

PAGES

MISSING

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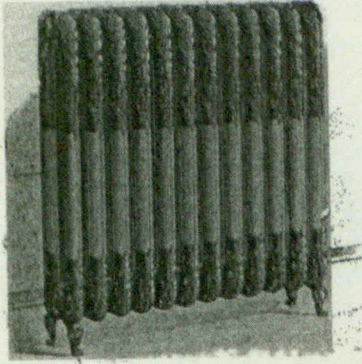
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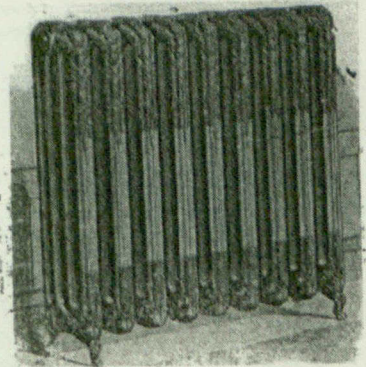
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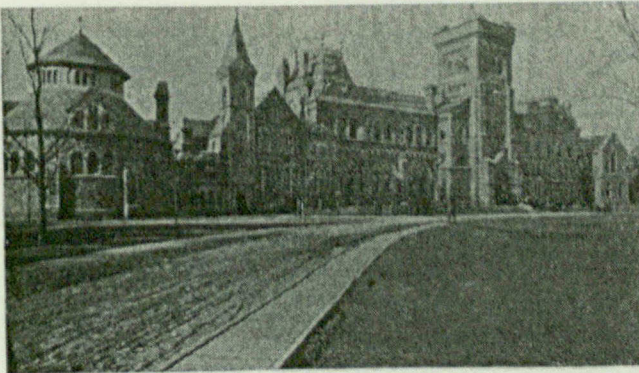
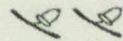
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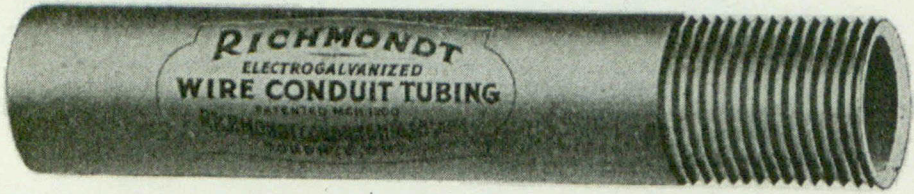
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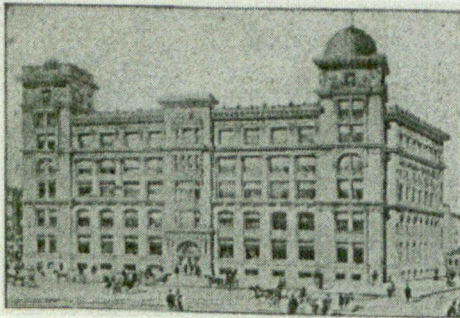
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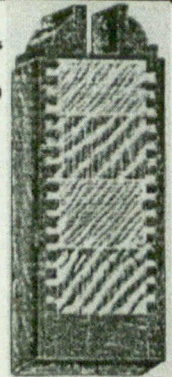


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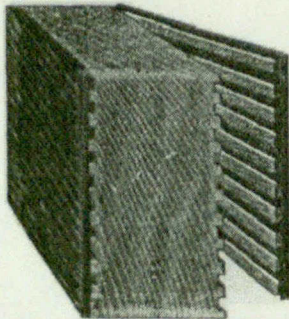
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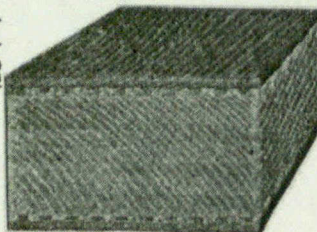
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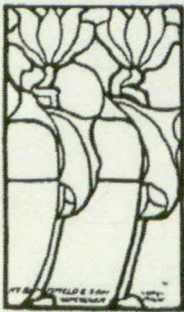
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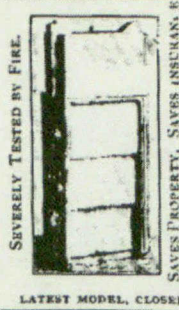
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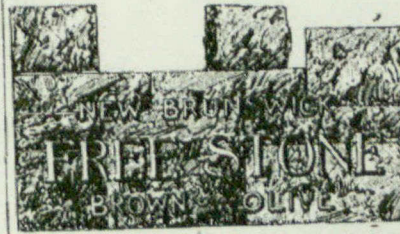
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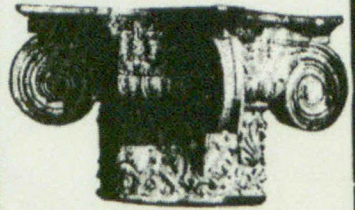
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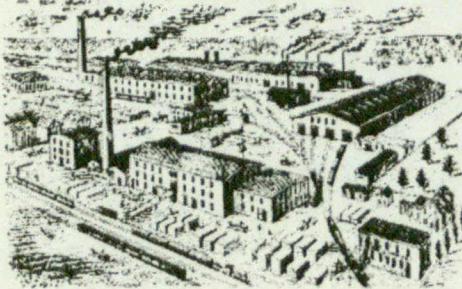
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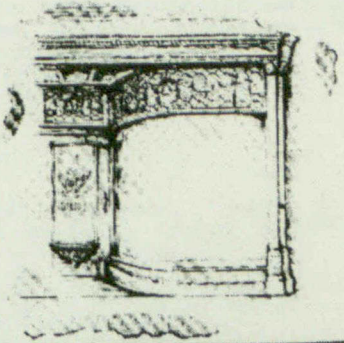
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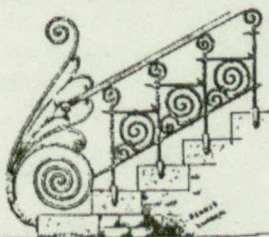
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Bank of Nova Scotia, Toronto.—Darling & Pearson, Architects.

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SPECIAL CONTRIBUTORS.

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To our readers every one we wish a Joyous Christmas and a Happy and Prosperous New Year.

Attention is directed to our **Students' Competition.** Students' Competition for a Suburban or Town House, to cost \$2,500. Particulars of this competition were printed in our November issue and again appear in the present number. It is hoped that architects throughout the Dominion will call the attention of their students to this competition and urge them to enter. An opportunity is afforded every student to test his powers and to learn where he stands in the ranks of the coming generation of Canadian architects.

The supply of competent men **Architects' Assistants.** in this line is at present much below the demand. A few years ago hundreds of draughtsmen were looking for positions. To-day all whose services are worth having are steadily employed at good salaries. There are a few floating about looking for employment, but they are the kind that no architect of standing would wish to have in his office. They either lack a proper understanding of the work that a draughtsman is expected to perform, or are so careless in their methods that they cannot be relied upon. A man belonging to this class on being sent to take measurements of some old buildings to which additions were to be made, was found to be out more than two feet in his figures

showing the width of the building, which had a frontage of only 70 feet. Inaccuracies scarcely less glaring marked his other measurements, so that it became necessary to do the work over again. Such "assistants" are simply a stumbling block and a source of annoyance to architects.

Close Planning. In these times of high prices for labor and material, the architect who desires to save his clients' money will give the most careful attention to the preparation of his plans with the view of securing the necessary accommodation within the least possible area. This is especially necessary in house planning, owing to the more costly interior finishings. In this class of work every additional two feet of area will add about six per cent. to the total cost of the structure. The necessity for the closest planning is therefore apparent. As regards the cost of building, there is nothing to indicate cheaper prices. On the contrary, there seems a probability that they may go still higher. Brickmakers have been unable to obtain fuel, and the kilns in the vicinity of Toronto are said to contain millions of unburned stock, which will not be available this year. This will probably mean an advance in prices next spring. The demand for iron and steel has been so great that the output of the mills for a year to come is said to be already contracted for. These facts would seem to prove th

continuance of the present era of high prices for at least a year to come.

Canada's Development.

CANADA has entered on a period of development which seems likely to rival that of the United States. Almost every day brings news of some colossal enterprise, and we are becoming so accustomed to such announcements that as a rule we receive them with but very moderate surprise. The declaration however by the authorities of the Grand Trunk Railway Company of their purpose to begin immediately the construction of a line by way of the Peace River Valley to the Pacific Coast, has naturally awakened the deepest interest from one end of the country to the other. The announcement is a declaration of confidence in the future of our great northwest territory that must greatly redound to the benefit of this country. The expenditure of something like \$100,000,000 in the construction of the new transcontinental line will help to extend and maintain for some time to come the prosperous conditions now prevailing, while the inflow of population following the opening up of a vast and fertile territory, will permanently broaden the market for manufactured products. The future greatness of Canada seems now to be assured and considering the rapid movement of events in these days, another decade will probably witness its realization.

Is Your Wiring Safe?

THERE have been a great many fires lately in Canadian cities whose origin has never been satisfactorily determined and which have consequently been blamed on that force, to the layman so mysterious and uncontrollable, which is called electricity. The popular verdict may be right, or it may be wrong, but the fact remains that a large proportion of the electrical installations in this country, more especially the older ones, are in a state so dangerous that it is simply amazing. As instances, may be cited a warehouse which, devoid of attendants 90 per cent. of the week, and filled with cotton and woollen millstock, was wired without an entrance switch and equipped with the ordinary link fuses, absolutely open. The chances of a melting fuse igniting the bales not over eight feet away and directly below them were so great as to amount almost to a certainty; in fact the woodwork bears evidence of one fire which has already occurred and which was due, so we are informed, to electrical causes. Another case is a church in which the wiring, ramifying all over and through the building, mostly wood, and minus any attempt at bushing either with porcelain or even rubber at the many points where it passes through walls and floors, is supported by wooden cleats in its many wanderings past gas, water and furnace pipes of all descriptions. Investigation would probably show many such installations as these; is it any wonder that fires occur in them? Rather is it not a source of surprise that so few fires occur, especially when we consider the many chances that exist for line crosses, transformer breakdowns and lightning discharges bringing into the building potentials which are not only much greater than can be controlled by the insulation of the circuits, but which in addition are dangerous to life. A stitch in time saves nine; if you are a consumer why not spend the

comparatively small amount necessary to put your wiring in good shape, at any rate have it periodically inspected; if you are a producer look carefully to your own lines, especially those in the station itself, in addition urging upon your customers the necessity of keeping careful track of the electrical material, both new and old, both machinery and wiring, which they may from time to time have upon their premises. If these precautions are taken, the public will gradually become less skeptical of electricity as a fire hazard. There is no reasonable man who does not acknowledge that electrical illumination and electrical power, compared for instance with oil and gas, are not only the most artistic and convenient, but far and away the safest, it therefore behooves us all to see that as far as in us lies, due precautions are taken in the installation of this method of illumination.

