CANADIAN ARCHITECT AND BUILDER

FINE AND INDUSTRIAL ARTS · DECORATION · FURNISHING
CONSTRUCTION · SANITATION · ENGINEERING

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—THE—

Canadian Architect and Builder,

*A JOURNAL OF MODERN CONSTRUCTIVE METHODS,*

PUBLISHED ON THE 15TH OF EACH MONTH IN THE INTEREST OF

ARCHITECTS, CIVIL AND SANITARY ENGINEERS, PLUMBERS, DECORATORS, BUILDERS, CONTRACTORS, AND MANUFACTURERS OF AND DEALERS IN BUILDING MATERIALS AND APPLIANCES.

***C. H. MORTIMER, Publisher,***

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***EDITOR'S ANNOUNCEMENTS.***

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

***The Ontario Association of Architects has appointed the "Canadian Architect and Builder" its official paper.***

THE CANADIAN ARCHITECT AND BUILDER for December will contain a verbatim report of the proceedings in connection with the first annual convention of the Ontario Association of Architects.

TORONTO, Hamilton and Woodstock have new city buildings under construction, and the citizens of London are asking themselves the question whether their financial position is not strong enough to warrant them in falling into line in this direction.

THE supply of good architectural draughtsmen in Canada appears to be considerably below the demand. The suggestion has been made that here is a field for which women should be specially well adapted, and which in point of remuneration as well as in other respects would yield a more satisfactory return than many of the occupations in which they are at present engaged.

WE present our subscribers this month with a number which, in point of illustrations at least, is of more than ordinary interest and value. During the last few months we have increased the number of our reading pages and added an extra page of illustrations with each issue. It is our purpose during the coming year, if a continuance of past support is accorded us, to introduce new features which will greatly increase the value of the publication to every reader.

THE London water inspector has been analyzing the water contained in numerous wells in that city from which families draw their supply for domestic use. The result is truly alarming. Only two wells out of ninteen inspected, contained water which could be described as good. Nine were written down "bad" and "very bad," and two "vile." Surely, as a contemporary remarks, this ought to be sufficient to induce the owners of these disease-breeding holes to fill them up and secure a supply of the wholesome Springbank water.

WE are pleased to be informed that an effort is being made to establish an Art School in Toronto. The Ontario Society of Artists have appointed a committee to that end, and the Architectural Guild have done the same. It is proposed that these committees shall work to the same end, and having the support of the two bodies, there is no doubt but that they will be able to perfect a scheme which will give the city a school which will satisfy a great need. There are many so-called art schools in the city, but they teach very little that can in any sense be considered Art.

WE publish in this number the accepted design for the Confederation Life Association's new building in Toronto; also the report of Mr. J. W. Hopkins, of Montreal, the expert appointed to judge the plans submitted in competition. Eighteen architects entered the competition, a number of whom are residents of American cities. It is gratifying to know that three out of the five prizes offered were awarded to Canadian architects, the first position and the carrying out of the work being given to Messrs. Knox, Elliot & Jarvis, of Toronto, and third and fourth position to Mr. Jas. Balfour, of Hamilton, and Mr. Alfred Flockton, of Montreal, respectively. Messrs. James & James, of New York, carried off the second prize. We are pleased to be able to state that the Confederation Life Association appears to have taken every precaution to secure an impartial decision. This being the case, however admirable every defeated competitor's design may appear to his own judgment, he will doubtless be willing to accept with good grace the verdict that the preferred designs were better adapted to all the requirements.

THE placing of electric light and telephone wires underground, which has lately been commenced in Toronto, will in time lead to a great deal of trouble in several directions unless a change in methods is decided upon. At present each company puts down its own conduit. A pursuance of this system will result in a network of underground conduits, the putting down and repairing of which will necessitate continual tearing up of the streets and make it impossible for the city to maintain good roadways. There is little doubt that it will also lead to conflicts involving questions of right and authority between the various companies using the streets. The present is a proper time for the authorities of Canadian cities to consider the whole question of the best method of conducting electricity. If it is decided that the proper place for electric wires is underground, then we believe it will be found cheaper and far more satisfactory in the end, to provide underground subways of sufficient dimensions to accommodate all the electric light and telephone wires that may ever be required to be used. The underground problem must ultimately resolve itself into this; therefore by

taking a comprehensive grasp of the situation at the present time, endless expense and annoyance will be avoided in the future.

A FEW weeks ago we published a quotation from an English professional journal against the practice adopted by some architects in this country, of putting up notice boards with their names and addresses on the buildings they are constructing. We know a case in which the "architect," not content with this way of advertising, added to his notice board a sentence to the effect that he was a good man to employ because he had the work executed in a remarkably short time, and anyone coming to him would have no tedious delays. Now all this is decidedly vulgar to say the least of it, and it is very different from a custom that exists in England and is advocated in the United States. If a man carries out an important building, and one of which he has a right to feel proud, why should there be nothing to show to generations following who was the author of the design? Every artist affixes his name to his paintings, so that there can be no doubt as to their authorship. The Mayor and Corporation have their names inscribed in conspicuous positions on public buildings erected in their tenure of office, or the president of a company or club and sometimes other officials have their names handed down to posterity, but the architect, whose skill and ability has been put forth to produce the building, is consigned to oblivion. In England where, for an architect to advertise even by a card in the daily papers is looked upon with scorn and as degrading, it is allowable for him to inscribe his name upon the building executed from his designs and under his superintendence, not necessarily in a very conspicuous position, but somewhere where it can be seen, if need be, and then there can be no possibility of another getting the credit that belongs to the author only. In the case of a building whose design has been "cribbed," and we are sorry to say there are not a few of these around us, of course it would be instructive if the architect honestly attributed the success of the design to the original author. We should then see something like this upon our buildings:

"ARCHITECT OF THIS—MR. SO AND SO."

"ARCHITECT OF THE BUILDING OF WHICH THIS IS A COPY, SLIGHTLY MODIFIED—MR. D."

Or, as in the case of one building in particular,

"ARCHITECT OF THIS—MR. SO ANDSO."

"ARCHITECT OF THE BUILDING OF WHICH THIS IS A MODIFIED COPY—MR. THIS."

"ARCHITECT OF THE ORIGINAL BUILDING OF WHICH THE OTHER BUILDING IS A MODIFIED COPY—MR. THAT."

But then it is cheaper to insize the first line, and leave it there.

THE demand for vaults opening directly out of offices has resulted as might have been expected in the erection of vaults which are fire-proof in nothing but in name. A tenant considers he must have a vault, and as he does not pay much attention to its character, he is satisfied if it is but a hole in a wall of masonry with an iron door of some kind or other, and fastened with a combination lock. It is rather a difficult matter to say what is a perfectly safe vault; but it has been the practice of careful men to build them at least two feet thick, with an air space, and of a size large enough to stand against any possible destruction of surrounding walls. Such a vault is safe against any ordinary fire, but how far it may be reduced in thickness of walling, or how far it may be reasonable to allow it to depend on surrounding walls for stability, has not been determined. It will be shown before very long, that many of the so called fire-proof vaults now building in our office buildings are not fire-proof. We have only to wait for a fire in some one of these buildings to have it proven beyond a doubt that one-half of all our vaults are being built, first, with walls much too thin to resist the action of an ordinary fire, and second, with too little stability to resist the shock of falling floors or walls. Such vaults might answer in what are generally called fire-proof buildings, but certainly not in buildings of wooden construction. It is a common practice with the object of saving space, to set a vault in the angle formed by two walls, often thinning one or both walls by enclosing a small space with a wall across the angle. The enclosing walls are often ridiculously thin and the vault almost useless as to size. In case of fire it will be worse than useless, as all papers entrusted to its protection will be consumed either through the thinness of its walls, or the inability of the building to withstand the shock of falling floors or walls, and thus allowing the vault to fall or crash sufficiently to render them of no avail against the fire. Vaults thus constructed may cause very serious losses, as tenants naturally look upon them as being safe against fire and will place many valuable documents within them, which if they for one moment suspected the worthlessness of the vaults, they would place where they would be perfectly safe. This matter is so important a one that some effort should be made which will insure that all vaults erected in buildings for rental purposes shall be built to fulfill their purposes beyond any possibility of failure. It may be said that there are few such vaults built or being built. We are convinced that a careful examination of vaults in this city would reveal that many are absolutely valueless in the opinion of competent experts. And as the tendency in all but the most substantial buildings is towards greater elaboration, at the expense of the structural features, the evil is on the increase, and will not be checked unless some disaster happens to show the utter worthlessness of these supposed fire-proof vaults, or supervision in the interests of the public is adopted.

THE first regular Convention of the Ontario Association of Architects will be held in Toronto on the 20th and 21st inst. All arrangements are fully completed, and nothing remains to be done but for each member to be present at the meeting and take an active part in the business brought before it. Papers are to be read of interest to the profession, and it is hoped that every one will prepare himself to take part in any discussion which may arise out of the matters brought up. Each member should consider that he may be able to do the Association much good by rendering such assistance as he may be able. The presence of a member at the meeting is of value, even though he may not express his opinion except in voting. The members should be able to make the attendance at the Convention return them in information and in other ways more than their outlay will amount to. The discussions should be of value to all in giving them some knowledge of how others do work of the same character as their own. To meet with other members of one's profession and derive new and fresh ideas, must be of great benefit to anyone, no matter how high he may stand in his profession, nor how much he may know.

It was determined by the Board of Directors to hold an Exhibition of Architectural Drawings during the Convention, and it is earnestly urged on all members to send such drawings as they may have, and which may be of interest. A Bill to incorporate the Association has been proposed, and will be submitted to the Convention. A copy of the same will be sent to each member, that he may be able to study the Bill and make suggestions for its improvement. This matter is of the utmost importance to the profession and also to the general public, in whose interest the Bill is really prepared. The principal object of the Bill is to insure that all men who may set themselves up to practice architecture shall be competent to carry out any work entrusted to them. As matters now stand, any man may be an architect and forthwith proceed to erect a building which may be dangerous to life through its inferior construction or bad sanitary arrangements. That more deaths have not occurred through badly constructed buildings, is most fortunate. The number who have died as the result of bad sanitary arrangements will never be known; nor will we ever be able to figure up the loss caused by illness that would not have been if someone had not meddled where they had not the knowledge. Every one should be present to aid in this matter, as the profession and each member are deeply interested. The officers and members of the Association resident in Toronto have determined to entertain the visiting members at a dinner to be held on the evening of the second day. All members should strive to be

present at the dinner, as much is to be gained by such social gatherings. In any case, the members will render much assistance by letting the Secretary know whether they will be able to attend or not, as definite arrangements must be made in relation to the number who will be present. Let no one stay away because he may consider that his absence will not be noticed. In numbers their is enthusiasm, and in enthusiasm there is energy.

