PAGES

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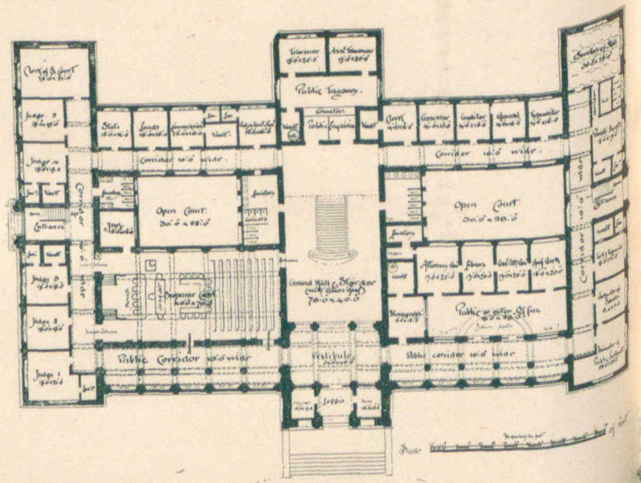
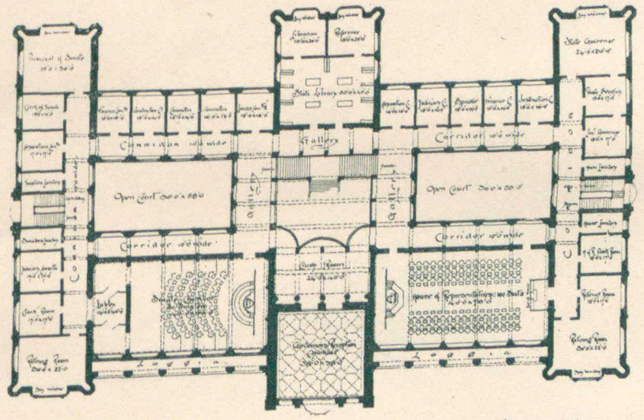
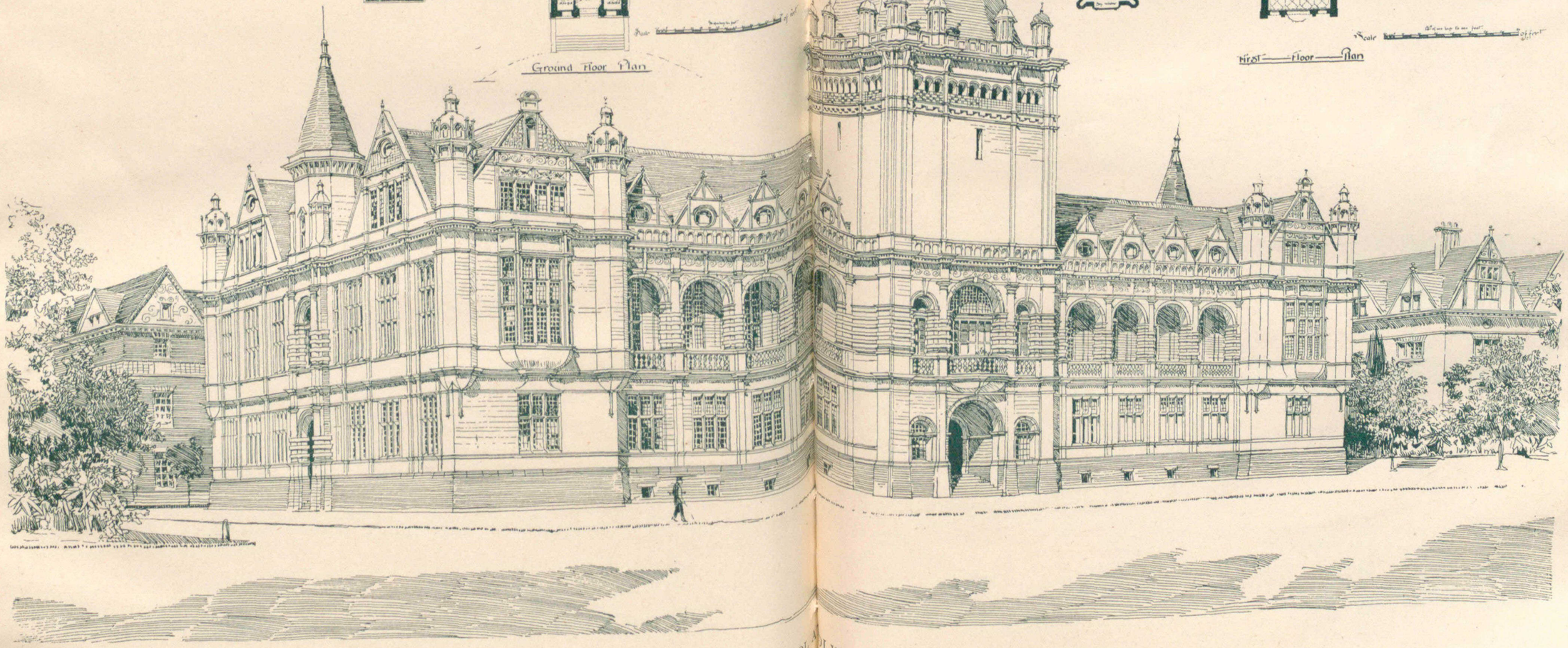


Ground Floor Plan



First Floor Plan



DESIGN FOR PROPOSED STATE CAPITOL AT OLYMPIA, WASHINGTON TERRITORY.

R. MACKAY FRIPP, F.R.I.B.A. ARCHITECT, VANCOUVER, B.C.

CANADIAN ARCHITECT AND BUILDER.

VOL. VII.—NO. 8. **AUGUST, 1894** { PRICE 20 CENTS $2.00 PER YEAR.

—THE—

CANADIAN ARCHITECT AND BUILDER,

A Monthly Journal of Modern Constructive Methods,

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

PUBLISHED ON THE THIRD THURSDAY IN 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,

Confederation Life Building, - TORONTO, CANADA.

Telephone 2362.

Branch Office: NEW YORK LIFE INSURANCE BUILDING, MONTREAL.

Bell Telephone 2299.

SUBSCRIPTIONS.

The CANADIAN ARCHITECT AND BUILDER will be mailed to any address in Canada or the United States for $2.00 per year. The price to subscribers in foreign countries, is $2.50. Subscriptions are payable in advance. The paper will be discontinued at expiration of term paid for, if so stipulated by the subscriber; but where no such understanding exists, will be continued until instructions to discontinue are received and all arrearages paid.

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

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.

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THE rapidity with which all classes of people, of both sexes, have adopted the use of the bicycle as a means of pleasant exercise and for practical use, has been the subject of general astonishment. When the bicycle was introduced it was regarded by many in the light of a fad, which would disappear as speedily as it came. But time has proved the incorrectness of this opinion. Architects and contractors have found the bicycle extremely serviceable in enabling them to get about rapidly from one piece of work to another. The question of providing bicycle accommodation is one which must be taken into account by the architect when planning for the erection of buildings in the future. The suggestion has been made that the stable should be spacious, convenient to the street and under the eye of the elevator man.

IN this number of the ARCHITECT AND BUILDER appears a fac simile letter from Messrs. Elliott & Son, the well-known firm of decorators, in which they bear testimony to the excellent results which have followed the continued insertion of their advertisement in this Journal. As the authors of this letter have advertised continuously for five or six years past, their testimony is worthy of attention. The fact that the advertisers whose letters we publish handle different lines of goods, though all designed for use in building construction, proves conclusively that the CANADIAN ARCHITECT AND BUILDER is the best medium through which to reach architects, engineers and contractors throughout Canada. Persons who have anything to sell to these classes should be represented in the advertisement pages of this Journal. Will the purchasers of supplies also kindly mention the ARCHITECT AND BUILDER in their correspondence with manufacturers and dealers.

WITHIN a short time quite a marked change has taken place in Toronto in the manner of carrying on business by roofers and galvanized iron workers. Many of those who formerly did only slate, tile and felt roofing have added general galvanized iron work to their business; other firms who formerly confined themselves to sheet metal work are in the field for all kinds of roofing. This has no doubt been brought about partly by the custom of architects in specifying for all iron work which is strictly part of the roof to be included in one contract, and making the roofer responsible for the whole being water tight. There also appears to be a certain amount of retaliation on the part of each trade, caused by the other having taken up the additional line of business. There are strong indications that competition will grow so keen that prices will be cut below a reasonable point. While we would not advocate the restriction of competition in business, we do not think the present condition of affairs is likely to secure the doing of a satisfactory grade of work.

Reference was made in this Journal recently to the financial difficulties in which some church congregations had placed themselves through a desire to worship in expensive buildings. The matter has assumed such a serious aspect that at the last meeting of the Toronto Conference of the Methodist Church the following resolution was adopted: "That this conference is of the opinion that additional guarantees should be provided against the unfortunate tendency that prevails so largely to strain the law affecting the inception of new and the enlargement of existing church enterprises, and recommends that the general conference be memoralized to provide legislation which will require the co-operation of the chairmen of districts with the quarterly board in advance of either the enlargement or building of an

existing church, or the formation of a new church trust." The adoption of this resolution may not work to the advantage of architects, builders and supply firms, but there can be no question that it is a step in the right direction when viewed from the standpoint of the churches' interest.

THE seasoning of lumber by kiln drying is a process of recent development and a strictly scientific treatment is necessary to secure good results, more particularly with hard woods prepared for high grade work. It has been found that selections from the same variety of wood grown in different localities require radically different treatment and that perfect drying may be retarded or prevented entirely by too high a degree of heat, especially if applied to lumber soon after it has been put in the kiln. Special machinery and arrangement of the kiln together with experience are as much a necessity in this work as a similar combination of facilities and knowledge is in any other. It is one of the many subjects with which architects should be familiar under the head of growth, formation and chemistry of building materials. We shall not be surprised to find architects specifying ere long that lumber must be kiln dried by a certain process according to the best data available. Another question closely related to that of seasoning lumber is that of preserving wood. It is well known that there are several simple and cheap processes by which the natural resistance of lumber against rotting can be greatly increased. This kind of protection is not used as much as it should be. It is wonderful to see how short a time is required for sound wood in some positions to become thoroughly rotted. The systematic use of preservatives is but little developed and consequently a very great and unnecessary loss is going on always accompanied by insanitary conditions. The remedy for this is largely in the hands of the architects, from whom it should receive more attention.

THE architects of the United States, who have been making heroic efforts to bring about a reform in the method of designing government buildings are greatly encouraged by the strong probability that the present Congress will pass a bill to supersede the Tarnsey bill, in regard to which the president of the American Institute of Architects, Mr. Burnham, and the government officials had such an unpleasant correspondence as noticed in our issue of April last. After that correspondence it was deemed best to proceed by associated individual action instead of officially through the Institute. Several of the architects drafted bills and one drawn by Mr. Post practically satisfied everybody interested. This bill was taken to Washington and after undergoing a number of alterations was introduced in Congress by Mr. McKaig, of Maryland. It is admitted that the modifications suggested by the politicians were all in the right direction and made the bill a stronger and more desirable one than as originally prepared by Mr. Post. Some features of the bill are remarkable and well calculated to make the design and execution of government buildings the highest possible goal of the architect's ambition. To be considered eligible for government competitions is in itself made a high honor, as the bill debars any but an architect in chief of at least ten years practice, and any but those who can cite evidence of sufficient constructive and administrative ability. While the successful competitor will be awarded all the rights and duties of the architect in private practice at full established rates of compensation, very little remuneration will be provided for other competitors. A very modest per diem compensation is allowed to members of the commission who will have charge of competitions. The two features last mentioned are practically intended to limit the cost of the new system, including all expenses for competitions, to the one principal prize, the fee for carrying out the work, and outside of that to prevent any one entering competitions or acting as commissioners from other motives than a generous interest in their art.