Government Architecture.

THERE is a marked contrast between the architecture of government buildings in the United States and in Canada. The designs for public buildings prepared in the office of Mr. J. Knox Taylor, Supervising Architect, at Washington, rank among the very best examples of modern work done in the States. Evidently Mr. Taylor is himself a master of his profession, and has under his direction a staff competent to give effect to his ideas. We regret to say that in Canada the opposite conditions seem to prevail. Many of our government buildings erected in recent years are atrocities in design—the work in some instances of engineers—or stupidly commonplace and uninteresting. The latest example is the new chemistry building for the School of Practical Science, Toronto, the principal elevation of which was published in the illustration pages of our November number—rather an example of what to avoid than of what to follow. The design for this building is entirely unworthy of the splendid site which it will occupy. Besides showing an entire disregard of harmony of style, the design is in other respects lamentably weak, and perfectly lacking in interest. To particularize but briefly, we need only direct attention to the diminutive pediment in the center of the facade dominated on either side by larger ones, and to the character of the window openings in the upper stories. Realizing the importance of the building and the site, the Ontario Association of Architects urged the government to institute a limited competition for designs among leading architects in private practice. This suggestion having been declined, the privilege was then requested of examining the designs to be prepared in the Department of Public Works, and of making any suggestions for their improvement that might seem desirable. While this request was not refused, no definite information was vouchsafed as to when the plans would be ready, nor was a proper opportunity given for their examination a protest of the Toronto Architectural Eighteen Club was likewise disregarded. It was apparent that no outside suggestions or interference was desired. The result is before us, and is such as to confirm the rumor that this department of the Government service is run on political lines, and affords a shelter for incompetents and “has-beens.” It is time for a change which will secure beauty as well as utility in our public buildings.



GARGOYLE, CREWKERNE, SOMERSET.

OFFICE MANAGEMENT.

A series of excellent articles, on the business side of an architect's office, which have been coming out during the current year in the Brickbuilder, are worth reviewing and condensing for the use of architects in this country.

Method is essential, even in a small practice, and the different heads under which office method is here outlined must have place in some form in every office, if work is to go smoothly. It is better, as the author of the articles in the Brickbuilder says, to adopt, at the beginning of a small business, a comprehensive scheme which may be expanded, so as to avoid making revolutionary changes at a later date.

FILING is the first thing to be considered; to keep the letters, drawings and other documents, so that they may be surely and easily produced for use. The great thing is to keep everything that relates to any given building in receptacles devoted exclusively to that building, all marked with its mark. The most convenient mark is a number; the number which that commission bears in the office history. This marks the position of all files of this building in the set of files of their kind. The number serves for both file number for orderly arrangement and as a means of identification for every kind of document relating to the particular piece of work so numbered.

In connection with the file system two card catalogues are necessary. One is an index of addresses and the other of drawings. In the address catalogue tray every name connected with the office work or correspondence is inserted in alphabetical order and the card bears, below the name, the nature of this connection. Thus, John Smith who has below his name and address—

"13—Residence on St. George St."

19—Stable on Huron St."

is a client for whom were done works 13 and 19. John Smith who has below his name and address—

"13—Plumbing and Heating,"

was the contractor for those works in the residence of the other Mr. Smith on St. George St. If there is another John Smith who has done nothing but introduce a friend, his letter and reply will be found in the miscellaneous letter file.

If then Mr. John Smith the owner writes about something on the second floor of his residence on St. George St., anybody in the office can find the drawing or any document relating to the question, by looking up Mr. Smith in the address tray and getting file 13 of the kind of document required. If it is a drawing he may refer first to the drawing catalogue. Here the raised guide card, marking off the other cards relating to this building, is marked "13 John Smith, Residence", and is of course in its numerical order in the tray. All necessary information about John Smith and his build-

ing may be written on this card against printed headings of location, description (brick, frame, etc.) total cost, cubical contents, cost per cub. ft., date of first contract, date of last certificate. After this may come a card, if the building is of any size, giving the scheme of numbering for the drawings. Thus, preliminary sketches may have a letter prefixed to them; if there is more than one series of these sketches they will be marked A, B, etc., before the drawing number. Then, when the design is settled, the working drawings may be subdivided, on the same plan that rooms are numbered in large buildings, so that the number itself indicates where to look for it, thus:—general drawings, 1-99, iron 100-199, plumbing, heating, electric light, etc., 200-299, scale details 300-399, full size details 400-499, etc. This being done each card may be filled with numbers—five on each side would make a convenient progression for turning over rapidly, as each card will count ten. The five numbered spaces on each side should be ruled off from one another and have also spaces left to enter the dates of beginning and approval of the drawing, the scale and the draughtsman. Here, as in all other forms, everything that is fixed should be printed; not only to save labour but as a perpetual reminder of what must be recorded.

LETTERS.—The modern practice is not to copy letters in a letter book, but to typewrite them in duplicate and file letter and answer together. With the increased use of stenographers and typewriters, correspondence may be made and should be made a complete record of business. Every time the owner gives instructions he should receive a letter accepting the instructions; every time a warning, or instruction, or order is given to a contractor a letter ought to record it.

DRAWINGS.—The stamp for drawings should have spaces headed as recording the initials of the maker, tracer and reviser, the date of the drawing, its building number, drawing number and issue numbers, besides a space to letter its descriptive title and scale. The architect's name and address will of course be part of the stamp. The essentials for filing, and for record in the issue book, are the numbers.

Drawings must be kept flat. It has been customary to do this by keeping them in portfolios and this has advantages for facility of handling folded drawings; but hanging appears to be the modern way, and it is certainly better for frequent handling. The drawings are clipped in files after the manner of newspapers and can be hung very close together, end on to the back of the closet. A closet a little more than 3 feet or 3 feet 6 inches deep is necessary and all drawings must be made or folded to hang from a file of this length. Hanging in this way, according to building numbers, and drawing numbers, drawings are easily found and used. Full sizes larger than the standard size of the file should be drawn on paper which is a multiple of that size, so that they will fold to match the other drawings. Bond paper 27" x 40" with a blank title printed in one corner, is in use for full size details, in the office of Messrs. Cope & Stewardson. These sheets are said to give good prints from lead pencil lines. Most details can be got upon paper of this size, and others can be folded to the same size. It is a great help to draw some details not only full size but at full length, but a drawing of this kind is intended

only to help the designer: it is a study, and is better condensed afterwards in small form for the working drawing, which needs nothing but the details, and which has to be handled and copied and filed.

BLUE PRINTS.—The articles in the Brickbuilder do not take notice of blue printing in the architect's office. There are blue printing establishments to which the work is sent out, and which render monthly accounts based on a charge per square foot. Orders are sent out by means of an order book made of alternate yellow and thin white leaves. By means of carbon paper and lead pencil the order is written in duplicate. The perforated yellow leaf is sent out with the drawing and the white book-leaf remains, to be used in checking the monthly account. Both yellow and white leaves are ruled and printed in the same form with headings under which to note the essential points, viz., the order number and date, the building number, the sheet number, the number of copies required, the kind of print (blue, black, etc.), the material (paper or cloth) and the size—first in the dimensions required and again decimally in square feet. This last column, when totalled on all the order slips of the month, gives immediately the means of checking the amount of the monthly bill.

ISSUE AND RECEIPT OF DRAWINGS.—A book should be always at the office boy's hand, ruled for record of drawings sent out. The headings of the rulings would be the issue number, the building number, the drawing number, title and description (tracing, print, etc.), the purpose of the issue, the issuer and the dates of issue and return. Receipt forms should be sent with the drawings, and if a receipt is not returned another form should be sent out. The guide in this case is the issue number. The entries in the book and the receipts filed are in the order of the issue number, and this number should be marked on a drawing when it is sent out. Every time it is sent out it will receive a new issue number. When the drawing is brought back the issue number points to the place where credit should be given, and the date of return is entered instantly. To find out where a given name or a given drawing are in the list, in answer to an enquiry whether certain contractors have received a drawing or where a certain drawing is, it is necessary to run the eye down the list of names or drawing numbers. This is said to be rapid enough.

W. A. LANGTON.

ORIGINALITY OF DESIGN IN ARCHITECTURE AT THE EXPENSE OF BEAUTY (SLATER)—HOW SKY-SCRAPERS CAN BE MADE MORE AESTHETIC.

Editor CANADIAN ARCHITECT AND BUILDER:

SIR,—Under "Notes" in your last issue, page 135, you cite Slater, vice-president R.I.B.A., as saying that "there is too great a tendency nowadays to mere eccentricity or originality among the younger architects, while beauty of design or aestheticism is neglected."

There is abundant truth in this, as witness many of the designs for even pretentious dwelling houses, which would be more appropriate as club houses at fishing and sporting stations in our forest reserves.

In your "C. A. & B. Students' Competition" at page 130, for the design of a dwelling house on a 50 foot lot, you very properly advise students that the adjoining buildings are within 10 feet of their respective boundaries, thereby leading them to infer that the proposed building should also fall short in its dimensions of the whole frontage of the lot to be built upon. This is most essential in certain cases, for light and air on all sides, and more especially where costly structures to show to advantage must be kept away or isolated from adjoining buildings, except of course

along the business streets of a city where land is expensive and every foot of it has to be made available.

If Mr. Slater would, when he visits Quebec, take a walk along our "Grand Allée" or St. Louis road, he would, while deprecating eccentricity of design in a certain house with a most fortress-like basement, deplore the vicinity of such a costly structure to those on either side of it. In fact it so abuts on or against the gable end of the house adjoining it to the eastward that one cannot tell whether the more salient and ornamental turrets and chimney stacks of the former belong to it or to the latter; it is only when looking at it directly from the street that one can tell which is which.

Now, sir, this is a pretentious building in every respect, said to have cost some \$37,000, and it is really a pity that the architect, a Montreal man, did not advise his wealthy patron to purchase a wider lot for such a splendid structure, original though it be in design.

