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SUPPLEMENT TO
CANADIAN ARCHITECT AND BUILDER
VOL. VI., NO. 1.

MR. JOHN WELLS,
ARCHITECT

CANADIAN

ARCHITECT AND BUILDER

1893:

C. H. MORTIMER, Publisher,

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ILLUSTRATIONS.

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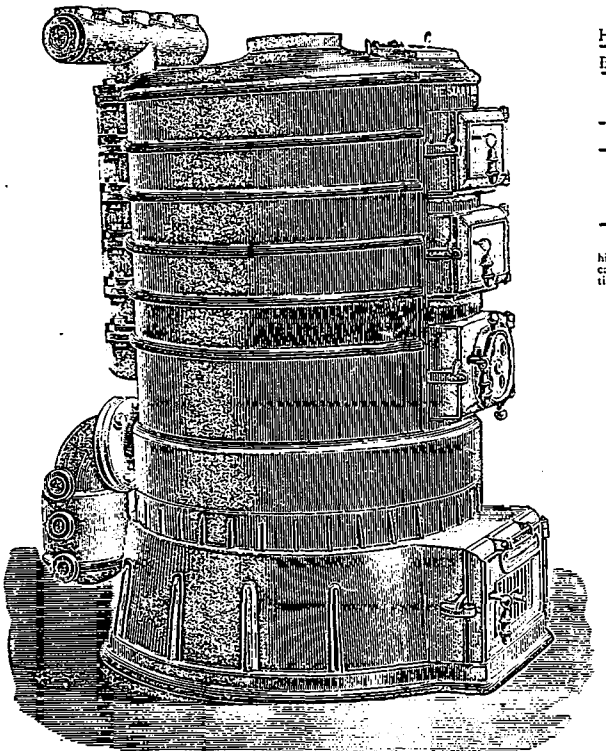

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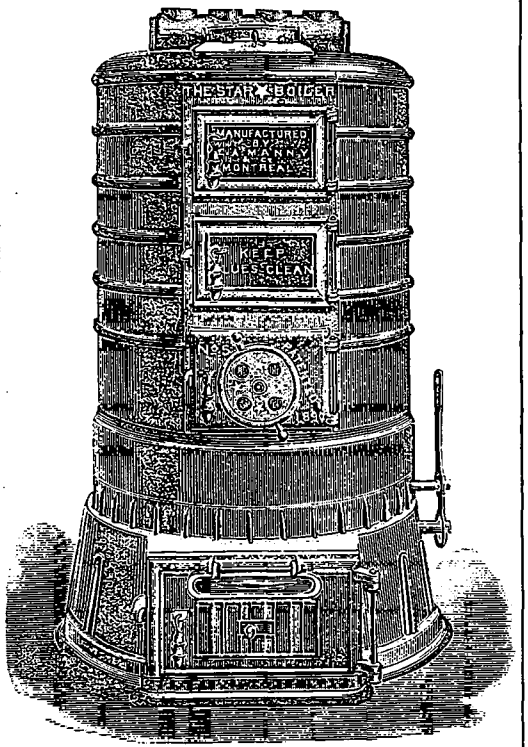

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VOL. VI.—No. I. TORONTO AND MONTREAL, CANADA, JANUARY, 1893. PRICE 20 CENTS. $2.00 PER YEAR.

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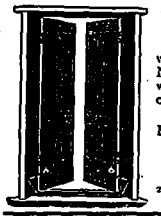

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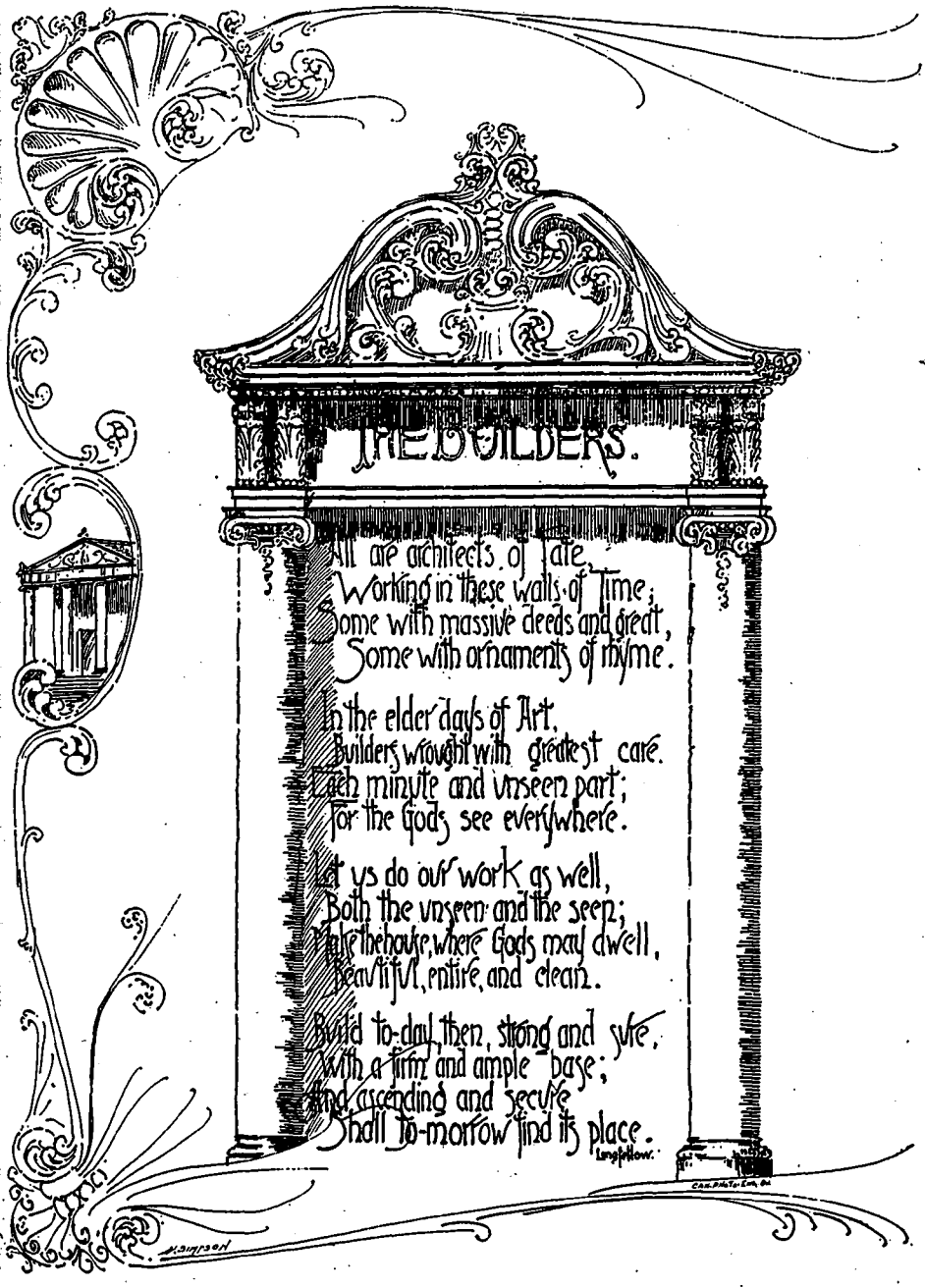
THE BUILDERS.
All are architects of fate,
Working in these walls of Time;
Some with massive deeds and great,
Some with ornaments of rhyme.
In the elder days of Art,
Builders wrought with greatest care.
Each minute and unseen part;
For the Gods see everywhere.
Let us do our work as well,
Both the unseen and the seen;
Make the house, where Gods may dwell,
Beautiful, entire, and clean.
Build to-day, then, strong and sure,
With a firm and ample base;
And ascending and secure
Shall To-morrow find its place.
Longfellow.

NEW YEAR NUMBER - PRICE, 35 CENTS.

CANADIAN ARCHITECT AND BUILDER.

VOL. VI.—NO. 1. TORONTO AND MONTREAL, CANADA, JANUARY, 1893. PRICE 20 CENTS $2.00 PER YEAR.

—THE—
CANADIAN ARCHITECT AND BUILDER,
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(With a Weekly Intermediate Edition—The CANADIAN CONTRACT RECORD),
PUBLISHED ON THE THIRD SATURDAY IN EACH MONTH IN THE INTEREST OF
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Contributions of technical value to the persons in whose interests this journal is published, are cordially invited. Subscribers are also requested to forward newspaper clippings or written items of interest from their respective localities.

The "Canadian Architect and Builder" is the official paper of the Architectural Associations of Ontario and Quebec.

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VOL. VI.

FIVE years ago the CANADIAN ARCHITECT AND BUILDER was launched on the journalistic sea as the representative of the architectural, engineering and building interests of this country. The present New Year Number is intended to mark its safe passage through the shoals which at the outset usually endanger and often wreck the lives of ventures of this character. A comparison of this with the initial number, will suffice to indicate the progress which has been made. While it is a matter of gratification that many of the crudities which marked the earlier numbers have disappeared, we are conscious that perfection is yet far distant, and the realization of this fact will prompt to constant endeavor in the direction of the ideal.

Our sincere thanks are extended to every person who has assisted us to achieve the present standard, and we hope for a continuance of their aid in the future. Especially would we acknowledge the assistance given us in the production of the present number. To Messrs. Darling, Sproatt and Pearson we are indebted for the design for front page of cover, to Mr. Henry Simpson for frontispiece, and to the authors of the special articles on numerous subjects appearing in this issue. Nor would we omit mention of the manufacturing and supply firms, whose enterprise and liberality are abundantly manifest, and who are deserving of reward at the hands of architects and builders, who are extensive users of the materials which they offer.

We trust that to all connected with the building interests 1893 may fulfil the present indications of a prosperous year.

THE address of the President of the R. I. B. A. at the opening session for 1892-3, covers four closely printed pages of *The Builder*, and deals with a variety of subjects, including Draughtsmanship, Architects' Education, Examinations, Qualification of Fellows, The Institute's Publications, Capital and Labor, The Chicago Exhibition, Preservation of Ancient Buildings, The Education of the Public Taste. It would be instructive to receive once a year from the Presidents of our Provincial Arcitectural Associations a similarly comprehensive review of questions relating to the architectural and building interests of this country.

IT is with pleasure that we call attention to the letter in another column of Mr. John L. Phillips, Secretary of the Toronto Builders' Exchange, advocating the formation of a Provincial or National Association of Builders founded on lines similar to the National Association of the United States. Our correspondent enumerates some of the reasons which should serve to call into existence such an organization. There are many others which might be mentioned. Canadian builders are far behind in the matter of organization their brethren in the United States and the Australian Colonies. They are also behind all other branches of trade and industry of equal importance. Lastly they are behind, very much behind, the labor organizations, one of which, representing the Intenational Stonecutters' Union, has been deliberating in Toronto during the past few days. Why should not the employers meet in like manner and discuss questions affecting their interests? The success which has attended the organization of the Toronto Builders' Exchange should prove an encouragement for the extension of the idea in accordance with our correspondent's suggestions, in order that questions of general as well as local interest, including the important subject of legislation affecting the building trades, might receive proper consideration. We hope to see the subject thoroughly discussed and early action taken. The ARCHITECT AND BUILDER will willingly place its columns at the disposal of those who may desire to express their views on the subject, and will otherwise assist in every way possible the carrying out of the idea.

ARCHITECTURE IN HAMILTON

IN order to arrive at just conclusions concerning our appreciation of architecture, we must bear in mind man's two-fold nature, and of all the arts it is architecture alone which appeals to both sides of this nature—the material and spiritual. Of course the spiritual consists of two parts, morality and ideality, but it cannot perhaps be said that the first is at all affected by architecture (unless in some degree by the iconographic phase of ecclesiastical work), it is the ideality in man, or his appreciation of beauty, that is referred to. Only in true architecture certainly do we find a complete satisfaction, and it would seem safe to judge architecture by the degree in which it satisfies or fails to satisfy these requirements of our nature.

As in daily life we have first to give our attention to material wants, so in architecture, and if these are fully met and we build in truth, our inner nature will also find some response. Beyond this, it is only a matter of how much and in what manner we decorate our construction. For a building to be truthful, it not only must be built of materials which honestly proclaim what they are and which are used in a logical manner, but it should also suggest its purpose, and the exterior express its interior arrangements.

This point can be well illustrated by reference to the new Bank of Hamilton; here the lighting of the large banking room is accomplished by two rows of windows disposed in such a way as to strongly suggest two internal stories. Of course it was done to carry out the motive which had been adopted, but it is not truthful and one of the first principles of architecture is violated. In other respects this building is rather successful; the general conception of it is good, the detail is refined, and the carving shows signs of life and is well designed. Unfortunately though, the building is in the wrong place. The site is one of the finest in the city, and should have held a building of more imposing character. For this reason adverse criticisms have been passed on it, which would have been uncalled for had the building been elsewhere.

The Bank of Montreal may be cited as the best type of public building in the city. Although there is nothing very striking in its conception, the effect of the whole is good; its purpose is well expressed, and the interior truthfully portrayed; the detail both of mouldings and ornament is refined and well studied and thoroughly in keeping with the style—a phase of Florentine Rennaisance. This is a point which is worth laying some stress upon. The building is in perfect harmony throughout—not, as is sometimes the case, with features of part being in one style, those elsewhere in another, then probably the mouldings in a third, and the carving a mixture of several styles not included in any of the rest. This is the way in which a great quantity of our modern work is designed. Not only this, but the detail is coarse and unstudied. The general aim seems to be to design detail in such a way that one can see every part of it almost half a mile away; this is of course a great mistake, sometimes amounting to positive vulgarity.

An example of coarse detail on a public building may be seen on the new post office. The old post office building, on the other hand, has some very nice detail and is quite successful in many respects—in fact, it is well worth studying.

The Canada Life Building is also a good example both of design and execution. It is carried out in brown stone, and is a very commendable piece of cut stone work.

St. Paul's Presbyterian Church is a building that Hamilton may well be proud of. It looks well from any point of view and is pleasing whether seen from a distance or closely inspected. It is built entirely of stone, including the high and graceful spire. This is the only stone spire in Ontario.

As far as domestic architecture is concerned, Hamilton has both good and bad. There is something quite charming about most of the old homesteads where the true feeling of a *home* is well expressed. They have an air of repose and refinement about them in striking contrast to much of the new work, which literally bristles with towers and turrets, calling loudly to every passerby to behold what wealth and power its owner must have. A tower is altogether out of place on a *home*; there is no reason for it but that of ostentation, and it certainly detracts from the essential idea of such a building.

There is a nice old house on the corner of King and Bay streets; although very simple it is quite pleasing with its colonial doorway, good detail and careful disposition of the openings.

Another interesting building is a quaint old place on John street, now used by Messrs. Gurney & Co. as a storehouse. The design, which has a strong Flemish feeling, is to be commended as being harmonious throughout; the proportion of the whole and its parts is satisfactory, and the motive is well followed. The exterior is hardly expressive of its present use, but when it was erected this of course was different.

Hamilton should have good architecture, for it is very picturesque, and gives the designer a better setting for his work than is usual in cities. Fortunately it has also a good architectural foundation, and it only remains for the future work to follow this up on progressive lines without violating the essential principles of good design.

C. H. ACTON BOND.

ILLUSTRATIONS.

BANK OF MONTREAL, HAMILTON, ONT.

This building was originally erected for the Bank of Commerce from the designs of Mr. Hay, architect, Toronto. It was afterwards purchased and has since been occupied by the Bank of Montreal. The street fronts are constructed of Ohio stone, and the remainder of Hamilton stone.

ST. MARY'S CATHEDRAL, HALIFAX, NOVA SCOTIA.