ONE of the most peculiar of the many strikes on the part of workmen in the building trades in Toronto, is at present in progress. The stonecutters in the employ of R. Snarr & Co., recently quit work owing to alleged unfair treatment accorded to them by Mr. Hobson, the foreman, whose dismissal they demanded. This Mr. Snarr refused on the ground that Mr. Hobson was admitted a partner in the business at the beginning of the year. Partnership articles were produced in proof of this statement. The workmen had not been aware of Mr. Hobson's relationship to the firm, and it was expected that when the situation was explained to them, they would withdraw from the position they had assumed. Not so, however. They refused to believe that the partnership was anything more than a hastily concocted scheme to deceive them, and took the more advanced ground that whether he was a partner or not, Mr. Hobson must be sent about his business. Strange to say, this most unreasonable demand was endorsed by the Stonecutters' Union, and by the Bricklayers', Plasterers', and Laborers' Unions, the members of which have all combined in refusing to work upon any building where stone from Snarr & Co's. yards is used. As the firm thus boycotted have hitherto supplied a large proportion of the cut stone used in buildings in this city, great inconvenience and loss will be inflicted upon a large number of persons who had no connection whatever with the matters in dispute. We understand that Messrs. Snarr & Co. have determined at whatever cost to fight the unreasonable demands of the labor unions. That they are justified in so doing there can be no question, and we trust that they will receive the sympathy and assistance of every man who believes that reason and fair-play should actuate the conduct of men, whether employers or employees.

It would be amusing under other circumstances, to observe the way in which the master builders, when some trouble of this kind confronts them, seek to hurriedly whip their organization into working order. Their success is not always what they could desire, and no wonder. "In time of peace prepare for war," is a wise policy, but one which the master builders appear to have systematically disregarded. In time of peace they have acted on the go-as-you-please, every-man-for-himself plan. In time of war, as in the present instance, they perceive how helpless they are individually, and try to unite their scattered forces. How much wiser it would be to institute and maintain constantly, as do the labor unions, a perfect organization, equipped by strength of numbers as well as financially to defend successfully their rights. The labor unions have never before to our knowledge gone so far as to demand the disruption of a business partnership under threat of a boycott. Emboldened by the concessions granted to them from time to time by the employers, they are becoming more and more unreasonable and arbitrary in their demands, and unless a severe check is shortly administered to them, the term "master builder" will no longer serve to designate the employer in the building trades. It is abundantly clear that the unions do not propose to be satisfied with what men of reasonable judgment would regard as their just due, but intend to work on the principle of getting all they can, without stopping to consider whether the employer has any rights which ought to be considered. Owing to lack of proper organization on the part of the employers, their efforts along this line have so far proved fairly successful, and we may add that they are pretty certain to eb so, until such time as the employers are prepared with a firmer hand to resist their unjust claims. We have repeatedly urged organization with this object, but without success. The signs of the times all point to the fact, however, that if the employers are not to become the victims of a most galling tyranny, they must speedily take such action as will enable them to hold their own in the constantly recurring conflicts with organized labor.

IT is a matter of surprise and disappointment to us that we have received drawings from only two persons in connection with the competition for a serving pantry announced in our issues of September and October, and neither of them is good enough to illustrate. One design has many good points, but is defective in other respects, and does not fairly represent the average work in serving pantries in our better houses. The sink is shown enclosed, which is never done in any house erected under the direction of a capable or well-informed architect. The other design has apparently been prepared by a designer of furniture, and misses the mark entirely. One would judge from the design submitted that a serving pantry answered no good purpose except to afford a means of decorating the walls with cabinet work. A serving pantry should above all things serve its purpose, and there should not be the least amount of elaboration. A pantry should easily be kept clean, and that cannot be done where there are a lot of small and useless mouldings and unnecessary fixings. The series of competitions of which this one was the first, were largely instituted for the purpose of stimulating effort on the part of architectural students. It was thought that students would be quick to embrace the opportunity of measuring their ability by a comparison of work with a number of others in the same field. Accordingly the prizes were made nominal, being offered rather for the purpose of giving definiteness to the competition, than as a reward of effort. A sufficient, as well as the highest reward in such a competition, is that which comes from putting forth one's very best efforts to excel. It is far from being creditable to the architectural students of Canada that not one of them appears to have regarded the matter in this light. If their apathy towards this competition designed to encourage them to make progress in their studies, is an index of their interest in the profession, we must confess we have fears for the future of architecture in this country. If they do not propose to work, why have they entered a profession which requires work of its members beyond the capabilities of the most able? Do they propose to depend upon their ability to make a living by means of scheming, trickery, humbug and dishonesty, rather than by good, straightforward, honest effort? If they do, the sooner something is done to force them to change their methods the better. Occasionally architects are blamed because some of their members make no effort whatever to meet the ordinary requirements of civilization. Is it any wonder, when the students and afterwards architects in name only, care not whether they are competent or incompetent so long as they are able to squeeze out of this world an existence by honest or dishonest means? Two years ago the draughtsmen of Toronto formed an Association and held weekly meetings. Success attended the movement for a time, but when two or three of the active members graduated into the ranks of the profession, it went down and down, until to-day it is out of sight in the darkness of the total indifference of the draughtsmen of the present time to all information requiring effort and hard, persistent work. It is time that the students should do something to aid themselves, and likewise time that architects made an effort to get their students to semi-occasionally open a book and gain some knowledge from its pages. We take this opportunity to announce that if the next two or three competitions of the series arranged for, are no more successful than this one has been, we will discontinue them. We regret that the report of the Committee appointed to judge this competition has not yet been received. It will appear in our December issue.

A suspected joint in a sewer or drain pipe may be tested by wrapping it with a single layer of white muslin, moistened with a solution of acetate of lead. As the gas escapes through the meshes of the cloth, it will be blackened by the sulphur compounds.

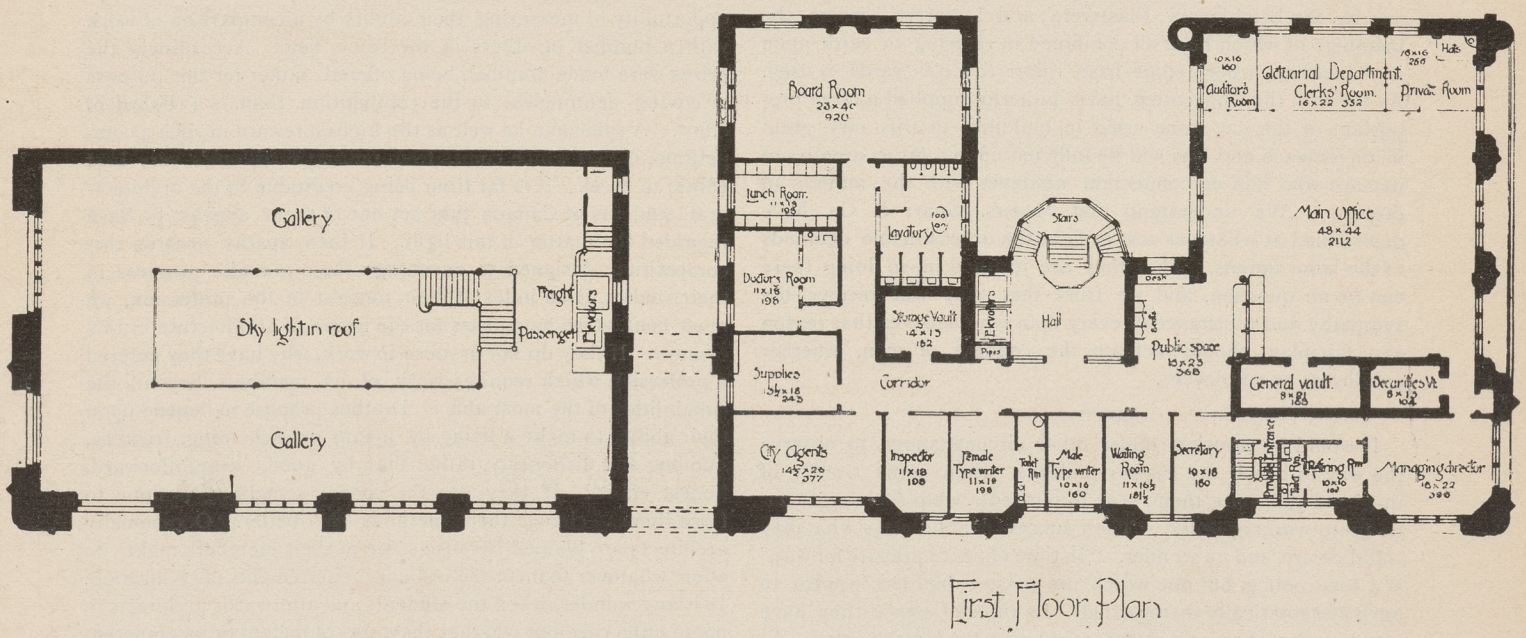
## THE RELATION OF AN ARCHITECT TOWARDS CONTRACTORS.

By G. F. Stalker.

THE "divided duty" of an architect (referred to in the October number of the Canadian Architect and Builder), commences with the signing of the contract. This in fact is the introduction of the contractor to the proprietor and architect: to the proprietor, as to the one for whom he is about to execute certain work; to the architect, as to the one from whom he is to receive his instructions for that work, and whom he is willing to accept as the judge between himself and the proprietor. This is an important point to be understood at the very outset of the negotiations. A contractor is not bound to enter into a contract to erect a building, or even to tender for it if he is not satisfied with the ability and impartiality of the architect who has been engaged to prepare the drawings and specifications. But, having tendered for the work, and having signed the contract for it, it is altogether unreasonable that he should afterwards raise objections to the decisions and requirements of the architect, unless they are manifestly unfair. It is a common impression among contractors, that the architect is bound to get as much out of them for the proprietor as he possibly can; and so will require them to do work far in excess of that they have contracted for. On the other hand, proprietors often imagine that architects and contractors are in league together, that the work will be "scamped," and the vultures share the spoil between them. What a pleasant position this is for a gentleman to be in! Does it never occur to the minds of proprietors and contractors that it is equally repugnant to the moral sense of an architect to exact more or less than is agreed upon, either for the benefit of one or other of the contracting parties? That there have been instances where proprietors on the one hand, and contractors on the other, have been improperly treated at the hands of the architect, it is, unfortunately, necessary to admit. But such instances are by no means common. The principle of fair dealing may be said to be almost inocculated into architects, and any divergence from that principle may safely be considered a kind of freak. Contractors, therefore, will act wisely, when they have signed a contract, to leave themselves in the hands of the architect, trusting to his impartiality in carrying out the building. But there are certain things which they have a right to expect of him, and which it is his duty, both to the proprietor and the contractor, that he should do. And, further, the doing of these things places the architect outside of the complaints of either party, and renders him independent of both.

On the signing of the contract, the architect should hand to the contractor the copies of the contract drawings and specifications. In cases where there are several contractors, it is impossible that each can be supplied with a complete set of drawings and specifications. Arrangements, however, should be made whereby the several contractors can at all times have access to them. They should never be off the works from the commencement till the completion. There should follow, always well in advance of the work, such portions as are specified to be done according to details. It is the custom in many offices in the old country to have these details prepared and copies made of them immediately after the contract is signed, so that the contractor is never kept waiting for them. Other details of course may be required which cannot well be prepared so far ahead, but which, nevertheless, should be given as soon as they are wanted. By this means the architect will perform his duty towards his client, and give the contractor every opportunity of proceeding with the work expeditiously, and without cause of complaint.