With regard to tall buildings of the sky-scraper persuasion, it is singular how in course of time one can become wedded to such a style of architecture when treated in a way to produce the impression that the building is made up of a lesser number of horizontal sections. Your engraving of the facade of the London Globe Insurance Building, of Montreal, is proof of a good attempt at this, where the two lower floors or stories of the building are so to say combined in a way to look like but one by separating them by a salient cornice from the stories above, and the attic or eighth floor is apparently eliminated by being separated from the floors below by a heavy eave cornice, which I believe it would have been preferable to bring down another story, and thus reduce the intervening five stories to four, while leaving two above the main entablature to form the attic portion of the edifice.

Your engraving also of the splendid new bank for Winnipeg would imply that had the two lower stories been made one of, apparently, which impression would have been given by separating those two floors from the remainder of the edifice by some salient horizontal feature such as a continuous balcony or ornamental bracket, and by making far more salient the cornice between the upper story and the one below it, or even, as in the case above alluded to, by bringing down this cornice in a way to leave two stories above it for an attic; then would also this facade have acquired something of the classical features looked for in building in general where some proportion is looked for between the three horizontal sections of an edifice—its base or pedestal, its shaft or main section, and its capital, entablature or attic.

It must be admitted that where a tall and narrow building, such as there are so many of in New York and Chicago, one absolutely unrelieved in any way by separating horizontal salient features, the thing we look upon is far from being one of beauty; but when, as in the New York Waldorf-Astoria, there is, coupled with great height, a corresponding breadth of base, with a combining of the stories together in threes or fives and even sevens, there may still result a species of aestheticism, which when taken with the absolute necessity in our time for such multi-floored or storied structures render the building less distasteful.

A pertinent example of this is now being given on Broadway, New York, between 73rd and 74th street, where the new Ansonia Department Hotel, so called, which is about 200 feet square, is to be seen, or soon will be, with its 16 story facade broken up into three sections, of which the basement combines the three first floors of the building, the attic or upper portion the two or three upper flats, and the main shaft or middle section, thus reduced to only 8 or 9 stories and in a way, as above inferred, to cause its facades, thus divided by salient balconies, to become really acceptable from an aesthetic point of view.

CHAS. BAILLAIRGE,
Architect and Engineer.

Quebec, Que.

The Queen City Plate Glass & Mirror Co., Ltd., have made extensive additions to their already large plant.

The Brick Manufacturers of Ontario have organized an Association with the following officers:—president, B. E. Bechtell, Waterloo; vice-president, Robt. J. McCormick, Warwick; secretary, Alex. Johnston, London; treasurer, Henry Janes, Delaware; executive committee, Messrs. J.W. Cawrse, London, and John Karn, Brownsville.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.

A series of monthly meetings for the informal discussion of matters of interest to the profession have been arranged in Montreal. The meetings are held on the third Tuesday of each month. There have already been held two meetings. At the first one held in October an informal discussion took place on "Professional Esprit de Corps"; the second held in November consisted of a small dinner and a lecture by Mr. F. G. Archibald on "Legal Responsibilities of the Profession." The lecture which was given with a resume in French by the lecturer, was followed by a discussion on the same subject by the members present. The meetings were very satisfactory as to attendance and interest shown by members. The next meeting which will take place on the third Tuesday in December, will have a specially artistic character. The Council propose to invite to this meeting other artists, sculptors and painters, and there will probably be a conversation on the special features of what is called the "Art Nouveau." At future meetings there will probably be one or two other lectures on legal matters by Mr. Archibald; conversations and perhaps lectures on technical education and other topics of interest to the art and profession are also contemplated, the intention being to make such entertainments as broad and varied as possible so as to meet the ideals of all members, whether artists, business men or specialists.

THE PURPOSE OF SCULPTURE.

In a lecture on this subject delivered recently at Cambridge, England, Mr. Alfred Gilbert, R. A., observed that the art of sculpture had many and varied sides, and the more he worked the more he tried to find out which was the right and proper road to perfection. Sculpture was not merely a doing, a making, or the mere expression of a man's idea. It was threefold in its purpose. It was mechanical, to begin with; it was real, to go on with: and it should be—and must be, if it was to carry any message forward—ideal. The work of a sculptor was not merely the work of one who hewed and broke and tried to make. His efforts should be moulded by that something called love, veneration, faith—that love which impelled him to give up everything, to do everything in his power to educate and lead his fellow beings to that extraordinary refinement and delicate perception of the beautiful which alone could be understood by those who love. Pygmalion so loved the image his own brain had created that he longed that the great creation could speak. The sculptor's great object was that his creation should speak—without the aid of an exhibition catalogue. The work of the artist should be the work not only of his art, but of his heart. The function of sculpture was not merely the making of an object. The primary object was to make something beautiful, something that whoever saw it should be elevated by it, something that was not the mere imitation of an everyday person. The more he thought the more was he astonished that the practice and the teaching and the encouragement of the art was so little thought of. The equipment of the sculptor was not sufficiently given in our art schools. The sculptor should be as well equipped as the mathematician, the poet or the architect, by education. He wanted to connect the practice of sculpture with

the practice of general education. Until they did that he was convinced that they would never hope to take rank as artists with the great men among the Greeks, whose excellence was the outcome not only of pure mechanical training and skill, but the influence of great mental power. The artist must read and think, and the more he thought the better artist he was likely to be. He had been twenty-five years in finding out that he knew nothing about the making of a statue. He was only just beginning to know how to approach the exposition of the art, which was to make everything he touched as beautiful as his own unbeautiful nature would allow him to do.

COMPETITIONS.

A competition is announced for designs for a church to be erected in the city of Patras, in Greece, to cost \$250,000. The committee having the matter in charge consists of the Metropolitan bishop, the governor of Achaia, and the Mayor of Patras. The conditions of the competition which is understood to be open to the world, are as follows:—

1. The dimensions are left to the discretion of the architect, but must come within a ground space of 2,400 square meters (25,834 square feet).
2. In planning this structure, consideration must be given to possible effects of earthquakes, to which this region is subject.
3. The edifice must accommodate at least 5,000 worshippers, not including standing room in the women's apartments or other annexes.

Possible models of architecture might be found in the Russian Church of St. Nicodemus, in Athens, or in the church of St. Sophia, in Constantinople.

The contest will be divided into two parts; all who pass the first degree will be entitled to enter the second degree, and no others. The general requirements for the first degree are as follows:

1. To submit a general view of the temple and courts on a scale of 1 to 500.
2. View of front of temple: scale, 1 to 200.
3. Two views, front and lateral; scale, 1 to 200.
4. View cross section, setting forth the general plan, according to the judgment of the artist.
5. Estimate of the cost.
6. An abridged technical memorandum.

The plans submitted will be passed upon by the committee, and the successful architects will be required to meet some additional conditions, among which are the following:

1. View of temple; scale, 1 to 100.
2. Three views—front, lateral, and rear; scale, 1 to 100.
3. Diagram showing the principal architectural features: scale, 1 to 100.
4. Two cross sections, with internal views; scale, 1 to 100.
5. Cross section, showing manner of heating, ventilating, etc.

The contest of the first degree closes at 12 o'clock noon of February 13, 1903. All who have successfully passed into the second degree will be given one hundred and fifty days additional from the time the decision is rendered. The final plans will be submitted to some academy of the fine arts in Europe, and in accordance with its decisions the committee will award a first prize of 10,000 francs (\$2,000); a second, of 4,000 francs (\$800); and a third, of 2,000 francs (\$400).

TESTS OF CEMENT MORTAR.

The results of a series of tests of cement in connection with the construction of the Wachusett dam are summarized in the report of 1901 of the chief engineer, Mr. F. P. Stearns, who also gives the following notes concerning some special investigations:

In view of the very large amount of mortar to be used in the dam and the importance of having it as water-tight and strong as possible, extensive experiments were begun early in 1901, to determine the permeability and strength of mortars made of the natural and Portland cements which were to be used in the construction of the dam, mixed with different proportions of coarse and fine sands.

The experiments on permeability were made by placing the cast-iron cylinders, 22 inches long and about 6 inches in diameter. After the mortar had set, caps were bolted to the tops of the cylinders and water was admitted to the cylinders between the caps and the mortar with a pressure of 74 pounds to the square inch. There were 144 cylinders used in the experiments, and the apparatus was so arranged that the water pressure could be applied to 24 cylinders at a time. The applied water was first filtered through sand, to remove all suspended matter.

There were 1,494 briquettes made and broken, to determine the tensile strength of the mortars. It was found that the use of a sand with a very large proportion of coarse particles and a much smaller percentage of the finer grades makes a mortar both less permeable and stronger than where a larger proportion of the finer grades is used, provided the proportion of sand to cement does not exceed 3 to 1.

In addition to the experiments upon permeability and strength of mortars other experiments were made to determine the relative strength of mortars used immediately after wetting and mixing and when used at different intervals up to two hours after they are first wet and mixed. These experiments were very extended, as they were made with mortar mixed with different grades of sand, with Portland and natural cement, with slow-setting and quick-setting cement, and with mortar that was worked continuously from the time of mixing until it was put into the molds and also with mortar which was not worked after it was mixed until just before it was put into the molds. The briquettes were broken at the end of fourteen days, twenty-eight days and three months after mixing.

It was found that when the cement, both Portland and natural, were so manufactured as to take the initial set slowly, the strength of the mortar was not diminished by a delay of two hours in putting it into the molds; and when the mortar was worked continuously to the time of filling the molds, there was an increase in strength occasioned by the delay. When the cements were so manufactured as to take the initial set quickly, the results obtained with the quick-setting Portland cement were not materially different from those obtained with the slow-setting cement, except that when the mortar was not worked there was a slight loss of strength in the briquettes molded at the end of one and a half and two hours, and at no time was there much gain of strength occasioned by delay in filling the molds. The results obtained with the quick-setting natural cement were less favorable, as the briquettes broken at the end of fourteen days

showed a great loss of strength when there was much delay in molding the briquettes. At the end of three months, however, the briquettes made with mortar which had been worked continuously from the time of mixing showed slightly greater strength than that put into the molds immediately, and the loss of strength of the mortar not worked was not very marked except for the 1½ and 2 hour periods.

EDUCATIONAL COURSE FOR ARCHITECTURAL STUDENTS.

An educational course for architectural students in Toronto has been arranged by a joint committee of the Toronto Chapter of the Ontario Association of Architects, and the Toronto Architectural Eighteen Club. The fee for is \$5.