St. Mary's Cathedral is regarded as being the finest sacred building in Halifax. The architect was a Mr. McCarthy, of New York. The entire front and the spire is built of dressed granite. The sides are not in keeping with the front of the structure, but are built of ironstone with freestone facings. It is a matter of regret that a structure upon which so much money has been spent should be finished in this manner. If the whole building had been completed in a style to correspond with the front, and erected in a square by itself instead of allowing other buildings to hide a part, it would have shown to much better advantage.

BANK OF MONTREAL, MONTREAL.

The present main building was erected in 1846-47 from designs by Mr. John Wells, architect. It originally had a sloping roof and a dome. At a subsequent date the dome was removed, an attic story built and a flat roof put on. The beautiful piece of carving appearing on the facade was executed for the purpose in Italy. In 1885-86 extensive alterations were made from the designs and under the directions of Messrs. Taylor, Gordon & Bousfeld, architects. The banking room was enlarged to more than twice its original area, and entirely new fittings of marble and bronze put in; the whole interior was decorated with frescoes of subjects taken from the early history of Canada.

A new grand oak stair case was also added in front of the Savings Bank to give access to the head office. This facade was ornamented by bas reliefs in stone of subjects symbolical of Commerce, Navigation, Mechanics and Agriculture, executed by Holbrook & Mollington, carvers, Toronto.

METHODIST CHURCH, QUEBEC.

Of Quebec's twenty-five churches, only five are of Gothic design; of these, the one shewn in our view is the largest and in many respects the handsomest. It is built of grey lime-stone, from Deschambault, about forty miles from Quebec, on the C. P. R. line, fine hammer dressed, with tooled mouldings and some very good carving. Until within three or four years the apex of the east gable finished with a pinnacle similar to those yet remaining. Having become impaired by the action of the weather, the trustees, to save future expense, decided to remove it. This action, taken contrary to professional advice, has detracted from the appearance of the edifice. The church can seat comfortably a little over 1000 persons. A gallery extends around the whole interior, the part at the west end being occupied by the choir and organ. Immediately in front and somewhat below the level of this gallery is the platform and pulpit, while underneath the gallery is the vestry and other parlors.

Being built on sloping ground, a lofty basement entered from a street at the west end, is obtained, in which the Sunday School and various organizations in connection with the church find roomy, well lit accommodation.

The late Mr. Edward Staveley, architect, designed and superintended the erection of this church in the year 1848. Although 45 years have since rolled by, carrying away with them all the trustees of that time, as well as the architect, the mason, contractor and painter, and in all likelihood all the workmen who raised the building, the senior member of the firm who carried out the contract for carpenter and joiners' work still survives in the person of Mr. Simon Peters, who is as ready to-day as he was 45 years ago to take contracts of any amount.

The original cost of this church was about $40,000.

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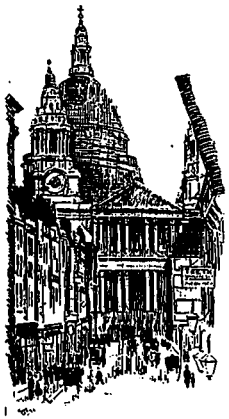
NOTES BY A CANADIAN ARCHITECTURAL STUDENT IN LONDON.



THE benefits to be obtained from travel are so obvious to every one that it would be idle to elaborate what may be assumed to be a well established opinion. To study with what success architects have in the past succeeded in meeting the wants of their time under different conditions, and, it may be, with other materials—to note, too, their failures, and learn if possible how to avoid such in one's work—this must surely be as profitable a subject of study as any young architect could well betake himself to.

Coming from a country all whose institutions as well as buildings are comparatively new, to one where age lends dignity to its habits and customs no less than to its structures, one cannot help being deeply impressed, and perhaps somewhat awed. It is not always easy to discover whence the charm of many of these old buildings is derived. It would seem that Nature herself takes up an architect's work where he leaves it, and by a touch of color here and there, removes the harshness and crudeness of the original work, softens the hardness of outline, and in a hundred ways assimilates the building to its surroundings, till after the lapse of ages, it becomes impossible to tell whether the building or its surroundings conduce most to the charm of the view. At any rate one can hardly look with anything but reverence at the structures which have come down to us bearing the marks of many generations. There is, however, plenty on which to exercise one's critical faculties in the work being carried out in modern England. Here, at all events, an American feels himself on level ground, and is usually not slack to join issue with his English brethren of the T square. It is not my intention, however, in these notes to criticize or make comparisons of the work of English and American architects, but rather to note what has most interested me in the architectural world on this side of the Atlantic.

London would seem to be fast becoming the great centre of architectural and artistic work, as it undoubtedly is of literary work. Most American architectural students who cross the ocean for purposes of study seem to go to Paris. This would appear to be the general belief as regards the past, but more attention is now being given to English work, though it may not be quite safe to say that the tide has turned. Colonials probably have more sympathy with English work—certainly those from the antipodes have, if one may judge from the number of Australian students one meets in town.

Coming to London for the first time one is greatly impressed with its vastness, and this feeling is one that grows, for it is only after a year or two's residence that one begins really to appreciate what the simple word "London" means. It has, however, been spoilt in the making. How sadly disappointing is it to find a total absence of grandeur, composition or grouping. And this is the more annoying because after the great fire there was both the opportunity and the Man. It will be almost impossible now to give to it that unity as a whole which it might have had, had the authorities accepted and carried out Sir Christopher Wren's plan for its reconstruction.

Westminster Abbey is of course the building demanding first notice. Its interior is probably the most beautiful in England; fortunately it has not been scraped (an operatian that gives to many English cathedrals an appearance of comparative newness), and consequently has all the effect of hoary age to help out the beautiful architectural detail. The manner of lighting from above is one of its great charms; the interior is always more or less shrouded in darkness, causing an effect of gloomy mysticism and grandeur. The unusually high nave roof of course greatly contributes to this, as well as the wonderfully artistic London atmosphere. The effect, to be understood, must be seen on some glorious summer's afternoon. The statues erected as memorials, in some instances seem to injure the architectural effect. Yet it may be that the Abbey itself derives an added grace by comparison with their hideousness. The north transept has been recently restored, and and seems to be a work of exceeding merit.

It would be impossible in this short note to do justice to all the old churches about town, but one cannot do less than mention the Tower, with its beautiful Norman Chapel; the Church of St. Saviour near London bridge, being restored under Sir Arthur Blomfield; St. Bartholomew, Smithfield, also under restoration by Mr. Aston Webb. This latter church is a perfect mine of Norman detail. Hidden away as it is near the great meat market, and completely shut out from view among slums, it is only recently that the majority in the architectural world knew of this jewel.

An exception to the criticism as to laying out streets and buildings for effect must be made to what may be called Parliament Square. The view of the Houses of Parliament and Westminster Abbey caught as you enter the square from the embankment or from Westminster Bridge, seen about sunset, is literally a dream in stone.

St. Paul's Cathedral, too, from whatever point it is viewed, is a building which by its great mass and powerful dome cannot fail to attract the most casual of sightseers. The durable Portland stone from which it is built has in places weathered to an astonishing whiteness, whilst other parts are almost black from soot; all of which tend to heighten its artistic effect. The dome poised aloft above all surrounding buildings, is seen from almost everywhere and becomes the centre of many a majestic view.

Old London is fast disappearing: there is still, however, much of the domestic work of the 17th and 18th centuries left standing, but it has to be sought for in out-of-the-way places. It is specially interesting from its relation to the colonial work of America, the slight difference in detail arising from the use of stone for out-door features in the English work, resulting in the mouldings being rather coarser. Time has lent them a dignity which their simplicity and directness of construction helps out, the whole forming a strong contrast to the fussy modern detail of work rising up around it. In and about the temple is to be found a curious network of courts and alleys containing many examples of this class of work. Richly moulded and canopied doorways (mostly of brick moulded and cut to as exact an outline as if executed in stone); cornices of elaborate detail and considerable projection, sometimes in cut brick-work but oftenest in wood, meet one at every turn, whilst scraps of wrought-iron tempt the sketcher's pencil.

Mention must be made, however brief, of the mine of sketchable subjects to be found in the almost priceless collection in the British museum, not to mention south Kensington with its collections of art work of every description gathered from everywhere.

Whichever way one's individual tastes may turn, one cannot but be struck with the energy displayed by British architects of the day in adapting the architecture of the past to their present needs, and in solving what may perhaps be ultimately recognized as the beginning of a new style. The work of some of the leading men cannot be called either Classic or Gothic. Traditional architecture is nowhere the rule except among a few of the old school,—the leaders have made the plunge, and the youngsters gasp and flounder after as best they can. To an eye trained to American practice, most of the new work here seems lacking in strength and especially in breadth. Too much detail and too little constructive architecture seems to be the rule. The value of plain wall surface scarcely seems to be appreciated properly. The English architects seem to be very fearful of destroying the scale of a building by use of large openings and of large features generally, and rightly so to some extent, but it is carried to too great an extreme. Everything in its proper order, but seeing some of the buildings here makes one think that the designer has mistaken his calling, not architecture but furniture should have been his destination. So one would at least think, judging from the recent competitions and the mass of work seen in the streets. Fortunately there are some men who are the opposite of this, and whose work seems all the more pleasing by contrast.

Terra-cotta is greatly used, and no doubt largely responsible for the extreme richness of the work now being done, and perhaps the smallness of many of the buildings causes the architect, though frequently in vain, to give importance to his building by enriching it. The great number of windows required in this dark climate to light a building effectively have to be considered as affecting its simplicity, by cutting up the wall surface.

Terra-cotta and brick are used with surprising skill. Elaborate cornices, architraves of windows, sills and many other features, are not only executed in terra-cotta, but also in cut brickwork. Some of the terra cotta here is of a light pink, but most usually of a warm yellow tint, and has a slightly glazed surface. It does not always weather well, however, notwithstanding the boast of its permanence. It is frequently cut for ashlar work in rectangular blocks, and is not entirely free from having a hard machine look about it. The blocks being hollow have to be filled in with some material, and there is some danger when this is not very carefully done, of the terra-cotta splintering if heavily loaded.

Moulded and carved brickwork is executed with a specially made brick known as "rubbers" set in putty mortar, with a very fine joint. Mouldings are formed by rubbing them to the required section, the carving is then executed after the work has set; the whole is finished as sharp and true as if executed in stone. These bricks, though soft and not capable of standing great weights, seem to weather well. Examples are to be found nearly two hundred years old in London. One cannot but praise the quality of the masonry in the best buildings. Walls are thoroughly well bonded and built either with cement or in hydraulic lime mortar. It may be interesting to know that the Victoria tower of the Imperial Institute, some 260 feet high to top of masonry, while of stone on the face, is backed up with brick, built, of course, in cement. With the exception of Portland stone, there seems to be no stone used in London which is pleasing in effect when used in large masses; this, of course, adds greatly to the difficulties of the architect in getting a pleas-

ing effect. The most effective buildings seem to be those where a combination of brick and stone is used as in New Scotland Yard.

Some of the carving seen on one or two recently erected buildings is good beyond all praise. This result is no doubt due to the fact that sculptors of the front rank have been secured, and have not thought it beneath their dignity to engage in this class of work.

In examining the details of modern English practice, one notices many peculiar features. Casement windows are very much used, and the greatest care is taken in jointing them so as to exclude the weather. Then again, there is a tendency to divide the heads of windows into small squares. Lead lights too are much used, glazed with clear glass. In the best work many of the joiners' mouldings are worked on the solid instead of being stuck. In brickwork the bond is always either English or Flemish; American bond is not even known. Fire-proof construction is common, and is usually of concrete filled in between girders, sometimes with a flat soffit, at others arched. Very light concrete is used, the aggregate being Portland cement and coke breeze. The ironwork seems to be very indifferent and is usually handed over to fireproofing firms who not only supply the material but also the drawings. There is little or no attempt on the part of the architect to plan the construction of the walls to meet the best special requirements of fire-proof construction, girders being often allowed to come over openings and rest on chimney breasts, or, indeed, very much wherever they happen to come. It is to be feared that this sort of thing happens in the work of even the foremost men as well as among the general rank and file.

In conclusion, it may not be amiss to point out that the advantages of two or even three years spent in London are of great value to the young architect who has already mastered the routine of office work. To be able to come in close contact with old work and study the development of the best modern work; to see different methods of construction, planning and preparing drawings; to be able to attend the architectural classes of the Royal Academy and the Architectural Association, and to test one's knowledge by subjecting onesself to examination by the Royal Institute of British Architects, are only small portions of a list that might be continued indefinitely.

THE ENTRANCE DOOR.*

It was suggested some time ago that a general effort by every member of our Guild should be made to give additional interest and profit to the winter meetings, and that this end would be helped on by some little preparation given subjects likely to elicit interested discussion. The subject mentioned by Mr. Langton is in pursuance of an idea that it would be of profit to, say, commencing with the doorway, proceed as it were to dissect a house, and from the old and the new, as we are able to recall them, discover faults to be avoided and excellencies to be revived or perpetuated. So as; no doubt, to leave the more vital parts of the house for a more competent analyst, I have been asked to enter the threshold by introducing for discussion "The Entrance Door." That pertaining to a dwelling house of moderate size is I think a subject large enough for one evening, and is one we are all most frequently interested in.

Considered as to its purposes, what are the requirements necessary to make the entrance answer all demands of utility and ornament?—for as to the latter all ages seem agreed in this, that whatever of art or adornment pertained to the house, it is on the doorways we find its concentrate expression, and the good sense of this wants no argument, as beauty wastes not its sweetness here unseen, and here bad ornament is a sin with aggravation.

The door of a dwelling house, its purpose in all cases being pretty much the same—to welcome the coming, speed the parting guest—why should they not, I venture to suggest, be all of a size? A good stout door, say 4 ft. × 7 ft., securely hinged, shutting truly into its rabbat, with solid lock and furniture, is an agreeable thing to handle, which very few double doors can be made. But, you say, how can wealth display itself by so meagre a portal? Yet, are there not examples of French, of Florentine and other Italian doorways, smaller than this, that by treatment of arch, jamb and lintel, and perhaps carved or mosaic spandril, are made infinitely more attractive than the double doors of America? The question I raise is, that except for buildings put to public uses, where it is necessary to give exit to throngs of people, is the insecure, unsubstantial looking, two-leaf door ever necessary or desirable? Should not the house that seeks to display some grandeur of proportions in its entrance, have space enough to give some hospitable shelter to the visitor at its doors and under recess, arched or otherwise, frame a door of our normal size by such studied devices of art as would render interesting the delay between the "knock and it is opened unto you"?

The size of landing of the front door is a matter of proportion, and although the nervous groping for the step caused by too small a landing is to be avoided, yet the landing can easily be made to look too large unless combined with other piazza. For elevation of door above the ground line I would make a golden mean about 3 ft. 6 in.—neither liking the necessities of the American high basement, nor being able to feel the charm of the English method, which likes to saunter into the house over one or two stone steps. Whatever the size of the entrance door, it should be deeply recessed, being different from a window, in which the reveal is more valuable inside. The door looks repellant which is near the outside of the wall, and for which no extraneous porch head or pediment will atone. The universal panel jamb of our colonial is a recognition of this, and is a feature that with the better understanding of a free, refined, classic detail now prevalent, might be revived, redeeming at least the terrace house from the commonplace.

