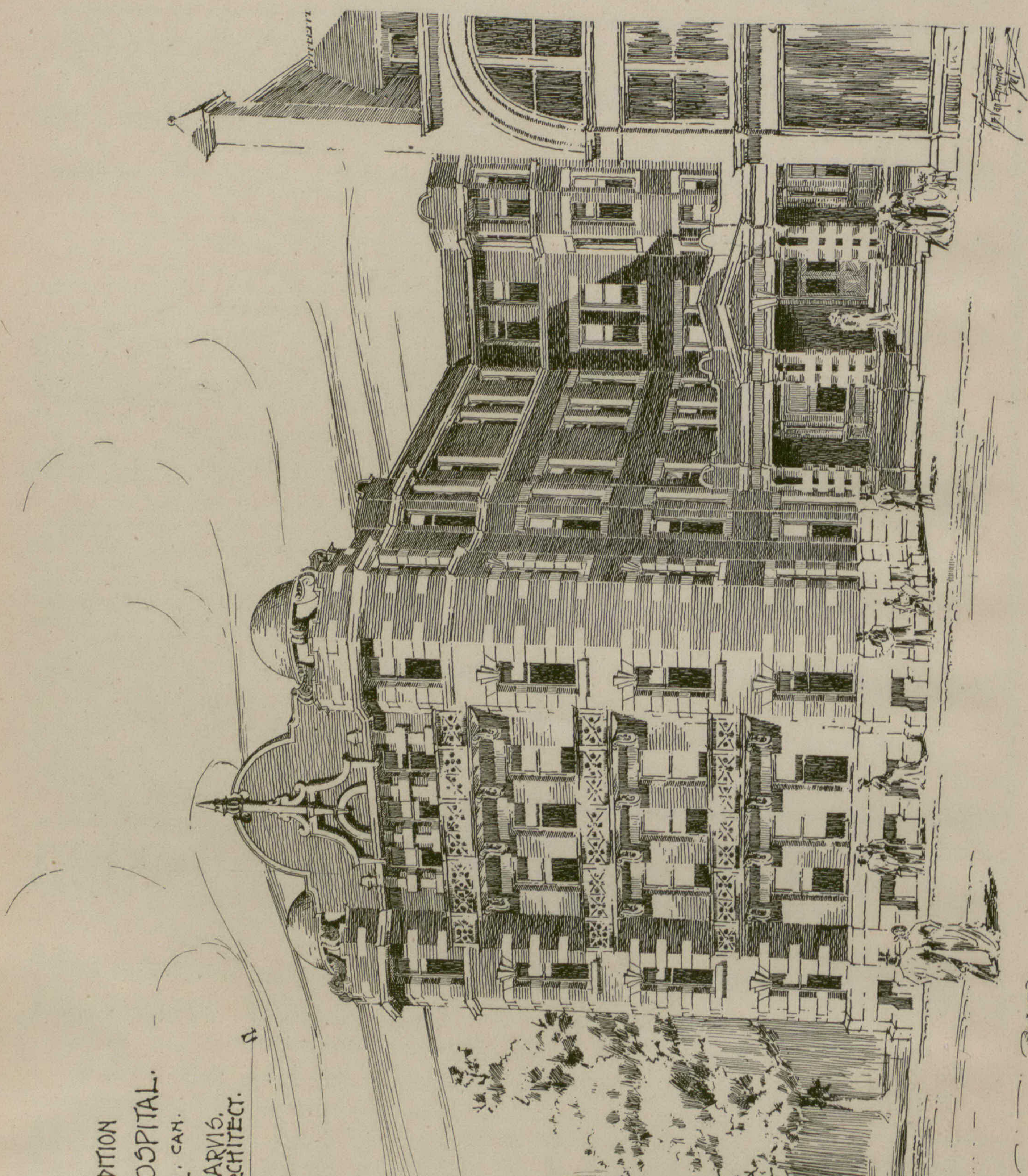
EDITOR'S ANNOUNCEMENTS.