The course will consist of scientific classes held at the rooms of the O. A. A., 96 King Street, West, and the studio work now carried on at the Central Ontario School of Art and Design.

The scientific class will be held on Thursday evenings, the studio classes on Monday, Wednesday and Friday evenings.

It is strongly urged that all architectural students in the city attend both classes.

SUMMER RESIDENCE, BEACONSFIELD.

This residence for Senator Drummond, an illustration of which appears in this number, has recently been completed adjoining his well-known stock farm and golf grounds, and overlooks Lake St. Louis. Its wide, cool galleries and portico and its great hall, over 40 ft. long, are special features. It is an adaptation of the old Colonial and Georgian style, and is very substantially built of wood on a stone substructure. It is finished in white and primrose and the roof is stained moss green.

The interior is elaborate, and is finished in white enamel, and the walls hung with bright charming Morris papers. The fireplaces and mantels are a feature, and are numerous and large.

The tower was specially designed for an extensive view over Lake St. Louis and the surrounding country.

The work has been carried out very satisfactorily by Mr. John Allan, contractor, from the designs and under the superintendence of Mr. Andrew T. Taylor, F.R.I.B.A., architect, of Montreal.

BANK OF NOVA SCOTIA, TORONTO.

This building, the principal facade of which is shown in the illustration pages of this number, is in course of construction at Nos. 37 and 39 King Street West, Toronto. The front is to be of gray sandstone, the main wall being recessed a distance of ten feet from the street line. The dimensions of the banking room are 85x32 feet; height, 35 feet. This room will be decorated in the Free Classic style which characterizes the building. The scheme of lighting is from the sky. The walls to the height of fourteen feet are to be lined with second statuary marble. Above, a range of Ionic pilasters will divide the wall surface into panels, available for mural painting or other decoration. These pilasters are surmounted with a rich architrave, frieze and cornice. The length of the room is divided into three bays, and the panels offer space for a variety of treatment.

The space reserved for the public is to be laid with

mosaic tiled flooring, and the counters will be of marble in contrasted colors, surmounted by handsome bronze grills. The whole of the desks and office fittings are to be of sheet steel, entirely eliminating wood from the structural part of the building and rendering the structure as far as possible fireproof. Messrs. Darling & Pearson, of Toronto, are the architects.

PHOTOGRAPHY AS APPLIED TO ARCHITECTURAL MEASUREMENT AND SURVEYING.*

BY J. BRIDGES LEE, M.A.

Most people are in the habit of looking upon photographs as more or less artistic or inartistic pictures destined to convey impressions more or less accurate or inaccurate of what things look like. Comparatively few people have yet acquired a habit of regarding photographs as accurate measureable records of external facts.

The first important generalisation we can arrive at is that the picture surface can only be an exact copy of the thing depicted when that also is a similar surface, and only then when the picture surface was parallel to the object surface at the time when the picture was taken. We may conveniently regard a photographic picture as a radiant production every point of which is at the end of a straight line coming from an apical point somewhere in front of the picture. Generally that point is somewhere inside the body of the lens, but it may be outside, either before or behind the lens, and it is called the station-point. The picture yielded by the lens is the same as would be obtained by a simple pin-hole at the station-point: a good lens gives a brighter and more sharply-defined picture than a pin-hole, but otherwise the pictures are the same in size and outline.

With this conception always in mind that a photographic picture is a collection of points at the ends of straight lines radiating from the station-point in the same directions as corresponding straight rays of light which have originally travelled from the objects depicted to that point or its adjacent counterpart, a correct understanding of many of the problems of photographic geometry becomes simple and easy. It becomes clear at once that when the true position of a picture is known with reference to its station-point any number of direction lines from the station to points on the objects depicted can be ascertained with ease, because they will be the same as the direction lines from the station to the corresponding points on the picture. To fix the actual positions of the object points it is sufficient to know their several directions from a known point and the distances of those points along the direction lines. Generally it is not convenient or easy to determine directly the distance of a point along a radius of direction. The most convenient and best way for general purposes is to find the horizontal distance first, then the altitude, when the actual line or distance will be the hypotenuse of the right-angle triangle of which the horizontal distance and altitude are the sides containing the right angle. To find the horizontal distance a method of intersection similar to the plane table method of land surveying is used. Photographs of the same objects are taken from different stations. The direction rays to any point whose position is required are observed and projected on a ground plan, when the intersection of the projected rays will mark the position of the point on the ground plan. The altitude can then be ascertained by determining from the picture the angle of elevation and computing the height which would subtend the observed angle at a distance already ascertained on the ground plan. Also the altitude will be a fourth proportional to three lengths, which can be measured directly. These are (1) the distance from the station to the projection of the image point on the horizontal trace of the picture plane. (2) The horizontal distance of the point from the station measured in scale feet on the plan. (3) The measured height of the image of the point on the picture above or below the horizon.

Or it may be determined by substituting values in a general formula $h = d \tan a$, where h is the altitude above or below the station, d is linear horizontal distance, a is the angle of elevation observed from the station and $\tan a$ is $\frac{y}{f^2 + x^2}$, where f is focal distance and x and y are abscissæ measured from the centre on the horizon and principal vertical lines as rectangular co-ordinates.

In practice there are no considerable difficulties provided we have enough accurate information about the pictures which are used.

The methods so far considered and explained in outline relate only to the fixing of points on a ground plan by the methods of intersections and of elevation by the particular methods described. These methods are almost universally applicable, and with moderate care they yield very accurate results with much less expenditure of time, money and effort than would be needed for an ordinary survey of the same ground with a plane table or any of the other known methods of surveying. In Canada this method has been largely used, and it has been found that the actual money-saving from using the photographic method was then two-thirds of the computed cost of a plane table survey. A similar saving has been computed as the result of using this method for the survey of Trans-Balkal Railway in Siberia; and it seems reasonable to believe that with the improved instrumental appliances of the present time, and others perhaps to follow, the saving of expense for surveys hereafter will be from 80 to 90 or perhaps even 95 per cent. of the cost of similar surveys in the past by old-fashioned methods.

When dealing with buildings it is often possible for the photographer, without difficulty or much loss of time to measure directly with a tape the perpendicular distance from the diaphragm of his lens to the wall of the building to be photographed. This distance can be noted on the picture. This scale can then be calculated and constructed in a few minutes, and all distances on the surface elevation can be measured directly with a pair of compasses and that scale.

Distances on parallel surfaces nearer or further away, such as projections, porches, deep-set windows or other recesses, will require different scales of measurement according to their distances in advance of or behind the principal surface, or the same scale can be used for measurement and the results divided or multiplied by a constant computed for the difference. Another way to get the scale is to place a rod of known length in close contact with the surface where its image will be entirely included in the photograph.

Sometimes it is not convenient to walk up to a building to measure the distance to it or to place a measured length against it. A very efficient plan then is to shift the camera a measured distance to the right or left parallel to the face of the building, and take a second picture, when, if due care has been taken to set up the camera perfectly square in both instances, the images of the vertical hair on the face of the building will include between them a slice exactly as broad as the measured distance between the two camera stations.

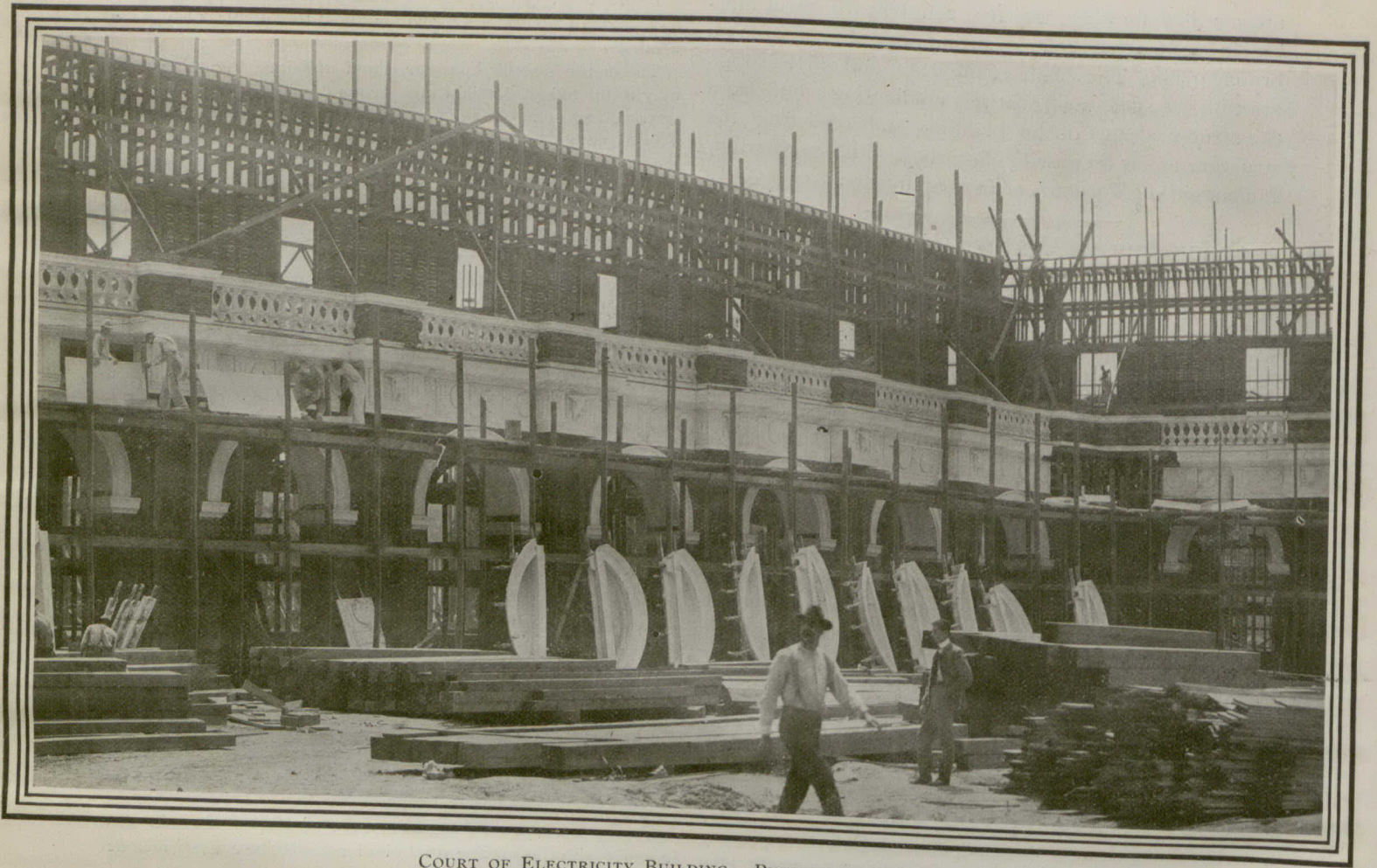
One way to investigate flat surface areas is to apply what is known as the method of squares. If we imagine a plain area to be entirely made up of small squares, then the position of any point in the area is sufficiently determined if it is known in which square it is located and what is its position in the square. When dealing with a front view it is sufficient to superpose on the picture a sheet of glass on which has been ruled or photographed a network of regular squares in elevation. If the focal distance of the picture be known, it is a very simple matter to compute the scale value of the squares for different distances of the object surface.