As to the architectural treatment of the door opening, to give due prominence to this, the main feature of the house, all depends on the acquired knowledge of detail of the architect and his skill in adapting and applying to make suitable to modern requirements. Even around Toronto there are numbers of examples of the English combination of pillar or pilaster and entablature, fan and side lights worked out with considerable refinement. For instance, the drawings of the old Canada Company's entrance, recently shown in the CANADIAN ARCHITECT AND BUILDER, compares well with the similar specimens of Old Colonial the *American Architect* is so fond of reviving for instruction and reproof. So now that the bustling progress of the last twenty years (in which the doorways have had too little study of either architect or joiner) has had praise, it is likely we will all endeavor to do more studied work on this feature of the house. As to the most desirable position for the entrance to the house, although there are no doubt many fine houses with the doors in the centre of the front, it seems to me to commit one to a somewhat unvarying type of plan, where the hall is apt to be dark and only a means of getting to the rooms. Entrances on the corner or on the side, on the other hand, give the architect an opportunity to make of the hall a delightful loitering place, with enticing vistas into the rooms.

I seem to be about the end of my ideas on the entrance door, having got into the inner hall, forgetting that indispensable feature in our climate, the vestibule. This should be large enough to render progress between doors easy and natural, but anything excessive in the size of vestibule is downright loss to the house, its purpose being merely analogous to a double window, for in any way to attempt to furnish the vestibule results in more convenience to the hall thief than to the occupants of the house.

*Paper read before the Toronto Architectural Guild, by Mr. John Gemmell.

ORGANIZATION OF CANADIAN BUILDERS.

TORONTO, Jan. 7, 1893.

Editor CANADIAN ARCHITECT and BUILDER.

SIR,—In accordance with the suggestion made by you some time ago, I beg to submit the following ideas that have occurred to me, with the earnest hope that a greater interest may be thereby incited among sister associations, which may result in the amalgamation of the various Builders' Associations throughout the country.

You are aware that the different exchanges and associations in the United States have united into a National Association, and that a convention is held every year in one of the leading cities for the purpose of discussing matters of interest to the trade, and of concerting measures to improve existing conditions. Through the courtesy of Mr. H. Sayward, of Boston, Secretary of the National Association, I am in possession of much valuable information regarding the progress of the Association. Among the results achieved thus far may be mentioned: 1st, the establishment of the "Uniform Contract"; 2nd, a fully defined method of apprenticeship; 3rd, a general plan for the joint settlement of disputes or differences between employers and workmen.

One very desirable result is being attained, in that workmen are becoming impressed with the fact that their employers are considering the questions that they have for so long a time been trying to solve; and they are thus becoming better disposed for a peaceful settlement of disputed points.

I may say that the Toronto Builders' Exchange is endeavoring to secure an amendment to the present Lien Law, which is acknowledged to be practically inoperate, so far as giving any security to the builder or supply merchant is concerned. Is it not reasonable to believe that such action would carry greater weight, and be more likely to succeed when proceeding from a Provincial or National Association?

I understand that the exchanges and associations in Australia and New Zealand have formed a Federal Association, with a very perfect organization, and judging from a report of their last annual conference, held in Brisbane last October, they have reason to congratulate themselves upon their success. It appears to me, that if our friends in the antipodes (who are separated from each other, in many cases, by long water stretches) can still meet, and hold such enthusiastic meetings, there surely is no reason why, in Ontario at least, where every facility for intercommunication exists, that a National or Provincial Association should not be at once formed.

I am sure that the Builders' Exchange of Toronto will heartily co-operate with other Associations to this end, and I think the assistance of the CANADIAN ARCHITECT AND BUILDER may safely be counted upon. I would suggest (with your permission) that the views of other Associations on this matter be expressed in your valuable journal. Allow me to state that any communications on this subject addressed to the undersigned would be received with much pleasure.

Yours truly,

JOHN L. PHILLIPS,
Sec'y Toronto Builders' Exchange.

SOME EXPERIENCES OF A STUDENT IN VENICE.

THE traveller abroad will save much time, trouble and money, if he will plan his tour and acquire information about it before starting. The experiences of a returned student of architecture ought for this reason to be interesting to those at home whose tour is yet before them. Though I was myself ill prepared for what I had to do, and my tour was, I am afraid, by no means a model always of the best thing done in the best manner, yet I think intending travellers of the same kind as myself may extract from a narrative of some of my experiences in Venice, which I visited first and where I stayed the longest, hints and information which may be not unuseful to them when they are preparing to go abroad.

While I was meditating my tour I gradually became aware that to mention my purpose to an old traveller was to be charged in reply with a list of practical hints about hotels, pensions, conveyances, etc. I found this rather dull conversation when my tour was more remote, but as it neared accomplishment, began to perceive its interest; and when, upon the eve of my departure from England, a sculptor recommended me to go to the Casa Kirsch in Venice, as a place frequented by artists and English, I made a careful note of it (as I would recommend the student to do with all such hints) and a few days afterwards found myself there.

On the first morning after my arrival as I was having my café, or first meal, in the Salle à Manger—not having yet learned to take it in my bedroom or in bed in the Continental manner—a young man, who had been transacting business there with a vendor of antiquities, apologized to me in the American tongue for interrupting my breakfast. We had a little conversation, for which I am still grateful to him. I was just then realizing my position of desolation in a strange land, and clung instinctively to a white man, particularly when I found that we had met before and that he was of my own profession. But it came out soon that he was on his wedding tour, and I perceived that he was cut off from me forever. He was, however, good enough to seek me out that evening to give me a piece of advice which I pass on as of the greatest value. It seems that the English and American schools of art furnish their students with medals or tickets of some kind, which, by the liberality of the Italian Government, are convertible into tickets of admission to public museums and galleries of art throughout Italy. A certificate from one of our provincial associations of architects would no doubt be enough to effect this for Canadian students now. I had nothing to recommend me, but my friend came to advise me to apply to the British Consul for recommendation, as a student, to these privileges. This I subsequently did, and found it of the greatest service to me throughout my tour. It is not only picture galleries and museums proper that are thus opened to the student, but all the ancient buildings, such as the Ducal Palace at Venice, the Monastery of San Marco at Florence, and others, which are preserved as monuments of antiquity, and kept in charge by the Government. If one visited them as a sight-seer only, once for all, the charge of a franc which is usually made for admission would not be so great a consideration, but a student needs to make many visits. If one puts himself in charge of Ruskin, who so frequently explains one object of study by reference to another, it is desirable to feel free to step for a few minutes only into the building which contains the object referred to. I think also that there are restrictions as to sketching, to which persons other than the holders of these government "promessi" are subject.

My American friend had only time to give me this information when his wife appeared on the scene and carried him off to get what she called "our sunset"—as if the world belonged to them. He was in the act of warning me that a solitary tour would be very lonely work, when he was snatched from me. I watched them going off in their gondola into the sunset, seated side by side in happy companionship and conversation, and the night of solitude settled down upon me. With the taste of English still in my mouth, I felt the full force of the Englishman's sneer at the Continent as being inhabited entirely by foreigners. Here I was in the midst of them with nothing to meet the emergency but a certain amount of French vocabulary without any power of putting it together. This brings me to my third point, which is the importance of knowing French, or French and Italian, but French by preference, for it is of great use in Italy, whereas Italian is of no use in France. I was driven to speak in French after a time, for the supply of English guests at the Casa Kirsch soon failed, and for the remainder of my two months' stay in Venice I lived with foreigners of the most remote kind—a Pole and a Greek, who spoke all the languages of Europe except English. For a time there was a German also, with a scar across his face. During his stay the conversation was carried on sometimes in German, sometimes in French; or when a frequent visitor, a young Italian official with a long rat tailed cigar and a habit of gurgling airs from the opera in his throat, was present, the language veered to Italian. But I alone was able to speak English. When the German left us the conversation settled down to French. The Pole—a noble old man—was a poet not without fame (I have seen mention of him in an English review), and a beautiful talker. The Greek, a "philolog," was engaged in editing a text of Aristophanes from a manuscript in the library of Saint Mark. They had great conversations, from which I was excluded until I began to get the ring of it. I succeeded first with the Greek, who was very like a smart young American. He managed not only to make me understand him after a time but, what was more to the credit of his intelligence, seemed to understand me. The Pole found more difficulty. I am afraid, now that I come to think of it, that I can hardly have been an addition to the pleasure of conversation. I remember one day addressing a remark to the old gentleman which left him still visibly in the dark. Something called him from the room at that moment. I asked the Greek if he thought I had been understood. He replied, "When one is learning a language there are days when everything goes marvellously; words seem to come of their own accord; other days nothing goes, and one cannot make one's self understood. To-day is one of those days."

I had prepared myself rather hastily for the opportunities of Venice, and found myself not well prepared. I had read the shortened form of "The Stones of Venice," from which I had carried away the erroneous idea that Venice was builded of many coloured marbles. I had also read Howell's incomparable "Venetian Life," and was somewhat prepared to find Venice, after all, a city composed chiefly of dry land; but I was ignorant not only of the history of Italy but, in any proper way, of the history of architecture. I was puzzled to know where to begin my studies. It is all very well for Street, in his "Brick and Marble Architecture in Italy"—a subsequent acquaintance, I am sorry to say: he would have been invaluable as a travelling companion—to regard the monuments of the architectural centuries as a tailor on his travels might the foreign fashions. Street did work of the same kind; he even built vaulted churches. I do not say but that it was a pity that he should have devoted himself so much more to the practices of style than to the principles of beauty. At any rate his method of procedure was not that which would have occurred to me, I think, even if I had been more learned in the history of architecture. I had in my mind continually the very different conditions of Canadian architecture, and sought rather to study the reasons of the ancient designers than their results alone. With the idea of systematizing my attack on buildings by dividing all buildings into the same parts, and so viewing them in an orderly manner, to which conclusion I was driven by the *embarras de richesse* in which I found myself, I went to the library of S. Mark in the Ducal Palace to study in the first volume of the Stones of Venice, Ruskin's admirable analysis of buildings into their parts. When one has begun that wonderful book, it is impossible to leave its study incomplete.

In S. Mark's library no fire was allowed, and it was bitterly cold. The Greek, who spent about six hours a day there, complained of it too. But these southern continentals can stand far more in the way of cold than we soft dwellers in a more inhospitable clime. I have seen Italians sit for hours on a marble step in the icy shade which in a short time chilled me to the bone. Fire not being allowed in the library, much less was light, so that all study carried on there had to be done in the precious daylight. It was, therefore, a great comfort and advantage to me when the distinguished young Italian engineer who was superintending the restorations of the Ducal Palace, who both speaks and writes English and had himself a venerated copy of the Stones of Venice in his office, discovered me reading in the library and offered to introduce me to a better place. This was the library Querini Stampalia on the Campo Santa Maria Formosa which is warmed with delightful warmth and open until eleven at night. There is not only an excellent library, but the leading papers and journals of Europe lie on the tables, so that one can resume connection with the world if he cares to. I do not know whether the certificate of studentship I received from the consul would have obtained for me admission to this library without further reference. No doubt a student could procure from the consul what introduction is necessary. As far as I recollect, I came and went after my introduction without further question or scrutiny from anyone.

My troubles were at an end as far as study was concerned. With Ruskin as a guide and an opportunity of studying him so comfortably, I was not only happy, but I think profitably employed. Reading in the evening and making notes for study in the daytime, I circumnavigated the Stones of Venice in the course of my stay, verifying every principal allusion in the text to Venetian architecture.

Though founding my operations upon the Stones of Venice, I, of course, went outside of its limits also as objects came in my way. It was too cold usually for long sketching. A Canadian thinks of Italy as a mild southern place, but when such unwinterlike work as sitting out of doors to sketch is in question, though the thermometer does not feel the cold much, the draughtsman does. In a sheltered position in the sun it was warm enough—indeed on fine days delightful. But it is seldom that one gets a chance of sketching in the sun. Streets are narrow in Italy and get but little sun in the course of the day, for it is shade that is the principal requisite there. Courtyards and cloisters are little better, and the churches are veritable wells. The museums and galleries in which one sometimes finds material for sketching, and which in any case contain matter for the study of every art student, have at the most a brazier here and there, where one can warm one's fingers now and then, and which I suppose must reduce the chill of the air somewhat. But there was nothing of the sort at Venice. The old women who haunt the churches are usually supplied with a *scaldino*—a crockery pot with a handle like a basket, which contains charcoal with coals placed on the top, so that the fire eats slowly through the charcoal, giving warmth for hours. With one of these under her apron at her prayers, or still more effectually disposed for warmth when she stands up, the old women manage to carry out their religious exercises without dying from exposure to cold. Later on in my career in Italy I met a young English architect who wore an Italian cloak and carried a *scaldino* under it. I think there are many occasions when such an arrangement would be feasible and conducive to more careful sketching than I felt inclined to do, with the cold gradually creeping up my extremities and penetrating my vitals. I sometimes did careful sketching under these circumstances, but not as a rule. I always felt a little doubtful of the usefulness of spending much time in drawings for the sake of rendering them well. A drawing should have no more work on it than is required for the subsequent information of the draughtsman. How much work will meet this demand is a point which the object studied ought to decide. I always felt that I was employing my time best when I made my drawings rough, with the essential points only delineated, and notes and comments written on the edges. I carried a pocket sketch book—long and limber and about four inches wide—which was always ready for notes, and in the course of a morning's walk would fill several pages. Many things which one would otherwise sketch are done to perfection in the Stones of Venice (of which I had a large copy at home). Often also a suitable photograph takes the place of an elaborate sketch, leaving only notes to be made. Indeed, at Venice and elsewhere I adopted the plan of calling at the best photographer's early in my visit and inspecting his stock as a sort of illustrated companion to the guide book, that I might judge better of what was before me and what his photographs could do for me. At intervals, I looked in again after the day's work and selected photographs of what I had studied.

One soon acquires facility in grasping the points of a building, guided by the family resemblance that runs through the styles, and I am inclined to think that the practice of making note drawings rather than picturesque ones, is conducive to this facility.

Field glasses are a great addition to one's enjoyment and often of service, and a portable sketching stool also. I always carried both with me. One cannot work well standing, and chance seats besides being damp or cold, are usually round the corner. If I had thought of the need earlier, I should have brought a stool from England which would fold up in the form of a stick. I have no doubt they are fearfully uncomfortable, but so much easier to carry than my camp stool, which, when I come to think of it, was not a seat of luxury either. I did not always take it with me, as I might have done a walking cane stool, which would not have been out of place even on a ramble of exploration, but it always came with me when I went to study a definite object—even into picture galleries, where the fixed seats are not necessarily in the best position for attentive study of the picture. Light marching order consisted of the pocket sketch book and field glasses, and, of course, a rule and tape. Heavy marching order added the stool and a leather bag, containing a small board, sheets of paper and other materials and instruments. I could not always tell what I should use, and sometimes used everything, including the field glasses for remote details. I remember making a drawing through the field glasses, which took me two afternoons. I had a bad time with the boys on that occasion. They are always a great nuisance, and grown up people also. One has only to sit down to sketch to have a crowd around him in a moment. One would think that in Italy they are inured to seeing people sketch, but they are still more inured to loafing. On this occasion I was so unfortunate as to have selected an object over the very entrance of a school. The boys came out in floods, at what seemed to me very irregular and unreasonable hours, and surrounded me closely, several deep, and with colds in their heads to a man. It was a little warmer with so much animal life round me, and I needed it on one of these days. I had dropped my hat down the steps of St. Mark's, which lead to the crypt under the chancel. When I went to

get it I found it in water. (Poor St. Mark, he is down in that moist sepulchre.) As the hat in its wet state was colder than none, I took it off. My sympathy, under the circumstances, was with the boys, for the spectacle of a man seated on a stool in the middle of the way, with opera glasses continuously elevated, notwithstanding that he was drawing, and with no hat, a red nose and a drop at the end of it, was a sight that to any intelligent boy's mind would require immediate investigation.

These are some of the toils of sketching, but there is still much to be done at night in turning shorthand sketches into drawings; finishing up and putting in order for future use; in reading books that will throw light on the present field of work or on one to come; and in writing the diary which is such a burden abroad and such a priceless possession at home.