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

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

NOTE.

A new building by-law for Winnipeg is in course of preparation, some of the clauses of which must receive the approval of the legislature.



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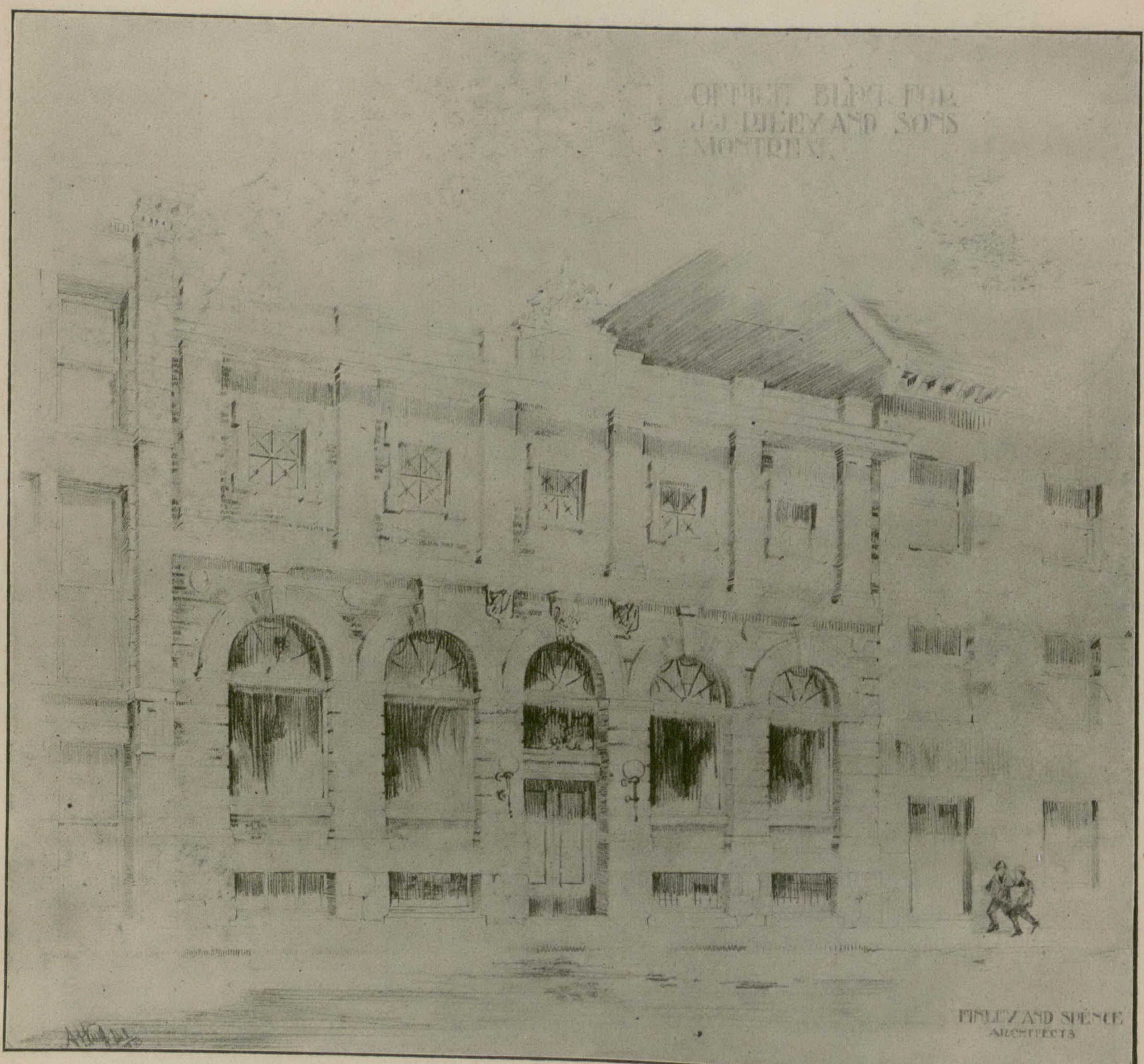
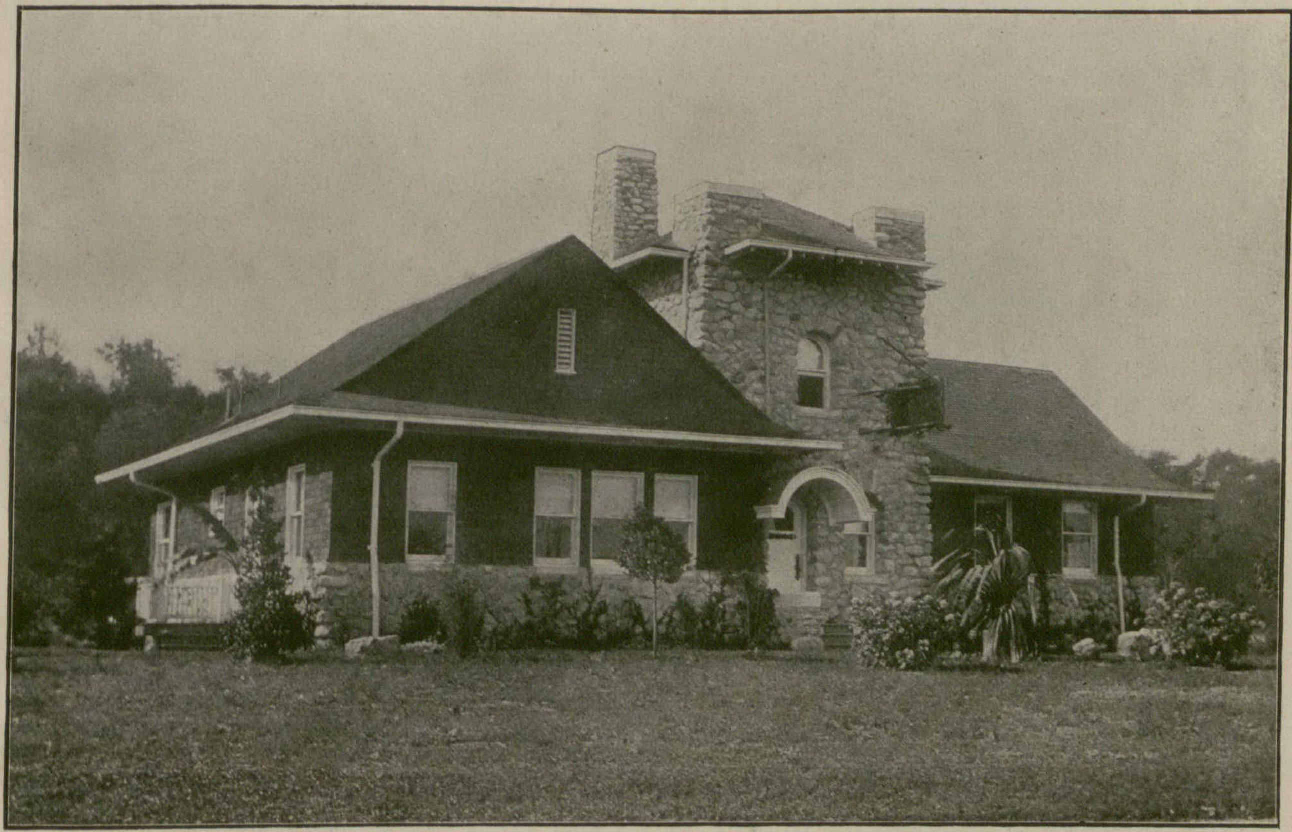
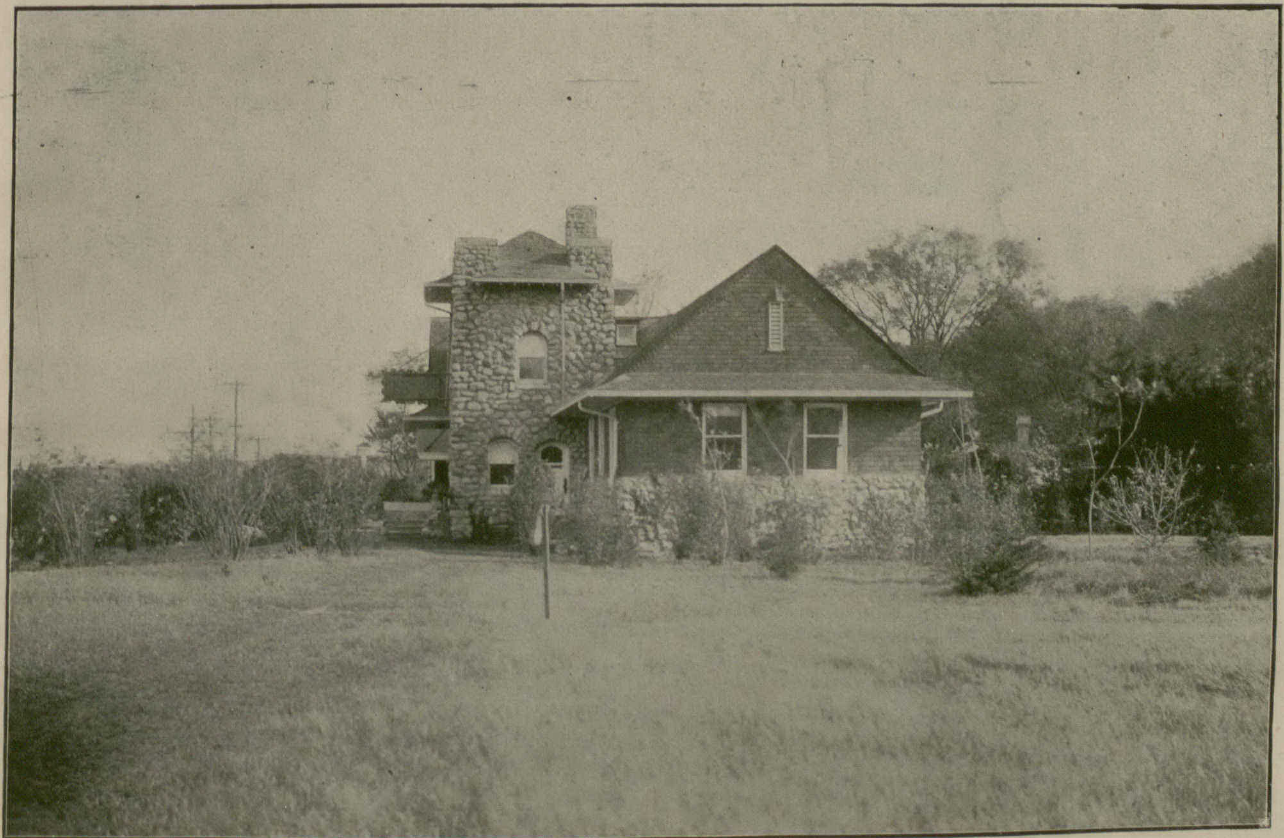
DECEMBER, 1908