But the "sinews of war" must also be provided, and so progress estimates must be given at stated intervals. Unfortunately the relations between the architect and the contractor are often strained in regard to this matter. Naturally the contractor will be anxious to get an estimate for as large an amount as possible, while the architect is, in many cases, inclined to keep back more than is necessary or right. The better plan is, before the work is commenced, for the architect and contractor mutually to agree upon an equitable basis for progress payments, and to stick to that throughout. It is also advisable that the proprietor should be apprised beforehand that a certificate will be presented to him on such a date, in order to avoid any hitch in regard to its payment.




Plan Accompanying Accepted Competitive Design for Confederation Life Association Building.

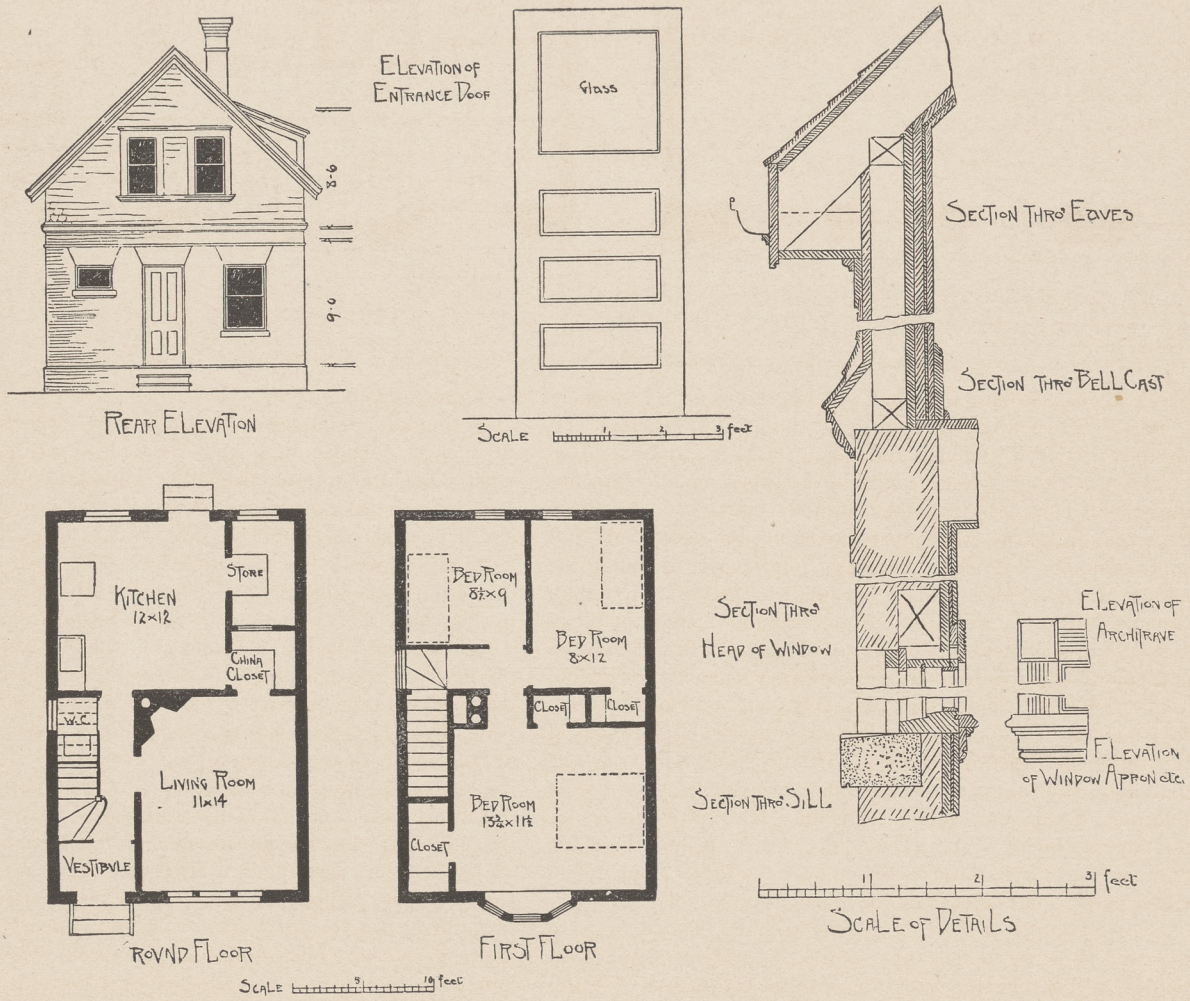
As the building proceeds, the contractor is sometimes tempted to suggest changes here and there. An architect, however, must allow of no interference either with plans or specifications. His thinking has already been done, as far as they are concerned, and he now occupies himself only with seeing that they are faithfully carried out, and the contractor must be given to understand this most clearly. He must also have it made clear to him that, as is sometimes done, to suggest any change or "improvement" to the proprietor, he is going altogether out of his sphere. His business is to carry out what he has agreed to carry out, and the architect's business is to see that he does it. Any alteration of the plans or specifications, must only be made at the suggestion of the proprietor or the architect, and for which the contractor must have the authority of the architect in writing. It is most important that contractors should know and act up to this, and that they should insist upon receiving such written authority before carrying into effect any alterations. And in all cases, where it is possible, the architect should obtain in writing from the contractor the amount to be added to or deducted from the contract sum, by reason of the proposed change. A strict adherence to this is the only sure way to avoid disputes and delays at the settlement.

Then, in carrying out the work, the contractor has it in his


CANADIAN MANUFACTURERS' ASSOCIATION

COMPETITION No 10

Design for an $800 Workman's Cottage by "English bond"




SECOND PRIZE DESIGN.

By C H. Acton Bond, Toronto.

own hands to prevent any breach of good relations being maintained between himself and the architect. The work has been specified to be done in a certain manner, and materials of a certain quality have been called for. Now it is impossible for the architect to be always on a building and to see all the material that is put into it. It is left, therefore very much to the honour of the contractor to carry out this part of his bargain honestly. To take advantage of the absence of the architect, and put in inferior stuff, and cover it up before he can see what has been done, every contractor knows is a dishonest trick. He also knows that if an architect does his duty by his client, he must be rigid in regard both to the proper, workmanlike performance of the work, and to the quality of the materials used. It has vexed the soul of many an architect, when he has discovered the want of good faith in this respect. And who shall blame him if in his indignation he has uttered as vigorous an anathema as did Pope Gregory to Sir Ingoleby Bray, using in less measured terms, his closing words,

"Come bring me a book, come bring me a bell
As big as a dustman's, and a candle as well,
And I'll send him—where good manners won't let me tell."

If an architect is expected to act in a fair and honorable manner towards contractors, they must also carry out their work with perfect honesty. At the same time, although the statements here made apply to a large number of contractors, they are by no means of general application. There are many contractors who would rather work at a loss than be guilty of any dishonorable practice. At the completion of a building, if matters have proceeded as they ought to have done, there should be very little trouble in winding up the accounts to the satisfaction of all parties. Written orders must be produced by the contractor for all claims for extra work; and where no previous agreement has been made as to the cost of such work, then the architect must give a fair valuation for it. And here again, it must be repeated, that it would greatly simplify this part of the transactions if the system of tendering by bills of quantities were generally adopted. It may not be long before such a system comes into use, and the sooner it comes the better for all concerned. The price to be charged would then in the majority of cases be a foregone conclusion, and would have to be allowed without demur, while, by the process now in vogue, there is sure to be more or less discontent on one side or the other. But when an architect is satisfied with amount charged in the final account, and that the work has been done to his satisfaction, he should not withhold by a day longer than is necessary his final certificate. He should remember that the contractor has to meet his legitimate payments for material that has been used in the building, that he has had to pay wages, and that any unnecessary delay in giving a final certificate to the contractor, is a dead loss to him.

## FOR COPYING DRAWINGS.

A NEW method of copying drawings which may be found of service in architects' offices, is given in the *Deutsches Baumgewerbes Blatt.* Any kind of opaque drawing paper in ordinary use may be employed for this purpose, stretched in the usual way over the drawing to be copied or traced. Then by the aid of a cotton pad, the paper is soaked with benzine. The pad causes the benzine to enter the pores of the paper, rendering the latter more transparent than the finest tracing paper. The most delicate lines and tints show through the paper so treated, and may be copied with the greatest ease, for pencil, Indian ink or water colors take equally well on the benzinized surface. The paper is neither creased nor torn, remaining whole and supple. Indeed pencil marks and water color tinting last better upon paper treated in this way than on any other kind of tracing paper, the former being rather difficult to remove by rubber. When large drawings are to be dealt with, the benzine treatment is only applied to parts at a time, thus keeping pace with the rapidity of advancement with the work. When the copy is completed the benzine rapidly evaporates and the paper assumes its original white and opaque appearance without betraying the faintest trace of the benzine. If it is desired to fix lead pencil marks on ordinary drawing or tracing paper, this may be done by wetting it with milk and drying in the air.

## OUR ILLUSTRATIONS.

RESIDENCE, MONTREAL, NOW APPROACHING COMPLETION—ANDREW T. TAYLOR, F. R. I. B. A., AND G. H. GORDON, ARCHITECTS, MONTREAL

ACCEPTED COMPETITIVE DESIGN FOR CONFEDERATION LIFE ASSOCIATION BUILDINGS, TORONTO.—MESSRS. KNOX, ELLIOT & JARVIS, ARCHITECTS, TORONTO.

CANADIAN MANUFACTURERS' ASSOCIATION COMPETITION FOR AN $800 WORKMAN'S COTTAGE.—SECOND PRIZE DESIGN BY C. H. ACTON BOND, TORONTO.

## "CANADIAN ARCHITECT AND BUILDER" SERIES OF PRIZE COMPETITIONS.

THE following is a list of competitions in Architectural subjects which we have decided to hold during the winter:—

1st.—Plans of a serving pantry, 100 square feet in size, showing cupboards, shelving, etc., with details of same. Plans to be sent in on or before 1st November next. First prize $5; second, one year's subscription to CANADIAN ARCHITECT AND BUILDER.

2nd.—Designs for three plaster cornices of 20 inches, 25 inches and 30 inches girth; and of three centre pieces of 15 inches, 20 inches, and 25 inches diameter. Drawings to be sent in on or before 1st December next. First prize, $5; second, one year's subscription to CANADIAN ARCHITECT & BUILDER.

3rd.—Essay on Plumbing. Essays to be sent in on or before 1st Jan. 1890. First prize, $10; second, one year's subscription C. A. & B.

4th.—Designs with details for a verandah running across the front of a house 40 feet wide, and an outside wooden porch to a front door. Designs to be in on or before 1st Jan. 1890. First prize, $5; second, one year's subscription C. A. & B.