Under these circumstances, it is questionable whether, with all its discomforts, solitude is not a state of advantage. I had a friend in Venice, an Austrian whom I had met in New York. I had his address and went to call early in my stay, but found him out of town. Subsequent visits at intervals always brought from his housekeeper the same answer, unintelligible except for words which I knew to signify "other town." Finally, just before my departure, I thought I would have a last shot at him, and found him arrived. He took me out in his *sandalo*—the Venetian equivalent to a dog-cart. Venice suddenly became a new place. Titled persons of different countries were pointed out to me, some of whom I had observed before, but they had not appealed to my unprejudiced mind as noble. We took off our hats to two young ladies whose name my companion murmured to me as we approached. I had had a good deal to do with an ancestor of their's in my meditations among the tombs. He was a Doge of the fifteenth century. It seemed preposterous to find two such pretty young ladies still above ground, and alluded to in simple fashion as "the M——'s". I hardly know why, but this more than anything seemed to shake the foundations of my life. Afterwards, when I found myself meeting English and American artists at dinner and talking English talk at the English Club it all seemed a matter of course, but I was glad I had had my fling in solitude with Ruskin.

HAMILTON CORRESPONDENCE.

HAMILTON, Jan. 5th, 1893.

Editor CANADIAN ARCHITECT AND BUILDER.

SIR,—As you do not care to continue this discussion in your editorial pages, kindly insert the enclosed statement in your advertising columns and charge me at ordinary rates. I send this as there are proofs to back my previous statements which should be made known.

I am, yours faithfully,

C. H. ACTON BOND.

[In view of the course which one of the parties to the above controversy, whose name, however, has hitherto not appeared, has seen fit to pursue, we feel called upon in our own defence to make an explanation which will place the position of affairs in its proper light before our readers. The first letter, published under the *nom de plume* of "Doric," in reply to Mr. Bond's criticism, and which purported to have been written by some friend of the sculptor whose work had been called in question, was in reality sent to us with a request for its publication by the sculptor himself, Mr. Frederick Turner. A portion of this letter was of such a personal character that it was withheld from publication. Mr. Bond next reasserted the correctness of his statements over his own signature. Following this, on the opposite side of the controversy, came a letter from Mr. Watson, the City Building Inspector, which began with the following remarkable statement: "In reply to young (Mr.) Bond's communication of the 22nd of October last, *in reply to mine which you previously published.*" Here it will be observed Mr. Watson distinctly claims to be the author of the letter signed "Doric," which, as above stated, was written by Mr. Turner. It rests with Mr. Watson to explain and the reader to judge what induced him to make a statement so directly contrary to the fact. Seeing that on one side the controversy was being unfairly conducted, we announced that it must close. A few days after the publication of this decision a letter reached us from Mr. Bond, in which he stated that he had proof of the correctness of his statements, and as his veracity had been challenged he thought we should allow him the privilege of substantiating his position. While recognizing the force of this appeal, we replied that we felt bound to stand by our decision, publicly announced, not to allow the controversy to proceed further, and the only way in which further publication could be secured would be by advertisement, to be paid for at the usual rates. After having informed Mr. Bond to the above effect, we received a personal letter from Mr. Turner, in which he charged Mr. Bond with having used his position as a correspondent of this journal to vent his spite and injure his (Mr. Turner's) reputation as a sculptor. He also forwarded to us a tracing from Mr. Bond's drawing, lettered "Motive for carving, to be executed in bold relief," the ridiculing of which he claims induced Mr. Bond to make a "spiteful" attack upon his work. In this letter he said, "it will be only fair to your old subscriber and advertiser that the impartial criticism (of the sketch) he (Mr. Bond) asks for should be given by you, showing as it must the animus that prompted his attack on myself." We replied that we must decline to be in any way personally drawn into the controversy,—that being in a position to judge impartially, and from personal conversations with Mr. Bond on the subject, we had reason to believe that his criticism was not prompted by personal feeling, and that regarding the value and appropriateness of the suggestion contained in Mr. Bond's sketch for the carver, an architect who is a member of the R. I. B. A., on examination of the tracing said, that presuming the sculptor to be familiar with the various orders of architecture, he considered the sketch sufficient by way of suggestion. This letter was written in the most friendly spirit with the hope of inducing Mr. Turner to rightly view the situation. We regret that this desirable end was not achieved, as the following brief epistle, received a day or two later, will show: "Dear Sir,—Be good enough to discontinue my subscription to the ARCHITECT AND BUILDER and also my advertisement in your paper at expiration of contract." We are always glad to be of service to our subscribers and advertisers, but not in the direction which Mr. Turner seems to desire.—EDITOR C. A. & B.]

Halifax expended last year over half a million dollars on new buildings. About 125 dwellings have been erected at an average cost of $3,000 each.

The total value of the buildings for which permits were taken out in the city of Toronto in 1892 was $3,921,755, of which $1,200,000 was for the new city buildings; $1,166,000 for brick dwellings; $326,000 for stores; $251,000 for factories and warehouses, and the remainder for churches, schools and miscellaneous buildings.

The Brick Manufacturers' Section of the Toronto Builders' Exchange, at their annual meeting elected the following officers: J. Pears, president; W. Best, vice president; J. Price, treasurer; J. L. Phillips, secretary; representative on general board of directors, W. Pears; executive committee, W. Booth, H. Phillips and R. Simpson; auditors, A. Fox and F. Wakefield.

"CANADIAN ARCHITECT AND BUILDER" COMPETITION FOR A CITY HOUSE.

Editor CANADIAN ARCHITECT AND BUILDER.

DEAR SIR,—In compliance with your request we have examined the competition plans for "a city house," and herewith present our report.

We have given first place to the one under the *nom de plume* of "New Year," and the second place to "Etudiant." We beg to say in connection with this decision that the author of the first prize design would do well to give more attention to the rendering of his drawings. We regret having to criticize rather severely the top story of the second prize design, it being very inferior to the rest of the work. It is very bad judgment to break back the wall of the entire story for the purpose of getting up the two paltry gables; the roof construction is also bad; the planning is very good; the rendering is well done and would reproduce easily; the pier at the east side of drawing room bay is too light.

Several of the competitors, viz.: "Utile Dulci," and 'Palmer Perniex," violated the requirements of the competition by making buildings with two stories and an attic instead of *three clear stories.*

In the design submitted by "Chauer" the plan of the entrance has been sacrificed to the exterior. The drawing room lacks shape, being too symmetrical and formal to have good effect; the light well at west side would be absolutely useless, being barely two feet wide, and with the wall of another building built on the line the lavatories, back stairs and bath room, would be practically dark. A billiard room only 11'0" wide would be useless. The design is much too expensive for the appropriation. The drawings were not on the right sized paper. The draughtsmanship is quite clever and the drawings are very ship-shape.

"Utile Dulci" has sent in a well drawn set of plans and very well designed elevations, though not complying with the conditions. The plan is somewhat defective. Neither the reception room nor parlor is large enough to make a good room. Two main entrances to the one hall are not good; the mere fact of having one at the side does not make it in any way beneficial. A guest coming in one door and being let out the other would be liable to considerable confusion. Nothing is gained by cutting off the corners of the dining room. The kitchen door is too directly opposite the door to main hall. The back staircase and the first floor passage are dark.

The plan submitted by "Palmer Perniex" is good, though both staircases would be very dark. The esat elevation would be quite effective, but does not conform to the conditions.

The general lay-out of the house designed by "Incog" is rather good, but most of the rooms are much too small for a house of that character, the kitchen and bath room particularly so. The connection between kitchen and dining room is too direct and the doors too close together. Nothing has been gained and much lost by receding the pantry wall to give a north light to the dining room. The simple style of the elevations might be made to look very well, but to carry it out properly more study would be required.

There is one set sent in without a motto by a painstaking competitor, but the amount of work spent on his drawings could be much more judiciously applied. We would suggest that the author of it should study some good examples of rendering, and he would also do well to devote considerable time to practising printing, it being of great advantage to be able to print well and rapidly.

Yours very truly,

FRANK DARLING,
JOHN GEMMELL,
A. FRANK WICKSON.

[The names of the successful competitors are: "New Year," Mr. Walter F. Siddall, student with Messrs. Siddall & Baker, Toronto; "Etudiant," Mr. J. Eugene Payette, 3 Quesnel St., Montreal.—EDITOR C. A. and B.]

PUBLICATIONS.

One of the most attractive calendars of the year comes to us with the compliments of the Toronto Radiator Co.

The National Builder Publishing Co., Chicago, has just issued the third edition of the American Glossary of Architectural Terms, illustrated by Geo. O. Garnsey. Price $2.00.

A very interesting and useful treatise entitled "Wire; its Manufacture, Antiquity and Relation to Modern Uses," has just been issued by the B. Greening Wire Co., of Hamilton, Ont. The same company has also issued a handsome calendar on the back of which is a table of the size, length and strength of wire.

There has just been published by Wm. T. Comstock, New York, a valuable book of 116 pages entitled "Practical Paper-hanging," a hand-book of paper-hanging and other materials, by Arthur Seymour Jennings. Price $2, postage free.

"Architectural Rendering in Sepia," by Frank Forrest Frederick, Professor of Industrial Art and Design, University Illinois. Illustrated by full page plates, reproduced from water colors by the photogravure process, together with descriptive text. The rendering of architectural perspectives in color is now coming largely into use, and the publication of a practical work on the subject will be appreciated by architects and draughtsmen who wish to obtain those results of light and shade that cannot be produced in a line drawing without a large amount of extra labor. Bound in cloth. Price, $3.00. Wm. Comstock, Publisher, 23 Warren St., New York.

AMERICAN ARCHITECTURAL METHODS FROM THE STANDPOINT OF A CANADIAN.

By J. C. B. Horwood.

OMINANT influences in architecture in all countries have, as a rule, spread from their largely populated and wealthy centres, and what is done in these may be taken as an index of the work of the nation. In the United States it will be found that this rule applies in the cases of New York, Boston and Chicago, the former being, perhaps, a mean between the two latter.

In no country or city, however, is work carried on under exactly the same system; and I venture to say that here in the United States their office methods are as varied as is the external character of their buildings; and while it is without dispute that there is work to be found here as bad, in fact worse, than in any other country, these remarks must be taken to apply to the better class of offices and the higher grade of work.

The methods pursued in these large cities are in a very great degree (though not wholly so) a system which has become necessary to meet the demands of such wealthy and fast living communities. No principals of a firm having a large practice can devote such a proportionate amount of their time upon each building as can be done in smaller cities, where the practice of the architect is much more limited, where more time is naturally given to the erection of their structures, and where the drawings are made by the ordinary office staff.

In these extensive communities there are always to be found a considerable number of migratory draughtsmen seeking experience to add to their store of knowledge; and it is comparatively easy to employ, at times, a sufficient number of these to assist in pushing to a hasty completion those extensive buildings which require such a large amount of labor concentrated upon them. (It is very amusing when seeking for a position to be frequently asked by one's interrogator whether he is a good man or not—a capable one—and should the applicant happen to possess some modesty in regard to speaking of his capabilities—recognized by us as a commendable trait—he must always avoid making a remark which might at all be transposed to mean that he was in some degree doubtful of his ability. Should he be so unwise as to thus commit himself, he would receive no further hearing.) Out of these professional nomads the more experienced are retained to become permanent assistants to take charge of the office work of any building under the occasional direction of the office supervisor.

In making the drawings of a large city building the following is somewhat of the general mode pursued:

After the architect has decided upon the plan roughly drawn to scale (perhaps upon paper ruled in squares an eighth of an inch each way) it is given to a competent man—the one usually who will have the work under his care should the building be erected—to lay it out to, say, an eighth scale. While this is being proceeded with the architect may be occupied in working out in a similar rough manner the elevations which he had in his mind while blocking out the plans, to hand over to his assistant as he did the latter; for in those lofty buildings, the plans of the several floors above the street level being practically the same, because the points of support must necessarily be continuous from foundation to roof, it is not therefore very often necessary to work out both plan and elevation simultaneously. To find the thickness of the walls it is but necessary to turn to the building law, as these dimensions are there regulated by the height of the wall. While these drawings are in progress the "practical man" or "engineer" is called upon to look into such matters as the sizes of columns, piers, girders, and any special constructional problems which may need to be solved in carrying out the proposed scheme, as well as to the position of boilers, engines, and the many apparatus which have become the necessary adjuncts of such buildings. When these preliminary drawings are nearing completion, a perspective of it is often outlined, (perspectives are sometimes worked out upon an ordinary piece of paper and afterwards transferred to the sheet selected for the finished drawing) and if there is not a draughtsman on the staff whose chief duty is to finish this class of drawing, it is sent out to one of the many well known men whose special line is to do this sort of work. Of late the colored drawing is coming very much in vogue, as can be noticed particularly in the exhibitions which are being constantly held; the chief reason evidently being that color is found to possess more points of attraction to the eye of the client than the drawing rendered in pen and ink. Should the erection of the building be decided upon, a similar mode of operation is again resorted to, and the weights of floors, walls and piers, are now carefully calculated to obtain the dimensions of the latter, and to make a proper plan of the foundations; girders, beams, and columns are accurately figured, and every point of detail, both in plan and elevation is most thoroughly worked out to large scales by the chief draughtsman, assisted by his less experienced associates, while the former is always working under the direction of his chiefs.

In order to facilitate the completion of a set of plans it is the general practice after the principal floor or elevation has been outlined on stout paper, to work the others from these on transparent paper or tracing cloth, all changes and rough studies of the various parts being made upon similar material—a practice well worth adopting. When all are completed, the juniors trace them in ink for the various processes of reproduction. Several sets are obtained, and afterwards colored if the print is black and white. I have never yet seen a set of plans inked in and colored on paper for contract drawings as is our custom.

In New York the large ironwork firms do a great deal of their own detailing for constructional ironwork from general scale drawings given to them by the architect, which details are submitted for approval or correction to him before proceeding to carry out the work.

It happens that under this office system young men are kept almost continually at such work as their shrewd overseer perceives they have the most aptitude for, so that they may be of the most pecuniary advantage to their employer. Thus one may be kept altogether working on sketch plans or perhaps tracing the work of better men, or figuring up the weights of walls, piers, columns, etc., or working out the strains in beams and trusses; others may be chiefly occupied in making drawings for foundations after other men have made the plans of the floors above and the elevations have been decided upon; while still others may be confined to general details, or may work wholly on inside finish. So the work is divided for each to carry his branch to the highest point in the shortest possible time through working entirely at one sort of work, and so producing the architectural specialist so often found in the more populous American cities. Hence it is not difficult to find numbers of men who are exceedingly good on some branch of work, while on others they are as dull as the first year student of our Canadian offices; their ability on the one hand being in strange contrast to their dullness on the other. In illustration of this I may say, that I have met draughtsmen quite expert on working out the plans of tenement or apartment houses, and receiving a considerable remuneration for their services, who seemed to know scarcely anything about making a full size drawing, and who would be as much out of their sphere in making the drawings of a house in an open lot as they would be at the large detail. But the man who has been wise enough to show himself very apt upon such branches of work as he desires to pursue to his own advantage, and has thereby in spite of restrictions succeeded in obtaining a wide experience by his going to and fro, is one that is always in demand when there is any important work in progress. While the ordinary office education of young men is therefore of considerably more limited scope than I think is the case in Canada, yet this is being obviated in some measure by the excellent opportunities afforded by the architectural schools, which give their pupils a general all-round training previous to their being brought in contact with the restrictions of this system of office routine. I once heard one of the professors of the foremost American architectural college say that no better training in proportion and refinement can be had for the eye, in addition to the study of the "orders" than a good drilling in drawing from the cast; and this is becoming more than ever a prominent part of the course of instruction which a pupil receives at these places. A good education will not accomplish much if there is not a great deal in a young man, yet when there is, tuition will bring it to its greatest possibilities, and the result of this is seen to-day quite plainly by the work of the best trained men exerting a very great influence all over the country upon the work of their less fortunate confrères.