Office Building for J. J. Riley & Sons, Montreal
Finley & Spence, Architects

SUPPLEMENT TO
CANADIAN ARCHITECT AND BUILDER
DECEMBER, 1903





OFFICES FOR TORONTO AND NIAGARA POWER CO. IN VICTORIA PARK, NIAGARA FALLS, ONT.

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DECEMBER, 1903

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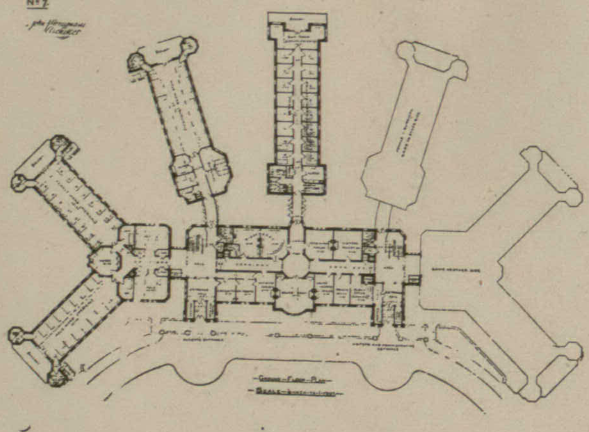

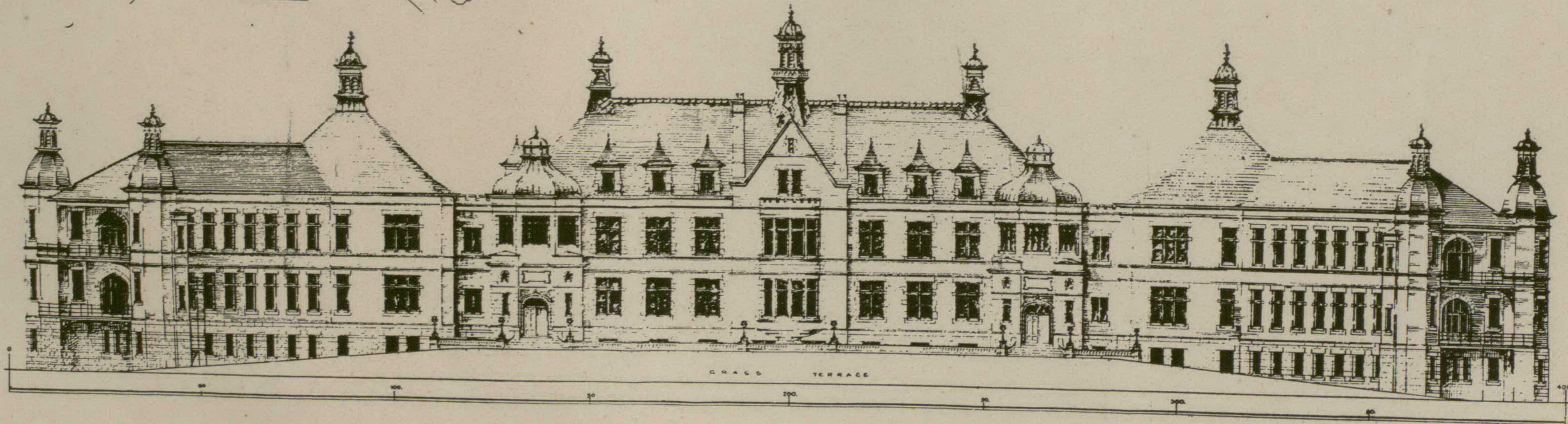

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(ILLUSTRATING ARTICLE BY MR. W. A. LANGTON, IN THIS NUMBER).

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(ILLUSTRATING ARTICLE BY MR. W. A. LANGTON, IN THIS NUMBER).

A ROUND SQUARE.

At the erection of a large brick plant a number of laborers were engaged to supply the material to the man undertaking the construction of a 110-ft stack. Among these was a young Irishman, a recent arrival from the land of the shamrock, whom the foreman of the works took pleasure in making the butt of his jokes. These the Irishman received with perfect good humor. At noon the foreman, winking to some of his trusted men, told the Irishman to go to a saloon some blocks away and ask the saloonkeeper for a round square. The saloonkeeper was a particular friend of the foreman's and was also a practical joker of the first water and much fun was anticipated to come from the simple Irishman's visit. Friend Michael did as he was told but did not return for a considerable time and when he did so work had been resumed. He ascended the ladder to the platform, where the foreman and his companions were working, with a gallon can of beer in his hand.