Next in order of simplicity of measurement to a simple frontal view of a plane surface will be a horizontal surface or plan. For practical work regular series of perspective squares may be engraved or photographed on flat sheets of glass to make what are called perspectometers, which can be laid in position on the photographs with the scale surface next the picture face. These perspectometers need to be specially constructed with precise reference to the focal length of the lens in each case.

The method of squares which has been spoken of as applicable to the measurement and plotting of elevations and plans can be applied also for the measurement of other receding flat surfaces, such as the roofs or walls of buildings.

Sooner or later the time will come when photographic projection will be systematically employed for teaching perspective, and it will be employed practically, on a large scale, for projecting images from one plane to another. We must not expect to obtain full knowledge of unknown objects of three dimensions by aid of a single photograph, or even a number of photographs from a single point of view. To study unknown objects thoroughly we need to be able to examine them from several different points of view and compare the views. The use of photography does not obliterate this necessity, though it helps very decidedly towards correct final conclusions, because it records faithfully the appearance observed at every station, and these views from different stations can be brought close together and directly compared.

* Summary of a paper read before the Society of Arts on April 16th, 1902.



COURT OF ELECTRICITY BUILDING. PUTTING ON STAFF.



LOOKING NORTH, SHOWING ELECTRICITY BUILDING IN FOREGROUND AND VARIED INDUSTRIES BUILDING WITH DOMES AND TOWERS IN DISTANCE.

BUILDINGS UNDER CONSTRUCTION FOR THE LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO.



HOTEL DE CLUNY, PARIS.—(WOOD)

BY THE WAY.

The owners of flats in Chicago were recently proceeded against by the medical health officer at the instance of their tenants for refusing to supply heat until the first of May as per the terms of their leases. The courts gave the landlords the option of either heating their buildings or spending a term in gaol. The present coal famine, while bringing home to the owners of flats a sense of their burden of responsibility has tended to popularize life in a flat because of the lessened responsibility which attaches to this mode of living.

x x x

Frank W. Hoyt, editor of "Stone" in a letter recently addressed to the publishers of this journal says: "There is one point on which I wish to commend your Journal, which is one of the most interesting that comes into my office—you give a good deal of attention to stone. It is my experience that architects as a rule know comparatively little about the nature of the different kinds of stone. The various publications that represent their profession give most of their attention to the consideration of structural material to iron and steel. Unless there is some change in the future, I fear that we will rear a generation of architects incapable of undertaking any great masonry structures such as have dignified architecture in the past."

x x x

When a man has built for himself a house to dwell in he ought to keep in mind not only his own ideas and requirements, but also the value which the building would be likely to have in the eyes of a probable purchaser. In this world of ups and downs the man who builds a house next year may find it necessary to sell it the year following or at some time in the future. This possibility should be kept in view from the outset. I could point you to a house built recently to meet the special requirements of the owner, but which is now on the market. It occupies a choice situation, but the value of the site as well as of the building has to a large extent been destroyed in the planning. Although expensively finished, the house does not contain more than two or three rooms of comfortable size, but is cut up into little boxes and narrow passages. If the owner should ultimately succeed in finding a buyer he will be obliged to sell at a heavy sacrifice.

x x x

I am informed on apparently reliable authority that there exists in Toronto a plumbers' combine. Half a dozen of the leading firms are understood to be working together to secure the most important contracts at very profitable figures. I am told that when an important contract is to be let the members of these firms meet together and decide that it shall go to one or

other of their number with the understanding that the firm getting the job will stand aside in favor of another member of the combination when other large contracts are given. I have been given to understand that the combine have in some instances forced up prices of heating contracts from 50 to 100 per cent. Every effort is made to prevent firms outside the ring from getting contracts, by throwing discredit on the quality of their work. Are the architects aware of the existence of this combine and of the fact that because it exists their clients are obliged to pay fancy prices for their work?

C. A. & B. STUDENTS' COMPETITION.

The publishers of the CANADIAN ARCHITECT AND BUILDER invite architectural students in Canada to submit designs in competition for a suburban or town house to cost not more than \$2,500.

The building is to be designed for an inside lot having a frontage of 50 feet, situated on the west side of a street running north and south. The adjoining lots on either side have houses on them 30 feet back from the street line and 10 feet from lot line on either side.

Competitors are required to submit two elevations or a perspective, together with plans of basement, ground, first and attic stories, drawn to $\frac{1}{8}$ scale in a manner to permit of reproduction within the limits of a double page of the CANADIAN ARCHITECT AND BUILDER, viz., 10x15 inches in size, also details to a larger scale of important or special features of the design. Drawings must be made with PEN and PERFECTLY BLACK INK ON WHITE DRAWING PAPER, OR CARDBOARD. NO BRUSH WORK WILL BE ALLOWED.

Competitors should state the materials proposed to be employed in construction.

Drawings for this competition should be signed with a motto only and be accompanied by a sealed envelope bearing the same motto and enclosing the full name and address of the designer and the name and address of his principals. They should be sent FLAT by post or express, charge prepaid, addressed "CANADIAN ARCHITECT AND BUILDER, Toronto, Canada—Student's Competition," and must reach this office not later than noon on Saturday, January 10th, 1903.

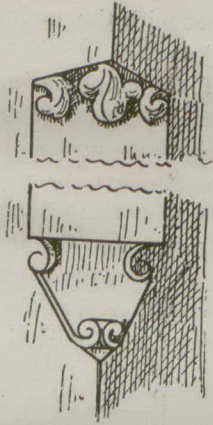
The members of the joint Educational Committee of the Toronto Chapter of the Ontario Association of Architects and the Toronto Architectural Eighteen Club have kindly consented to judge the designs submitted in this competition, and their decision will be final.

The prizes offered are: First prize, cash \$15.00; second prize, cash \$10.00, third prize one year's subscription to the CANADIAN ARCHITECT AND BUILDER ARCHITECTS' EDITION.

The publishers of the CANADIAN ARCHITECT AND BUILDER reserve the right to publish any of the designs submitted and to withhold the prizes if in the judgment of the jury the designs should not be found worthy of the awards.

Intending competitors are requested to read carefully the conditions of competition, and to strictly comply with the same in every particular.

The Department of Public Works at Ottawa is said to have under consideration the installation of a system of pneumatic tubes for the speedy conveyance of communications between the various government buildings.



CHAMFER STOP (BUTTRESS), HEDON, YORKSHIRE.

BUILDING STONES OF NOVA SCOTIA.

From a paper read before the Nova Scotia Institute on the Nova Scotia minerals for the Paris and Glasgow Exhibitions, we abstract the following notes regarding the location, character and extent of the deposits of building stones in Nova Scotia. The quarries are in most instances conveniently situated for either railway or water transport and for effective quarry work. These notes refer to the quarries in the northern part of Cumberland County, which furnished samples of their products.

Quarries at River John.—No. 1. This is the only quarry at present working in this district. It is situated at River John and about a quarter of a mile from I. C. Railway, and is connected therewith by a good road.

It contains a reddish sandstone of fine grain, and has been opened for about 350 feet in length, exposing a face so far of about 14 feet. Stones are cut here up to about 33 cubic feet, though almost any size could be obtained with larger machinery. The seams are very regular in formation and lie nearly horizontal. Worked for nearly a year.

No. 2 adjoins the first quarry, and resembles it in general characteristics, though the stone is of a lighter color.

No. 3, about a quarter of a mile up the river from No. 1, was worked for six years intermittently. Many grindstones were cut in this quarry, which yields a firm gray sandstone.

Wallace Harbor.—The Wallace Gray Stone Co., Wallace Harbor, John Stevenson, manager. This quarry is situated at Wallace, and a great part of the stone is shipped by water, though it is connected with the I. C. Railway by a good waggon road about two miles long.

Though the stone is carried to the wharf by horses, a tramway (gravity) could easily be operated, the quarry being situated on the hill. The distance is about a quarter of a mile. This quarry has been worked for a period of nearly thirty years off and on, and is still only partially developed. It produces an average of about 1,500 tons ("quarry") a year, of fine grained sandstone in two colors—"olive" and "bluish."

Blocks up to ten tons in weight and measuring fourteen feet are cut, and the greater part of the stone is shipped to the Boston and New York markets. The poorer stone is sold locally.

Wallace Harbor.—The G. P. Sherwood Co., T. C. Dobson, manager. This quarry adjoins the quarry of the Wallace Gray Stone Co., and the same remarks apply to it.

At Wallace Bridge the famous Battye Quarry is being

operated by George Battye. Stone has been taken from this quarry since the year 1809, and there is still much in sight. It is situated on the I. C. Railway and the Wallace River. Chief market, New York and Eastern States cities. Blocks up to ten tons are cut. At present 25 feet of rock is shown in the face, with seams measuring from two to six feet in thickness. This is composed of a very uniform and beautiful sandstone, suitable for monuments as well as construction work.

On the River Philip, about five miles from Pugwash, is situated the quarry of McLeod & Embree. It produces a handsome red sandstone contained in seams from two to seven feet, and shows altogether 20 feet in the face. Blocks cut to eight tons. Has been operated for upwards of 30 years, and usually ships to the States. This year all the stone quarried is being supplied to Toronto.

The Atlantic Stone Co., Limited, R. S. Hibbard, Manager.—The quarry of this company is situated on Cumberland Basin, 3½ miles from Joggins Station, on the Canada Coal Company's Railway, and 16 miles from I. C. Railway. The stone is shipped chiefly by water, in vessels up to about 300 tons. The market is mainly in the New England States, though the stones are occasionally sent much further west. 2,000 tons shipped per year. This quarry produces a very superior form of grindstone. Stones from half an inch to 14 inches thick, and up to seven feet in diameter are cut, though almost any size that could be handled is procurable.