5th.—Designs with details for front doors and vestibule. Designs to be sent in on or before 1st Feb., 1890. First prize, $5; second, one year's subscription C. A. & B.

6th.—Details of the interior of a small house to include those for staircase, doors, architrave, base and windows. Designs to be sent in on or before 1st March, 1890. First prize, $10; second, one year's subscription to C. A. & B.

7th.—Design with details for four mantels. two of wood, one of brick and one of stone. Designs to be sent in on or before 1st of April, 1890. First prize, $5; second, one year's subscription to C. A. & B.

8th.—Three designs with details, for front fence. Designs to be sent in on or before 1st May, 1890. First prize, $5; second, one year's subscription to C. A. & B.

9th.—Essay on Heating and Ventilation. Essays to be sent in on or before 1st May, 1890. First prize, $10; second, one year's subscription to C. A. & B.

10th.—Plan of a bath room for a medium sized house, showing the best position of fixtures; not more than five fixtures to be shown, or more than 75 square feet devoted to the bath room. Plans to be sent in on or before Jan 1st, 1890. First prize, $5; second, one year's subscription C. A. & B.

The Architectural Guild of Toronto have very kindly appointed a committee from their number to judge the above competitions. We shall publish each report as sent to us by the committee. Draughtsmanship, neatness and clearness of arrangement of drawings will be taken into consideration in awarding positions.

Drawings must be made on sheets of heavy white paper or bristol board, 14 x 20 inches in size, and must be drawn to allow of their being reduced to one-half the above size. Drawings must be made in *firm strong lines*, with pen and *black* ink. No color or brush work will be allowed.

Each drawing must be marked with the *nom de plume* of its author, and the author's name, *nom de plume* and full address, enclosed in sealed envelope, must accompany each drawing sent in.

We reserve the right to publish any design sent in.

Drawings will be returned to their authors within a reasonable time after the committee has given its decision.

## "HOW TO ESTIMATE."

HAMILTON, Nov. 6th, 1889.

Editor CANADIAN ARCHITECT AND BUILDER.

IN studying out the rules and directions for the measurement of stone work given by "Cato" under the above heading on page 115 of the CANADIAN ARCHITECT AND BUILDER for October, I am sorry to say that it must be apparent to any practical man that "Cato" labors under a very serious mistake when he says that "a perch of stonework measures 16½ feet long, 1½ foot wide, and 1 foot high," for such is not the case. A perch of stonework measures 11 ft. long by 1½ ft. wide by 1 ft. high, making 16½ cubic feet in the perch, and not 24¾ feet, as "Cato" says.

"Stone walls are generally measured by the perch, as it is called a perch of stonework, being 16½ cubic feet."—*See Johnston's Arithmetic, page 43.*

Please correct the mistake, which may be perplexing and misleading.

Yours truly, COMMENT.

## CONFEDERATION LIFE ASSOCIATION BUILDING COMPETITION—EXPERTS' REPORT.

TORONTO, October, 19th, 1889.

J. K. MACDONALD, ESQ.,
Managing Director, "Confederation Life Association," Toronto.

DEAR SIR,—In accordance with instructions, I have made a careful examination of the eighteen designs submitted in competition for the proposed building to be erected by the Confederation Life Association in this city, and beg to report,—that in order to arrive at a fair and proper consideration of the merits of the respective designs, I decided that the "Conditions and Instructions' issued by the Association for the guidance of competing architects ought and were intended to be strictly carried out by them, and also should at the same time be a guide to myself in forming due opinion upon the merits of each design.

On the 11th inst., I proceeded to examine and compare the drawings, which were in portfolios each bearing a distinguishing motto or cypher. The sealed envelopes containing the names of the authors were handed to you un-opened, and are still in your possession.

After a thorough and careful comparison of the designs, I eventually selected five, as in my opinion the ones which the most closely complied with the "Instructions," and which I also considered the most suitable for the intended building.

Out of these five, the design bearing the motto "Lux" appeared to me to be in all respects the best, and for the following reasons, namely: all the requirements contained in the "Instructions" have been carefully carried out, and the drawings have been prepared with considerable skill, and fully express the intention of their author.

The buildings, i. e., the main or Association's, and that forming the shop on Yonge street, are not only distinct in themselves, but to a great extent entirely separate, having a passage-way of fifteen feet in width between them, excepting a portion of sixteen feet by thirty-two feet on the upper floors on Richmond street, over the archway on the first floor. There is however no connection between the two buildings at any point, and in consequence of this arrangement, light is obtained on all sides for the main building, as well as on three sides for the shop, whilst the risk from fire in either building is very materially diminished.

The main office will be a lofty well-proportioned room, thoroughly lighted, having a frontage on Victoria street, as well as having windows on the lane in rear, and on the open space on the west side.

The basement, which is entered from the street level, as well as the upper floors are laid out in such a manner as to obtain abundance of light and air, and whilst being ample in size are suitable for tenants requiring single, or offices in suites of useful dimensions.

The attic story has been laid out in a manner which will probably prove a source of revenue, should it be leased for the purpose indicated, where otherwise the space in the roof would be lost.

The exterior of the building is of a very pleasing and distinctive character, and shews at a glance the purpose for which it is intended, namely, a public institution, and at the same time a commercial building.

The shop on Yonge and Richmond streets, whilst distinct in itself, harmonizes with and forms a portion of the whole structure. (It is a question for consideration whether a lighter appearance could be obtained on the Yonge street front ground floor, without injuring the effect evidently aimed at by the designer, viz., that of solidity of base, for the superstructure, by altering its size or increasing the number of the openings on that street.)

Several of the other designs submitted are very meritorious, and give evidence of great painstaking thought in the arrangement of plan, and in character and expression in the elevations. It has been no easy task to determine in my own mind the order in which the three other recipients of prizes should be placed, one design possessing what in my opinion the other lacked.

The drawings submitted by "Business," "Ajax," "Utility," "Observanda," "Practical," "Dominion," "Simplex," "Ici," and "C. L. A.," all possess considerable merit. However, after mature consideration, I have concluded to submit the following, and in the order named, for the second, third and fourth prizes, to the judgment of the directors, as having adhered the most closely to the "Instructions," and laid out the site of the intended buildings to the best advantage, viz:

"BUSINESS."
"OBSERVANDA."
"UTILITY." }
"AJAX." }

With reference to the above I would remark that "Observanda" has the principal tower on the corner of Yonge street, on the leasehold property. This is the only design having this arrangement, which, however, is not proscribed by the "Instructions."

With regard to "Utility" and "Ajax," bracketed together, I am of opinion that to carry out the latter with the tower, as shown on the "flap" on Richmond street elevation, and "perspective sketch" would materially exceed the sum named as the limit of expenditure, and without the tower, a principal feature in the design, the latter would lose one of its salient points of attraction.

Having examined with equal care the whole of the eighteen designs submitted in competition, I have deemed it well to give the Directors a brief synopsis of the notes which I made seriatim upon each during my examination thereof:

"FIAT JUSTITIA RUAT CŒLUM."—The main, or Association's building, is separated by a party-wall from the leasehold, or shop portion of the edifice. The main office fronts on Richmond street, and would thus have good light, but the mode of access by the public to the Manager's and Secretary's offices is objectionable, inasmuch as they would have to pass between the windows and the clerks in the main office. There is no "retiring room" for the manager, nor any fireplace in his room. Basement offices are below the street level, and reached by areas, involving loss of space. Entrance to the main office possibly objectio able. Elevations not particularly novel or specially attractive. All requirements as to number of drawings have been complied with.

"UTILITY."—The freehold and leasehold portions of the buildings are distinct throughout. The main office fronts on Victoria street. Access to it and other offices of the company is obtained from a large central hall, in which is the main staircase leading to the offices on the upper floor. The shop on Yonge street is of ample size, but it is questionable whether the height of the ground floor is sufficient for the size this is designed to be, unless by opening up the large well-holes in the floors, which are shown on the plans but not on the section. Externally, the design gives an appearance of a very lofty shop, the windows of the two lowest stories forming apparently one. Access to the offices in basement under the company s portion is gained from the street level by means of some steps inside the several rooms. Two shops are contemplated on Richmond street in the main building, whereby considerable revenue might be realized, a point worth consideration. This design exhibits a good deal of taste in the exterior, and the drawings are very carefully made, and full as to the number required by the "Instructions."

"PRACTICAL."—Submits the proper number of drawings, etc. His buildings are distinct throughout. The intention is to enter from Victoria street for the offices over the Association's portion, keeping the latter with its entrance from Richmond street entirely separate. The main office fronts to the rear, so to speak, having three large windows thereon—four on two open areas on each side. The Secretary has not the supervision of the public at the counter to the desired extent. The basement under the Association's offices is not utilized to the extent that it could be were the ground floor raised sufficiently to admit more light and easy access given to the basement, as asked for in "Instructions." The elevations are plain, but sufficiently broken up on Richmond and Victoria streets to give effect. The entrance on the former is relieved by carving, but the canopy over it looks somewhat heavy in the perspective sketch. The type writers have not the full space asked for, 133 feet, instead of 150 feet.

"PELICAN."—Submits the requisite number of plans, but only one section (a cross), rendering it somewhat difficult to discover how he proposes to finish the main and other offices, the section being also of the plainest description, exhibiting no detail whatever, and the short memorandum accompanying the plans being of the briefest kind. In the plan of the Association's offices the route from the entrance for the public to the main office is very circuitous, and the Secretary has no supervision of the counter. The elevations are very plain in character, and the effect of building a rough-faced stone tower over the brick facade below it, is very questionable. The buildings communicate on three floors, having offices on each.

"PAID UP POLICY."—The buildings communicate above ground floor. Main office is in the rear, and the greatest portion of both street fronts is taken up by subsidiary offices, and supply-room, &c. Elevations plain in character; stone up to first floor, brick above with stone lintels in windows. Flat roof throughout. One section only submitted.

"LUX."—See "ante" respecting first prize, &c.

"UTILITY"—Submits plans &c., as required by 'Instructions," but has not followed them sufficiently closely, as he has not given the number of square feet in each room on his plans. He sends a separate memo in his description of the room areas in square feet. The Secretary's office does not face on the space for the public, and would have to traverse the whole of his room to reach the Manager, leaving the Secretary no space for himself. There is no retiring room in connection with the Manager's room as required. Main office fronts on Victoria street, and depends for additional light on the glazed dome in the ceiling. There are two wells to light offices above. The elevations are good, and have a pleasing effect.

"OBSERVANDA."—Submits all drawings, &c., required. The buildings communicate above the first floor. The main tower is on the leasehold property, a possible objection, as it is one of the most expensive portions of the building. The entrances, of which there are two on Richmond street, are not sufficiently important in appearance, and the one between, to the basement is too low. The main office fronts on Victoria street, and the portion alloted to the public may be dark. Corridors to upper floors &c., over shop, insufficiently lighted. Elevations good, excepting entrances, &c., above named. The towers are apparently not utilized in any way, but might be made available.