THE earnest student of architecture takes upon himself no light task. We think it may fairly be claimed that the student who starts out to qualify himself for an architect, and is determined to master his profession, begins a course which requires an amount of patient and laborious training not exceeded in any line of human endeavor. There is one feature of this work which affords a great relief—the fact that the large variety o knowledge through which he must range is stimulating, and on the principle that change of work is restful, may to some extent be regarded as recreation. But we often think students must be perplexed to decide what is really worthy of acceptance as truth in regard to questions that do not admit of mathematical demonstration. In another part of this number we publish an article on "How to Study Design", which contains some good points, but which would also bear some criticism. The student cannot accept such papers as an indisputable authority, but should cultivate the habit of comparing and sifting different writings on all subjects. Professional societies usually invite those considered most competent to present papers on various subjects and these papers are entitled to consideration. We sometimes notice that two writers, who would stand fairly equal in position and ability, express almost exactly opposite opinions on some matters. Then again strong statements are covered up by such generalities that the student can only understand that something is very wrong or very good as the case may be, but just what that something is, does not appear, so that if he wished to adopt the correct idea and keep clear of the bad he would still be very much in the dark. There seems to be a disposition on the part of many writers to avoid saying definite things about particular parts of work in such a way that faults or merits can be located in existing buildings or illustrated by imaginary examples. We hope to see a change in this respect. Meanwhile students will be safest who take the middle ground, and by careful discrimination seek to find the consensus of opinion among authorities on every subject.

THE contractor's business is always accompanied by risks of loss from many sources. Some of these are entirely beyond his control, and others can only be minimized by carrying on all parts of the business in the most systematic manner. The risks begin the moment a contractor commences to make up the quantities preparatory to tendering on any given job. The risks involved in this part of the business are of two kinds: first, the loss of time devoted to unsuccessful tendering; and secondly, the chances of error in quantities or estimate of values. The total amount of time given by contractors as a body to the work of making up tenders is a very large item, and is one of the channels through which they may suffer continual loss without locating it definitely. That the greater part of the time given to tendering is a direct loss, we think should be perfectly clear to every contractor. Any business man's time has a value for every hour, and if given to work from which there is no return, that value is lost. To illustrate: suppose a contractor who has no business on hand puts in a whole year of solid work in tendering without success in any case—if that contractor could have earned any wages in any other way during that time, by just so much has he suffered in actual money loss. The case is not altered by the fact that the contractor may be in a position to stand the loss or that he may have a large business on hand. Some part of that business will be carried on at a greater expense for lack of his personal time and attention. The other risk mentioned, that of liability to error, is one that should not be overlooked. It is hardly necessary to mention how it often happens that a contract is secured by some blunder of omission, and the contractor compelled to do the work at a loss, or perhaps to throw up the job and forfeit a deposit. It also happens that contracts are lost through error of getting figures too high. This is better than to err on the other side, but it is nevertheless far from satisfactory. These difficulties cannot altogether be overcome, but every available means should be employed to reduce them to a minimum. The contractor's business grows out of the demand for an agreed price for certain work, and prices cannot be given like a merchant's price for goods on the shelves, but require careful calculation in each case. No one is proof against making errors, but safeguards can be used which will afford protection from them. The different tenders for any work if carefully and intelligently prepared should not vary from each other more than ten per cent., but it is safe to say the difference is generally greater than this. A more general custom of having bills of quantities prepared by a professional surveyor —a method common in England but seldom used here—would be found of great value in bringing about more uniform tendering. By this means contractors would also effect a saving in

two ways—in the time necessary to make up a tender, and in the reduced possibility of error. Allowing that the cost of the surveyor's services be paid by the contractor there would still be for the latter economy in this system; and we believe that contractors who might feel themselves quite competent to make up their own estimates, survey and all, would find a reliable bill of quantities well worth its cost purely for the purpose of comparison with their own figures. Such a system is also helpful in preventing friction between architects and contractors. In some cases it would call for greater care and definiteness in specifying, and all such influences are beneficial to all parties to a contract. While architects would no doubt be pleased to see a reform in the direction indicated, it is not likely to be brought about unless the initiative is taken by the contractors.

TRADE COMMISSIONS TO ARCHITECTS.

An English architect sends to the Builder for publication a circular addressed to him by a firm of manufacturers of building materials, in which a commission is offered to him on such of the manufacturer's materials as he may specify for use in his practice. Exposure of similar methods has from time to time been made in the American architectural papers. Much has properly been said in reprobation of manufacturers and supply firms who seek to secure business on this plan. The British Architect, however, presents another aspect of the case when it says:

"If one asks why Brown, the stove grate man, offered Robinson, the architect, a commission on the sale of goods, one is tempted to think of the number of Joneses who must have given Brown some direct encouragement to believe all architects were equally susceptible of being approached in a similar manner. A black list of manufacturers who offer commission to architects might be a useful thing, but a similar list of architects who receive it might be a more effectual cure. Some architects don't take commission from manufacturers; they receive presents. They ought to be included in the list. If Jones receives 15 per cent. commission, and Smith accepts an umbrella or a chimney piece ornament, there is no difference in the quality of their offence. They both sell their independence for what, in the opinion of the manufacturer, it is worth. That apparently is not much. It is easy to put the manufacturer into the pillory for offering commission to architects. But there is no smoke without fire, and if all architects, or even the greater proportion of them had always promptly and decidedly rejected any temptation to receive commission from manufacturers, we have an idea the "custom" would practically be dead now. To the manufacturer, no doubt the practice appears to be but that adopted in the pushing of every business. That he would be glad enough to be quit of it goes without saying. It is an expensive and awkward procedure at the best of times. There can be nothing more fatal to honest building and good architectural results than the passing of commissions from manufacturer to architect. The architect loses his independence and self-respect as a professional man, and the manufacturer comes to depend more upon the offering of percentages than the quality of his goods for the extension of his business. But whilst it is impossible too strongly to condemn the system, let it not be forgotten that there are two sides to the question and that it takes two to complete the transaction. Those who receive commission are as much to blame as those who offer it. Are the manufacturers wholly to blame? We think not. But it would need a great deal of courage and independence on the part of any firm of manufacturers to attempt to prove the contrary. A list of offending architects would be quite as interesting reading as that of offending manufacturers."

There is unquestionably ground for this view of the subject. Some Canadian architects are not held to be above suspicion in the matter of accepting bribes. For example, a cement dealer who recently sent samples of his material and circulars to an architect in an Ontario city received in reply a letter from the architect in which he stated that he wished to lay a concrete floor in his cellar, and requesting the dealer to send him enough cement for the purpose. Here was a plain intimation from an architect that he was open to a bribe. In the light of such invitations to wrong doing, it is not to be wondered at that the honest architect finds himself approached with offers of commission and undue influence in other forms. Such practices are highly demoralizing to all concerned, and the influence of architects, manufacturers and dealers of integrity should be exerted in an endeavor to stamp them out.

The builders of London, Ont., held a very enjoyable picnic at Port Stanley a few days ago. A baseball match, a tug of war, and a baby show were among the prominent features on the programme.

COMPETITIONS.

The Ministry of Public Works, Cairo, invite competitive designs until March 1st, 1895, for the new Ghizeh Museum to be erected in that city at the estimated cost of £123,000. The first premium will be £630, and £420 will be divided among the four architects whose designs are placed next in order of merit. Some of our Canadian architects, whose fancy has been running in the direction of Egyptian architecture, should stand a good chance in this competition.

We are informed that no decision has yet been reached in the competition for designs for a public library building at London, Ont. It is reported to be the intention of the Library Board to appoint Mr. O. A. Graydon, City Engineer, to be the judge of the merits of the designs submitted, and to make the selection of the most suitable plan. At last accounts, however, the plans had not been placed in Mr. Graydon's hands.

ILLUSTRATIONS.

MISSION CHURCH, BRANTFORD, ONT.—E. SWALES, SHEFFIELD AND DONCASTER, ENG., AND H. ETCHES, M.I.M.E., (LOND.) BRANTFORD, ONT., ARCHITECTS.

This church is designed to seat 204 persons. The foundation and outside walls are of brick faced with rough dressed stone, with half timber work above. The roof is boarded to purlins in narrow widths, jointed, covered with felt and shingles, with red ridge cresting. The total width of interior is 25 feet, total length, 70 feet. The interior is divided up into five bays with six frame principals.

DESIGN FOR PROPOSED STATE CAPITOL AT OLYMPIA, WASHINGTON TERRITORY.—R. MACKAY FRIPP, F.R.I.B.A. ARCHITECT, VANCOUVER, B. C.

THE ROUND CHURCH OF ST. SEPULCHRE'S, CAMBRIDGE, ENGLAND.—FROM SKETCHES BY ANDREW T. TAYLOR, F.R.I.B.A., MONTREAL.

SMALL HOTEL AT VANCOUVER, B. C.—R. MACKAY FRIPP, F.R.I.B.A., ARCHITECT.

TORONTO BUILDERS' EXCHANGE.

MEMBERS of the Toronto Builders' Exchange, their families and friends, numbering about 150 persons, enjoyed a pleasant days' outing at Wilson Park, N. Y., on July 27th, the occasion being the annual excursion and picnic of the Exchange. The comfortable steamer Garden City carried the company to and from the picnic grounds. The weather though very warm was bright and clear, and when tempered by the lake breezes and the shade of the grove was thoroughly enjoyable.

The excellent music discoursed by the string band which had been engaged to accompany the excursion added not a little to the pleasure of the trip.

Three or four hours were pleasantly passed at the park in boating, bathing, games for the children, etc. Nor must we omit mention of one of the most exciting events of the day, viz., the annual base-ball match between nines representing the Builders and Supply Merchants. The rival teams were composed as follows:

Builders—T. Cannnon, Jr. (Capt.), J. Crang, H. Lucas, Wm. Saulter, John Hanrahan, J. Murphy, —— Bedford, J. Thomson, J. Little.

Supply Merchants—John Maloney (Capt.), W. Whillans, A. Dickey, Isaac Price, G. Oakley, J. Oakley, J. Donovan, M. Ryan, T. Rattledge.

Umpire—T. Stewart.

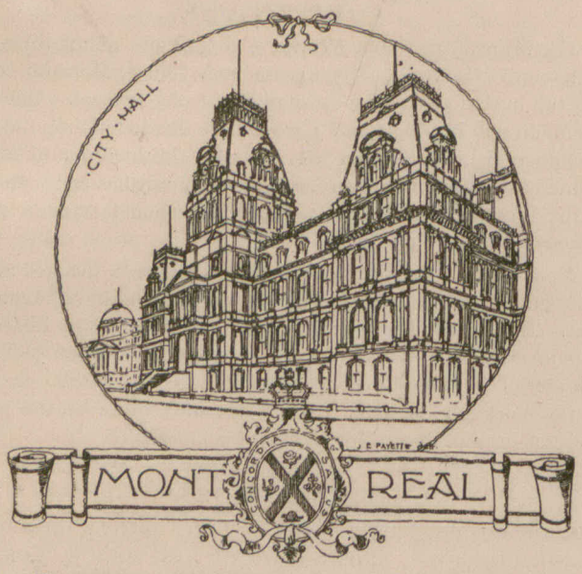
The game was watched with much interest by the friends of the players, and every exhibition of good play was enthusiastically applauded. Nor were such exhibitions few and far between, as might be supposed, seeing that many of the players only enter the field once a year.

At the close of the game the score stood—Supply Merchants, 9; Builders, 8.