At Lime Rock, West River, Pictou County, are sandstone quarries yielding good building stone. Samples are shown by Mr. J. H. Fraser. In the Merrigomish district the strata lying above the Productive measures yield grindstones and fair qualities of freestone.

Other localities are Pictou, and Glenfallock. On the Basin of Minas, Cornwallis, Johnston Brook, Horton, Falmouth, Kennetcook, Nine Mile River, and Old Barns, have yielded freestones in some cases of delicate shades and good texture. In Cape Breton sandstones from the Millstone grit and the Coal measures have been used to a limited extent for building purposes.

SYENITES, PORPHYRIES AND GRANITES.—Granite is very abundant among the older rocks of the province. Among localities which have furnished it for building purposes, may be mentioned Shelburne, Queens and Lunenburg Counties. It also occurs at Aspotogan and various points thence to Halifax. As already mentioned, in describing the Gold fields, it runs continuously from Halifax to Windsor, and thence westward. It occurs again at Waverley, and runs through Musquodoboit, Jeddore, Ship Harbor, Sherbrooke, and Country Harbor to Canso. It occurs inland at the head waters of many of the Eastern rivers, and is estimated to cover a large area of the Atlantic coast district. It has, however, been quarried only at points accessible to shipping. At Halifax, it has been used a good deal about the fortifications, and a number of houses have been constructed of it, its cost, rough, being from \$2.25 to \$4.00 a ton.

In the Colequids there are masses of flesh and red colored syenite, which have afforded very handsome polished samples; but as yet have not been worked for construction. Porphyries and syenites occur in various parts of Cape Breton, but their economic value has not been tested. The following localities may be mention-

ed: St. Ann's, Boisdale and Coxheath. The crystalline diorites of Louisburg were used by the French in building their fortifications.

LIMESTONES.—This material has not been used to any extent in Nova Scotia for building purposes, although it is frequently found to stand exposure well, and to be readily quarried. Among localities yielding it, may be mentioned the Shubenacadie River, Kennetcook, Lower Horton, Thompson Station; Glengarry and Springville, Pictou County. Stones from a quarry here retain, after an exposure of sixty years, every trace of the chisel or pick. The marble, will be noticed further on.

A flaggy, arenaceous schist, known as iron stone, was extensively used some years ago for warehouses and walls in Halifax. Many of the metamorphic sandstones of the Atlantic coast would furnish a most pleasing and durable building material.

At present the supply of wood for building purposes is so plentiful that brick or stone houses are the exception. Even public buildings, churches, halls, etc., are almost always of wood; but as this material becomes more expensive, the labor of the quarryman will succeed that of the lumbermen, and our towns become something better than wooded shells blackened by smoke.

FLAGS AND SLATES.—A small amount of flagstone has been quarried on the Northwest Arm of Halifax Harbor, and at Beaver Bank. Slates were quarried to a small extent at Rawdon, and various places in Hants County, and the quality and quantity are equal to any demand. Dalhousie Mountain and West River, Pictou, are said to have good slate beds, and it is also reported from the South Mountain, in Digby and Yarmouth Counties.

At the Provincial Exhibition of 1879, slates were shown from Sackville, River John and Upper Stewiacke, which, although in the rough, were of good material.

The demand for roofing slates will become general in the province in a few years, as their superiority over the shingles in ordinary use becomes apparent.

In Nova Scotia the limestones are confined practically to the Lower Carboniferous, and are generally associated with the gypsums. There are also beds of this material, sometimes metamorphosed into marble, in the Laurentian, etc., of Cape Breton, and in the Cambrian and Silurian measures, but they do not usually form deposits of economic value in the latter measures. The carboniferous limestones are strongly developed in Cumberland, Colchester, Hants, Kings, Pictou and Antigonish Counties, and at many points in Cape Breton. They occur in beds varying in thickness from a few inches to 50 feet, and in some localities their aggregate dimensions will exceed 400 feet. Their quality varies from calcareous sandstones and clays to the crystalline pure mineral.

At Windsor, Brookfield and many other localities beds are found composed entirely of fossils characterizing the Marine Limestone formation, and give the following component parts on analysis by Dr. How:

Carbonate of lime.....	97.64
Carbonate of magnesia.....	1.10
Oxide of iron.....	.07
Phosphoric acid.....	trace
Insoluble residue.....	.68

A limestone similar to the above was extensively

quarried at Brookfield as a flux for the Londonderry iron ores.

The limestones of Pictou County are also well adapted for fluxes. The following analyses of a limestone from Lime Brook, Springville, were made for the Halifax Company at the Durham College of Physical Science:

	I.	II.
Lime carbonate.....	93.90	96.26
Magnesia carbonate.....	2.45	2.33
Iron peroxide.....	.59	.57
Manganese peroxide.....	.56	.55
Alumina.....	.12	.10
Sulphur.....	.03	.02
Phosphoric acid.....	.03	.03
Silica.....	2.10	1.99
Moisture.....	.18	.17

These results are confirmed by an extensive series of analyses made some years ago by the writer, embracing all the more important exposures of that mineral in the vicinity of the Pictou coal and iron deposits, but the space at my disposal would forbid its insertion. The position of the East river limestones forms an important item in their adaptability for fluxing purposes.

They occur as a band everywhere between the coal and iron, so that their transport becomes a matter of comparatively low cost, and large quantities are available by simple quarry work. A quarry at Black Rock, above Bridgeville on the East Branch, has furnished flux for many years to the Ferrona furnace.

THE ELECTRIC ELEVATOR.

Mr. Douglas, manager for Canada of the Otis Elevator Co., recently addressed the members of the Toronto Chapter of Architects on the development of the electric elevator. The first electric elevator was made in 1881, and strange to say the original principle of construction is still employed. Between 1881 and 1888 when the electric elevator became a commercial success, it suffered many vicissitudes. Its popularity is however now assured, and the modern electric elevator can be depended on to operate satisfactorily day in and day out, at any desired speed from 150 to 500 feet per minute. Many improvements have been made in the device, such as placing the operating mechanism at the top instead of the bottom of the shaft, thus securing economy of space. Elevators are now frequently installed in the more costly residences, and are fitted with automatic appliances which render accidents almost impossible. For example the door will not open except when the elevator is within two inches below or above the floor. These elevators are fitted with a push button, corresponding in number to each of the several floors, and the elevator responds in the order in which the signals are given.

The Ministerial Association of Toronto have given their partial approval to Alderman Graham's scheme for improved dwellings for the poor, but wisely suggest that such dwellings should be located in the suburbs rather than in the heart of the city.

The death is announced of Mr. Peter James Murray, a prominent and highly respected contractor of Montreal.

The Canadian Fire Underwriters' Association have decided to impose a special rate of insurance upon buildings in which are housed automobiles operated by gasoline.

We record with much regret the death of Mr. Wm. A. White, architect, of Lindsay, Ont. While superintending the building of the new hospital in that town he contracted a severe cold which developed into pneumonia and resulted in his death. Deceased had resided in Lindsay for 35 years, and during this period erected many important buildings. He was held in universal esteem.

—THE—
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BUSINESS NOTES.

Adams Automatic Self-Locking Sash Lock has been pronounced by architects and builders a most valuable invention.

The Art Metropole, Yonge street, Toronto, are about going into the manufacture and supply of architects' materials extensively.

Palmer's Patent Hollow Concrete Building Blocks will soon be extensively manufactured in Canada. We hope to give further particulars next month.

The Canadian Construction Co., of Toronto, are preparing to go into the structural and contracting work on a very extensive scale. Their announcement will appear in next month's issue.

The Patent Interlocking Rubber Tiling made by the Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd., has proven a success. Their new announcement will appear in next month's issue.

The York Manufacturing Co. was established four years ago for the purpose of manufacturing in Canada a full line of laundry machinery, with the following gentlemen as officers:—Messrs. J. M. Spencer, president; H. G. Macklem, secretary-treasurer; W. Hawke and A. J. Spencer, directors. Mr. Spencer is a prominent citizen of Toronto, whilst Mr. Macklem has been engaged in various manufacturing enterprises for 27 years. Mr. Hawke is also a well-known Toronto business man. Mr. A. J. Spencer is town treasurer of Owen Sound. They are now manufacturing a full line of machinery for modern steam laundry business. They instal complete plants, furnish plans and estimates for public laundries, hotels, public institutions, hospitals, etc.

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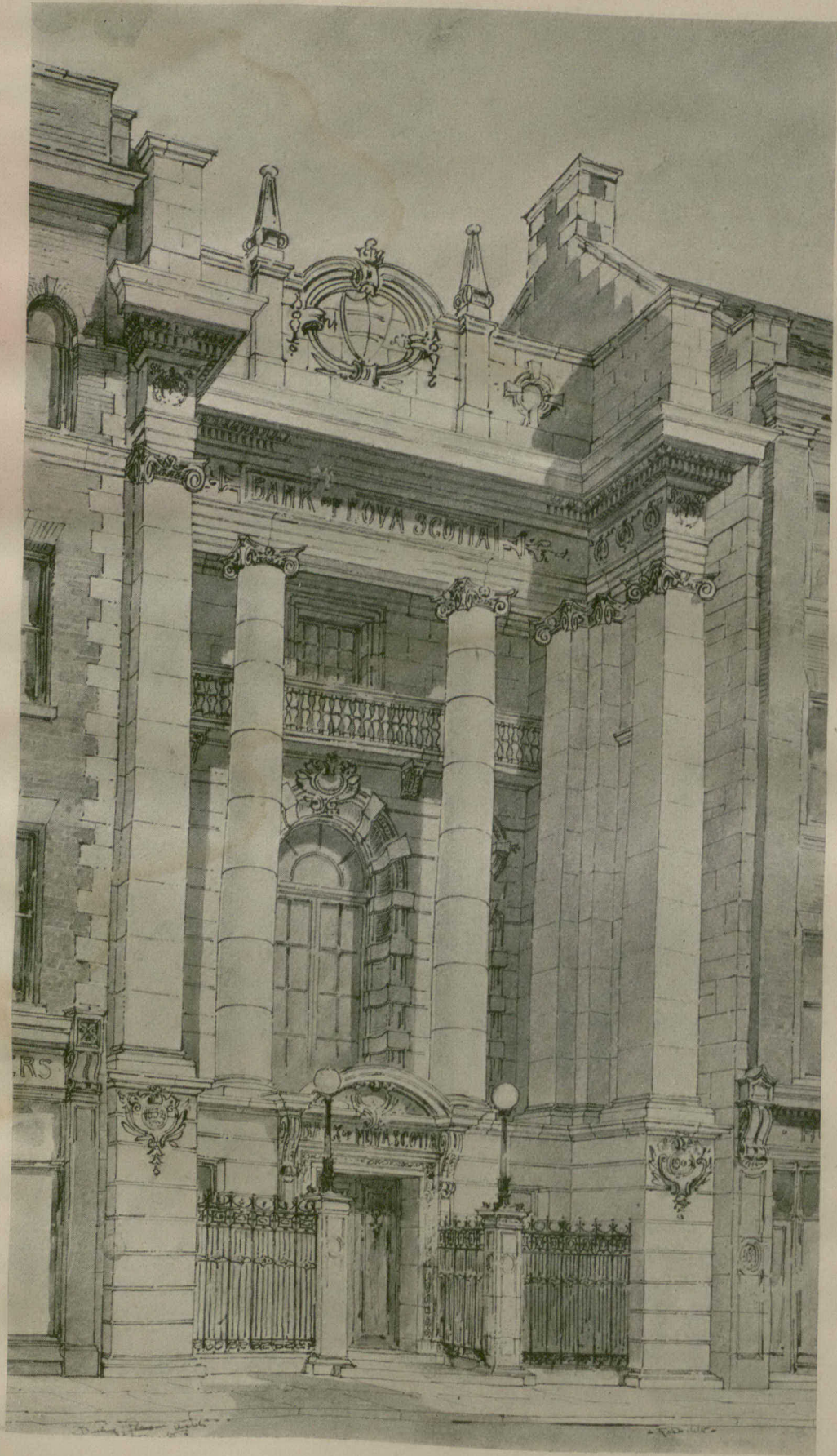
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EXPERIMENTS WITH FIRE-PROOFED WOOD.