One decided advantage which accrues to a draughtsman in these large offices is the frequent occurrence of detail drawing of good and elaborate work, and I cannot help but think that if we Canadians spent more time in training ourselves in ornamental work in order to have it, as it were, more at our finger ends, notwithstanding the somewhat limited expenditure of our clients, we would find it easier to occasionally introduce it in our work than when we neglect our education in this respect, and consequently too often pass the matter over by concluding that it is altogether because we have not the money to spend upon it. Yet let us ever remember that as the enrichment of a piece of detail work brings it more prominently before us than if left plain, there is therefore the greater need of the whole work being good.

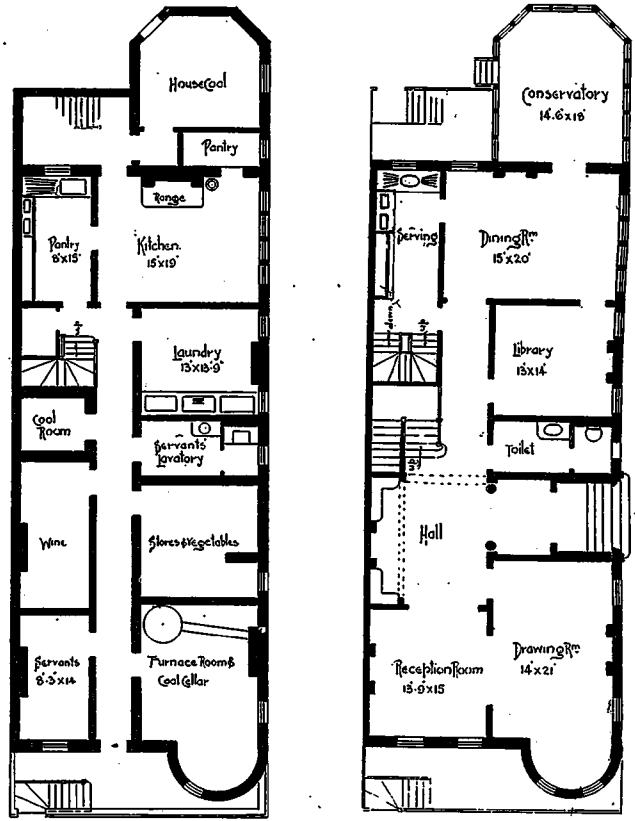
These remarks are not intended to imply that a piece of work well studied in relation to voids and surfaces does not very often look infinitely better than many a highly ornamented building not so studied. As a matter of fact there is a red brick printing house on Lafayette place, New York, which certainly belongs to the former class, and everything has been so thoroughly studied and made appropriate to its position, that it has become to the writer one of the most instructive buildings he has ever seen.

I was greatly surprised to find such an amount of rivalry existing here between professional men. The principle upon which business is apparently carried on is the "sponge" principle—absorb all you are able and refrain from giving to others all you possibly can—in the race to climb above your fellow and score a point ahead of him. It is this spirit which no doubt led them while formerly restricted at home, to ransack every country for ideas and suggestions to modernize and produce from them something beyond the attainments of their professional competitors. Even their own journals, which Canadians prize so much—too much I think at the expense of others—are scarcely ever looked at for suggestions when a problem is under consideration; in fact no instance of this has ever come under my notice in the better class of offices. The idea seems to be to get the home productions to know what you will have to avoid and surpass, while on the other hand illustrated books, and elaborate plates of European buildings from practically the time of the ancient Greeks are eagerly purchased in the rush for old ideas to be transformed and made new.

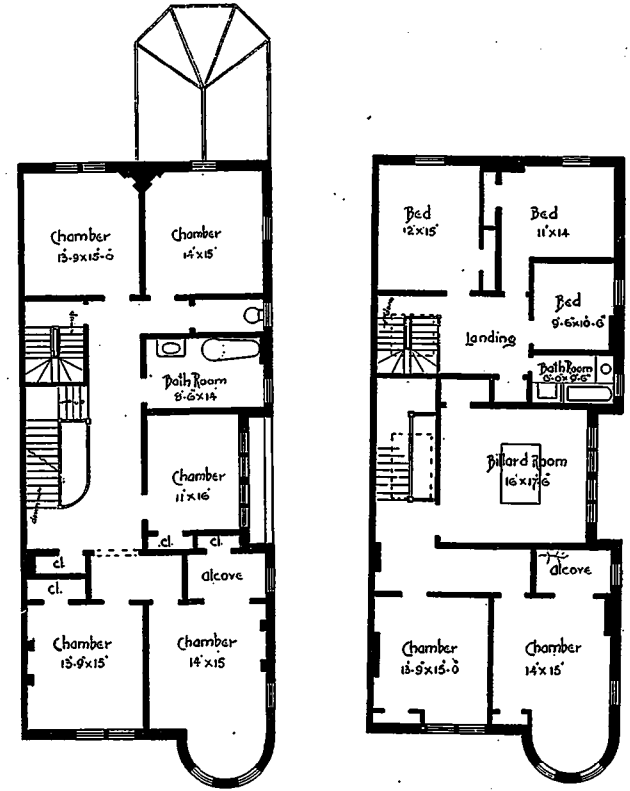
In reference to this matter of foreign illustrations, I have seen one of those exceedingly simple, and at the same time, exquisitely tasty French domestic buildings of the twelfth or thirteenth century—which would unfortunately be put aside by some of us as too unsuited for modern work—serve as the keynote for the design of a block of modern houses which would be a credit to any city in the world. In this respect it would be well that we were more like the Americans, in that instead of so often reproducing the works of others, we more often adopted the modes of procedure which have enabled them to produce such excellent results.

When we consider the architecture of the two countries and find that the difference between them is so very slight, we will be forced to admit that in some respects we are very fortunate, but in others quite the reverse. The former, because it is good for a people to enjoy the benefits which have come to its neighbor through their enterprise and industry, the latter on account of the natural inclination of the less self-reliant one of more limited means to rest too much upon the attainments of the larger and more progressive, rather than to seek from them suggestions to facilitate their own self-development. I am persuaded that this is a failing of ours, though there may be considerable cause for it, for being comparatively limited in our wealth and at the same time contiguous to one of the richest countries in the world; and being within easy reach of their principal cities, we have accustomed ourselves, till it has become a habit difficult to break, to go no further than these in our researches for material to awaken new architectural thoughts and inspirations within us when a world lies before us. The American was never similarly situated, and not being able to look for suggestions to his immediate neighbors, he was forced to go abroad in search of them. Not being entrammelled with the prejudices and jealousies which European countries are necessarily heir to, he was comparatively free to seek from all of them those hints and ideas which became to him an incentive to produce through their aid something distinctively his own; and it is chiefly to this fortunate position in which the lot of the American people has been cast, that I attribute their success, rather than to any inherent superiority over their northern neighbor or the foremost nations of Europe. Should we still persist in not being wise enough to follow their example in respect of gathering information from all countries, my fond hope is, that by some means, if not through a rigid commercial policy, they (the Americans) may at last succeed in forcing us to awake to the fact that besides living in America we live in the world. May not our Provincial Associations which have already done such valuable work, go still further by turning the mind of the rising generation under their care in this direction, and good shall certainly result from it both to themselves and their students, and hence to the country at large. One of the most noted writers of the day has made the assertions, "There is no art among a shepherd people if it remains at peace," and "There is no great art possible to a nation but that which is based upon battle." In this late age, if this be true, we would not wish to purchase art, no matter how desirable she may be, at so great a price. Upon close examination of these statements it will be seen that it was not exactly war that produced art, but as war was essentially the ancient means through which one nation after another sought and succeeded in asserting its superiority over its neighbor, it therefore afforded the opportunity for the development of mind, character, and individuality which would otherwise have remained dormant and unexpressed, as in the case of

'Canadian Architect & Builder' Competition.
for a City House. Design by 'New Year.'



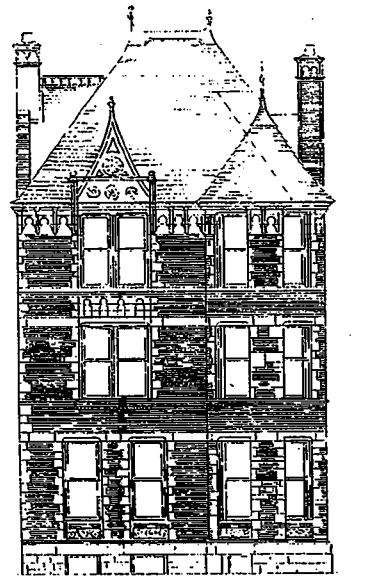
Basement Plan. Scale:- 1/8" = 1 ft. Ground Floor Plan



First Floor Plan. Scale:- 1/8" = 1 ft. Second Floor Plan.

"Canadian Architect & Builder" Competition

for a City House. Design by "New Year"



South Elevation

East Elevation

Scale 1/8" ft.

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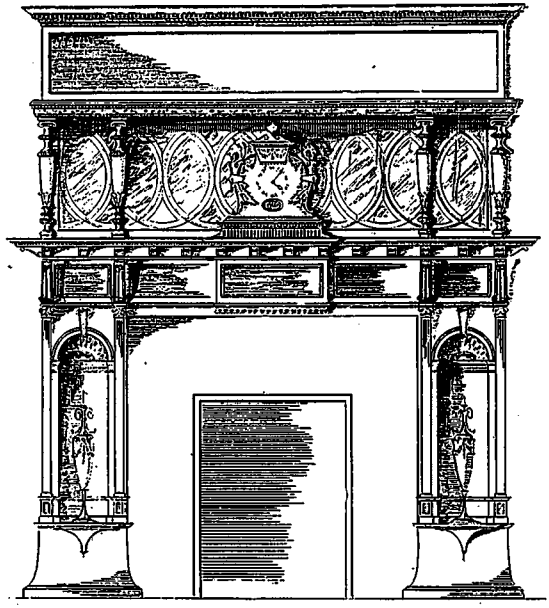
Builder.



Mahogany Mantelpiece. *Fred. Wright.*

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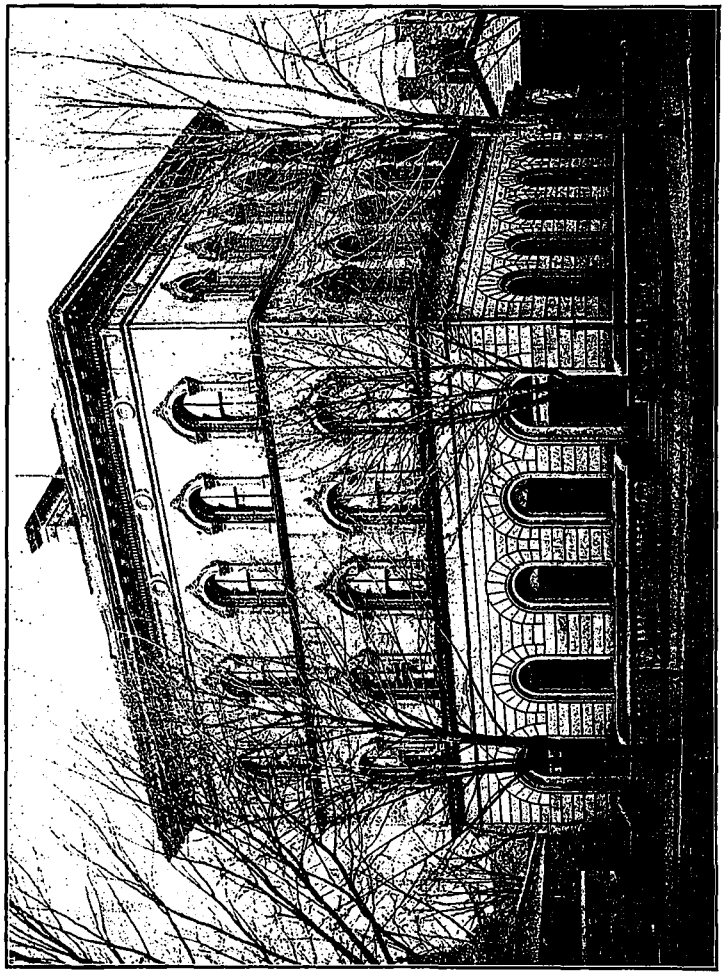
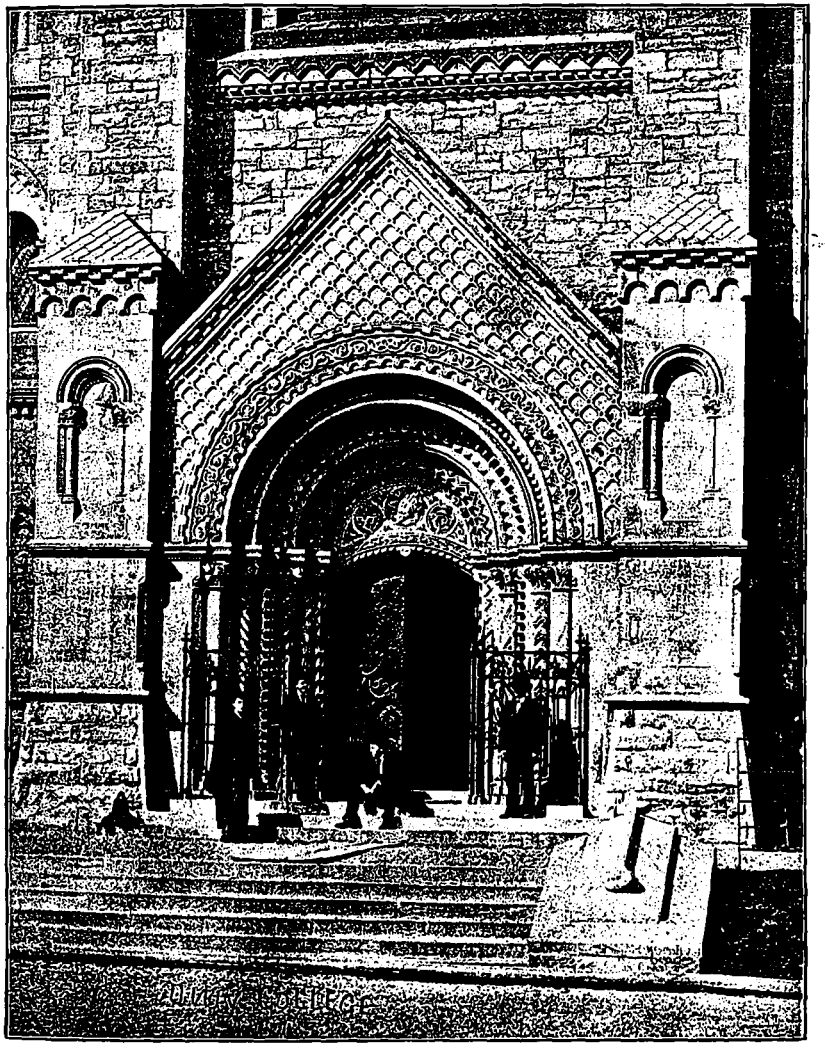
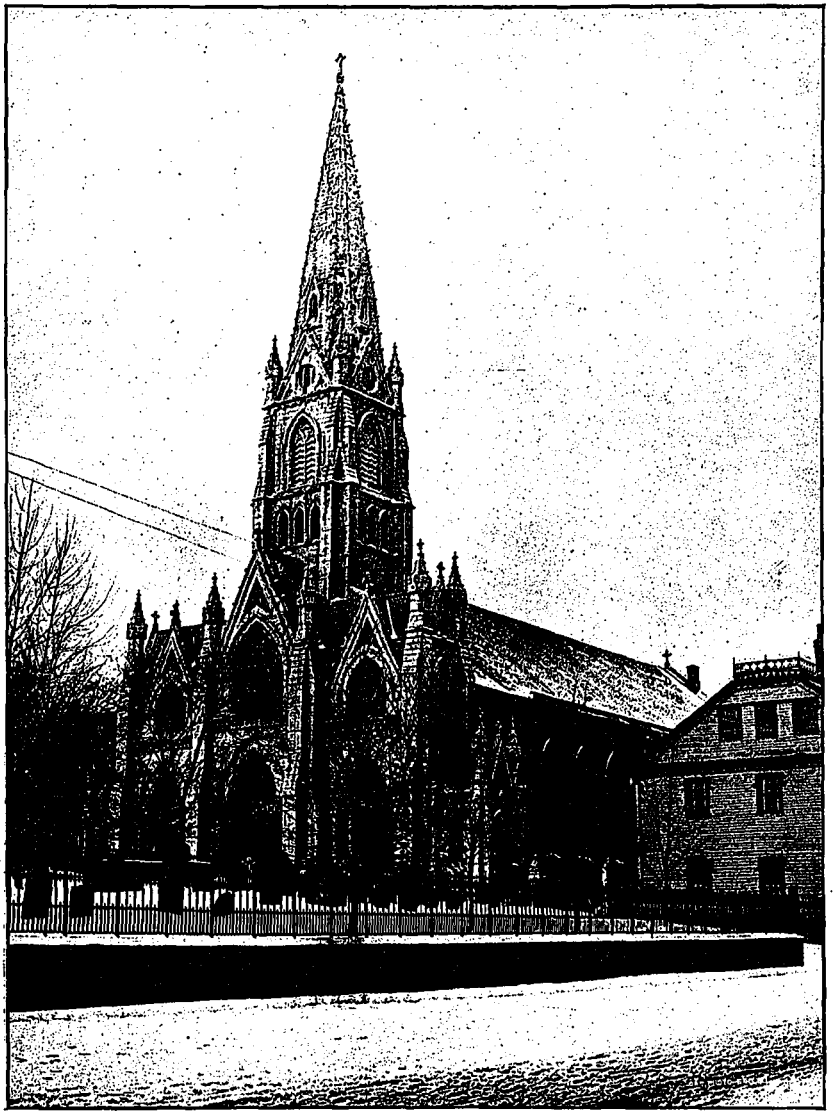