The company bade farewell to the park at 5 p.m. and shortly after 8 o'clock were safely landed at the Yonge street dock..

For the success which attended the event, credit is largely due to the following gentlemen who composed the committee of management:—William Forbes, Chairman; Thomas Cannon, John Aldrich, David Williams, Isaac Price, William Booth, John Barnard, Thos. Murray, Geo. Oakley, Henry Martin, Frederic Bayliss, James Craig, John Murphy, Benjamin Brick, William Park, Wm. Whillans, John Phillips.

It is hoped that this annual excursion and picnic of members and friends of the Exchange will be maintained and become increasingly popular.



(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

The authorities of St. James Cathedral have commissioned Mr. Vincent, a local sculptor, to proceed to Rome and study carefully Bermoria's famous canopy in the Basilica of St. Peter, in order that he may be able to reproduce a perfect copy for the cathedral here. This copy will measure 43 feet in height and will be embossed in bronze.

It is to be hoped that the exhibition of improved fire appliances in connection with the recent meeting of Fire Chiefs in this city was an object lesson which will not be lost upon our city authorities. The fire loss in Montreal in recent years has been abnormal and has necessitated the payment of high rates of insurance.

The students examinations of the Province of Quebec Association of Architects which were announced to take place in July, have been postponed until January with the consent of the candidates, who are few in number. The January examinations will take place in Quebec.

MASTER PLUMBERS' ASSOCIATION.

The committee of the Master Plumbers' Association appointed for the purpose of preparing a constitution and by-laws for the Association have completed their task, and at a general meeting of the craft held on Aug. 3rd, the constitution and by-laws were discussed and adopted. The meeting adjourned until Thursday, August 9th, for the election of officers. At a meeting held on that date the following officers were elected:

Executive Board—J. Lamarche, President; John Date, 1st Vice-President; Alphonse Champagne, 2nd Vice-President; Henry Padden, 3rd Vice-President; W. M. Briggs, Secretary; Joseph Gibeau, French Corresponding Secretary; J. W. Hughes, English Corresponding Secretary; P. Leclerc, Jr., Financial Secretary; W. A. Stephenson, Treasurer.

Sanitary Committee—J. W. Hughes, Chairman; John Date, Jas. Mattinson, A. Sigouin, J. C. Jactol.

Audit Committee—J. Watson, Chairman; P. Desforges, T. Jacotel.

Arbitration Committee—P. Carroll, Chairman; A. Demers, George Yon, Geo. Rosser, H. Bailey.

Apprenticeship Committee—W. Britton, Chairman; E. C. Mount, A. Cardinal, J. Sadler, A. Blais.

Legislative Committee—F. Brunet, Chairman; D. Gordon, D. Ouimet, J. Burns, P. Leclerc, Jr.

General meetings of the members of the Association will be held on the 1st and 3rd Thursday of each month at St. Joseph's hall, corner of St. Catherine and St. Elizabeth streets.

LEGAL.

Messrs. Brown & Love have entered suit against Mr. E. J. Lennox, architect for the new city and county buildings at Toronto, to recover the amount of a cheque for $7,000 which they they deposited with their tender for the completion of the building. Messrs. Brown & Love's tender was accepted and they entered upon the work, but subsequently withdrew because, as they allege, they were unable to continue owing to the litigation in which the works were involved. The architect claims that by withdrawing from the work the plaintiffs forfeited their deposit. He will therefore retain possession of the money until instructed by the courts what disposal should be made of it.

Application is made for incorporation by the Crown Pressed Brick Company, of Ottawa, with a capital of $100,000.

STUDENTS' DEPARTMENT.

USEFUL HINTS.

Moorish fretwork is becoming more a favourite than ever. It is used most successfully when varnished, but not painted. Paint destroys to some extent the sharpness of the outlines.

A good egg-shell polish for fancy woods may be made by dissolving together in 40 parts of alcohol the following:—Three parts of shellac, 1 part of gum mastic and one part of sandarac gum. The polish may be applied with a brush or cloth.

When it is desired to paint ironwork in exact imitation of stone, let the last coat of paint be very thick and be applied quite freely. After it has commenced to dry dust on sandstone crushed and reduced to powder. If the paint is of the same colour as the stone the imitation will be a very natural one.

MOUNTING PHOTOGRAPHS.—Starch dissolved in water is a good material for fixing mounts to photographs, and not so liable to discolour the photo afterwards. To fix them, have two pieces of plate glass, or any other kind of material similar, place the mount on one, and having smeared the photo with the prepared starch, place it in its proper place, then put a sheet of blotting paper and the other plate of glass, &c., and a sufficient weight to press the photo perfectly to the mount. Let it remain a few hours, and then remove the glass, &c.

A ceiling that is coming to be very popular for cafes and restaurants, and some of those drug stores that depend largely on their soda fountains for their revenue, is made of square glass panels, separated by narrow wooden moldings, the back of the glass being marbleized by some such process as that used in marbelizing slate for mantles, while occasional panels are filled with decorative designs. The effect is very similar to Mexican onyx or polished marble, and is specially adapted for all such purposes. Narrow brass bead moldings would look particularly well to separate the panels, though they would be somewhat expensive.—Painting and Decorating.

THE USE OF TIMBER.—To obtain the greatest strength in timber beams, joists, rafters, and breastsummers, the depth must greatly exceed the width—the greatest strength opposed to the greatest strain. A joist 6 by 3 will bear twice as much if put edgewise as it would if laid flat. If the weight to be supported be in proportion to the length, then, the width remaining the same, the square of the depth divided by the square of the length ought to be the same also—i. e., the depth of a joist ought to be in direct proportion to the length, and for stiffness the width proportionate to the depth. Where the question is of a piece of timber supporting itself, the weight is as the length multiplied by the depth, and we must multiply this again by the length for a divisor. A rod of fir 1 in. square, or a plank 10in. by 1 in. laid flatwise, would keep quite straight with a bearing of 5 ft. A piece of timber 10 in. square would swag very much with a bearing of 50 ft.

PAINTING IRONWORK.—At a meeting of the Association of Engineers of Virginia, Mr. S. Wallis dealt with the painting of ironwork. He recommended that the first coat should be red lead ground in raw linseed oil, used within two or three weeks after mixing, and kept thoroughly mixed when in use. This coat would dry in from twenty four to thirty hours. For a black finish the next two coats should be made up from a paste composed of sixty five per cent. of pigment and 35 per cent. of raw oil. The pigment should consist of sixty-five per cent. of sulphate of lime and thirty per cent. of lamp black, to which should be added five per cent. of red lead as a drier, the whole thinned to a proper consistency with pure boiled oil. For a red or brown finish the paste should contain seventy-five per cent. of pigment and twenty-five per cent. of pure raw oil. The pigment in this case would consist of fifty per cent. of sulphate of lime, forty per cent. lime carbonate as a drier. Lead paints were not recommended for finishing coats on account of chalking, nor zinc paints on account of cracking.

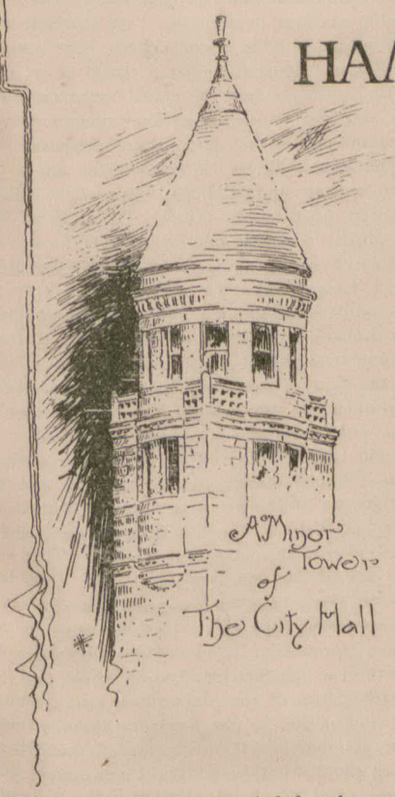
INTERCOMMUNICATION COLUMN.

This column is intended to afford a means of correspondence for students, builders and all our readers desiring information they cannot otherwise obtain. Questions for which an immediate reply is required should be marked "Urgent." Names and addresses of correspondents must be sent with their communications, but these may be signed with initials or otherwise for publication.

"Quiz" writes: Can you give me a satisfactory method of measuring chimney shafts?

ANSWER.—Take them as solid, work them out cube, and reduce it to superficial 6in. work, and then allow a certain amount for parquetting, in which case, you must use your judgment. To measure brickwork reduce the superficial measurements of 18in. to a standard thickness—i. e., 9in.—deduct all openings, and allow a certain amount for bedding window frames, &c. The angles of brickwork are not as a rule charged any extra, this coming in the price for 9in. work. Reduced moulded brick jambs are measured lineal, and arches are given in quantity at so much each; of course, price depending on what kind of arches they are. Eave courses are measured lineal.

HAMILTON



THE competition for designs for a House of Refuge has been decided by a vote of the aldermen in favor of Mr. Barber, who has recently joined the ranks of local architects in this city. I learn that in this competition there were eight or ten competitors. There were no well-defined rules for the guidance of competitors, and no person with any knowledge of architecture was called in to assist the Council in deciding on the merits of the designs submitted. There is dissatisfaction, of course, as under such circumstances it was a foregone conclusion there would be. Unless architects show their esprit de corps, and unitedly refuse to take part in competitions which are improperly planned, they must expect to suffer disappointment and injustice. As to the merits of the accepted design I have nothing to say, except that the architect has been so hurried for the purpose of getting the work ready for tender, that it is impossible that he can have been able to do any deliberate thinking on his design. The cost of the building will be in the neighborhood of $17,000.

Mr. Mills, a local architect, is seeking to recover by legal process from the Hamilton, Grimsby and Beamsville Electric Railway Co., the sum of $100 for sketch plans for a power house. The defence contend that the plaintiff's claim is excessive. The judge has the matter under consideration.

THE MARITIME PROVINCES.

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

The Chignecto ship railroad is again exciting considerable interest. Persons who were favorable to the scheme are more anxious than ever that the railway should be completed. They point out that the completion of the work will prove a great and lasting benefit to intercolonial trade and transportation, that the shipping of the Gulf of St. Lawrence country would be greatly developed by such a road, and that the work of all maritime shippers would be greatly facilitated. On the other hand there are those who are opposed to the scheme on the ground that it involves a foolish expenditure of thousands of dollars, and that no adequate commercial advantages could be derived from its construction.

A short history of this great undertaking will no doubt prove interesting to the readers of the ARCHITECT AND BUILDER. This railway was designed as a substitute for the Bay Verte Canal to unite the waters of the Gulf of St. Lawrence with those of the Bay of Fundy. The canal has been agitated ever since the early settlement of the country, and, after a voluminous amount of evidence had been taken, was favorably reported upon by the canal commission. The cost was estimated at from $7,000,000 to $14,000,000, according to the design. The work was actually put up to tender by the government, but was postponed, owing to a proposed change of route. After a great deal of talk and correspondence the canal scheme was abandoned, and a few years later a ship railway was proposed as a private speculation, to be assisted, if successful, by a government subsidy for a term of years. English capitalists were induced to consider the scheme. They were favorably impressed with it, and in 1882 an act of incorporation was obtained.