He said: "Here, I have had a round or two myself and here is another round for the lot of you and the saloonkeeper says it is up to you to square for the lot." The foreman is now sensitive at the mention of the round square and the joking has been done vigorously by Michael himself.

RAISING A CHIMNEY STACK.

The extension of a brick chimney shaft is often required, and the following account of the addition of 50 ft. to the height of a stack for the power house of the Columbia Railway Company is of interest. The shaft was originally 8ft. in diameter inside and 16ft. externally at the top, larger at the base. It was 160 ft. in height, and the shaft was built with double walls inclosing an annular air space. It had a cast-iron cap. After the introduction of the mechanical stokers, &c., a heightening of the shaft was required for increasing the draught. The extension was made without interrupting the service. The cast-iron cap was removed, and on the top of the cleaned brickwork a single shell of brick 50 ft. high, supported entirely on the outer wall of the old chimney, was built. It had a batter of 9 : 600. By means of a line carried up by a kite the ropes and tackles were pulled up, men ascended, and attached, by means of chains round old shaft, light radial angle-iron brackets, which were secured and boards were laid on them, forming platforms for two masons and a helper. The smoke, heat, and fumes were such that a light sheet-iron cylinder, 3ft. or 4ft. high, was placed on top of brickwork to protect the workmen. The new brickwork was built of the Custodis standard radial bricks, without metal ties, anchors, or any reinforcement. The platforms were placed 5ft. apart vertically, two or three being in use, and the lower one constantly removed and placed above the other two. Details to the added structure and the scaffold bracket used are given in the Engineering Record. From the section of the new shell, the outer diameter at the bottom, where it rests on the old chimney, is 13 ft. 3¼ in., and the diameter at the top 11 ft. 9¼ in., or 10 ft. 7 in. in internal diameter. The shell is built in three stages or sections: one of 17 ft. 2 in. at bottom, and two of 16 ft. 5 in. The thickness of the bottom section is 10⅝ in., the section above 8⅝ in., and the upper section 7⅛ in. In this case the radial made bricks insure a stable shaft. The Alphons Custodis Chimney Corporation Company were the contractors.

NOTES.

Good advertising is the path finder for all who seek success in business.

Not less than $50,000,000 is expected to be the outlay on the elaborate public buildings now planned for the city of Mexico.

A very pleasing and bright green may be obtained by using extra light chrome green glazed over with emerald green, or, as it is often called, Paris green.

The records of the Building Inspector of Montreal, show that for the first eleven months of the present year, the value of new buildings erected was nearly $5,000,000, or about twice as much as the total value of buildings erected last year.

A new patent frame for buildings is being used on some new buildings going up in Salt Lake City. The upright pieces of these buildings are made entirely of the new frame, which consists of short iron studs. These are fitted together so that an upright piece of any length can be made. The joists rest upon this frame work. The edges of the stud have a row of teeth upon which metal lathing is hung.

It is proposed to establish at Vancouver, B.C., a business consuming B.C. lead by converting it into white lead, lead colours, ets., with pipe and sheet lead, &c., beginning with white lead as a chief staple of the trade. This is to supply B.C. and the North-West as far east as Winnipeg or Ontario, and for export to foreign ports or across the Pacific. At present these ports of Canada are supplied from Eastern Canada, drawn chiefly from imports from continental Europe. This home consumption will relieve B.C. of a little of her surplus lead, which must otherwise pay freight to Europe or to Asia. The U. S. tariffs on lead and its products are prohibitory.