Bank of Montreal, Hamilton, Ont.

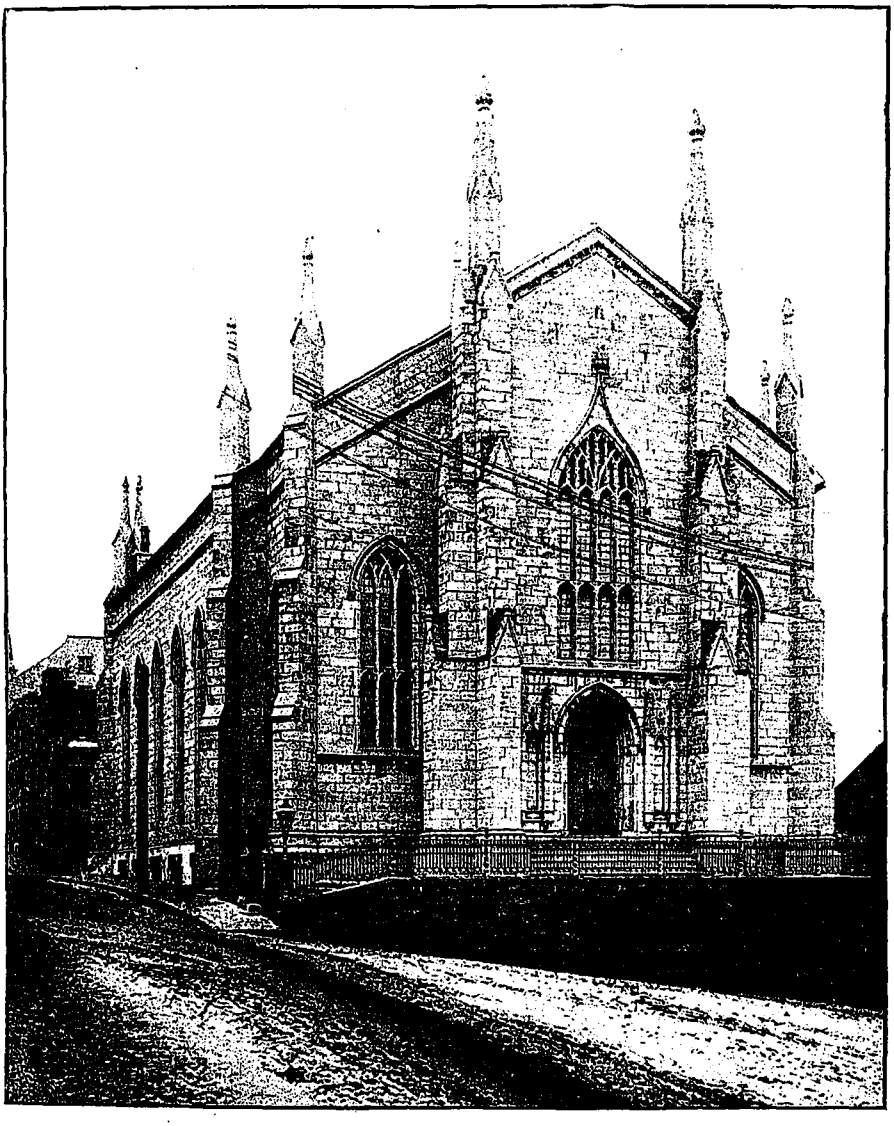


ENTRANCE OF UNIVERSITY COLLEGE, TORONTO.

CUMBERLAND & STORM, ARCHITECTS.

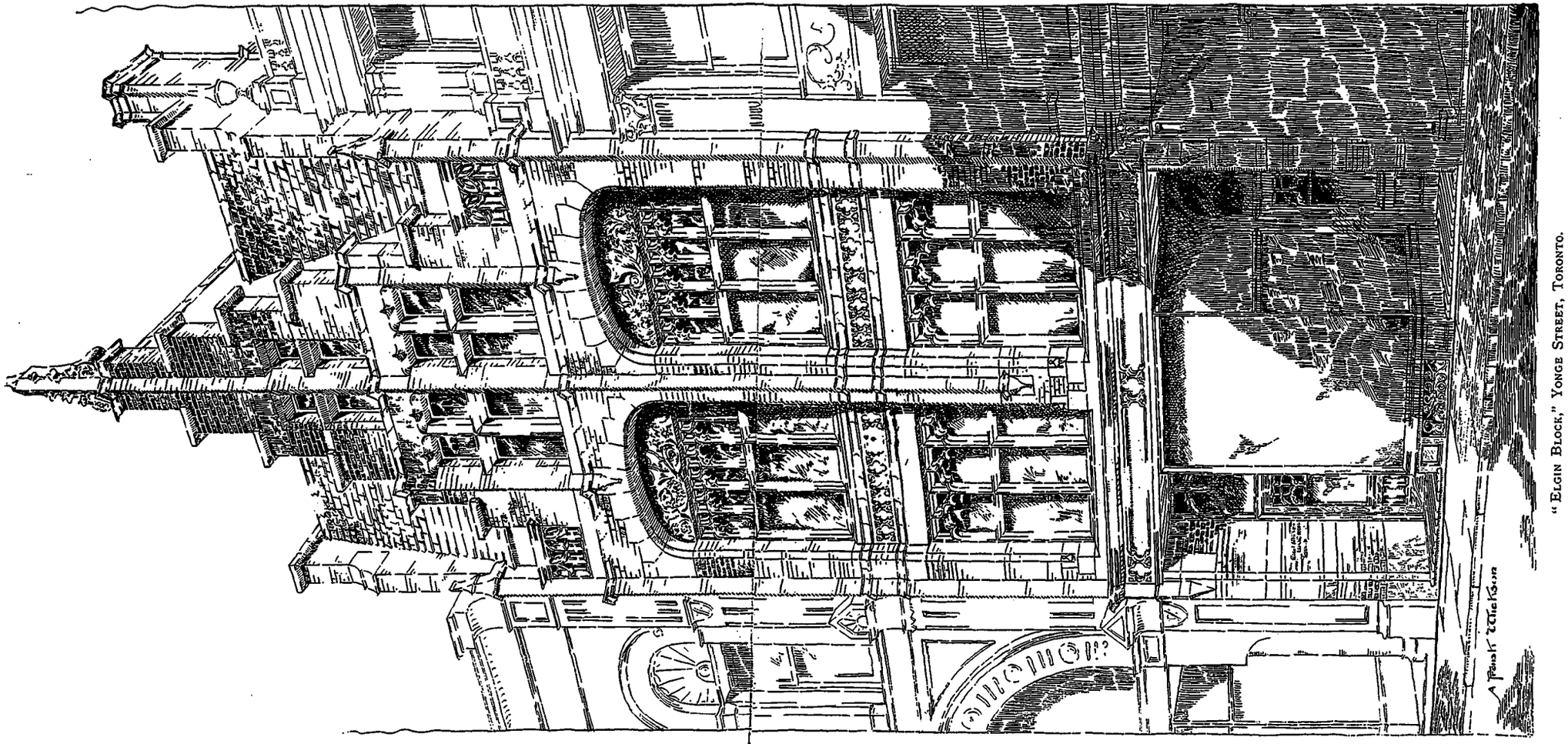


ST. MARY'S CATHEDRAL, HALIFAX, NOVA SCOTIA.
MR. MCCARTHY, ARCHITECT, NEW YORK.

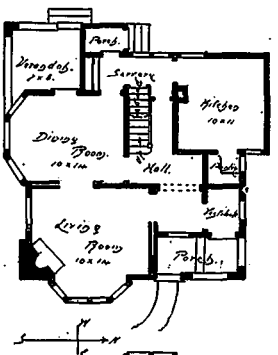


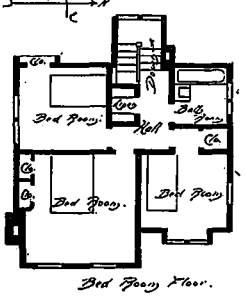
METHODIST CHURCH, QUEBEC.

EDWARD STAVELEY, ARCHITECT.

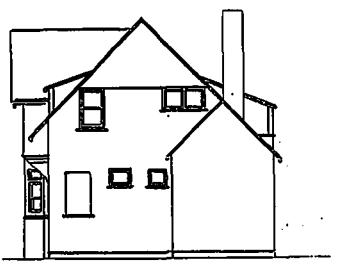


"Elgin Block," Yonge Street, Toronto.
Dick & Wickson, Architects.



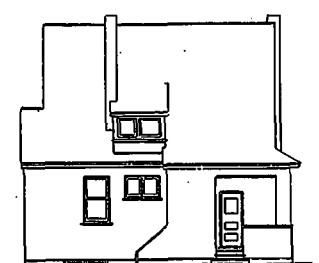


Bed Room Floor.



North Elevation

South Elevation



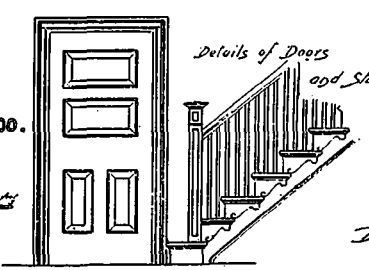
West Elevation

- DESIGN FOR A TOWN COTTAGE -

TO COST FROM $1500 TO $2000.

Scale for plans

Scale for details



Details of Doors and Staircase

Dem

the contented shepherd in the presence of his well-favored flock upon the grassy slopes of his native land.

But the methods of mankind are changing, and that contention and rivalry which has long since become second nature to most of us is now being gradually transferred from the more repulsive occupation of killing each other, to the more peaceful, and at the same time more profitable—the industrial and commercial. Should these eventually become *the* means, or some of them, through which national rivalry may be carried on to an almost unlimited extent, may we not expect to see similar results from peoples so exercising themselves as was developed by the methods now happily becoming things of the past? Is it not worthy of note that the American nation which is being recognized on all hands as making the greatest progress in architecture and exhibiting characteristics in its work said by those who know best to be elements of a new style, that they should be par excellence the people who are seeking, by constant and most strenuous efforts in the industrial and commercial spheres, to climb above all other national competitors? Turning at once to ourselves (for it is more profitable to speak of our failings than to dwell on our excellencies, though they be many) what a strange contrast we behold. How often we see in our daily papers the assertion that still more intercourse with the United States—some even going so far as to say complete subjugation to them—is the panacea for all our ills; and some business men have been very much disposed of late to place a premium on American architects by engaging their services when any work of importance is under consideration. What wonder then is it, that if some of our fellow countrymen exhibit such an unfortunate bias of mind in this direction, that many of our important buildings should express the same?

We need to be weaned from all such habits of thought, and to awake to a consciousness of our position as a nation, and our value to, as well as our dependence upon, the other countries of the world. I am fully convinced that never till that is accomplished within us, and it has become a habit of our mind to think thus broadly, can we have work which will possess a distinctively national mode of expression, and which shall thereby be of such a character that other peoples will study it with profit as they have studied American architecture.

CHARACTERISTICS OF ARCHITECTURAL STYLE.

By G. F. Stalker.

(*Continued from page 120.*)

In the preceding papers on this subject it has been shown that the chief characteristic of what is commonly known as ancient architecture was horizontality; although some architectural forms which became the dominant features of subsequent styles were not unknown to the ancients. The pointed arch, for example, was used by the Assyrians and the Greeks (the joint being horizontal instead of radiating as in Gothic times) and the semi-circular arch was a very marked feature of Roman work. But it was not until the fourth century of our era that a transition took place that led to the gradual, though ultimately complete, abandonment of classical forms, both as regards design and construction. Strange to say, that, whereas architecture is the outgrowth of man's necessity to erect for himself a suitable place of shelter and abode, religion has always been the chief factor of its development. Among ancient examples, indeed, there are few remains that are not either wholly or to some extent ecclesiastical edifices. Of palaces even there are few remains, and of defensive works fewer still; while, until we come to the Roman period, we have no examples whatever of civil architecture. And if more attention has been given in mediæval and modern times to the treatment of our domestic and civil buildings, it is none the less true that the greatest amount of talent has been bestowed and the largest amount of money lavished upon our cathedrals and churches. So much has this been the case, throughout the whole history of architecture that the features which have dominated in the ecclesiastical buildings of any age, have been transferred, in a modified degree, to all other buildings of that time. But, it is only fair to say that, so far as can be judged from the few domestic remains of the ancients, there has been much greater diversity of design in the treatment of buildings of a non-religious character since the days of the Romans than there was anterior to them. The same feeling, however, that influenced the nations of antiquity to produce their mighty and glorious temples, was the motive power in the early Christian centuries that brought about the transition from the Roman to the Romanesque in western, and the Byzantine in eastern Europe, and that led ultimately to the Pointed Style becoming par excellence the Christian style of architecture.