Sir John A. Macdonald gave a good deal of study to the project, and he finally became an enthusiastic supporter of it. He made a personal canvas of public men, and it was largely on account of his influence that the government voted $170,000 to the company to be paid, commencing one year after the completion of the line, and ceasing if at any time it failed in operation. The company consisted of railway men and capitalists in England with Mr. Ketchum as engineer. The work was commenced in October, 1888, and continued vigorously until July, 1892, when the contractors were obliged to suspend work owing to their connection with Argentia, the financial collapse of the Baring Bros. having shattered their resources. At that time the company had expended $3,000,000 in the work. It is now more than half completed. Nearly all the rails have been laid. Work on the dock at the Amherst end of the line is well advanced. The massive stone masonry has been very substantially constructed. A great deal of work has also been done at the Lidnish end of the road. The company calculate that $1,500,000 will complete the job. The money has been subscribed, but the subsidy act has expired and the government has been asked to renew it. It seems to be demurring slightly, just now, but persons who are in a position to give a pretty correct idea about this matter say the extension will be granted. It is pointed out that in view of the fact that the company has expended some $3,000,000 in the work, and the government has expended nothing, and has therefore suffered no loss by the delay, the country has in no way received any damage by it, and therefore not to grant the company an extension of time, would, to say the least, be unjust on the part of the Dominion Government, when it is considered that the suspension of the work was in no way due to carelessness of the company, but altogether to a circumstance over which they had no control.

Mr. Ketchum estimates that of the gulf and bay ports, 600,000 tons of freight would pass over the railway the first year. The traffic would be between Upper Canada and the Gulf ports on the one hand, and the Bay ports, the Atlantic ports of the United States, and the ports of the West Indies on the other hand. The agricultural and fish products of Prince Edward Island, the coal and iron ores of Pictou, and the small lumber of the north shore would be carried to American markets over this road. From the western provinces would come flour, meal, grain, meats, hides, &c., to St. John, there to be exchanged for southern products and other merchandise. In the way of return trade there would be sugar, molasses, cotton, coffee and other southern products from the West Indies and from South America. Coal from the Cumberland and Joggins, Nova Scotia, mines for the west would also be carried.

A. H. McC.

REMARKS ON ESTIMATING.

THE first thing a young builder should do before commencing to make an estimate will be to provide himself with a list of items requiring to be done on the proposed work, and the styles, qualities and amounts of materials of all sorts necessary to complete the work. Having them on his memoranda, and a goodly supply of catalogues and price lists within reach, he may then commence work at once.

Excavating for foundations will be the first thing to consider, and in order to get at the cost of the work closely, he should know the character of the ground, whether clay, gravel, sand or other material; then he must know what it must cost per yard to remove this, and where the surplus is to be dumped. Drains will next require his attention: the number of feet, size and style of drain, cost per foot laid in place and covered, including all traps, joints, angles and connections. A survey of the site—which the estimator may make himself—will give a correct idea of the grades and the amount of digging to be done, which should be accurately measured and charged up.

Next comes the stonework, including the preparations for the footing, which may be piling, concrete, or simply rammed. In either case, the time and material must be considered and provided for. Cost of footings and putting in place should be a separate item. The stone walls follow, including all dwarf walls, buttresses, piers and separate foundations for chimneys, fire places, etc. Remember, in stonework, the mason measures the outside girth, which gives him the benefit of one thickness of wall at each angle. Provide for damp course between stone and brick, which may be of slate, lead or asphalt, as the specification may direct. Do not overlook relieving arches over all openings, both in stone and brickwork, as they require more time to construct than the ordinary wall. Openings in rubble stone work should be charged up solid, as cutting and waste costs as much as though the wall had no break in it. One cord of stone, of 128 feet, will measure in the wall scant 100 feet. It is better always to allow 96 feet of wall for every cord of stone: this of course means 96 square feet. Worked stone measures the same in wall as on the ground.

The foregoing merely gives an outline of the course to be taken by the estimator. Commencing with the excavating, he should continue until every item required to complete the structure in every particular has been provided for; bearing in mind all the time, that the smallest thing about a building costs money, and if he should overlook any item, by a loose system of estimating, he will find at the close of the work, that his profits will be cut down in proportion, as the architect or proprietor will justly demand that the overlooked items be furnished at the contractor's cost. It will not do to lump the small items, as is frequently done by unsuccessful or careless estimators, for the lump sum may be greatly in excess of actual cost and fair profit, and may cause the estimate to be too high, or it may be too low, thus causing a serious loss.

The successful estimator generally has on his desk, when figuring on a piece of work, what is technically called a "tickler." This may be a small book, or it may be a series of cards, on which are written all the varieties of labor, skilled and otherwise, required upon any style of building, with prices by day or by piece work, when such is available. Also the prices of materials of all sorts and sizes, including lumber in all states, stone, brick, hardware, glass, plumbers' goods, roofing, paints, oils, &c., &c. Having a list of this kind before him, with prices attached, the estimator will not be likely to overlook any item in the proposed building he may figure on.

The items in the "tickler" should commence with: Laying out the ground for foundation; digging drains; excavating for cellar and foundation; drain tiles or pipes, foundations, walls; then all the items required for this work, including concrete and cement for cellar floors, or brick paving, if such is used. The superstructure should follow, with windows, doors, floors, furring, partitions, stucco-work and plastering, &c., and every particular in connection with the work. Then comes the carpenters' and joiners' work, including putting down floors, putting up trim, building stairs, hanging and trimming doors, putting in sashes, weights, pulleys, &c. Painters' and finishers' work follow, including all necessary materials and labor. Then follows heating, bell hanging, lighting, &c.

In a future paper I will submit a form of "tickler," which I think may be found useful to country builders when making estimates of work costing not more than $3000.

A. Z. Z.

The School Supply Co., of Berlin, Ont., are developing a talc mine near Sharbot Lake. The talc is manufactured into crayons for school purposes.

HOW TO STUDY DESIGN.*

Is it possible to design in harmony with the spirit we live in, or to distinguish between the achaeological and architectural beauty of ancient buildings? Why cannot we design buildings as an engineer designs an unsophisticated iron bridge without the result being hideously ugly? Will not the terrible buildings of the Victorian Gothic era with which our land is bespattered have in the eyes of succeeding generations the same beauty (is it architectural or archaeological?) that the crude Classic productions of the Jacobean and Queen Anne periods have in ours? and if so, why do we not see the beauty of our bad architecture? Are not we perhaps on the wrong tack altogether, and only manufacturing picturesque grottoes of ancient relics, while the genuine and characteristic architecture of our age is to be found in the works of engineers, mill and factory builders and gin-palace fitters? Are the congeries of Mediaeval and Classical oddments, whether in plan or detail, that compose our Domestic and Ecclesiastical architecture, really works of national art? Are not workhouses and hospitals or a Metropolitan Tabernacle or railway station interior nearer the mark? Do not architects, as far as their revived pedantries of Art are concerned, run a great risk of becoming mere exotics, useful perhaps in arranging the business of a building, but to the world at large as artists, idiotic in expression and utterance?

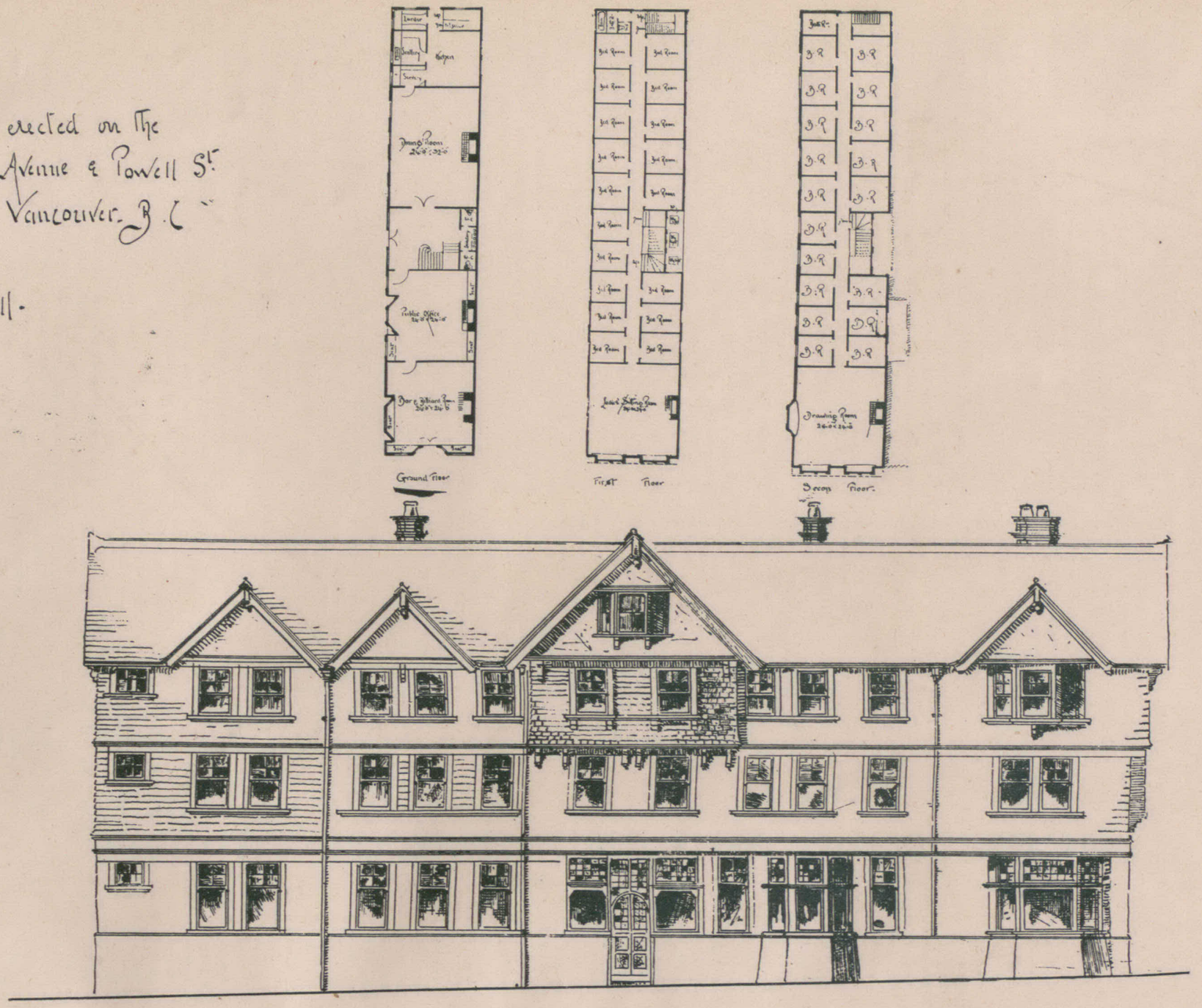
Can architecture as now practised by its professors continue to survive when the *debris* of the ages has been rummaged through and there is nothing new to revive—when the history of architecture has been learnt in vain, and the poor history-bred architect can no longer find fountains for prigging ready-made details from? Must we really come to the conclusion that clothes can only be made on old patterns, patches and defects included, and only artistic pictures painted of bygone times and not of our own? Is there not beauty or pathos, simplicity of wondrous complexity in our own extraordinary age, with its incessantly varying developments that the architect can reflect in the buildings that he designs for its accommodation? Cannot we hope that some seeds of true architecture may be sown in our work-a-day buildings that may develop into a detailed style possessing true beauty? Does the barren unphilosophical study of our present authorities assist us one whit, or even suggest to us the idea that our own age is the outcome of history, and that we should pursue its direction and learn its lessons of the motive of its soul rather than hark back again and again to the mere outer forms of nothing but bygone art "as if that soul were dead?" We may well ask ourselves the plain question, whether if the so-called history of architecture comprised in illustrated authorities, a list of which would be short and easily made, was laid as much aside by architects and their educators and examiners, as, say, the history of ornament is, though for no given reason—perhaps it is mere forgetfulness—we should be able to design at all? Imagine yourself, if you can, sitting down to design a church or a house in the country with the stipulation that you were not to revive any ancient style in your building, and does not the thought seem both absurd and painful? If so, take for your subjects either a factory, say for boot blacking or fancy soap, or a railway station block, in which it ought to be both absurd and painful to employ any ancient style, and see how you would be able to get along without the seemingly indispensable history. And yet if history teaches us anything as to the sources of life and motive in design, it shows that the Greeks had little or no history of architecture to draw upon and revive, and that the Goths, who probably knew little or nothing as to ancient Art, deliberately set aside the productions of their ancestors, even as types, and thought and acted for themselves alone. Can anyone say that the results do not justify their methods of study, and shall we be forced to accept as a conclusion that the less we have of the study of architectural history as at present conducted the better?