A series of tests of wood treated with various fire-proofing processes was carried out recently at the Massachusetts Institute of Technology under the direction of the new Insurance Engineering Experiment Station. According to the New York Times, in general a temperature of thirty-five hundred degrees Fahrenheit seems to have reduced both treated and untreated wood to charcoal rapidly and easily, both of them blazing while exposed to the heat, although the treated wood ceased to blaze in a few seconds after being removed from the furnace, while untreated wood continued to flame for several minutes. In another experiment, intended to test the comparative resistance of the two kinds of wood to this temperature, it was found that it took about a minute longer to reduce the treated wood to charcoal than the untreated wood. At lower temperatures the fireproofing treatment appeared to be more effective. At eighteen hundred degrees Fahrenheit both the treated and untreated woods blazed and were reduced to charcoal; but when simply dropped on a red-hot iron plate the pieces of treated wood

merely charred at the point of contact, while untreated wood blazed up and was consumed. In the final experiment a block-house was built of pieces of each kind of wood and subjected to fire for five minutes. The treated wood burned where most exposed to the fire, but not readily, resisting for ten minutes before it fell, while the untreated blocks blazed up, and the structure fell in five minutes. In this test different samples of fireproofed wood were used together, and it was observed that some samples resisted the fire longer than others; but the Times reporter says that some sticks simply painted with fireproof paint "withstood the flame fully as well as the woods treated to a fireproofing solution which soaked through the entire stick". In regard to the question whether the fireproofing imparts any objectionable quality to wood, Professor Norton, the director of the experiment station, said that he had found the treated wood much more injurious to tools than untreated wood, both because it was harder and on account of some chemical action of the fireproofing solution on the steel, which caused the tools to rust very quickly.

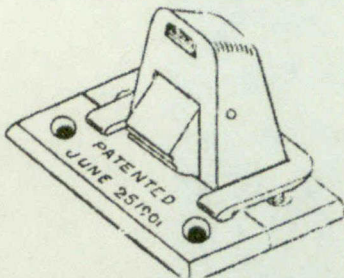
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THE ARCHITECTURE OF TORONTO.

Under the title "Notes from Toronto," Mr. R. Brown, of Boston, a well-known designer of special furniture and fittings, contributes the following to the British Architect:

On a bright Sunday morning—the last day of August—I found myself on a train crossing the Niagara River below the falls. While the train moves slowly, the Customs officer passes through, just as we are on the middle of the bridge, and presently we are in Canada. A quarter of a century had passed since I was on this same spot—seeing Niagara on my way from West to East in 1877, the year of the great fire at Saint John, New Brunswick. With that city and Halifax, Montreal, and Quebec I was familiar, but Toronto was new ground to me. As I drove from the station I saw it was entirely different from other cities in the Dominion. "Whereabouts are the oldest parts of the city," I asked my landlady over the Sunday dinner. The question did not elicit a direct reply, which was explainable by the fact that in my rambles about the city for three and a half days afterwards I found no ancient buildings and literally no slums.

The site of the city is somewhat level, with only a gentle rise from the shores of the lake northward. The streets run north and south, east and west, but the regularity of this gridiron plan is relieved by much variety in the streets and avenues. The business section, bordering the lake, does not cover a large area, and one soon comes out of it into quite urban-like districts with fine wide avenues planted thickly with rows of trees, and grass and garden plots in front

of the houses. The poplar—a favourite with architects—here adds beauty and variety to the long vistas.

Toronto's growth is but a century. Ninety years ago it had only a handful of people, now it has about three hundred thousand inhabitants. The place is new and decidedly modern, yet, architecturally speaking, it is neither crude nor raw. By a wise building law, all the modern dwellings are built of brick, not wood, which of itself is a great relief from the clap-boarded houses common to the suburbs of Boston and other New England cities. These houses are for the most part of good red brick, plain and unpretentious, compared with the wooden houses about Boston, and their architecture reflects English influence and instincts in many little ways, such, for instance, as the use of the steep pitched gable to the street, often the crowning feature of a bay window.

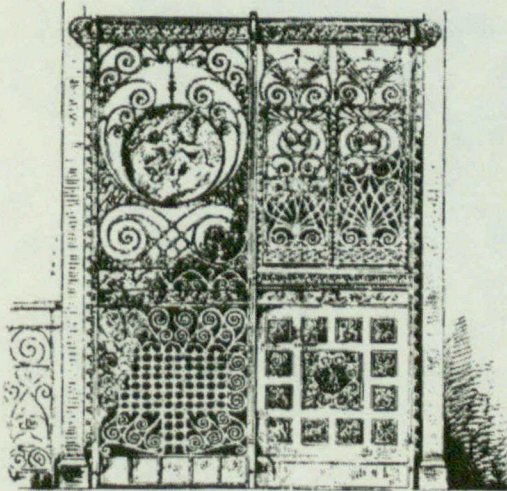
An early type of the house is to be seen in cottage-like structures of one storey and attic. These are of timber framed together with the whole exterior surface rough cast with plaster. Excepting the windows and door trimmings, the eaves, cornice, and gable rafters, no wood shows. At the angles of the building the square corners of the plastering meet without any projecting board. These houses must be about fifty or sixty years old, yet they seem in fairly good condition to-day. They recall similar looking cottages in Scotland, only in that country the walls are of rubble stone, and jambs and angles hand stone quoins, but the rough cast plaster, with its coat of whitewash was the same.

In Toronto there is a large proportion of people of Scottish birth and descent, and these cottages were probably built by early settlers from Scotland.

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Many of the buildings were carried out in what was called the "Romanesque" style, and we recognize at once the influence of Richardson. The Municipal Buildings, by Lennox, are in this style, and the favourite materials of the "Master," red freestone for walls and red tiles for roofs, have been used. This building is well designed as to proportions and disposition of masses. A high central clock tower is a prominent feature, inside of which visitors are carried up to the clock chamber, where a fine bird's eye view of the city is to be had. In the interior of the building, in one of the main corridors, a beginning has been made in the way of mural painting by an artist named Reid.

The Provincial Parliament Buildings are also in the Romanesque style, but the result of the whole is not as good as the former building. The Board of Trade Building, another structure in the same style, is very good.

The Union Railway Station is broad and simple in its general treatment, a good type of what a station should be.

In the building of banks there seems to be quite a development. Some of these are outside the general business section, generally on corner sites. They are in another style of architecture, which for want of a better name we might call "modern British," but good, and temperate in treatment. On one of the principal business streets, King Street, a very large hotel is now approaching completion. It is of light grey freestone, several stories in height, finished with a flat roof—always to my thinking unsatisfactory. I was told a New York architect designed the "King Edward Hotel," and a local architect is carrying out the work.

In the Queen's Park, a residential part of the city, I saw some fine houses of brick and stone. One of these, just completed, is "Georgian" in style, and was built for Mr. Flavell, a wealthy citizen. The surrounding grounds are artistically laid out, the whole work reflecting great credit on the architects, Messrs. Darling & Pearson, of Toronto. I had the pleasure of seeing another house, smaller and of a different type, that of Mr. Andrews, by the same architects, which deserves much praise for its simple but very artistic treatment.

Like all cities whose growth has been rapid, the business streets of Toronto present some strange anomalies—for instance, across the street from the Municipal Buildings are some of the older buildings, low in height. One wonders why they have not been taken down long ago, and substantial buildings for business purposes erected in their place. A great deal of rebuilding will soon have to be done in the business part of the city. It seems strange to see some of the streets disfigured by tall timber masts carrying wires aloft, which somehow suggests a Western frontier town of mushroom growth. However, there is much hope that Toronto's streets, as far as it is possible, will be made more beautiful, for an association of architects, artists, and others has already been formed with this end in view—a most laudable object. The streets are well paved (with some kind of cement) and thoroughly cleaned.

The atmosphere is clear, and there is but little smoke from manufactories. Trees are thickly planted down the avenues. Here are three elements that already help for beauty, so that the association has chiefly to look ahead, to advise on the placing of new buildings, to form a few more green squares at the intersection of thoroughfares, and to assist the general adornment by statues, fountains, and other works set in appropriate places.

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ONTARIO ASSOCIATION OF ARCHITECTS.

Arrangements are in progress for the Annual Convention of the Ontario Association of Architects, the dates for which are the 13th and 14th of January. As usual the sessions will be held in the Association Rooms at 94 King Street West, Toronto.

Among the papers to be presented will be one by Prof. Shortt, of Toronto University, the subject of which has not been announced, also one by Mr. E. C. Shankland, C. E., of Chicago, Ill., on "Modern Constructive Methods."