Until the fourth century it was not safe for a man to be known to be a Christian. The new religion had to be propagated in secret. Caves, tombs, catacombs, anywhere away from the haunts of men were the places selected for the meetings of the early Christians. And it was only after Rome had tried ten times "to extirpate the vipers" that the Emperor Constantine embraced Christianity, and not only gave freedom to the Christians to worship according to the new faith, but extended to them the protection of the very power that had formerly oppressed them. Coming out of their hiding places, and without the means to erect suitable buildings for themselves, they made use of such as were already in existence. And, though these buildings had been erected for a very different purpose than for places of worship, they were found so admirably suitable in this emergency, that, with slight modifications, they became the type of the cathedrals and churches from that day to this. The Roman Basilica was originally intended to serve for a variety of purposes. It was a business exchange or mart, a court of justice, a fashionable promenade, and a general meeting place for all and sundry. In plan it was oblong, and generally divided into three spaces by two rows of columns running longitudinally, the central space being wider than the other two. The entrances were at one end of the building, and at the other end was the judges' tribunal. It was in these buildings that the first public assemblies of Christians took place, and it will be at once apparent to everyone that the plan of the Basilica, having been found so convenient and suitable, rooted itself in their minds so firmly, that, in the main, it was adopted as the plan for the churches which were subsequently erected.

But though there has been practically no change in the general features of the plan, except what is due to more or less elaboration in aisles, apses or other arrangements, the design and construction were from the first subjected to modifications, and a departure from the original having been made, the gap was gradually widened until an entire separation was effected, and a new style invented. The initial tendency of the transitional work was towards the elongation of the vertical lines. And herein lies the most striking characteristic difference between the styles of architecture before the fourth century, and those which have come into existence since that time. The columns were attenuated so that the relation of diameter to height was entirely severed, although for a time the details of capitals and bases underwent little or no change. Then the desire to obtain height necessitated the abandonment of flat ceilings, and vaulting was substituted. The Roman entablature, which, in the earlier Romanesque buildings, had been carried square across the capitals of the columns, disappeared in the later work; and the semi-circular arch, though with classical details, took its place.

While this was proceeding in western Europe, Constantine, having removed his seat of government to Byzantine, was busily endeavoring to make his new capital surpass the old one in magnificence. He erected many buildings for a variety of purposes, in the execution of which artists from all parts of the world, but especially from Greece, were engaged. The essential features of Byzantine architecture did not differ materially from the Romanesque, but in detail and decoration there was greater refinement and variety. But that for which the architects of eastern Europe were chiefly distinguished was their invention and use of the cupola or dome. This was not only a striking departure from the practice of their western brethren but a most valuable and imposing addition to their buildings, both externally and internally. It opened up almost endless possibilities, and it has been taken advantage of and developed throughout the succeeding centuries.

Justinian was even a greater builder than Constantine, whom he succeeded; but with the exception of clothing his buildings with greater elaboration of detail, and more costly materials, and an almost Asiatic gorgeousness, he did not carry the salient points of the Byzantine style of architecture any further than his predecessor.

Rome had by this time been overrun by the Goths from the north of Europe, and had suffered the fate which generally goes hand in hand with conquest, in having most of its moveable art treasures removed, and many that would otherwise have remained to this day, destroyed. But the savage invaders were in time brought under the influence of Christianity, and out of the general chaos a purer, more perfect, and more distinct style of architecture than any that had existed since the last days of the Romans, grew up and spread over nearly the whole of Europe.

For a time the semi-circular arch was continued, but the mouldings and other details by which it was enriched had clean cut the connection with classical precedents. In some respects the massiveness and solidity of the buildings of this time remind us of the work of Egypt and early Greece. It seemed as if the builders had returned to the first principles, and, for lack of more scientific knowledge of construction, were determined to make their building safe by an abundant use of material. But apart from this there is a sturdiness and force apparent everywhere in the general design. This is hardly to be wondered at when we consider the character of the Northmen or Normans who took the lead in this new phase of architecture. They were a hardy fighting race, and probably associated with all their buildings the idea of defence in addition to that for which it was erected. The plan of the Basilica, which has been referred to, had been slightly modified by the Romanesque and Byzantine builders. They had given greater prominence to the place of the judge, so that it became the apse of their churches; and they had taken down the side walls for a certain distance from the apse and extended their buildings in a lateral direction therefrom, and so formed the transepts. It was at the intersection of the transepts and nave that the Byzantine architects constructed their domes. At the same points on the plan the Normans carried up a square tower. It was not an uncommon adjunct to a basilica to emphasize the entrance end of the building by the erection of towers. These were also incorporated into Norman work. But though, in a general sense, the plan remained unchanged, the whole character and detail of the buildings were simpler and bolder than the classical original, and more homogeneity of growth from one part of the building to another.

But the tendency towards verticality soon led to the change from the semi-circular to the pointed arch, and this then became the characteristic feature of the style. As is well known the name "Gothic" as applied to architecture was at first a name of opprobium, and the style is better described by the name "Pointed Architecture" than by any other. Various designations are applied to this style, but as they refer more to dates, and localities, and reigns of monarchs, than to any inherent difference in the style itself, it is unnecessary to refer to them here. The one great characteristic which runs through the whole work in this style is verticality. The columns are in most instances of immense height as compared with their diameter and of a great variety of kinds: circular, square, octagonal, clustered, and so on. Neither was there any rule for striking the arcs which formed the arch, it was enough that it was pointed.

With the change to the general adoption of the pointed arch, however, came also much greater refinement of detail and elegance of construction. The vaulted roofs with their innumerable intersecting ribs were worked out with the greatest skill and mathematical precision; and the decoration was chaste, simple and effective. The somewhat squat looking towers of the Norman period gave place to most graceful towers and spires rising to immense heights, and the openings, which at first had been small, giving a somewhat dismal light to the interior of the buildings, were gradually enlarged, until it may be said that the entire space between the buttresses was occupied by windows.

With the invention of painted glass a great leap was taken in the matter of ecclesiastical decoration, and, if the kind of glass that is used in a building is sometimes considered a matter of little importance, it had a mighty influence on the development of the Pointed Style in the middle ages. Some writers have gone so far as to say that, next to the necessity that may have existed for having churches, the buildings were designed as frames to receive painted glass windows; and in those days, when the masses were wholly uneducated, they served an excellent purpose, in addition to the great charm they added to the entire composition. The mural decorations of the ancients, though executed in the costliest materials, are altogether eclipsed by the glass paintings of the twelfth and thirteenth centuries. But in addition to their intrinsic beauty they were highly educational, in so far as the wonderful story of Christianity was made the very medium through which the light was admitted to their church buildings.

With regard to the buildings of a non-religious character that belong to the Pointed Style, it is hardly necessary to speak at any length. As has already been suggested, there are more examples of this class of structure, treated with greater variety and appropriateness for their manifold purposes, belonging to this style of architecture, than to any other known to us. But the leading characteristics of the style are apparent in a greater or lesser degree in them all. The purposes for which such buildings were erected suggested such treatment at the hands of architects as was necessary. At the same time it must be said of them, that the religious feeling was always more powerful in drawing out the noblest thoughts in artists in this, as in all other lines, and so we find the highest points of excellence in architecture attained by the ecclesiastical edifices, the buildings for other purposes being in every case secondary to them.

After the fifteenth century the spirit of architecture seems to have taken wings and fled. For though there have been many and great buildings erected since that time there has not been anything that can be properly designated as a new style of architecture. And in these papers nothing has been said of Indian, Chinese or Mexican architecture, for the simple reason that the styles of those countries, however beautiful in themselves, do not directly affect us.

Correction.—In last paper of above series, page 120 of Canadian Architect and Builder, 9th line from close of article, for "From first to last experience," &c., read "From first to last extravagance was the order of the day at Rome."

NOTES ON QUEBEC ARCHITECTURE.

NOT only the form of primitive buildings, but also the materials employed, it has been said, were affected by the climate and surrounding circumstances. Such must have been the case with our predecessors in this ancient city some seventy or eighty years ago, as it is evident they respected not a little the rigors of the climate when they universally adopted the steep pitched roof, carefully avoiding parapets, projecting cornices, gablets, or in fact any ornamental or constructive hindrance to the free passage of snow from the roof to the street below. To the tyrannical demands of climate they sacrificed everything but the strictly needful, their great aim being to make their roofs water tight beyond a doubt, and the house in general to be easily warmed. By thick walls, small door and window openings, low ceilings, and "double windows" set flush with the outer face of the walls, they sought to accomplish the latter end, and in so doing yielded to the imperative demands of climate, and proved that, as in the far past, so then, architecture had to bow to the influence of climate. Less now, however, than then, is this influence felt, for in those days the box stove in the hall with a plentiful supply of good hardwood had to do duty for the whole house, and although it was a cheery sight to see the bright glow of the fire and listen to its cheerful roar as the noise of ice-cracks without sounded loud and often, yet the far away corners, and the rooms not in daily use, were far from possessing the genial and pleasant temperature of the modern house heated by a "Daisy," a "Gurney," or other equally good hot water boiler, and its circulating pipes or radiators.

Then in the use of rubble masonry we are reminded of the proximity of the Beauport and Chateau Riches quarries, and the regiment of masons residing in those parishes, combining with their trade the avocation of farmers. Material close at hand, and labor to be had cheap by employing the farmer-mason had its effect, and in many of the old time plain (to a fault), but yet comfortable old homes of Quebec, a striking proof is obtained as to the truth of the statement that architecture is greatly influenced by climate and surrounding circumstances. Such houses as are now alluded to are to be found in St. Louis, St. Ursule, D'Auteil, Couillard and other streets within the city walls. The wooden Doric or Ionic pilaster on either side of the entrance door, with its entablature, frequently ornamented, was the usual embellishment indulged in; the irregularities of the rubble masonry forming the walls is generally found transformed into rectangular blocks by the use of raised mortar joints, and the whole surface then painted.

In many of the houses of this period may be found some rather elaborate wainscotting in pine, but unfortunately always painted, the framing generally moulded on the edge, the panels having chamfered edges and the centres sometimes raised; curved heads or quarter round corners to panels frequently occur; small dentils in the cornices were also very general. The houses erected about this time in the Lower Town, and being the residences of the merchants of that time, frequently had vaulted basements of very substantial construction; many of them still exist, and form excellent wine vaults.

Succeeding the foregoing type of house, a more modern class of building followed, the steep roof and flush double windows being still retained, but with fine-cut ashlar front and larger openings, metal roof instead of the old-time wood shingle, loftier stories and higher basements, a distinct change was made. Symmetrical these houses certainly were, but so much so as to stamp them as being cold and tasteless. A few honorable exceptions are to be noted on St. Denis St. Cape, where some of the former merchants of Quebec have built homes for themselves in a more ornate and more costly style.

Within the last fifteen years the taste for modern houses has greatly developed, so that now in all directions residences of good design are to be met with, combining therewith most of what is generally known as "modern conveniences." In not a few instances elegant residences have been erected on the Grande Allee and other fashionable streets. Nowadays all the comforts of hot-water heating, electric lighting, and sanitary plumbing of handsome make, with the elegancies of hardwood finish, tiling, stained glass work, etc., etc., are generally looked for. The effect of all this is, that the old house of 70 or 80 years ago is looked upon with but little favor. Yet in these latter we find that regard paid to climatic demands which it behooves the builder of the present day to meditate upon, and it would be well for him to evolve therefrom a style of building which, while retaining all desirable points in connection with the requirements of climate, might with tasteful handling incorporate the good points of modern building, and out of the whole produce a type of architecture, "Quebec" in character.

These notes must not pass unmentioned the wonderful difference between Quebec's business premises as they are now and as they were 50 years ago. Then our wholesalers occupied, generally speaking, either former dwelling houses or stores built of timber on the various Lower Town wharves—low, dingy structures they were for the most part—that is, the wharf stores—besides being twisted and distorted by the settling of their foundations. A few still remain, serving to emphasize the great progress made in this direction when they are compared with the warehouses of the Thibaudeaus, the Hamels, and notably with that recently erected by Hon. P. Garneau, and that erected by Mr. Paquet—the last named handsomely ornamented by polished granite shafts in all its six stories.

In churches and public buildings too, one may observe a great advance in taste and in conception of the fitness of things generally, so that it is safe to affirm that within the next fifteen or twenty years there will be still more marked improvement, and a still greater effort to introduce modern ideas and features into our buildings, which may be done or ought to be done, without flying in the face of the conditions of our climate. In one direction a marked improvement may easily be brought about—do away with the outer winter sash and substitute therefor an inner sash, which will answer the purpose just as well, and leave the jambs free for architectural treatment, and to be seen the whole year round. As it is, for six months of the year the double window conceals, or at all events greatly detracts from, the ornamentation of our windows by being placed in front of the same.

While admonished by the peculiarities of our climate not to indulge in those pleasing effects of roof treatment which in practice result in leaking roofs and damaged walls, with endless repair bills, yet neither is it necessary that the eaves line should be entirely unbroken and without architectural effect, giving a "squat" and unfinished appearance to the building. By always keeping in view the need of liberal space for the moving off of ice and the avoidance of snow catchers, and by taking needful precautions to prevent the freezing of water at the eaves by deafening inside or by making a double roof, the architect who has had experience in this climate should be able to solve the problem of meeting the exigencies of the latter, whilst he produces a design not entirely devoid of picturesqueness.

The Quebec architect should build, not because this or that style is fashionable, but with proper regard for the requirements of climate and surrounding circumstances, produce such a style of building as will without question assert itself to be of a type suitable to the climate and other conditions of the locality in which it stands. This, the old buildings of Quebec did; let us not despise them, but so improve them and embellish them and adapt them to modern notions, that in the new production we shall have, if not a national, at least a local style of architecture.

CANADIAN BUILDING STONES.

THE variety, value and extent of building stones in Canada, appear to be but imperfectly known. With the view of adding to the existing information on the subject we print below particulars regarding some of the principal quarries.

THE OWEN SOUND STONE CO.

Until within a comparatively few years the demand for stone in Ontario has not been very great, caused to a certain extent by the very small proportion of good stone which has as yet been revealed in the Province. The freestone used in all large buildings of our towns and cities was brought from a distance of hundreds, sometimes thousands of miles, and at such a great expense as to almost utterly preclude the use of freestone in any other than small quantities or on works of the most expensive nature. This undesirable state of things has at last ceased to exist. In the township of Mono, county of Dufferin, some three miles north of the town of Orangeville, the Owen Sound Stone Company acquired a tract of land about three years ago on which there is a deposit of as good sandstone as is obtainable anywhere. This quarry they have been developing and putting into shape since then. They now have one of the best equipped freestone quarries in America with unsurpassed facilities for the handling, shipping and transportation of their stone.

The sandstone deposit is 16 feet thick, from which blocks of any size up to the capacity of machinery for handling can be taken. Overlying the sandstone there are some four feet of well bedded blue limestone in beds of six inches to two feet thick, and well adapted for footings and heavy foundations and heavy masonry of all kinds. The sandstone is a grey or olive shade, bleaching on exposure to a magnificent white, which experience has shown does not discolor, as do a great many of our high-priced imported stones. This stone also hardens by exposure, there are no flaws or drives, it is easily worked, and is, in fact, a nearly perfect sandstone. Experts pronounce it equal in every respect and superior in a great many ways to the very best freestones hitherto in the market. The quarry can furnish almost anything in the line of stone suitable for heavy and light work of every grade. It has a present working face of between 500 and 600 feet, which is being gradually extended. Eight derricks, two planers, one set saws, all run by steam, are employed. The company intend putting in channelers next season.

During the past season they have been busily engaged in building a line of railway to the quarry. The line which is now finished is according to the main line standard and four miles in length. Starting from the C. P. R. station at Orangeville, it parallels the main line for a short distance and then curves off towards the quarry. Some heavy work had to be done in the shape of heavy filling, rock and swamp grading, and there is one immense cut at the quarry end of the line. Adding to this two

large trestle bridges and several small pile bridges one has some conception of the magnitude of such an undertaking in the hands of a private company. The construction of this line involved the expenditure of some $35,000, but the quality of the stone and the certain prospect of a very large and lucrative business prompted the company to take this means of placing the product of the quarry on the market. The track now runs along the whole front of the quarry and all stone is loaded directly on to the cars. Two sidings have been provided for extra accommodation and a piling ground for the storage of surplus stone of different kinds is served by two extra derricks. The company have recently bought several acres of quarry land in addition to their original purchase, and intend this winter erecting a large boarding house and cottages for the proper housing of their employees.