Let us return to our examples. The results of your efforts to design either a factory or a railway block would probably be satisfactory and negatively beautiful in proportion to your regretful resignation to the facts of the case, and to your own ignorance of the pictures in your own architectural history books, or, in other words, of what different people had done under differing circumstances elsewhere. What positive beauty your work possessed would consist in the manifestation of your skill in the choice, contrast and arrangement of materials, in the proportions of your building, in its balancing of voids and solids, its recessings, in its simplicity or variety of line, its unaffected expression of purpose and skilful adaptation to use. Every one of these qualities should be equally evident in the more monumental or domestic subjects, such as the church or country-house. The church having no obstructions to sight, and being perfect acoustically, and with the house rejoicing in pure plate-glass windows where necessary, with further qualities such as a perception of the poetry of scale, of rhythm in contrast or repetition of grouping and perspective, of mystery and distance, with fancy at work on the detail, applied perhaps unconventionally, but always where most effective in execution, and either emphasizing construction or decoratively masking it, suggesting intellectual composition as well as picturesque freedom, the harmonious arrangement of features as well as the application of free ornament and many other ideas in design, with play of light and shade, effects of lighting and schemes of color, all open to the student cut adrift from the modern school of architecture, and an interesting building having naturalness of purpose and real beauty is almost assured so long as each quality of use and fancy is exercised with reasonableness and decency. Some difficulty may occur to the mind as to the quality of ornament not cast in ancient moulds, but the same elements of beauty govern and compose ornamental detail as general architectural design, and there is ever open to the ornamentist the fountain of Nature, which, unlike prosaic and traditional sources, is infinite as the sea. Let it not be supposed, however, that by ornament derived from Nature naturalistic ornament is meant, as the forms of Nature copied in carvings or paintings. The material and the purpose of the ornament, and many other circumstances, must control the conventionality of its treatment. Remember that a world of art and design exists between the Parthenon frieze and the actual horses and men that Phidias saw around him, and that if intellectual discrimination is not used in the translation of form and matter, and design is not interposed between Nature and ornament, no beauty will be the result. But this is at present a digression apart from carvings and paintings. How about mouldings, capitals, cornices and purely architectural forms? Can these be designed except by ignoramuses, apart from style and precedent? Most certainly. In your blacking factory example you may only require a dignified and simple cornice of brick and stone to crown the wall, and though, from pure poverty of imagination and defective training, you may have no other resource than a doubly-debased Greek molding, there is the conceivable possibility of a simple contrasting arrangement of light, shade and elevation considered in relation only to the wants of your front, and also a possible combination of line in contour of curved and straight members, forming a harmonious whole that shall be satisfactory and yet original, furnishing evidence of independence of thought and perception of beauty to your professional critics. This may sound impracticable, and we expect to be told that ancient styles are the languages of the art of architecture, that their forms and details are its words, and that our fine imaginings without such words and diction are vain and utterly incapable of realization. That we must learn these languages as part of our education, and trust either to heredity or to fickle fortune to teach us what to say and how to say it. Learn your styles, master your Orders, copy them carefully, drum them into your memory for a senseless reproduction as mere forms, and you will be qualified to become a student of a dignified architectural school, and in addition if you cram up the mathematics of the proportional ratios, count the columns of the Parthenon and master a few pendantic technicalities from Gwilt's *Glossary of Terms*, you may pass the Art section of a qualifying examination. That the training adopted to this end has its uses cannot be denied, for all training is valuable, and as an introduction to the study of archaeology it may be definitely useful, though this is very far removed from the cultured dilettanteism in which it took its rise; but to the architectural student it is purely incidental, and as at present conducted, the study of the styles of antiquity is in no sense a qualification for the practice of modern architectural design.

We are living in an age distinguished above all others for its inventive genius—the prime essential of genuine architecture—for wealth, another essential to the practice of architecture. Having a profession of admiration for the arts—famed for municipal enterprise—an age, too, of unexampled peace and prosperity. But architects, instead of growing in public esteem as artists, are losing ground yearly; their works, instead of being characteristic of the whole spirit of the age, only illustrate their own personal fads and fancies and their love for the passing whims of the day. The whimsicalities of the gentler sex with regard to the latest fashion will not exceed in grotesque flightiness the eccentricities of the architects of the last few generations, as illustrated in their periodical fashion-plates of buildings, when they are reviewed, say, at the jubilee of the Architectural Association. To what esoteric impulse are the gyrations of the muse of architecture due, if not to the error of imagining that the past is the present, that ancient means modern, and that archaeology is architecture? What accountable idea underlies the continuous and futile reproduction of architectural antiquities in modern design? Why should a consistent and enlightened race such as English produce, through their architects, within a century, such anachronisms as the National Gallery and the Royal Courts of Justice, or public statues, either clothed in nothing but sheets without canopies or in full modern dress (gilded), covered by baldachinos, and surrounded by unprotected figures, mostly females, only ideally clad? What rational theory of architectural design, apart from archaeology, can reconcile the production of St. George's Hall, Liverpool, with the Houses of Parliament at Westminster? Will not posterity justly conclude upon abundant evidence that the Victorian architects were petty-spirited, out of sympathy with their environment, each bent on vindicating some absurd archaeological revival wholly unsuited to their buildings, and wasting their eloquence in incriminating the age which gave them birth as lacking faith, as Philistinic in spirit and cruel to all the arts, and in bewailing the hard fate that did not cause them to be born barbarians or feudal serfs? And yet our age cannot be said to have lacked men practising as architects, possessed of genius and talents of the highest value to architecture, with inventiveness, perception of beauty and form, of wide artistic sympathies, and of remarkable adaptability of style. The English architects of the various revivals have been men of eminent gifts and enthusiasm for their art, and probably without their equals among European nations. The Greek revival, based upon the work of Stuart and Revett, Wilkins, Cockerell and others, was no mere artistic fad; these men were profound archaeologists, and the combination of artistic instinct and antiquarian learning displayed in such works as the beautiful Hanover Chapel—doomed, shall we say, through the apathy of architects?—the entrance to Euston Station and University College, London, is worthy of unstinted admiration. There is a thoroughness of historical study manifest in these buildings that compels praise; in each case a lofty ideal conception has been attained, and a completeness of architectural feeling for every detail that betokens the earnest designer. Yet in each case the manifest powers of design possessed by the architect have been concentrated upon designing a Christian church as a Greek would have designed

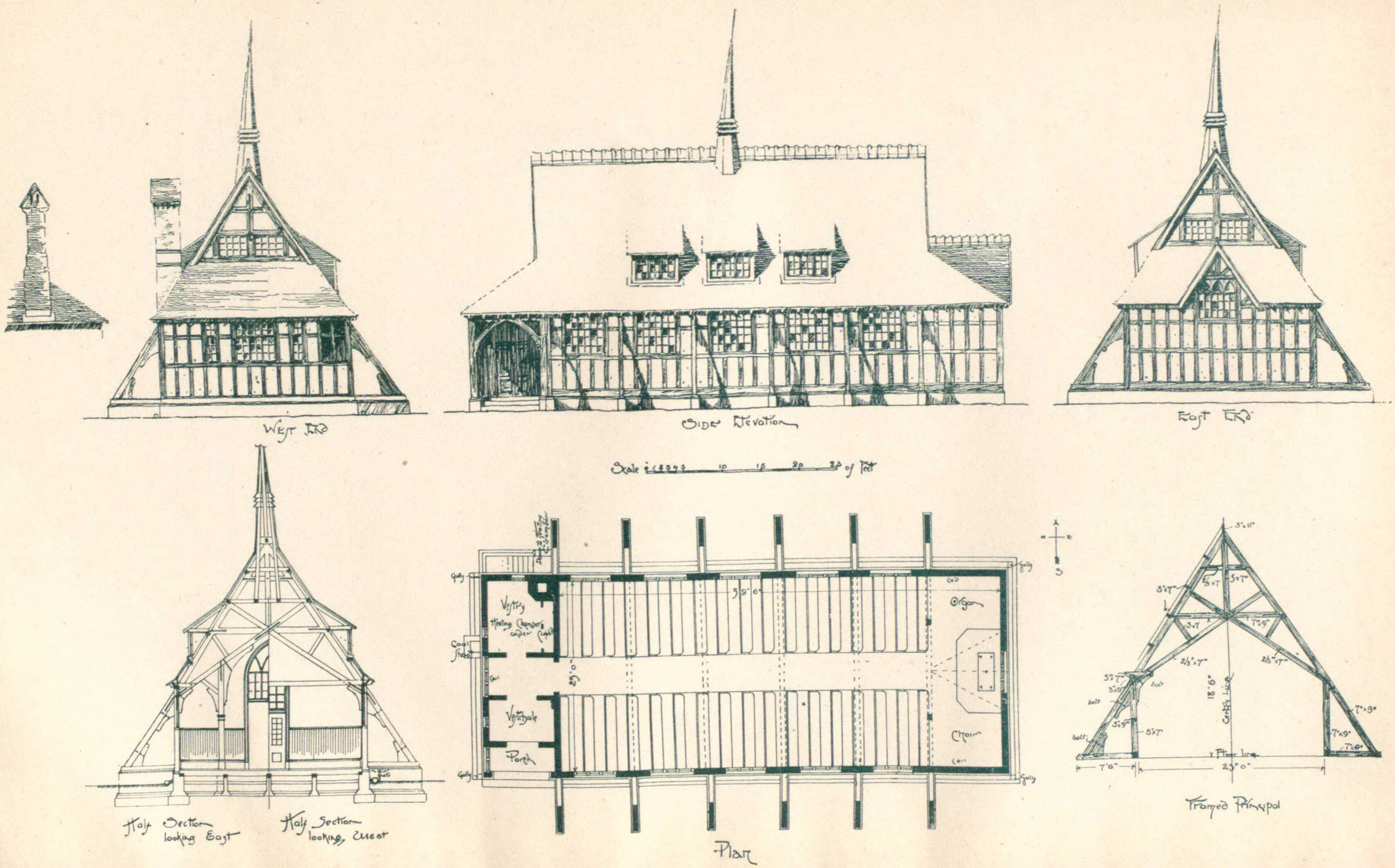
*Paper read by Mr. A. Berbsford Pite, A.R.I.B.A., before the Architectural Association, London, on November 10th, 1893.

Small Hotel To be erected on The
Corner of Westminster Avenue & Powell St.
Vancouver B.C.
for
J. S. W. Powell.



SMALL HOTEL AT VANCOUVER, B. C.

R. MACKAY FRIPP, F.R.I.B.A., ARCHITECT.



MISSION CHURCH, BRANTFORD, ONT.

E. SWALES, SHEFFIELD AND DORCHESTER, ENG., AND H. ETCHES, M.I.M.E. (LOND.), BRANTFORD, ONT., ARCHITECTS.

a heathen temple, an entrance to a station-yard that is but an enormous sacrifice of the art of architecture at the throne of the railway demon, and a college that for more than a generation was but a feeble outbuilding to a portico which was an approach to emptiness. In each instance the march of time and the progress of national life have branded the works on which the architects bestowed such earnest care as anachronisms.