"BUSINESS."—Submits all required drawings and description. The main office is on the angle formed by Richmond and Victoria streets. Plenty of light and height. An entrance from Victoria street. Basement to offices on the ground floor and to upper stories by a central staircase is provided, as well as a general entrance from Richmond street, and a separate one to Association's offices on same street. Basement Victoria street, vault foundations come somewhat in the way in one store. Offices on upper floors somewhat short of vaults; six only on each floor. The buildings are distinct, separating the leasehold from the freehold portion. The area occupied by the Association's offices is not as large in this design as in most of the others, and the cost would therefore be relatively less. The elevations are effective without being costly, this being due in a great measure to the importance and richness given to the several entrances.

"SIMPLEX."—Submits number of plans, &c., required. The buildings are distinct up to the top floor, where there is an opening, and offices are proposed on this floor, over the shop portion. In the main office the space for the public is too large, and the Secretary does not oversee this space. I am afraid there might be a deficiency of light, excepting from the skylight, which is over a portion of the office, and that not in the centre. The carrying of the corridors to offices over the main office on piers would impinge upon the upper portion of the office, and tend to intercept the light from the side windows to a certain extent. The janitor's rooms are not well placed, and have only one outside window to three rooms. This might be remedied in execution. In the basement there is no communication between the offices and the elevators, and no staircase appears to give access to the tower. Access to basement offices from the street is by outside steps. Elevations plain but of a pleasing design and main entrance good.

"ICI."—Submits the necessary number of drawings, but gives the number of cubic in place of the number of square feet in the several rooms. The main office fronts partly on Victoria street, and on rear lane. There would be an insufficiency of light at the public entrance to this room, and the hall and corridor would be very dark. The same remark applies to the restaurant, &c., in the basement, and the halls and corridors on the upper stories. The elevations of the main building are of neat character, the entrance presenting a good appearance; but the flank of the shop on Richmond street is very plain and commonplace. The buildings are distinct. Entrance to the basement offices, &c., are a few steps below street level inside.

"AJAX."—Furnishes all the required drawings and descriptions of his design. The buildings are distinct throughout. This is a very carefully prepared set of drawings. The main office fronts on Victoria street, and derives additional light from a domed ceiling-light. The type-writers' and lunch room occupy a considerable portion of the two principal fronts, which is not desired. The space occupied by the public is larger than is asked for. The main entrance hall and staircase have no external light on the basement and ground floors, and depend entirely upon a skylight on the ground floor. The basement entrance and rear portion of the restaurant would be positively dark were it not for a portion of the floor of main office being glazed to admit light to the basement, and this would be a very questionable expedient. The basement floor is four feet below the street level. The Manager's retiring room appears to be too narrow to be of much practical utility. The Secretary's office having three doors in it, would oblige him to sit in the darkest portion of it. The elevations are to

Accepted Design
Knox, Elliot & Jarvis, Architects

"Confederation Life Association"
Toronto.

be of stone. They are substantial in character and good in design. The entrance to the company's offices is massive and in good proportion, but the tower shown by a flap on the Richmond street elevation and on the perspective drawing, would have to be dispensed with on the score of expense, and it is this tower which gives most expression to the design. The main portion of the building is six stories above basement. and has a very high pitched roof, in which the sixth story is formed. The roof over the shop is flat, and hardly harmonizes with that of the main building. Query—Is a restaurant in basement an advantage or otherwise in a building such as this would be?

"DOMINION."—Sends required number of drawings. The buildings are distinct. The main office fronts on Richmond and Victoria streets, entrance to basement from street level. The main office is well situated for light, but the arrangement of the vaults and window openings would not make a good feature, and the breaks also in this room are not pleasing. There appears to be a want of sufficient light in the hall, which depends in a great measure upon a skylight sixty-five feet above the ground-floor ceiling. In the basement corridor there would be a great want of light. The elevations are neat and substantial. The two entrances to main building might have been varied somewhat in treatment with advantage, by giving more importance to the one leading into the Association's own offices.

"INTEREST."—Submits one elevation only, and no perspective view, and has consequently not carried out the "Instructions" given to competitors. A considerable portion of the frontage on Richmond and Victoria streets is taken up by subsidiary offices. For the reason given above, namely, neglect to comply with instructions, this design is disqualified.

"TWO CIRCLES, ONE WITHIN THE OTHER."—Submits a considerable number of plans, original and alternative ones, but has not completed the perspective drawing, it being unfinished and partially only in pencil, and thus fails to carry out the "Instructions." In the original plan, the arrangement of the main office is not at all in keeping with the requirements of the Association, being cut up into separate portions wanting in light and accessibility. The basement is below ground. The alternative plan of the Association's offices is better in arrangement than the above, but is not satisfactory, and the elevations have no special features denoting the purposes for which the buildings are intended.

"A GOOD INVESTMENT."—Submits a number of drawings, among them three "alternative elevations" two plans, and part of a skeleton section. These alternative drawings are not sent in as required by the "Instructions," viz., bearing a different motto or cypher, and there is no finished perspective. No complete section is furnished in either case. In the first original set, part sections through main offices and hall, are only given. The buildings are distinct on the basement and ground floors, above that the offices are carried over the shops. The general office is lighted from the lane in rear by a skylight in ceiling, which also lights the public corridor. Staircase on ground floor would be dark. The greater portion of the street frontages is taken up by typewriters, lunch and other rooms. For reasons given above, alternative plans and elevations cannot be entertained, and for want of proper sections and perspective the original design becomes disqualified.

"1890."—Submits plans and sections, two elevations (Richmond and Victoria streets—none for Yonge street), and perspective. Also two alternative elevations on Richmond street, over the same motto, without the drawings which should accompany them, as requested by the "Instructions" in such cases. The latter therefore cannot be considered as being in the competition. In the original or first design. the buildings are distinct. Basement four steps down from the street level. The main office is lighted from the lane in rear. The Secretary's office is too large, and does not face on the space for the public, and the Manager has no retiring room. The typewriters and two lavatories occupy a considerable portion of Victoria street front. The lavatory for clerks is not well placed, being between the main office and the Actuarial Department. Elevations are plain, basement and ground floors of stone, above them brick and terra cotta and stone dressings. The entrance from Richmond street is bold and well-proportioned.

"C. L. A."—Submits the required drawings, excepting a cross or transverse section. The buildings are distinct in basement and on ground floor only. Offices are carried over the shop on all the upper floors. The main office is in the centre of the block, having large banking or other offices between the portion to be occupied by the Association and Victoria street. The main or general office would be lighted from a yard or space in the rear which is widened to twenty-one feet including the lane. The Manager has no retiring room and his private entrance is likely to be somewhat dark, as would also be the storeroom adjoining. The Secretary's office does not face on the space for the public as desired. The offices in basement, with one exception, are cut off from the elevators, and they are three feet six inches below the street level. As regards the elevations, they are very effective. The tower which is a prominent feature in the design, gives a great deal of character to the edifice, but would be an expensive item. If dispensed with, the want of it would materially diminish the attractiveness of the design. Sufficient thickness of walls to sustain a tower one hundred and eighty feet in height to the cornice does not appear to have been calculated upon in preparing the plans, but this would of course be looked to by the architect in carrying out his work. The space occupied by the building, the style of the work externally, and the carrying out of the tower as contemplated, would possibly make the building exceed materially the sum named in the instructions.

I am, very respectfully,

Your obedient servant,

(Signed) JOHN WM. HOPKINS,
Architect.

## ART INSTRUCTION.

Editor CANADIAN ARCHITECT AND BUILDER.

THE Toronto Art School is again making an effort to impress the public with its very great value to the community. Its President is out with a statement of what they propose to do, all of which is proper and to the point. But the truth is that it is much easier to impress the public as to what should be taught than to teach it. The school has affirmed that art should be taught, with which we agree, but then the school will persist—we suppose in its ignorance—in not teaching art, and subsequently it finds it necessary to make strong appeals for assistance. If the school was making any attempt to fulfil its professed mission, persons interested in art would be only too glad to render any assistance in their power. Instead of doing good, however, it is doing much real harm; for it is turning out students with the crudest ideas of art, and an overwhelming amount of conceit. Only those schools which teach painting in a certain number of lessons can compete with it with any hope of success in the turning out of artists according to rule.

It is now time that this school should be taken out of the hands of its incompetent directors and placed under a management capable of directing its powers aright. This must be done, or an effort made by those who would like to see art taught, to establish an art school which would really impart art instruction.

Yours truly,

LOVER OF ART.

## HOW TO ESTIMATE.

BY "CATO."

IN estimating the cost of labor in masonry, measure the length of the entire wall outside. The corners will be measured twice, but the extra cost of building them, in bonding, etc., counterbalances this gain. Make no allowance for doors and windows in figuring for labor, unless it be specially mentioned by the architect, in which case it is usual to allow one-half the space actually required; but in estimating material, allow for all, viz., doors, windows and corners, as it may make a serious difference in the quantity, if there be many openings. Add whatever additional cost may be incurred for pointing, laying in cement, or any other special work which the specification may call for. Ascertain from the quarry, if it be convenient before figuring up, how much stone will constitute a perch and its cost per cubic yard, perch or foot, and add the 2.75 cubic feet for mortar and filling.

Special work will of course demand a special price, therefore, care must be taken and a thorough examination made of the specification and details, so that the work may be understood to the letter, and its actual labor and material figured on. For example; rubble masonry in foundations will cost approximately from 17 to 20 cents per cubic foot, according to the thickness of the wall, whereas the same wall built of large stone with the joints vertical, oblique and horizontal, filling close, will cost nearly twice as much. The design and manner ought then to be well studied, and a price sufficient to cover its cost, with the added margin of profit put upon it.

Estimates of stonework of gables, can be readily computed by treating them as triangles and, after finding the area, which is done as before by multiplying the base by half its altitude, or really the width of the house or bay by the rise of the roof, and the result by the thickness for number of cubic feet it contains, deducting all the contents of all windows or openings if there be any, for material. Some builders figure up gables as square, which is a sure plan, as the extra time consumed in forming the gable compensates for the gain in material.

The cost of ordinary brick lintels is covered by the material gained from the opening, but if spanned by stone or brick arches, a price per cubic foot must be computed by finding the content of the arch. A fair price would be from 35 to 40 cents for rough finished faces and pointed joints; if faced stones, to be paid for extra.

An important item in openings which must be allowed for, is the centering, which takes both time and material to make a set level. About 5% of the cost should be added.

Ashler veneering can be figured by the superficial foot, with an extra price for all door jambs, window mullions, columns and caps. Pedestal bases, steps, lintels, etc., can be figured separately or a door and stoops complete; windows complete. It is usual, where there are many, to figure up the cost of one and multiply it by the entire number to be constructed for an average price, adding the extra cost of any detail on which one or two may differ from the rest.

In regard to prices, it would be obviously impossible to give even an approximate one for all the different details and designs, but if any inexperienced estimator be called upon to figure on stone work, let him obtain some, or better still, several stone contractors' prices for working material and selling, and then add his percentage of profit.

There are more applicants desiring to attend the plumbing class in connection with the technical instruction provided under the auspices of the Council of Arts and Manufacturers of Quebec, than can be accommodated.