Mr. Alcide Chausse, city inspector of buildings, of Montreal, has been awarded a silver medal by the general exhibition jury of the International Fire Exhibition, held recently in London, England, under the auspices of the British Fire Prevention Committee. The award is for general excellence and utility in the municipal section. Mr. Chausse's exhibit consisted in a collection of building laws of almost every city in Canada and the United States, and some large cities in Europe, views of the city fire departments and models of fire escapes. Mr. Chausse has since presented to the British Fire Prevention Committee his whole exhibit. It has been accepted and will form a part of the Committee library.

MINERAL PRODUCTION OF NEWFOUNDLAND.

The total mineral production of Newfoundland for 1902 is valued at $1,217,686, an increase of $15,000 over 1901. The annual report of Prof. J.P. Howley to the Minister of Mines states:

Our brick and slate industries made a decided advance and showed a marked increase in value over the figures of the preceding year. Both are likely to figure prominently in the future. No returns are forthcoming from the slate quarry at Summerside, Bay of Islands. It is not probable any shipments were made, as there is usually a great deal of preliminary work in clearing away the surface debris in such undertakings before the actual manufacturing of slate can be entered upon. Messrs. Mitchell & Campbell have optioned their slate property at St. Jones, Trinity Bay, to an English company who will probably begin operations upon it as soon as spring opens.

The quarrying of granite and other stone to be used in the construction of the new Court House and railway station, as well as for foundation walls and street paving, was actively pursued, but it is not easy to get at the full particulars of this industry.

Prof. Howley's report shows that the production of building stone for the year amounted to 5,000 tons, valued at the quarries at $6,000; of granite, 2,955 tons, valued at $17,730; of limestone, 1,150 tons, valued at $345; of paving stone, 2,250 tons, or 180,000 blocks, valued at $18,000, and of slate, 2,500 tons, valued at $44,000. As compared with the previous year, there was a decrease of $9,486 in the value of limestone produced, and $1,980 in granite, while the increase in the value of building stone was $1,000; in paving stone, $3,872, and in slate, $21,500.

NOTES.

Building material—mixing mortar.

The new court house at Sherbrooke, Que., will be built of red granite from the Argenteuil quarries, with trimmings of white Stanstead granite.

The organization is reported of local plumbers' associations in Victoria, B. C., and in Sherbrooke, Que. Both associations are in affiliation with the National Association.

Maine's log cabin at the World's Fair will be built in the Maine pineries. It will then be taken down, the timbers carefully marked and the material shipped to St. Louis where it will be reconstructed.

The standard size of brick as ageed upon by the R.I.B.A., the Brick Makers' Association and the Institution of Civil Engineers of Great Britain has been ordered to come into force on May 1st next, and is recommended to be inserted in specifications.

The report of the City Building Inspector shows that in Hamilton this year 213 building permits have been granted. The value of new buildings is placed at $785,869, an increase above 1902 of $188,387. The sum of $348,850 was expended on factories. The Master Builders' Association have petitioned the city authorities to reduce the brick limit, so as to encourage the erection of a desirable class of frame houses.

"Competitions are not unmixed blessings to the profession, but we must admit that the buildings erected under this method compare favorably as a whole with the average of works erected without competition. I should certainly advise all men, for the first few years of their practice, to take part in well-conducted competitions, but be sure the conditions are fair, the assessor competent, and the subject one they know something about. And as soon as the state of their practice warrants it, I should also advise them to let competitions alone."—J. S. Gibson.

LEGAL.

Extra work on a bridge pier contract was the subject of a suit in the Supreme Court of Errors of Connecticut recently. The plan of the piers, which was a part of the contract papers for the construction, indicated the depth to the foundations by perpendicular lines running downward from the high-water level. The pier in controversy was marked as 26 feet deep, with a plus and minus sign following in order to denote the approximate character of the measurement. The contract provided that the piers were to be founded on rock bottom, except the center one, which might rest on gravel if the engineer consented. The price was $14 per cubic yard for all work and materials. It was necessary to carry one of the piers to a much greater depth, nearly 34 feet, and the contractor sued for a greatly increased rate of payment on the work below the 26-foot depth. The court ruled, 55 Atl. Rep. 584, that this additional excavation and mason work was not an extra, as the plans clearly indicated by the plus and minus sign the possibility of variations in the elevations of the foundations, and that the contractor was entitled to payment only on the basis of $14 per cubic yard for the finished pier.