The Gothic revival which raged in its turn after the Greek, and had an Italian rival as well as offshoots of its own to compete with, commenced, flourished, died, and is condemned upon the same archæological ground as the Greek movement we have just described. The presence of rivals produced friction, and the contesting archæologies each claimed antiquarian precedent only as their ultimate test of beauty. Is it not utterly illogical and ridiculous to reflect that the beauty or propriety of nineteenth-century architecture should be judged by the accident of birth to some detail either in the twelfth or thirteenth century of some corresponding epoch? Traces of this error can be still observed in architectural examination question papers. In ecclesiastical design the iron bondage and dead weight of antiquity was endured longest, but when the evident revolt came it was only to resort to foreign types for a while and then to some period of hitherto forbidden fruit at home. The absurdities of most of this work are manifest to us now, but it is only a very short time ago that tremendous efforts were made to combine incompatible elements, and to compel the nineteenth century to wear the cast-off clothing of its Mediæval ancestors. But all dead men's clothes soon wear out and want replacing. What shall we say to the revivals of the use of indistinct glass in small pieces fastened together with lead straps, of rough rubble walls unplastered, of chilly paved halls, of wide-mouthed, open-throated chimney openings, of confining the influence of the fire-place to the ingle nook and numberless other barbarisms that have made us laughable to the world at large? And to what other lengths of imitative foolishness will not this historical method lead those who will blindly and unthinkingly follow? Apart from all questions of use or comfort, what beauty of form or of architectural idea is there in half the tricks of design and construction by which a modern building is made ancient in character. Put aside the fact that the Goths did so, we could give no reason, good or bad, for more than half of modern Gothic architectural design. The disposal of thicknesses in walls and buttresses, the scantlings of roof timbers and their framings, are governed by considerations which were good in days when walling was not paid for by the rod and timber was not purchased in scantlings at the Surrey docks. The fact is that English architects have been first bewitched with one beauty and then with another, and have finally endeavored to be in love with all the beauties at once; in losing their hearts they have lost their heads, and have lived in a Mediæval dream of bliss while the nineteenth century marched on and left them farther and farther behind in what is really a morass of archæology, out of which no path to real living architectural design can emerge.

As we endeavored, however, to give the modern Greek architects their due, those of the Gothic Renaissance must not be dealt with unfairly. We are to this day living under the romantic charms of their Mediæval England, and it is doubtful whether we can fairly gauge the verdict of the future on recent work. Great perseverance and consistency, an exact thoroughness of observation, a quick perception of the artistic qualities of picturesqueness, local beauty and appropriateness; a widening sympathy, still at work, for all the crafts and arts connected with home and civic life that flourished alongside architecture in Mediæval England; a general soundness and simplicity of construction equal to that of the Mediæval master builders, characterize the work of the leaders among modern architects of the Gothic revival. These men have absorbed themselves entirely into the spirit of the past age, and have succeeded in attaining their ideal to live architecturally in the Middle Ages, and they can and do produce for us genuine works of Art in all branches that compel admiration. Take a country-house by a leading architect of the present day for an example; how picturesquely its rubble and half-timbered walls group themselves upon the hill, with what stern reserve the battlements crown the walls, and behind them at sufficient distance to allow of the passage of a cross-bow man rise the quaintly waving tile roofs. How the tower crowns the landscape, with what a sense of protection the high courtyard walls enclose the entrance. What broad unwindowed surfaces of wall seem to defy the missiles of pre-explosive warfare. The mullioned and latticed windows, the timber framings, the stone jointing, the ancient leaden conduits, the very grin of the gargoyles all bespeak the thoroughness and perfection of the Mediævalism, which only consummate talent could realize for us in this un-Mediæval age. How thoroughly the artist has grasped his problem, too. Side by side with the architectural consistency one is conscious of a subtle artistic charm that seems to catch and secure effects in the modern building that the hand of time alone effected in the old prototype. The harmony of color given only by age is sought for, the rapidly weathering tiles, the dark-toned bricks, the fumigated timbers, the colored pargetting all are carefully considered and deliberately carried out to fix the Mediæval impression upon the mind and emphasize the doctrine that nought but what is old can be beautiful in this grossly unartistic age. The internal arrangements are even equally Mediæval. With the homely charm of an ancient grange is combined the charm of a modern house, but the essence of the charm is its antiquity. Hence, the quaint crookedness of plan that produces picturesque passages, the variety of levels, the deep window recessings, the great hall, the beamed ceilings, the panelled linings, and numberless artistic methods of carrying the mind back to the times before this Rip Van Winkle of architecture either went to sleep or was born. The result is indisputably charming. It is artistic archæology tempered with civilization; the dish itself, as well as its trimmings, is Mediæval; it does everything that is possible to put the hands of the clock back three or four centuries, but it is not modern architecture.

In ecclesiastical buildings we have similar results. The hapless chances of ancient church history and building are reproduced with skill and patience. The acme of modern ecclesiastical art consists in the perfect realization of what a beautiful fourteenth or fifteenth century church would have been, and as before, the laborious and earnest efforts of the artis had succeeded in a short span of life in running the gamut of the centuries and in reproducing in effect and feeling the presentment of the departed spirit of Mediæval Art. In fact, often no higher praise is required than that the purity, beauty and other qualities of ancient Art are to be found in their present day counterfeit. We have a definite Renaissance of Mediæval Art, our cathedral work. Our churches, large and small, and our colleges, are the productions of a living school of artistic architects for whom, with their domestic brethren, we cannot but feel the warmest affection and enthusiastic admiration, but they are exotics, they are contemporaries of Wykehamist William, of Harry the Eighth with his palace of Nonsuch, of Spencer and his Faërie Queen. They sing with Shakespeare:—

> Tell me where is fancy bred,
> Or in the heart, or in the head?
> How begot, how nourished?
> Reply, reply.
>
> It is engendered in the eyes,
> With gazing fed; and fancy dies
> In the cradle where it lies.
> Let us all ring fancy's knell;
> I'll begin it—Ding, dong, bell.

and they consistently suit the action to the word and bury true architectural fancy in a grave centuries deep.

We will not stop to discuss whether Queen Anne is dead or not, though she is evidently a guiding star still to the thirsty revivalist who, with faithful discrimination forsakes, with the progress of civilization, such barbarities as metal casements for the newly invented double-hung sash, and welcomes a small increase in the size of manufactured glass that enables him to employ wooden bars of moderate section instead of small lead straps. What would her deceased Majesty have given, or that great architect Sir Christopher Wren either, who preceded her, for such beautiful sheets of plate glass as now adorn our shop fronts? Oh, Revivalist, learn to follow the progressive movement of real Art, and become a designer in architecture instead of a mere dealer in her artistic antiquities. We must proceed to draw our conclusions. We are not able to complain of real lack of architectural opportunity, and there is no want of architectural genius and capacity. Our architects are, however, devoted to a more or less stupid archæology, and therefore have ceased in any effective way to be artists for the age. Why should not this be remedied? Cannot we set ourselves, instead of against the stream of time and progress, with it? Why should not the requirements, methods and opportunities of the men of our own time be studied, and our minds trained to fix themselves upon the universal characteristics of living Art instead of upon its past impressions only? As there is no true Art in representing a laboring man, rough hewn and coarse perhaps, but perfectly beautiful in degree, at his rugged work, as wearing fine clothes or a mask of Apollo, so let a warehouse front represent a warehouse, a railway station appear to be what it is, and as a station only; and let this sensibleness and a simple beauty take the place of the hopeless affectations of domestic design, and we may yet begin to earn back again the wages of public esteem and confidence that we have forfeited by our archæological heresies. Have you ever discovered that the true beauty of architecture is to do thoroughly and manifestly what it is intended to do, whether to be ornamental, comfortable, monumental or useful, as the case may require? For instance, what a solid impressiveness and grandeur there is about the vast supports and trabeated construction of the entrance of the Great Eastern Railway line into London, between Bethnal Green and Bishopsgate. This singular work of engineering is most architectural, and has stern and earnest beauty of character. Similar effects can be often, if not always, found where constructors have to make great effort to cope with difficulties, and some of the brick-and-girder engineering of the Metropolitan Railway is of this class, and has present in it, and manifestly so, most of the elements of sound architecture, and will without any doubt be regarded by the broad verdict of the future as some of the most characteristic buildings of our day. Why should architects segregate themselves, as if afflicted with an ancient leprosy, from the life of the city and world of to-day? Why should they leave all that is simple and direct in architecture to engineers, and lose their right to even the barren title of architect? Has not the Forth Bridge a piquant power of form and a real, if not ideal, beauty, without the assistance of what you and I call architecture? And does it not compare lamentably with the Tower Bridge, which, unless some undreamt-of convulsion happens, will for many generations be a monument of architectural failure, of great effort made to impart so-called Art and architecture that left to itself would have been much more natural? Also, in other directions, why are characteristic buildings of the age, such as the Crystal Palace and the Albert Hall, eminently works of architecture though not of architects? And, one must add, is not the block of Science Schools at Kensington, so impressive in mass and form and so thorough and beautiful in detail and decoration, the work of an architectural amateur, and does it not assert its dignity successfully amidst all its modern professional rivals?

Is it not time that we considered and reconsidered our methods until we find ourselves facing the problems of our practice, not as champions of a past style and dead art, but as equipped artists who facilitate the advance of architecture by meeting heartily the spirit of the age, in order to adapt her materials to their best uses, to accept her requirements for their greater usefulness, and to suitably and expressively ornament where required? To

discover the true beauty there is in all building truly and simply done, and to emphasize it, to proportion it, to mould it for the true enjoyment of all. To throw aside the trickeries of paper design, and to realize that such trifles as the small panes of glass of which we have spoken, with many others that are—foolish though it seems to say it—so indispensable to the modern architect, are quite unworthy of ourselves. Let us see that, shorn of a fictitious archæological interest, our buildings may be beautiful in themselves, as characteristic products of our high civilization. Be natural, as all the great architects have been before you. Learn by the true historical method the motive and spirit of past Art. See if the Greeks, who built a beautiful monument as a temple to Athene, together with the ecclesiastical and military engineers who erected the cathedrals and battlements of the Middle Ages, were not as far removed from you in the way they set about their work as possible. Was not their architecture the pure product of their age? and should not yours be so, too, in spite of that haunting fear of ugliness—indefinite enough for any bogey—which will cease to trouble you when once conscious that you have succeeded in doing simple and beautifully serviceable construction, adjusted and controlled by your trained artistic instinct?