To make a good paint for shingle roofs that can be applied cold and drys quickly: Take one barrel of coal tar, ten pounds of asphaltum, ten pounds of ground slale; mix by the aid of heat and add two gallons of dead oil.

## HAMILTON.

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

TAKING a review of building matters for the past season, the "Ambitious City" can compare favorably with former years. There has not, of course, been the great rush of works that characterized former years, but we have had several large buildings erected which gave employment to a considerable number of workmen, besides a number of private villa residences of which you have been notified from time to time.

Our new City Hall is now finished. Its internal arrangement is said to be very good, and considering the cost of the building, the exterior has a very imposing appearance indeed, and reflects credit on the designer, with the exception of the steps, which evidently detract from the general effect.

Our Y. M. C. A. building on James Street is also completed. It is a large plain brick building, without any effort at exterior decoration, but the interior is judiciously arranged.

The new Free Library building is in course of erection, and promises to be a very fine building when finished.

The large new school on Queen Street is a brick building with cut stone dressing and pointed arches, and is a very substantial, well-finished piece of work. There is also a new school just completed on Wentworth street, similar in character and design to the one on Queen street.

The Court House in Prince Square is having new stone steps to the front entrance in place of the old ricketty step that were originally built, but it is feared that the new steps when finished, will not in appearance at least, give the satisfaction expected. There will be an easier ascent, but the style and effect will be wanting, for like the old steps the new ones will not have rounded nosings on the tread, which would give a massive and finished appearance to them. Neither in this case nor in that of the new city hall steps was the style of step approved of by the designers, for reasons no doubt known to themselves although not to others. We have had material changes and alterations made by the architect in the audience floor or court room, with the idea of improving the acoustic properties, but without any other effect than that of making bad worse. Sooner or later, however, the work must be properly and effectually done, for at present it is impossible even to hear the judge address the jury, so badly is the room arranged for the purpose required.

The new Presbyterian Church on King and Emerald streets, is now ready for roofing. It will evidently be a neat and well designed building when completed.

## QUEBEC.

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

THE widening of St. John street (within the walls) is now well advanced. With three exceptions, all the buildings have been either demolished or the fronts have been set back. It is to be regretted that in some instances in which the old buildings have been remodelled, owing to the lowness of the stories and shallowness of the buildings, the results have been far from pleasing; in others, where the buildings have been of rather more modern build, more satisfactory results have been obtained. Of entirely new buildings, only seven have been erected; they are as follows: Geo. T. Phillips, two stores and dwellings, 53 ft. front, to cost about $9,000, architect, H. Staveley, contractors, C. Cote & Co. for the masonry, A. Cummings carpenter; S. J. Shaw, store and dwelling, 30 ft. front, to cost about $6,000, same architect as above and same mason, John Hatch, carpenter; Savings' Bank, store and dwelling, 22 ft. front, to cost about $6,000, J. F. Peachey, architect, L. Larose, mason, and F. DeVarennes, carpenter. All the foregoing have plate glass shop fronts, upper stories of Deschambault cut stone, with molded caps, strings, carved capitals, &c. Ursuline Ladies, one store and two dwellings, 30 ft. front, plate glass shop front, and pressed red brick with stone trimmings, will cost about $7,000. F. X. Berlinguet, architect, T. Pampalon and E. Matte, contractors. Joseph Dynes, one store and dwelling, 40 feet front, white brick with stone trimmings to cost $7,000, H. Stavely architect, A. Cummings, contractor. D. Ouellet, two stores and dwellings, 35 ft. front, red brick, painted and blocked off to represent stone, plate glass front to shops, to cost about $8,000, D. Ouellet, architect. R. H. McGreevy, two stores and dwellings, plate glass fronts, upper stories of pressed red brick with pilasters of same dividing under frieze into two smaller pilasters, each capped with carved stone capitals, will cost about $9,000; architect, H. Staveley, contractors, L. Larose and W. J. Peters.

As an outcome of the widening of St. John street it may be mentioned that the well-known photographer, Mr. J. E. Livernois, being obliged to vacate the premises he formerly occupied, purchased from the Heirs McClure the extensive property at the junction of St. John Fabrique and Garneau streets, at one time known as Dexter's Hotel, which has been transformed into a model photographic establishment. The lower story of the main building is to be used as a salesroom for photographic and artists' materials, and frames for pictures. A handsome recessed portico, with broad stone steps, upon which rest enriched iron columns to carry the front wall above, gives entrance to this room. The woodwork, cherry stained, with decorated walls and ceiling, and floor of black walnut and brick, with an elegant staircase leading to the *salon* on the second story, make up a very handsome apartment. A room of corresponding size, handsomely decorated, forms the *salon* from which opens dressing rooms. Passing these the gallery is reached, having a splendid north light located in the wing. Other rooms also in the wing serve the various purposes required by a photographer, viz., dark room, solar room, printing room, negative room, bath room, &c. Returning to the main building, and mounting to the third story, are found the artists' rooms, where coloring and other processes are carried on. The business room of the proprietor is also on this flat. The whole work has been done by day's work, F. DeVarennes and T. Pampalon, having charge of the carpentering and masonry respectively, with Mr. B. Leonard as painter and decorator, and Z. Vandez, heating apparatus and sanitary arrangements. Stained glass from Spence & Sons, of Montreal, and engraved glass from Elliot & Son, Toronto. Mr. H. Staveley, architect, designed and superintended the various works; Mr. Livernois having spared no expense, has succeeded in securing an establishment that is admirable in every way for his purposes.

## MONTREAL.

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

SEVERAL letters have of late been published in our local papers claiming that our builders amass wealth too rapidly in Montreal. This is rather too broad a statement, as I think an investigation would prove that it is the exception to find them possessed of more than their share of this world's goods. True some few have "struck oil" as the saying is, and are now considered fairly well of; but why growl? Why attack the honest mechanic who earns his bread by the sweat of his brow? Why not as well say our merchants are getting too rich, therefore they must charge too much for their merchandise? Why single out the builder from the rest of the community? Look how the brewers and tavern keepers make money; in their case it is the exception to find a poor one! yet no one raises a cry. It is only when a contractor or two has been successful, that some envious "land grabber" or speculator, in all probability, finds fault because he wishes to build at his own prices and pocket the proceeds. There is one thing at least that we can boast of, and that is, as a rule our buildings are substantial, even if they do cost a trifle more than in the States.

### CITY HALL NOTES.

Under this head recently I mentioned the granting leave of absence and bonuses to city employees. We are now reaping the fruits, as will be seen by the following extract from the *Star*: "The Road Department is one of those things that no fellow can understand. The acting chairman, Alderman Wilson, says he has been away for the summer, so he does not pretend to understand it. Alderman Dubuc, on the other hand, says he has not been away at all, and yet he does not understand it either. All that the general public know about the Department is that it costs about a quarter of a millon dollars a year; that it has never got any money when improvements are asked for; but that notwithstanding this fact it manages to block the main thoroughfares of the city for the best part of the year. Somebody has been spending the department's last cent and plunging it into debt, and nobody seems to know who did the deed or who authorized it. The Road Committee asks for a special appropriation of $4,500 to remove the greenhouses from Viger gardens to Logan's farm and the Finance Committee refuses to grant the money. Thereupon somebody assumes the responsibility of getting the work done and leaves to the Road Committee the responsibility of paying for it. The situation is further complicated by the fact that the Road Committee whether willing to pay or not has not got the money. The work was done when Mr. St. George was away on vacation and Mr. Lavelle was in charge. Now explanations are in order, but, unfortunately, Mr. Lavalle is away on vacation. There is no place where the city's by-laws and regulations are so set at defiance as in the City Hall."

### CANADIAN SOCIETY OF CIVIL ENGINEERS.

At the first meeting of the season, a paper was read on "Bridge Calculations." At the November meeting we are promised a paper by Mr. S. Keefer, M. C. Soc., on the Cornwall Canal, which, owing to recent breaks, etc., will probably be one of the most interesting papers of the session.

### FLOOD PROTECTION AND HARBOR IMPROVEMENTS.

This question is daily becoming an important one for Montreal, because, 1st, we must be protected from spring and fall floods; 2nd, our increasing trade demands increased wharf accomodation; 3rd, ratepayers are shortly to be called upon to vote a million of money as the city's share of the undertaking. It would take more time and space than I have at my disposal to give even a synopsis of the various schemes suggested, without commenting thereon. The question is too important and involves too many engineering difficulties to be treated in an offhanded way. So far the public have hardly sufficient light upon the proposed improvements to be able to even vote intelligently on the by-law to raise a million dollars, which they will be shortly called upon to do. As I understand it, there has been a sort of a combination between our City Council and a Committee of the Harbor Commissioners to consider the proposed improvements, and at a meeting held on the 14th June, 1888, it was resolved:—

That it appears expedient in the interest of the city and harbor of Montreal that there should be joint action in plans covering the following improvements: 1. An elevation of the front of the city, securing the city from flood inundations. 2. A sufficiently commodious street, enlarging the present Commissioners street. 3. A plan of harbor improvements specific in detail, in so far as it may connect with the city improvements above referred to. 4. The appointment of the City and Harbor Engineers to furnish plans providing for above improvements, make estimates of

probable cost, and so far as practicable the proportion of total cost that should be assumed by the city and harbor respectively.

In accordance with these resolutions, the city and harbor engineers have, I understand, examined into six schemes with this end in view, the cost ranging from $4,624,755 to $2,827,894. The scheme they have recommended for adoption is known as No. 6, at a cost of about $3,000,000. It contemplates the widening of Commissioners and Common streets to about 75 feet east of St. Peter street, by taking up a portion of the harbor property, and to the same width west of McGill street, by expropriating private property between St. Peter street and McGill street, where a restricted width of the wharf would not allow of widening on that side, and value of the building and property owned by private individuals on the city side would make it too cos ly to attempt. Therefore, the present width is retained. It is proposed to raise the wharves to Commissioners street level, so as to abolish the ramps, and the city is to be protected from flood by a parapet wall, with openings and moveable gates. By this means, Commissioners street would at its narrowest width be 75 feet and would average nearly 90 feet. The estimated cost of the scheme is :

| | |
|---|---|
| For works - - - | $2,739,372 |
| For Land and Buildings - - | 88,522 |
| Total - | $2,827,894 |
| Of this the city's portion would be - | 708,428 |
| and the harbour's portion would be | 2,119,466 |
| Total - | $2,827,894 |

The report says that scheme No. 6 answers all necessary conditions, and in proportion to its cost it better suits the combined interests of the harbour and city than any other scheme of which they have any knowledge, and they therefore recommend the adoption of its nain features with a view of its being carried out at such rate as circumstances may warrant. This plan was adopted by the Council of the Board of Trade on the 4th May, 1889.

Yesterday afternoon the City Suryeyor at a meeting of the inundation Committee, reported on three alternative schemes for access to the wharf in connection with the harbour improvements and flood protection schemes.

No. 1 is for a tunnel from Craig Street, end of St. Denis Street to Water Street, also including the construction of ramps at Barclay and Gale Sreets, at a cost of $400,000.