ONTARIO PAVING BRICK CO. V. BISHOP.—Judgment (L.) by Justices Meredith and MacMahon in the Divisional Court at Toronto, on appeal by defendant Singer from the judgment of an official referee after the new trial of the action by him pursuant to the order of a Divisional Court (2 O. W. R. 320). The action was brought by a man who supplied materials to the contractor for the work done by him for the owner. The work was done by the contractor, the defendant Bishop, under an agreement with the owner (the appellant), and the work contracted for was the erection and completion of two brick houses in Crawford street in the city of Toronto. By the terms of the agreement the work was to be completed on or before 14th August, 1902. The contractor proceeded with the work, but only a comparatively small part had been done on the 14th August, 1902 The owner entered into new contracts with other tradesmen for the completion of the work, and it was completed by them at his expense. The referee decided that the owner was not entitled to set off against the value of the work done by the contractor the difference between the actual cost to the owner of the work and the price which he had agreed to pay to the contractor. Held, that it was a proper conclusion from the evidence that there was an unqualified and absolute refusal by the defendant Bishop to go on with and complete the work on his contract after he had been more than once requested to do, which evidenced an intention no longer to be bound by the contract, and justified the appellant in proceeding to complete, and the appellant is therefore entitled to recover the damages sustained by him owing to the default of defendant Bishop in the performance of his agreement. These damages exceed the amount found due to defendant Bishop. Appeal allowed with costs, and judgment appealed from set aside so far as it affects the appellant, and action as to him dismissed with costs.

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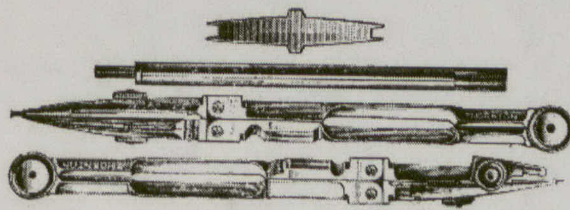

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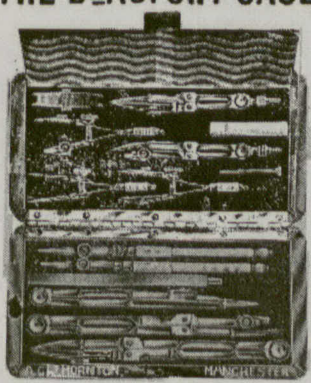

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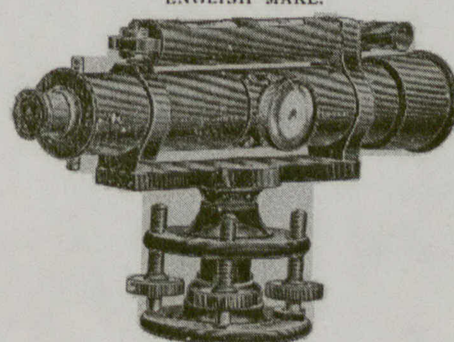

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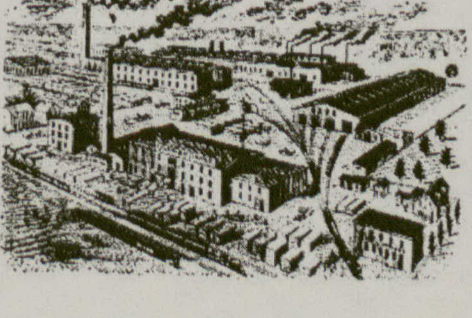

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