The growth and practice of the great Renaissance of Art in the sixteenth century will bear the closest examination in the service of modern architecture. The motive of its artists is equally good, though widely different; but do not [illegible]ue that it was a mere revivalism of archæology. No restoration of ancient buildings was attempted; a genuine and wealthy architectural genius fed on the beauties of past ages, only to develop itself in the most wonderfully modern achievements, not only of construction and arrangement, but of detail and of all accessory art. Michel Angelo, in Rome, with the Baths of Caracalla and the Pantheon before him, conceived and canstructed St. Peter's, and the true historical method of study that discerns how and with what ends he did it will take the idea and motive as its guide to like results. The study of the design, or rather designing, of any one great building at home or abroad is the most fruitful source of profit to the architectural student. The history of the idea of St. Peter's for instance, as it gradually grew from the work of Rosselina and Alberti to that of Bramante, San Gallo, Raphael and Peruzzi, before Angelo commenced his enormously grand and complete conception, is most inspiring and instructive, and of infinitely greater use than a complete calendar of every architect that ever was known, with dates and nicknames. This example of a great architect's power can be studied alongside with the expression of the same ideas of breadth and power of form in his sculptures and paintings, and in fact there is a whole education in the universality of artistic expression in such a historical study of principles. St. Paul's, London, is a similar example as we happily have the whole scheme from start to finish to study. Observe the way in which Wren grasped his problems, and grasp your own little ones with similar firmness, courage and breadth of idea. Take even more ancient buildings. Try St. Mark's, Venice, or an English cathedral and consider the alterations and additions, not as if executed in a delirium of irresponsible building fever, but as having a definite architectural purpose and idea in view. Why were these domes added? is a more important question than who added them. Why was this old front extended beyond all the limits of the buildings behind it? is a more important question than who did it, and did he know that it was a sham? Let us suggest to eminent examiners that the question, why is the Parthenon beautiful? is a much more vital one than in what technical terminology pedants would describe it, or how many columns compose the portico, and other like trivialities.

Until we seek to study the reason why things are beautiful, we shall never know how to design. Some naturally may have an intuitive perception that is denied to others, but for all that the beautiful is but the revelation of unseen truths, and when revealed by this perceptive faculty the lessons of the beautiful are manifest for all. The teachings of the ages are in the effects that their works produce upon our minds, and it is little short of absolute folly to confine the training of architects in design to exposition of the mere forms of the language of architecture and deny them insight into the meaning of the words used. Each stone, each plan embodies an idea that gave it existence at the hands of its constructor. Let us, as we have never done yet, seek to read this out of the stones, and enlarge our appreciation of beauty and the possibilities of the art of design accordingly.

FOREGIN ORNAMENTAL PLASTERING.

ALTHOUGH in England there may occasionally be seen some vary handsome ornamental plaster work (principally executed during the last century by the Brothers Adam on the lines of Italian artists), it is not at home that we are to look for the higher examples of what may be done in ornamental plastering. Such work is mostly confined to ceiling spaces with us, and seldom found on walls, while, from India on the one hand to Peru on the other, we find it freely so used in other lands. It is, however, to Spain, whilst the Peninsula was under the rule of the Saracens, that we must look to see the grandest developments of what plaster is capable of. That fairy dream of architecture, the palace fortress of the Alhambra in Granada, built by the Moorish caliphs who ruled in that portion of Spain, has its ceilings and walls covered with decorative plaster work far excelling in beauty aught that Italian or Englishman ever dreamed of executing.

An American traveller, writing in the pages of a contemporary, speaks enthusastically of the "fanciful arabesques and light relievos which everywhere cover the walls of the Alhambra, and which, changing under the glance, like the patterns of a kaleidoscope, lend their peculiar power to charm and fascinate the eye of the beholder. Like the little stories within each other in the tales of the 'Arabian Nights,' the figures are made up of repeated repetitions, so to speak, and yet, by their suggestive complexity, are ever new and never become wearisome. To the uninitiated the delicate intricacies of the arabesques covering the walls of the Alhambra appear to have been worked out by hand with minute and painstaking patience. Especially is this true of the domed ceilings, which, with their pendants and stalactites, present patterns of labyrinthine and bewildering complexity. When, however, it becomes apparent that all this is stucco work, our astonishment ceases, although our admiration for the design remains undiminished. The patterns are made in plates of plaster of paris, cast in moulds, and, being skilfully joined, form patterns of varied form and size.

"This style of diapering walls with arabesques, and stuccoing the vaults with grotto work, came originally from Damascus, but received its highest development and most pleasing imagery from the warm-blooded Moors of Spain.

"The process employed was simple. Preparatory to applying the decoration, the naked walls were divided by lines at right angles, such as artists employ in producing pictures. A series of intersecting segments of circles were then drawn over these, and by their aid the artist could work with quickness and surety. The great instrument of the Moorish artists was the compass, which, however, was not made in the usual way of two limbs of metal joined. It was a fixed measure, tied by a string, so that for each dimension there was a separate compass.

"Much of the glorious effect of the Saracenic decorations, however, depended on chromatic effect and these Moorish decorators were good colourists.

"Gilt was very freely applied on the stucco, especially on the vaults and cupolas. Brilliant and delicate colors, such as lapis-lazuli and vermillion, were used in the interstices, being applied with the white of egg. The primitive colours prevail in the Alhambra, wherever the artist has been Moorish or Arabian.

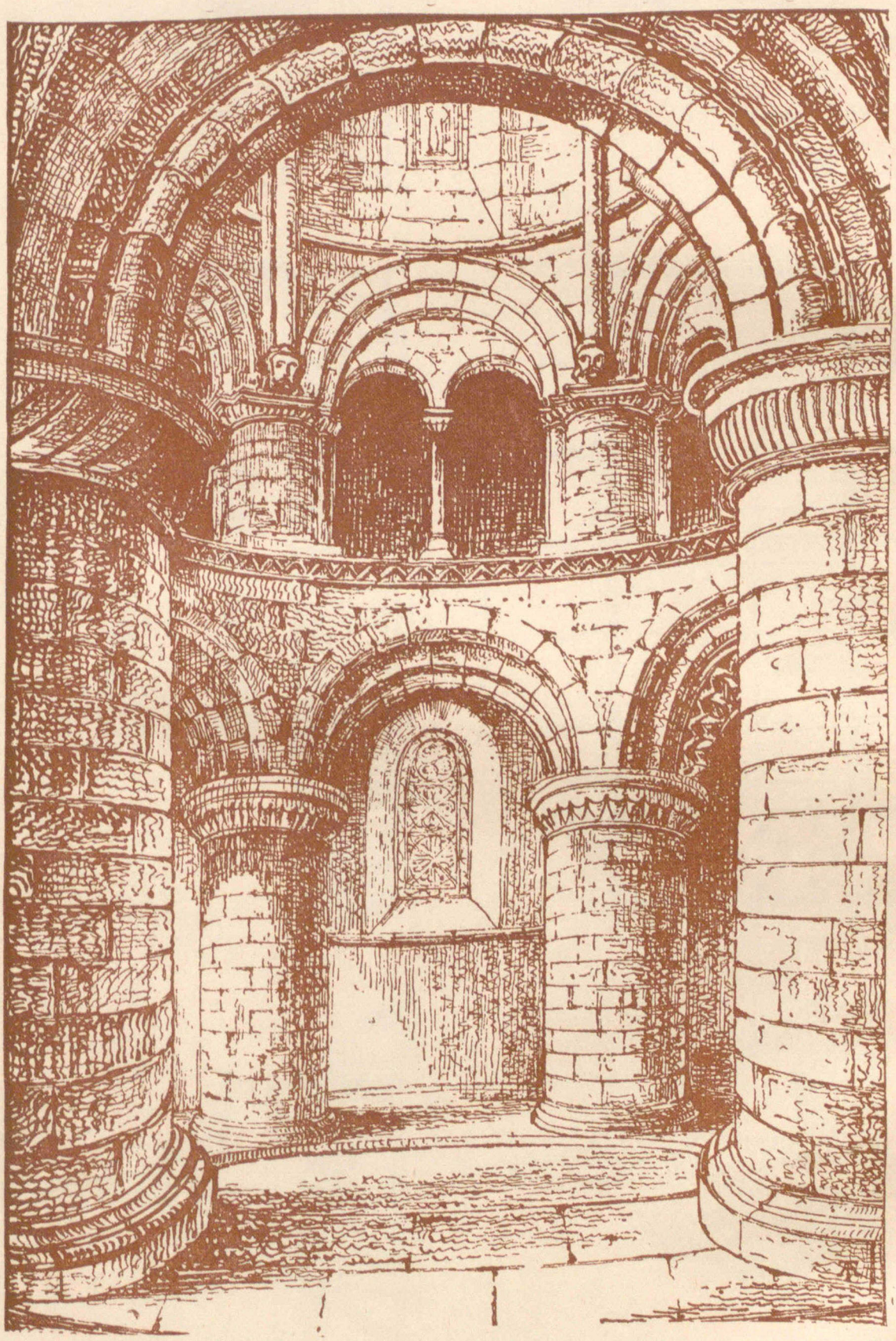
"The Hall of the Abencerrages is in the form of a perfect square, and the walls are ornamented with arabesques of the most elegant and intricate designs. The colors still retain their brilliancy, and the delicate beauty of the filagree remains unmarred after the lapse of more than 500 years.

"The Hall of the Two Sisters—so named by reason of two immense marble slabs forming part of its pavement—is exceedingly beautiful. Stalactite roof is said to consist of 5,000, and though all this plaster ornamentation is supported only by reeds, it still remains well-nigh as perfect as when first placed there."

Turning now to quite another quarter of the globe, and one far distant from that of which we have just been speaking, let us glance at some extremely interesting specimens of ancient plaster work still to be found in Peru, in South America. As most people are aware, the Spanish Conquistadores, under Pizarro, Amalgeo, and others, found the natives of that country possessed of a civilization which mounted back to hoar antiquity. But Spain conquered and enslaved these Peruvians, and destroyed their temples and cities.

Quite recently (in 1862) Dr. Le Plongeon went to Peru, under the auspices of the California Academy of Sciences, to study the antiquities of the land, and he has explored a number of the ruins of early Peruvian houses and cities. His researches conclusively established the fact that these Indians were masters of concrete building and plastering. At Chimu Coucha he found the remains of some ancient ornamental stucco on the adobe (or clay-built) walls covered with bassi-relievi (low relief) decorative designs. Of course they are not equal to the marvellous Saracenic plaster at the Alhambra, of which we have spoken. Nevertheless, the designs are extremely good, and the material and the execution are both of high merit—in fact, it is impossible to restrain our wonder that a people ordinarily held to be but little better than savages could have conceived ornamentation so æsthetic and executed it with such high technical ability.

Space fails us to speak of work of a somewhat similar character executed by primitive races in India and elsewhere, while to treat of the production of Italian and other European craftsmen does not enter into our purview.



The Round Church of St. Sepulchre's, Cambridge, England.

From Sketches by Andrew T. Taylor, F.R.I.B.A., Montreal.

TREATMENT OF COLORS IN DIFFERENT LIGHTS*

A very essential feature, and a subject worthy of more study than is usually accorded it, is the treatment of light and shade in decorative art. I do not think there is a master painter who has not frequently been confronted by some very strange and inartistic ideas of his customers. In some cases by practical advice and illustration, these ideas may be modified and possibly result in a creditable job to customer and decorator. In the selection of wall hangings the goods are placed generally where a strong light prevails. This may be very well in some cases, but how often is it we hear that the paper looks better in the piece than on the wall! What is the reason? Is it the pattern? No! The customer has not considered the light in the room. The same defect may occur once in a while to the decorator. For example, a room may appear to be very light when devoid of curtains, shades, furniture, etc., and in this condition the work may indeed look very satisfactory when completed. But when the room is furnished, it lacks one thing—decision. What appeared to be a delicate ceiling, is now so delicate that it would take a pair of opera glasses to find the design.

There are men we sometimes run across, who think they know it all, but if there is any mechanic in the world of labor who has a broad field for study and food for reflection it is the house painter of to-day. It is the duty of the employer in the interest of himself and workmen to impress upon them the necessity of closer attention to the methods of decorative art. A few practical notes in reference to the treatment of colors in different lights, will, I think, not be out of place.