Scheme No. 2 is a tunnel from Craig Street under Champ de Mars to a point at or near the Nelson Monument, and then an open cutting as far as le Roger and another tunnel to St. Paul Street including ramps at Barclay and Gale Streets, at a cost of $230,000.

No. 3 is a tunnel from Craig Street under Brock Street right down to the wharf level, and a ramp at Gale Street, at a cost of $186,000.

Mr. St. George prefers the last scheme as being most economical and useful. No. 1 he considered extravagant and unsatisfactory, as it only leads to Walter Street and not to the wharves. No. 2 would destroy the market place on Jacques Cartier square, and is not the situation where the entrance for heavy traffic is needed, the manufactories being all far to the west or east of that side. No. 3 he recommends as embracing all these points and much cheaper than either of the other schemes.

I understand that in the near future "blue prints" of the proposed improvements will be prepared for the use of the City Counsellors and their friends, and I will probably be able to obtain one.

## PROPER PREPARATION OF CLAY.

THE thorough preparation of clay is, for any variety of brick a most essential consideration, says the *Brickmaker*. In order to produce a brick of the first quality, with good surfaces, sharp and clean arrises and one that will have sufficient density, and a clear, metallic ring, there must be thorough disintegration and complete amalgamation of all the clayey particles. In the near future the proper working of clay, its thorough tempering and preparation will be regarded as of as much importance as is now the manipulation and mixture of ores for the production of iron and steel. There has been a great deal said in times just past against the method of manufacturing brick by the semi-dry process, but in the majority of instances where this method has been employed and found to yield unsatisfactory results, the principal cause for this lack of success will usually be found in the improper grinding and mixing and other essential details relating to the preparation of crude clay.

If it is desired to produce a superior quality of hand made or machine made brick, the clay should be made smooth by proper preparation and thorough tempering. If this is left to the judgment of careless employees the work is usually slighted and the proprietor of the yards should see for himself that the clay is prepared as it should be.

When clays are not properly ground the dry lumps of the material imbedded in the body of the brick cause it to break or crack in many places, and this is of itself indisputable evidence of improper preparation of the clay from which the brick was made. When the clay to be utilized is of a bluish variety, lumpy, rough and difficult to soak, it will amply pay any manufacturer to use a suitable crusher for the reduction of the clay, as otherwise the bricks, although strong, will be rough in appearance and often not marketable at remunerative prices.

# MANUFACTURES AND MATERIALS

## NOTES ON TIMBER FOR BUILDING PURPOSES.

THE White Pine (*pinus strobus*) is the most useful of all the pine family and forms our staple in carpenters' work, and we apply it to all the purposes to which "Northern" pine is put in Europe. White pine is a native of Canada and stands well its native air, but in England where it is imported under the name of "Yellow pine," it is not so durable, being affected by the damp of the atmosphere. The wood is light, soft, remarkably free from knots, easily worked, and may be recognized by the minute elongated dark specks, when planed, which run over the surface in the direction of the grain. It can be obtained in logs 14″ to 26″ square, and from 18 ft. to 40 ft. in length; also in deals 2″ to 3″ thick, 24″ wide, and from 10 ft. to 20 ft. long.

Canadian Red pine (*p. rubra*) is a variety of the Northern pine, grown so extensively in Norway, Sweden, Russia and Prussia, and used chiefly in Europe, but it is superior to it, having less sap and few knots, and it is not so apt to shrink or warp in seasoning.

Canadian yellow pine (*p. mitris*) is inferior to the red but similar to it.

Tamarack, or American Black Larch (*pinus pendula*) is one of the pine tribe, but of a harder and much more durable nature than the foregoing pines. It is especially suited for situations exposed to the weather, for floors and stair cases where there is much wear, and when oiled and rubbed, has a very fine, rich light yellow colour, or sometimes a brownish white. It warps much as it seasons, but stands well when thoroughly seasoned. The white kind is more common than the darker. The tree grows to a mean size of 45 ft. high and 33″ in diameter. It is considerably stronger than oak though not so strong as teak.

Teak (*tectora grandis*) is one of the most useful of timbers. It comes chiefly from Burmah and Pegu but also from Siam and Java. It is a large tree, often growing to 100 ft. high and 10 ft. circumference. The wood is rather variable in appearance, depending much upon the climate of the locality in which it has grown; the color varies from a brownish yellow to a deep brown, the grain is clean and straight, it is easily worked and shrinks little in seasoning, but owing to a liability of its fibres to separate in a longitudinal direction, it has to be worked with care. Teak is very durable in all situations. It does not corrode iron as oak does and it is suitable for any purpose.

Oak. There are several kinds of oak in the market. American Whte Oak (*quercus alba.*) British oak of two or three different kinds, Baltic Oak from Dantzic, Memel and Stettin, "Clapboard" from Norway, and "Dutch wainscot" from Holland. British oak (*quercus pedunculata*) is one of the strongest and most durable of European woods. Its place has of recent years, however, been taken by the pines and firs for general timber construction, owing to its scarcity and cost. The wood of a slightly reddish tinge, is comparatively free from knots; the grain is free and the large medullary rays numerous. It can be procured in logs from 9″ square and 10 ft. long to 20″ square and 26 ft. long—the larger sizes, however, are more difficult to procure.

Another species from England is the Sessile printed oak (*Q. sessiliflora*) and although the wood is somewhat softer when young, it is nearly if not quite equal to the quercus pedunculata. Its colour is darker and more uniform, the grain less varied and the larger medullary rays are not so abundant. When old the gloss and smoothness of the grain makes it appear like chesnut. It is liable to warp and become shakey in seasoning but it is very tough and difficult to split into lathes and pales.

Baltic oak is inferior to British, and is distinguished from it by the comparative straightness of the grain and freedom from knots. It is close and compact in grain, although rather short, the Memel variety is finer in grain than the Dantzic. Logs are from 10″ to 16″ square, and from 18 ft. to 30 ft. long. Planks vary from 2″ to 8″ thick, 9 inches to 15 inches wide, and 24 ft. to 35 ft. long.

Oak under the name of "Clapboard" comes from Norway and from Holland under the name of "Wainscot. The latter may be distinguished by the absence of white streaks which cover the surface of the "Clapboard" in all directions. These two kinds are less liable to warp and split when cut thin than English oak. They are, however, very much softer, and in other respects inferior to it.

The American white oak is very tough and pliable, straighter in the grain than British oak, but inferior to it in durability. The sizes obtainable are logs 12 inches to 24 inches square and 25 ft. to 40 ft. long. The colour of the wood is a whitish brown.

All oaks shrink more or less in seasoning and in fact every time oak is planed it will shrink, but the white oak shrinks less than any kind, and almost without splitting, and is therefore considered best for constructive purposes.

Oak should not be placed in contact with iron, as it leads to the decay of both materials.

Chesnut (*castanea vesca*) flourishes in sandy soils and is found in most parts of England, America (North) and Africa. The wood resembles oak n appearance, but it has not the large and distinct medullary rays. The

annual rings are very distinct. It is a tree of slow growth, and there is no sap-wood. Its colour is dark brown. The chesnut is very durable, more easily worked than oak, and does not shrink or swell so much. The young wood is hard and flexible and the old wood brittle.

Ash (*fraxinus excelsior*) is grown in America, Asia and Great Britain. Its colour is brownish-white, with longitudinal yellow streaks. Each annual ring is separated from the next by a ring of pores, the wood is heavy and weathers well, and is free from sap and shakes. It is seldom used for beams that have to support weight, because when young the pores are often broken, which can not be discovered until the wood is converted or cut up.

Common Acacia or American Locust Tree (*Robinia pseudo-acacia*) is a native of the mountains of North America, the wood is very durable and is to be obtained of the average sizes 32 feet long and 23 inches diameter. Some of the houses built by the first settlers of this wood are still standing firm and sound. It is suitable to all purposes to which oak is put, and requires about the same amount of labor as ash. For pales and posts there is no better wood. Its colour is greenish, with a slight tinge of red.

Of cedar there are many kinds, and there are other trees somewhat similar that are called by the same name. The cedar tree or the white cedar of America (*Juniperus*,) the Bermudian cedar (*Juniperus Bermudiana*) from Bermuda, and the Bahama Islands, and the Red cedar (*Juuiperus Virginiana.*) The cedar is a durable wood resinous and emits a strong smell. It is straight grained and easily worked. All these kinds are suitable to building purposes. The cedar of Lebanon or Great Cedar (*pinus cedrus*) is a tree of great size, the trunk being often 39 inches in diameter. It is very durable and its general colour is a rich light yellowish brown. The annual rays are distinct, each ring consisting of two parts, the one part being darker and harder than the other.

Poplar (*populus*). The poplar is a tree of which there are many species. The Black poplar and the Common White are the most esteemed. It is a native of England, where it grows to a great height, with straight trunk and branches more like twigs than boughs. It requires two years seasoning, but when dry is tolerably durable and not liable to shrink or swell. The annual rings are a little darker on one side than on the other. Its colour is yellowish or brownish-white. It is a useful wood, light, soft, and easily worked and carved. It is only indented, not splintered by a blow.

Mahogany (*swietenia mahogani*) a well-known wood, principally used for interior fittings and furniture. The tree is often found with a solid trunk, 40 feet high and 6 feet diameter.

Spanish mahogany comes from Cuba and other islands in the West Indies. "Honduras" mahogany from Mexico, the Bay of Honduras and from Brazil. Mahagony is very durable when kept dry, but will not stand exposure to the weather. The wood is tough, shrinks and warps less than most other timbers. "Spanish" is the hardest, most beautiful in grain and of the darkest colours. "Honduras" is usually softer and lighter in colour. The wood is tough, strong and flexible, but brittle when dry. Mahogany is known in the market under various names suggestive of the appearance of the vein formations, such as "plain" "veiny" "watered" "velvet cowl" "birds eye" and "festooned." Logs are usually from 11 inches to 24 inches square, and from 18 feet to 35 feet long, except those from St. Domingo, which are seldom more than 10 feet long and 13 inches square. Occasionally logs of even greater sizes are to be had.

Beech (*fagus syvatica*) and Elm (*ulnus campestris*) are not generally used in building except for piles. Both are very durable when dry, or if kept constantly wet, but when exposed to changes do not last long.

Walnut (*juglans regia*) is a native of Persia and the north of China. The wood is very beautiful and its color superior to the red brown of mahogany. It is too flexible for use in the form of beams, besides being costly owing to its scarcity, but it is durable and admirably adapted to interior fittings. White Walnut or Hickory (*juglans alba*) is a North American tree often growing to a diameter of three feet, and very tough and flexible. Black Virginian Walnut, (*juglans niger*) found principally in Pennsylvania and Florida, is a large tree, and for interior fittings and furniture is the most valuable of walnuts. Its grain is fine and beautifully veined, and it takes an excellent polish. The heart wood is greyish brown, with dark brown pores, often much veined, and the sap wood is greyish white. The texture is not so uniform as mahogany, the pores being more thickly set on the one side than on the other of the annual ring. It is not so easily worked, but it shrinks very little.