The Council are in correspondence with other gentlemen outside of the Association, and expect to be in a position shortly to announce other interesting papers by well known authors.

An interesting and instructive address is looked for from the retiring President, Mr. W. A. Langton, who has been connected with and deeply interested in the Association from its inception.

NOTES.

The Hughes Owens Co., Limited, of Montreal, whose card appears in another column have just installed a plant for the manufacture of blue and black print papers and also electric copying machines by which blue or black prints may be taken

in from two to three minutes any time of the day. Those desiring up-to-date goods would find it to their advantage to send for samples.

In a case heard recently in the Court of Session, Edinburgh, a draughtsman was giving evidence, when the opposing counsel asked: "Do you draw everything larger than it really ought to be? The reply came promptly: "Everything but my salary."

The Amherstburg Stone Quarry, situated at Amherstburg, Ont., are making extensive and valuable improvements to their great plant. Over 200 men are now employed in getting out block and building stone of all sizes and dimensions. The quality and strength is above the standard required by the Government for public works in Canada. They are doing an immense trade in crushed stone and limestone. All this is due, so the Amherstburg people say, to the energetic manager, Mr. T.W. Bellhouse. A representative of this journal was shown over this plant—the enormous amount of great dimension blocks in sight was a wonder. Some of this has gone to the Sault St. Marie canal works. Railway tracks now run right into the quarry which has been constituted a regular railway station. Mr. Bellhouse is to be congratulated upon the success of the company.

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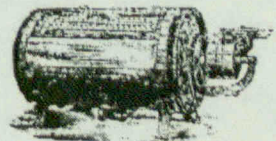
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PLASTERERS' GRIEVANCES.

The Plasterers' Section of the Toronto Builders' Exchange recently deputed Wm. J. Hynes and J. M. Gander to confer with the Toronto Chapter of Architects and the Toronto Architectural Eighteen Club relative to certain grievances which the trade are seeking to have remedied. One of these relates to the trouble and expense incurred in making repairs to work damaged by contractors and workmen belonging to the other trades. The plasterers would like the assistance of the architects in reducing the amount of repairs from this cause, and suggest the insertion of a clause in all specifications which would make a contractor liable for payment for repairs made necessary by wilful or careless damage done by himself or his workmen.

Another cause of complaint is the lack of uniformity in the terms employed by the architects in their specifications to designate particular kinds of work. It was suggested that a glossary of trade terms should be prepared and adopted for use in specifications, and

that all specifications for plasterers' work should be made as nearly uniform as possible.

The architects have approved of this suggestion, and have promised their co-operation towards putting it in practice.

The question of liability for repairs caused by careless workman is a difficult one to deal with, it being next to impossible in many instances to fix the responsibility. It seems to be generally agreed that the plumber is the worst offender in this matter. The practice of destroying new floors by dumping radiators onto them and turning them end over to wherever they are to stand, and the apprentice's habit of leaving the impression of his shapely black hand on the newly finished plaster are cause for righteous indignation on the part of both architects and plasterers.

Mr. Hynes has been requested and has consented to prepare a paper for incorporation in the annual proceedings of the Ontario Association of Architects giving a glossary of terms used in the trade and other information in a model specification for plasterers' work.

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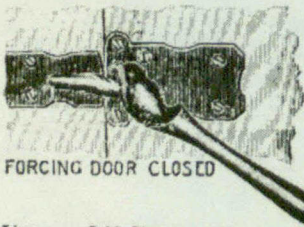
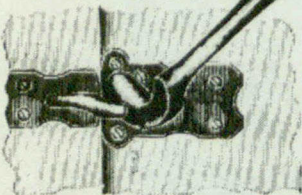
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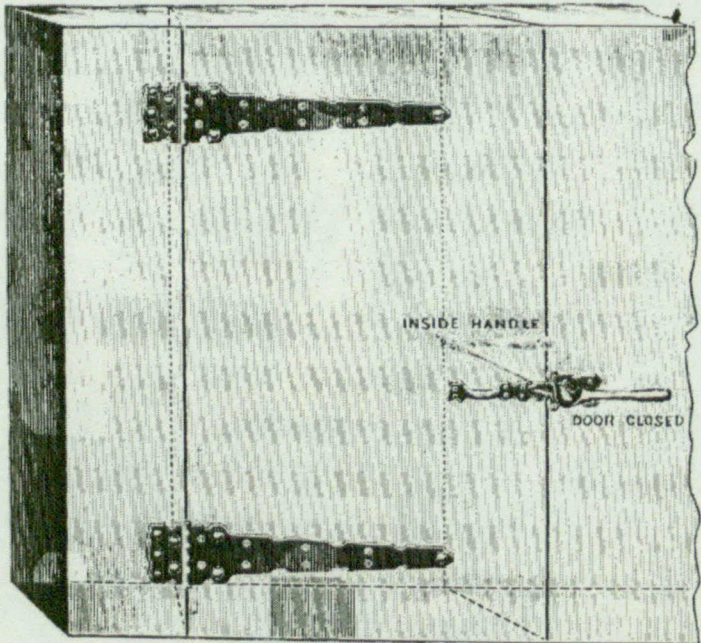
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NOTES.

Mr. Oliver McClary, one of the founders of the McClary Manufacturing Company, died at his home in London, Ont., on the 5th inst., at the advanced age of 86 years.

Mr. W. R. Stewart, formerly with Messrs. Peck, Benny & Co. and Abbott & Co., of Montreal, has been appointed Canadian sales agents for Jenkins Brothers, valve manufacturers, of New York. Mr. Stewart will have his headquarters in Montreal.

The Canadian Heating and Ventilating Company is being organized to manufacture heating and ventilating apparatus, and if granted certain concessions propose to build a factory at Owen Sound. Among the promoters of the enterprise are Messrs. A. E. Palmer, heating and ventilating engineer, Cincinnati, J. A. Ellis, architect, A. Harshaw, of Toronto, John H. McLaughlan and Christie Bros., Owen Sound.

A Manual of Drawing, by Mr. C. E. Coolidge, Assistant Professor of Machine Design, Sibley College.—The book, which is published by John Wiley & Sons, New York, is 8 x 10 in size, contains 92 pages and 10 full page plates. Price in paper cover

\$1.00. The object of the book, as stated by the author, is "to put into permanent form a single and standard drafting room system which will tend to alleviate unnecessary burdens thrust upon the students."

The travellers and officials from the several branches of the Canada Paint Company, who have been in session for some time, have finished their deliberations and have left for their respective territories. This was the tenth annual convention of the Canada Paint Company's staff held at the headquarters of the company in Montreal, and much good is accomplished by these meetings. The year about closing has been a banner one, showing an extraordinary increase of this company's business, and the plant for 1903 will be very much enlarged to meet the heavy trade which is already in sight. The Canada Paint Company have acquired another graphite property near Petitcodiac, New Brunswick. The area is about 5 square miles and the graphite is of the finest description for painting purposes. This company announce that they will be happy to mail free their booklet describing the many uses for graphite paint if our subscribers will mention this paper.

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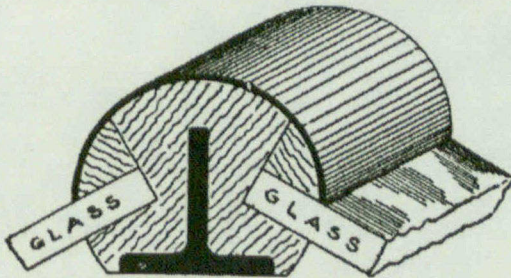
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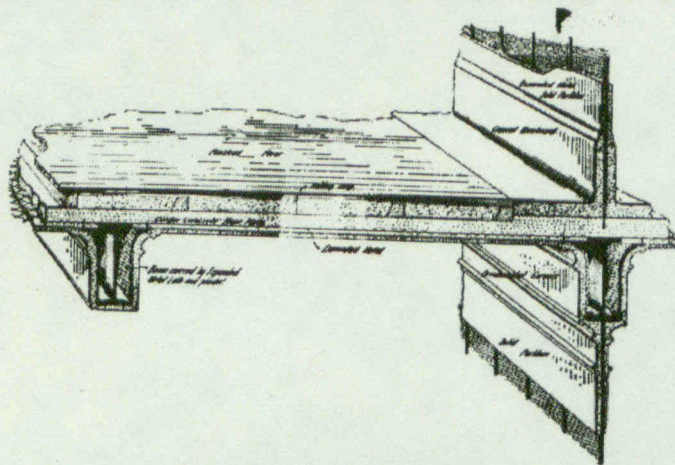


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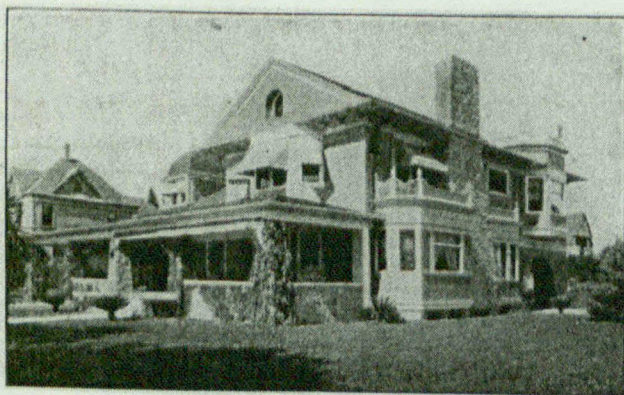
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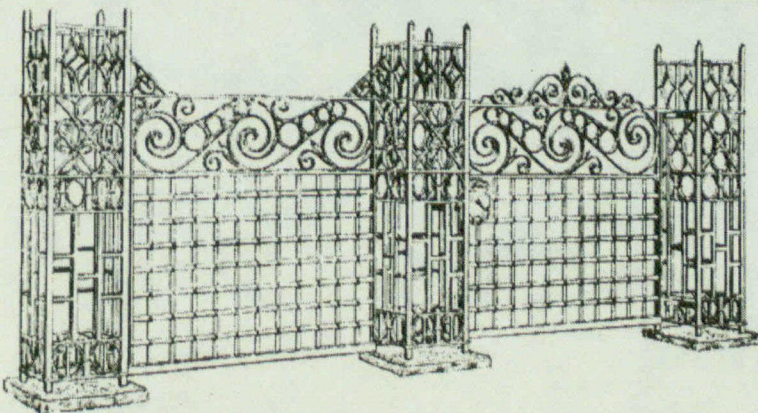
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