I call to your mind a room with a south or south-western exposure having at least two good-sized windows. Let the ceiling be treated with a groundwork of light cinnamon, frescoed in outline with a medium shade of old gold color, the high lights to be tipped with gold leaf. Let the side walls be grounded in a dull sage color as high as picture moulding. For frieze make a slightly darker shade and introduce ornament in colors of old gold, deep crimson and dull pink. The cornice should be treated with special care, and I suggest that the cove should have the main portion tinted in the body color of ceiling and blended down into gold at the completion of the arc. The members of the cornice above the cove should be in the lighter shades so that the whole may blend together towards the ceiling. Woodwork should be ivory white, rubbed to a dead finish. In furnishing this room I would suggest white and gold furniture, with upholstery of light amber tint or otherwise old rose. This would give contrast and harmony combined. Carpet should be of light fawn color, with just sufficient color in relief to show design. This would make a very desirable reception room or parlor.

We will take as another example, a room with a western outlook, a shady retreat as it were. Let the ceiling be of a medium shade of old rose color with stile about eighteen inches around it in peacock blue. Let ornamentation be in the main body of the ceiling, and consist of corners, breaks and lines of geometrical figures, to be in darker shade of body color, with strong lines of deep brown between centre and stile. Let the side walls be in a full and distinct shade of terra-cotta, leaving space for frieze about fourteen inches. Let two and one-half inches on top and bottom of frieze be tinted in free-stone color, the remaining nine inches in purple brown. Now take a double stencil of Grecian key border with eight inch figure, and use light free-stone color for same. As a relief make a panel or break, each three feet around room, the same height in full as frieze, that is, fourteen inches. Let this be a perfect square with a medallion in centre of each panel, introducing plaque pictures of the muses, literature, art and music. For colors let the outside of medallions be in the purple brown, and centres on which pictures are to be painted be pure gold-leaf. The outside edges of the panels may be treated as a mat, and I suggest their being beveled in light and shade. Treat the cornice with care. Let the cove be treated with the free-stone color, and upper members in terra cotta and old rose. Let the lower members be in purple and peacock blue. A great improvement to this room would be to stencil main members of cornice in imitation stucco work, using only colors as herein suggested. For a study, library or music room, I am sure this would gratify the taste of any lover of decorative art. Almost any kind of furniture will be in harmony here.

We will now go to the other side of the house, a room looking eastward. Let the ceiling be in two shades of pearl grey, very light, the darker shade to be placed on the outside edges of ceiling and extending towards center about twelve or fifteen inches, the two shades to be blended, not clouded into each other. Let the ornamentation be in garlands of flowers, twined naturally over a rustic branch. Let this take the shape of ceiling as closely as practicable and be about fourteen inches from cornice. The colors to be cheerful, but not overdone. Nature may be followed very closely on this background without going to extremes. Let side walls be tinted goblin blue, fairly light, with frieze in deeper shade. I would suggest as a pretty design for a frieze a festoon of roses tied at the commencement of each with a bow-knot. Let the cornice be tinted in the three shades of color, only upper members in color same as main body of ceiling. Cove in dark shade of same. Lower members to be in side wall tints, split only by one member in gold leaf. Going over this combination, in my mind, I can fancy how this room would look with a dining table tastefully laid with fruit and flowers interspersed with china and plate.

For a room with a northern outlook, here is a pretty and warm combination: Let the ceiling be painted in a rich cream color, devoid of ornamentation. If the walls are evenly laid out, coat them in a light salmon tint, have them struck out into panels according to the size of the room; let the ornament only form panel by running a chain pattern in border and corners in sage green and deep salmon. Outside this border run a pearl pattern in zinc white. Afterwards line off the whole with three-eighths inch vanish line about one and one-half inches from border. At the top of each panel paint a wreath of flowers tied with ribbon and hung gracefully in center. For frieze let the background be in a lighter shade of wall paper. In working this frieze select a stencil with full pattern, a festoon of various flowers with moderate sized leaves. Use thin, transparent colors for stenciling. After laying on each pattern wipe out high lights. Let the colors be as natural as possible, according to selection of flowers. Let the cornice be treated very lightly in color and allow two prominent members gold leaf on face. The woodwork may be in oak or ash, according to taste. This will make quite a handsome parlor or sitting-room.

I could say a great deal more on the subject, as there is always a sense of pleasure to the decorator while pursuing his interesting occupation. However, I conclude, trusting that my remarks may result in generous criticism, thereby educating us all through debate and practical attempts to improve.

*Paper read by W. T. Cochlan at the Third Annual Convention of the Society of Master House Painters and Decorators of New Jersey.

AUSTRALIAN WOOD PAVING BLOCKS FOR CANADA.

A LETTER has been received, says the Australasian Builder and Contractor's News, by Mr. Harry Wood, Under-Secretary for Mines and Agriculture, New South Wales, from Captain J. C. Rounding in reference to the offer of the Department in regard to wood blocks for Vancouver, B. C., Canada. Captain Rounding says he conveyed the offer of the Department to his friends in the City Council of Vancouver, and by last Saturday's mail he received a letter from their City Engineer, Mr. T. H. Tracey, as follows:—"I am directed by the City Council, in reply to your favor of the 17th March *re* wood blocks for paving, to say they will gladly accept your offer, and will have the blocks laid in the most substantial manner in a conspicuous place. The street selected is 264 feet by 50 feet between gutters, at the entrance to the C.P.R. station and wharfs, the rest of the street being laid or about to be laid with California bituminous rock on concrete foundations. I have copies of the best London specifications for block pavement, but would be pleased to receive particulars as to the mode of laying you have found best. Should you send more than one variety of wood blocks, I will see that they are laid so that they can be destinguished, and the qualities and life of each noted." Captain Rounding adds that the blocks will be laid in the most prominent and important part of the City of Vancouver, the main entrance to the Canadian-Pacific railway terminus station. The importance of the movement cannot be over estimated, and he has had inquiries on the same subject from other parts of the Dominion. He thinks that if Australian wood blocks are once successfully adopted in Canada, the cities in the United States will soon follow suit.

PUBLICATIONS.

We have received from the publishers, the S. E. Hendricks Co., 61 Beekman street, New York, a copy of the 1894 issue of their Architects' and Builders' Guide and Contractors' Directory of America The book has apparently been compiled and classified in a careful manner. Price $5.00.

Canadians will find the August number of the American Review of Reviews of more than ordinary interest. The articles by Mr. William B. Wallace on the Hon. Wilfrid Laurier, by Attorney-General Longley on "Canada's Political Condition," and by Dr. Albert Shaw on "Toronto as a Municipal Object Lesson," form the most important contribution to an understanding of Dominion interests and policies that has recently appeared in periodical literature.

There has just appeared from the press of Wm. T. Comstock, New York, a new Directory of the Architects of the United States and Canada. Architects who are members of any of the various architectural societies are indicated by figures placed after their names. While the publisher does not undertake to say that this directory is absolutely correct, he states that every effort has been made to ensure its accuracy. It is the publisher's intention to issue the Directory annually. The price has been fixed at the low figure of $1.00 per copy.

PERSONAL.

Mr. John Day, architect, of Guelph, who was confined to the hospital for some time as the result of an accident, is, we are pleased to learn, on the road to recovery.

Mr. Henry Yates, a widely-known and respected engineer and contractor, of Brantford, died at his residence in that city on the 22nd of July. The late Mr. Yates was for many years chief engineer of the Grand Trunk Railway, and supervised the carrying out of several large railway contracts.

EXPANSION OF CHIMNEYS.

It does not often happen that facilities are afforded for exact measurements to be made of the expansion and contruction of a factory chimney. It is generally admitted that boiler chimney shafts should not be attached to the walls of any important building on account of the risk of cracking the walls by the expansion of the heated brickwork ; but it is not very easy to obtain reliable information respecting the amount of such expansion, and some persons have doubts whether brickwork really expands or contracts when heated. An unusual opportunity of making measurements on this point has recently occurred at Newcastle-upon-Tyne. The boiler chimney of the college was erected five years ago, and has been in constant use during the interval. As originally constructed it stood alone, 60ft. from the college building, 99ft. high from the concrete foundation, and 90ft. from the ground level. To the height of 33ft. from the ground an interval firebrick flue was constructed, with an air space of 3in. between it and the shaft. The upper 57ft. of the shaft was built of stock brick only, and had a uniform diameter of 6ft. 2in. externally, while the internal flue increased from 3ft. 11in. to 4ft. 8in. in diameter, the strictly cylindrical character of the exterior giving the chimney the appearance, when looked at from a distance of fifty yards or more, of being trumpet shaped, and larger at the top than at the bottom. During the last few months a casing of ornamental brickwork has been erected around the chimney, but independently of it, so that the casing of the shaft forms one of four octogonal turrets surrounding the Royal Jubilee Exhibition Tower, and guarding the principal entrance to the college quadrangle. The near completion of the brickwork surrounding the chimney afforded the opportunity of observing from the top of the casing any movement of expansion or contraction of the chimney itself. As the boiler fires are generally drawn or allowed to die out on Saturday afternoon and relighted on Monday morning, the chimney has an opportunity of cooling down during about forty hours and observations made from the top of the casing wall showed a contraction of the chimney of five millimètres, or 2in., during that time. As the surrounding wall was still about 6ft. below the top of the chimney when the measurements were made, and as the first 33ft. of the shaft remained practically cold on account of the air space between it and the centre flue, it may be taken that the length of brickwork in which the expansion took place was about 50 feet. According to this a shaft 100ft. high should expand 4in. when in use. The measurement was only of a preliminary character made for the purpose of determining whether it would be safe to allow the decorative work at the top of the turret to rest partly on the outer casing and partly on the internal flue, and the result showed conclusively the desirability of keeping the chimney shaft entirely independent of any other structure.

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THE PERSPECTIVE PROCESS.

On first learning the meaning of a picture, it would naturally strike the mind, says the Illustrated Carpenter and Builder, that a sure and easy method of carrying any point from its position in space to its position in the picture would give anyone the power of drawing the outline required. Such a process might be laborious, but it would put the whole design within possible reach. This method would be an excellent one for learners to begin with, previously to entering on the use of vanishing points; it would be something like learning to count with pebbles before entering on the common rules of arithmetic. Even without diagrams it may be possible to give such a description of the process as will enable some who have never attempted anything before to put a few simple figures into perspective. Let the picture plane, which suppose transparent, be spread out before the spectator, reaching down to the ground, and bounded on the right by a side wall, which extends both before and behind it. Every point which is to be drawn has a point directly below it on the ground, which call its ground-point; and a point directly opposite on the side wall, which call its side point. All the ground points make, when properly jointed, what the architect calls a plan; all the side points are elevation. The picture would be called a section if points were taken on it opposite to the points to be represented; instead of this a point is carried to its place on the picture along a line drawn to a certain point in front of the picture, which represents the eye of the spectator. This eye-point has also its ground-point and its side-point. The picture has its ground line and its side line, and every point in the picture has its ground-point upon the ground-line and its side point upon the side line. A picture-point is known when we know where the ground-point is by its distance from the side line, and where the side-point is by its distance from the ground line. To lay down a given point on the picture, draw a line from its ground-point to the ground point of the eye; that line meets the ground-line of the picture in the ground point of the picture point required. In the last sentence for ground read side, and we see how to find the side point of the picture point in the side line of the picture. Two lines being drawn on a paper perpendicular to one another, the right side of the paper may represent the side wall laid flat on the ground by turning round its ground line, and the left side may represent the ground plane. The two sides of the line which separates the upper part of the paper from the lower represent the ground line and side line of the picture. Take another paper, or another part of the same paper, draw two perpendicular lines, lay down the ground and side picture points by taking their distances from the paper on which they have been found, and the points of the picture may at once be put in their places. This is an explanation of the principle of a picture and an exhibition of a sufficient method of construction; that is of sufficient power, but not of sufficient facility; every point requires the drawing of three lines.

PAGES

MISSING