Butternut (*juglans cuierea*) is one of the walnuts, growing to a height of from 30 feet to 35 feet. Its characteristics are similar to those of the black walnut, but its colour is a pale yellow, and it is beautifully marked. Its principal use is for internal fittings.

White fir or spruce of Canada (*abies alba*) is a variety of fir which grows in the same regions of Europe as the red pine. New Brunswick fir is somewhat inferior to the fir of the rest of Canada. The Canadian fir is less resinous than the European, nor is it so durable. It is more liable to twist in seasoning, but it is tougher and lighter in weight than the other.

It is obtained in deals 2 inches thick, 7 inches to 11 inches wide, and from 8 feet to 21 feet long.

Pitch pine (*pinus rigida.*) The best pitch pine comes from the Southern States of North America, chiefly from the ports of Savannah, Darien and Pensacola. The wood has a reddish white or brown colour; annual rings are wide, strongly marked, and form beautiful figures when the wood is dressed and varnished. It is very resinous which makes it extremely durable. It is hard, heavy, very strong, free from knots, and contains a large proportion of sapwood. It is subject to heart and cup shake, and soon rots in a moist atmosphere. The wood is brittle when dry, and its elasticity, strength and durability, are often reduced by the practice of "bleeding," or tapping the tree for the sake of the turpentine it contains. It is too full of resin to take paint well, but varnishing suits it. Pitch pine is used for the heaviest timber structures in engineering works where great strength and durability are required. Ship builders use it for deep planks, and for carpenters' and joiners' work it is admirably suited. For floors and steps it is very durable.

The following table represents the strength, stiffness and toughness of varlous woods, taking oak as the standard at 100.

| Wood. | Strength | Stiffness | Toughness |
|---|---|---|---|
| Oak | 100 | 100 | 100 |
| Chesnut | 68 | 54 | 85 |
| Elm | 82 | 78 | 86 |
| Acacia | 95 | 98 | 92 |
| Spanish Mahogany | 67 | 73 | 61 |
| Honduras Mahagony | 96 | 93 | 99 |
| Common Walnut | 74 | 49 | 111 |
| Teak | 109 | 126 | 94 |
| Poplar (*great white*) | 86 | 66 | 102 |
| Lombardy Poplar | 50 | 44 | 57 |
| Cedar of Lebanon | 62 | 28 | 137 |
| Christiana Deal | 104 | 104 | 104 |
| American White Spruce | 86 | 72 | 102 |
| British grown Norway Spruce | 70 | 81 | 60 |
| Tamarack or Larch | 103 | 79 | 134 |

## PERSONALS.

Mr. Geo. W. Gouinlock, of the firm of King & Gouinlock, architects, Toronto, was married on Oct. 10th to Miss Georgie Watson, of Paris, Ont.

We are informed that it is the intention of Messrs. James & James, architects of the new Toronto Board of Trade Building, to open an office in that city at the beginning of the New Year.

To make a good water stain to imitate walnut, that will not cost too much, take of burnt umber 2 parts, rose pink 1 part, glue 1 part, water sufficient; heat all together and dissolve completely. Apply to the work first with a sponge, then go over it with a brush, and varnish over with shellac.



Terra cotta ware that is broken upon a slant, either outward or inward, can be mended by roughing the broken surfaces with a chisel or hammer, then placing the pieces together and pointing them with a mixture made of 20 parts clean river sand, 2 parts litharge and 1 of lime, made into a thin putty with licseed oil. If the terra cotta is very red, the putty can be colored with Venetian red. If other colors are desired, yellow ocher or Spanish brown will give the desired shade. Two pieces of stone, brick or similar material can be united with this cement. Sometimes it is used for covering the outside of brick buildings to make them look like stone of different kinds. Used for this purpose the cement is called mastic.

## CONTRACTS

WINNIPEG.—The Y. M. C. A. will erect a new building, to cost about $20,000.

NORTH BAY, ONT.—The C. P. R. is about to erect a new station, to cost $9,000.

OTTAWA, ONT.—Important additions and improvements are to be made to the Supreme Court building.

KINGSTON, ONT.—It is proposed to expend $25,000 in further extending the city water mains.

INGERSOLL, ONT.—It is reported that Mr. James Brady has decided to erect a first-class hotel here.

WEST TORONTO JUNCTION.—The sum of $25,000 has been voted for the extension of the water mains.

BRANTFORD, ONT.—The Council has engaged Mr. Chipman, of Brockville to report on the best system of sewage disposal.

COATICOOK, QUE.—The Coaticook Water Power Co. proposes to construct reservoirs at the head waters of the Coaticook river.

QUEBEC.—A cable despatch has been received stating that a syndicate of English bankers has been formed to build a bridge over the St. Lawrence at Quebec, and also a railroad on the north shore of Quebec to the Straits of Belle Isle.

LONDON, ONT.—The Council will probably act upon the recommendation of the Local Board of Health to extend the water mains to all the streets of the city.—London South is considering the question of construct- a system of water-works.

MONTREAL, QUE.—Steps are being taken to raise $100,000 for the erection of a Masonic temple.—The Superintendent of the Water Department reports that the breast wheel and its three pumps, and the three pumps of No. 3 wheel at the low-level pumping works will need renewing this winter.

TORONTO, ONT —The congregation of the Church of Christ will erect a new edifice on Cecil St., near Spadina Ave.—A building is to be erected for the use of the Young Women's Christian Guild, at an estimated cost of $15,000. Mr. W. H. Howland can give particulars.—The following building permits have been issued from the office of the City Commissioner since the date of our last issue: Alf. James, 1 storey bk. dye house, 135 Richmond street W., cost $1,100; Mrs. S. R. Grand, 2 storey bk. addition and alterations, Bay and Adelaide streets, cost $3,000; Mr. Beckett, three att. 2 storey and attic bk. dwellings, 524 Ontario St., cost $6,900; Corporation of Toronto, bk. tower, College St. fire hall, cost $2,500; John Clarke, alterations Gerrard and Ontario Sts., cost $1,000; Dr. A. A. Abbott, 3 storey bk. addition, 25 Melinda St., cost $2,000; Allan C. Thompson, alterations and additions, 13 Jordan St., cost $6,000; H. Staines, bk. blacksmith shop and alterations, Sheppard St., cost $1,500; Trustees Congregational Church, bk. church, Hazleton Ave. and Scollard St., cost $30,000; W. C. Price, 2 storey bk. store and 2 storey bk. stables, W. side Claremont St., cost $7,000; Land Security Co., two 2 storey bk. stores, Queen, nr. Simcoe St., cost $5,500; School of Practical Science, 4 storey bk. addition, cost $3,500.

## PROPER SIZE OF PIPE FOR GREENHOUSE HEATING.

J. D. CARMODY of Evansville, Ind., has published a treatise on heating of Green Houses by the hot water system, illustrated with engravings, in which are full directions how to locate the pipes, put them together, make the joints, mend leaks, and all necessary instructions. From this treatise we quote some useful instructions on the proper size of pipe for green house heating, in which the advantages and disadvantages of large and small pipe are considered.

Large pipe, say 4-inch, commonly used in connection with water heating, contains a large quantity of water, (about one gallon to the foot,) and for a line of 1,000 feet or more, it will require a long time to heat, but it possesses the corresponding advantage of retaining heat much longer after the fire dies out. Two inch pipe has one-half the heating surface of 4-inch pipe, but it holds only ¼ the amount of water contained in the same length of 4-inch pipe; consequently the same fire in the same sized boiler will heat the water in ¼ the time, or will impart 4 times the heat in the same time where 2-inch pipe is used instead of 4-inch.

It will not be necessary to have double the amount of 2-inch pipe when used instead of 4-inch, because the water being decreased in quantity, will be much hotter. To substitute 2-inch pipe for 4-inch, add one-half to the length required of 4-inch.

EXAMPLE:—If you require 1,000 feet 4-inch pipe to heat a house you will need 1,500 feet of 2-inch for the same purpose. The use of 2-inch pipe results in economy of fuel, but as small pipe cools off quicker closer attention must be paid to the fire.

One advantage in favor of wrought 2-inch pipe is, it can be put in at less expense, and is stronger than the cast iron 4-inch pipe.

Where the pressure system is used, wrought iron pipe only will be safe; the size may be from 1-inch to 2 inches, according to locality.

The drawback in the use of wrought pipe by florists, who generally put in their own pipe, is the cutting and threading; this requires expensive tools that only pipe fitters have, while cast pipe can be put in by common labor, if printed directions are followed.

## THE ABILITY OF ARCHITECTS TO ESTIMATE.

A SUBJECT that will be of mutual interest and advantage to architect, contractor and proprietor, will undoubtedly prove acceptable in the columns of the CANADIAN ARCHITECT AND BUILDER. I would therefore respectfully submit the following suggestions and remarks, hoping that they will be received in the spirit in which they are given.

The attention of the public is continually being drawn to the wide discrepancy between the architect's estimate of a proposed building and that ascertained by the contractor's tenders, and in many instances it would seem that the architect in stating such probable cost had really made no estimate at all, or else had hesitated in giving what his skill and experience justified his client in expecting from him. A very striking instance of this is shown in the late competition for the new Library Building in the City of Hamilton as set forth in the September number of the CANADIAN ARCHITECT AND BUILDER. The appropriation for the erection of the building was placed at $20,000, but when the contractors' tenders were received, the figures showed the cost to exceed the architect's estimate by $13,000. This was certainly a very great discrepancy, but by no means an unusual one—so much so, that most clients in having designs prepared for a new style of building place a very modest reliance on the architect's idea of the actual cost of the building when erected according to the plans he is instructed to prepare, and conclude that as the tenders may be much higher than he desires, he will notify the contractors that he is not bound to accept any of the tenders. In such cases the loss of time and money falls on the contractors estimating for the work.

This state of things is all radically wrong, and should not be. An architect is presumed to be, and it is only right that he should be, competent to measure up the different branches of work required in the erection of a proposed building after his plans and specifications are *merely outlined*, and then from his ascertained knowledge of material and labor, make up a fair average estimate of the cost when finished, and submit the same to his client. The latter could then readily make any necessary alterations, and save disappointment and the expense of preparing new plans. By so doing the architect would certainly command his client's respect and confidence in his practical ability.

In Canada the architects seem to have a different and certainly an erroneous opinion in this connection. They maintain that their duty is to prepare the plans and specifications in accordance with their client's instructions, and then await the contractors' tenders for the cost of the erection of the building "because they are architects and designers, not building surveyors or measurers." Now in the cities of the old country the builders generally engage the services of a professional building surveyor to go to the architect's office and take out the quantities, and to which they affix their prices and make up their tenders; and it is quite customary for the architect to engage the surveyor to take out the quantities and have them manifolded and supplied to the contractors at a certain price each, or a charge covering the whole expense made to the successful competitor. By this procedure all the tenders are founded on the same measurements or quantities, so that the tenders can only vary to the extent of each contractor's own valuation of the work. The architect would also find the Bill of Quantities with prices affixed a fair criterion to go by in making