Though business has been comparatively dull for the last year this stone has been gradually but surely establishing itself and proving to practical men that the long felt want of a first-class native sandstone is at last supplied, and the Owen Sound Stone Company feel assured that the more dealers and the general public become acquainted with the stone the less foreign stone will be used in the Province. This company has also grey limestone quarries at Owen Sound and a quarry near Inglewood on the Credit Valley branch of the C. P. R. For the last five years the Owen Sound Company has been engaged in building as well as selling stone. For several years they had from 300 to 600 men employed in excavating and building railway work in different parts of Ontario. Amongst other works which they undertook and completed in a satisfactory manner were the Sherbourne street and Rosedale bridges in the city of Toronto, the masonry for the Belt Line Railway, the large bridge over the Thames at London, some two miles of bridging and culverts comprising all the foundation and dimension masonry for the C. P. R. Company's extension across the Don flats, the immense shops at Toronto Junction and some thirty or forty bridges and culverts on the Credit Valley, Ontario & Toronto G. & B., all for the C. P. R. The great bulk of the stone used in these works was taken from their great limestone quarries at Owen Sound, which has no superior anywhere for this class of work.

THE LONGFORD QUARRY AND LIME CO.

The Quarries of this Company are situated on the shores of Lake St. Johns, in the township of Rama, County of Ontario, and the Company's address is Longford Mills, Ont. The formation of limestone from these quarries is very fine, the beds of each layer of rock being exceedingly level and but very few dries or cracks appearing in them. The color is of steel grey when first taken out of the quarry; after being exposed for some time it becomes lighter in color, and its general appearance is then almost like marble glistening with glass. The thickness of the different layers of the strata runs from 5½ inches to 16 inches, but the finest layers work splendidly to 12 and 14 inches, while the 5½ inch bed cuts into window sills and heads.

The facility for shipping is all that could be desired, a switch off the main line of the G. T. Ry.(Northern Division) enters the quarry and large and convenient derricks are placed so that a large quantity may be loaded every day.

The company have been fortunate in tendering for many large contracts for their stone, and refer the building trade with satisfaction to the following structures which have been supplied by them; The palatial residence of Mr. S. H. Janes at North Toronto, the foundation for a large part of the New Victoria University, the Freehold Loan Building, the New Drill Shed, the New Court House, the Confederation Life Building, the new Athletic Club building, the center pier of the King Street Subway, all in the City of Toronto. They also furnished a large quantity of foundation stone for the Edison works and Peter Hamilton's large warerooms at Peterboro', Ont., also a large quantity for decorating around windows and doorsof St. Joseph's R. C. Church in the township of Douro, and have just completed shipment of the decorative pillars and fence around the Customs buildings in Peterboro', which adds very much to the general appearance of that handsome structure. The magnificent new post office at Orillia has all its stone work from these quarries. The company is composed of Messrs. William and George Thompson, of Orillia, Ont. (the well known and pushing lumbermen of Longford Mills), Mr. Andrew Craig as manager, who is considered to be one of the best quarry men in Ontario, and Mr. Maxwell Hall as secretary treas. With the record of the past and the business ability of the members of the company, the building trade have a guarantee that any business entrusted to them will be carried out in good faith.

The company believe in advertising, and in order to bring their material before the public they erected a beautiful monument with a piece of wall at the exhibition grounds at Toronto during the past season, and now with pleasure refer the trade to their advertisment in the columns of this journal.

MIRAMICHI STONE.

About two miles below Newcastle, New Brunswick, on the Miramichi River, is situated the historical French Fort Cove property, comprising about twelve hundred acres, owned and occupied by Mr. C. E. Fish. The place derives its name from the fact that many years ago, when the French occupied this portion of Canada, they erected at the mouth of the Cove, a stone fort which was afterwards destroyed by the English. Just inside the Cove, and extending at least two miles up the bank, are almost inexhaustible beds of Freestone, suitable for building stone, bridge stone, and abrasive purposes. The deposit is regular, ranging from twenty feet down to thin sheets, and is probably the most extensive deposit of sandstone in Eastern Canada. Like the sandstone deposits in all districts, it varies in fineness, color and density.

The building stone, known as "Miramichi Stone" (Miramichi meaning "happy retreat"), is of a rich olive color, and possesses all the merits of a first-class structural material. It is easily worked and long years of exposure have failed to change its color or density.

The "Langevin Block" in Ottawa, New City Hall in Hamilton, Ont., the residences of Messrs. James Ross and Duncan McIntyre, in Montreal, are a few of the buildings more recently constructed entirely of this stone. The coarser grades have been largely used for bridges, culverts, docks and general foundation purposes under water. It is particularly well adapted for paving purposes, its grittiness giving a good foothold which its hardness prevents wearing smooth, and its non-absorbent qualities render it capable of shedding ice and snow readily. There is also a good grindstone and wood pulp stone quarry on the property, but as yet it has only been worked on a small scale.

The quarry is equipped with modern machinery throughout, and has good shipping facilities by rail or water. Mr. John Laurie, 162 St. James Street, Montreal, is sole agent for the quarries.

A FINE QUARRY.

What is now said to be one of the best stone quarries in the Dominion and perhaps on the continent, is situated one hundred and forty miles below Quebec, three miles from Trois Pistoles station on the Intercolonial Railway, which is also on the St. Lawrence River, thus affording facilities for shipping by rail and vessel.

The quarry is a mountain of red sandstone of the most beautiful color and of the very best grain. It covers an area of about two miles long by half a mile broad, and ranges from about twenty to one hundred and fifty feet high. The property was acquired from several farmers by Mr. F. G. Dubé, of River du Loup, Que., a couple of years ago. Mr. Dubé, although a very enterprising gentleman, was not able to go into the working of the quarry on account of ill-health, and to the regret of his many friends died in May last, leaving this magnificent property without realizing anything from it himself. Samples of the stone were sent to New York, Boston and Montreal, where it was recognized by connoiseurs to be of a superior quality and color. It is claimed to have many points of superiority over the imported Scotch stone, as it is acclimated to our country and will not be damaged by exposure to the weather, but instead will increase in strength with age. It is of a very close and compact grain, and can be cut to any shape desired. When fresh from the quarry it is soft and easy to work. A sample which was lately sent to this office justifies the superiority in character claimed for this stone. We understand that this quarry will have to be sold to close the estate of the late Mr. Dubé. This ought to prove a rare chance to some one interested in the stone business.

CANADIAN GRANITE CO.

This company own an extensive granite quarry at Kingston, and works at Ottawa, Ont., where every description of marble and granite work required for architectural purposes is manufactured.

THE ONTARIO ASSOCIATION OF ARCHITECTS.

The coming convention of the association, which will take place on February 7th and 8th, will be the most important that has been held. In response to a request sent out by the Registrar for suggestions on the part of the members as to questions to be discussed at the coming convention, many answers have been received suggesting points for discussion which will amount to a review of the state of the Association. As this will be a critical point in the history of the Association, there ought to be, and probably will be, a full attendance of members on the first afternoon, when this discussion will be opened. The second day's proceedings will consist of testing the strength of materials in the testing machines of the School of Practical Science, papers by members eminent in the profession, and the election of new members for the Council. The proceedings of the two days will, we understand, be concluded by a dinner on the evening of February 8th. We are given to understand that something of a surprise in the way of entertainment is in store for those who may attend the convention.

PERSONAL.

Mr. Wm. Stewart, architect, Hamilton, Ont., has admitted his son as a partner, the firm name being now Stewart & Son.

Mr. W. R. Gregg, architect, Toronto, has admitted to partnership his brother, Mr. Alfred H. Gregg. The title of the new firm is Gregg & Gregg.

Mr. Eustace G. Bird, recently a student in Toronto Architectural offices, has secured a position with Mr. Calcutt, a prominent London architect. It is Mr. Bird's intention next summer to make a tour of France and Italy.

Mr. Rutan, of Boston, one of the architects of the New Montreal Board of Trade building, recently made a thorough inspection of the work and pronounced himself well satisfied therewith. Mr. Edward Maxwell is the superintendent. The building is expected to be ready for occupation early in April.

THE TORONTO ARCHITECTURAL CLUB ORGANIZED 1889

PHOTOGRAPHY FOR ARCHITECTS.

WE herewith publish a paper on "Photography for Architects," by Mr. J. J. Woolnough, delivered before the Toronto Architectural Club, at its second meeting in November last, together with the introductory remarks of the President, Mr. Alfred H. Gregg. The paper was illustrated by photographs and photographic apparatus, and at the conclusion flash light views of those present were taken. The president in introducing the subject spoke as follows:

IT was suggested by several members of our Club that we devote one of our evenings to the study of photography. The task was then assigned to me, in addition to introducing the speaker of the evening, to dwell on the special advantages derived by an architect from the pursuit of this branch of art. The more scientific details of photography and the ways of working the camera will be taken up by our friend, Mr. Woolnough.

An architect should be not only a lover but a producer of the beautiful, and it should be his endeavor to raise the standard of art education in every way possible. That a camera will give him material assistance in emphasizing all these characteristics, it will be the aim of this paper to set forth.

His mechanical instincts soon give him the mastery over the details, and ere long he sees in the subject an art never before realized. The picture-making, the arrangement of lights and shades, the perspective, are necessary parts of the photographer's education, and as he delights in these he becomes more and more the devotee of art. Failure may follow failure, but perseverance brings reward, and soon he becomes a producer as well as a lover of the beautiful.

Let him walk forth some fine morning, leaving the turmoil of the city behind him. Close to its confines he may find innumerable signs of Nature's art—the noble trees, the hills, the rocks, the valleys with their trickling streams, the pebbly beach, the grand old sea, even the clouds in their billowy beauty—all scenes to be reproduced by his trusty lens, and soon by old Sol's kindly aid he becomes possessed of indelible mementos of his trip. To others his pictures seem a revelation, for none but a trained eye detects how much of the beautiful lies all around us.

But dearer to an architect's heart are ancient buildings crumbling to decay, with details over which days and weeks have been spent by skillful hands. Are these to be lost? Nay, rather let us train the rising generation to know and love the works of their ancestors. Truly, pictures are produced for the photographer, whichever way he looks. Take a street scene, for instance, in which some special grouping of figures has attracted his notice. Quickly he chooses the best position for his camera, composing his picture, with proper amount of foreground and background, and with accessories well distributed. It is thus that the photographer becomes the lover and the producer of the beautiful, and it is thus he may educate others to a better appreciation of their artistic surroundings.

But before deciding on the expenditure of one cent on the required apparatus, an architect would do well to make up his mind to two or three things. First, he should decide to do everything, from the exposure of the plate to the final printing, himself. He should not permit anyone to "do the rest" at any stage of his proceedings. Only thus can photography become of practical use. Just here let me say, that the uninitiated seldom dream of the pleasure to be found in developing. To take the cold white plate and by the application of a few chemicals to see the image gradually developing—if a landscape, to watch the one tree after another appear; or if some group of friends, to see the faces rising as if by magic until the perfect result is before us. The exposure is not by any means the most pleasant part of the process. There is then an omnipresent feeling of dread lest something has gone wrong. It is when developing that we are first able to judge of the actual success we have made.

But especially is it of advantage to be able to go through the whole process yourself, as by doing so one may easily obtain a finished print much more quickly than by employing a professional photographer, and that, too, without interfering with your business to any noticeable extent. Another word to would-be disciples of Daguerre—expect failures at first. With care they will become less and less frequent till finally they may be reasonably certain of success every time.

At the outset of this paper it was attempted in a general way to show how advantageous as an artist trainer and art producer the camera may become. There are some more technical ways in which it will be found of incalculable service. First, for perspective work, in supplying trees, figures, etc., and in obtaining certain street views, that correct representation may be given of neighboring buildings, also in the study of sciography or the science of shadows. Second, in preparing measured drawings of existing work. Much labour may thus be saved in counting bricks, etc. Third, for use of the clerk of works. Views thus obtained would give correct representations to the architect of the progress of the work, and certificates could then be granted. Fourth and last, the collection of a series of photographs of his own designs and details, and of any architectural views which may be of interest to him.

To an Englishman, our Canadian climate seems an ideal one for a photographer. The clear atmosphere lasting from January to December should surely not be wasted.

But after all, there is another question which may be asked—can we afford it? I answer by asking—can we put our money to better use? Here we are, a gathering of architects and students, with wealth staring us in the face. Are we misers with hearts of stone and blood turned to ice, that we endure accumulating burdens of useless hoarded gold? Surely not! Let us be up and doing, let us rather meet the danger manfully, courageously, and, I may add, efficaciously, by throwing off these needless weights, by casting aside the carking care of a Crœsus for the glad, though perchance penurious, life of an amateur photographer. This may seem like levity, but seriously, be our savings great or small, we may with the initial expenditure of from ten to fifteen dollars, become possessed of a camera amply sufficient for all our needs. Our developing and printing outfits will cost but little more. All that is required will be two or three trays, a pair of scales, a ruby lantern—easily home-made—and a few chemicals, all of them cheap. For a dark room, the modern bath-room admirably fulfils all necessary conditions.

What more can I say to inspire you? Certainly nothing I can think of at present—for I would fain see every office equipped with this useful instrument. We are here to consider every means, great and small, for the advancement of architecture in our country, and if we can force the sunbeams to do more work for us, let us by no means miss the opportunity.

ALFRED H. GREGG.

MR. Woolnough was then called upon and read the following paper:

GENTLEMEN,—Before plunging into a description of photography, and how it is done, I should like to emphasize that part of our worthy president's paper, dealing with its practical use to architects. I myself have found photographs of old buildings very useful as an aid to memory, in preparing measured drawings. Furthermore, it must not be forgotten, that photography is not only one of the most fascinating and absorbing of hobbies, but that it requires for its successful working, those supremely useful qualities of patience, care, order, precision, close observation and thoughtfulness, which are, I believe, specially required by all architects who wish to ensure a successful career.

The production of a finished photograph can be divided into three heads: 1st, Exposure; 2nd, Development; 3rd, Printing.

Commencing at No. 1, The Exposure, you will require a camera, with lens, tripod and plate holder, also a focussing cloth, and lastly, the dry plates. The majority of cameras on the market are sold complete with lens tripod and plate holder. I will now unpack my set and explain the use of each part.

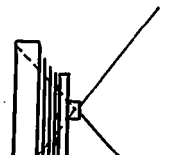


FIG 1.

On being the happy possessor of a complete set, of course there is an uncontrollable desire to set forth and immortalize some dainty bit of scenery, but it will be first necessary to fill the plate holder with two plates, and as the plates are extremely sensitive to ordinary light, this has to be done in a dark room, by the light of a red lamp—red and orange light having (within certain limits) no effect on the plates. On unpacking plates and placing in holders, you will notice that the plates are sheets of glass, coated on one side with the sensitizing compound.

Going back to the camera, I will now take up and describe each part. Taking the camera first, it is absolutely necessary that it is light tight, with no pinholes in the bellows, and also its base should fix firmly and rigidly on top of tripod, so as to prevent all vibration. The bellows should be long enough to extend far along focus lens, and the base board should be of a length so as not to interfere with the use of a short focus lens (see Fig. 1). The focussing screw should be within easy reach, the front of camera being a very awkward position for it. Of more importance for architectural subjects are the facts that a camera must possess a swing back; a

FIG 2.

rising front is also very useful. The necessity of a swing back comes in when photographing a tall building in a confined space, when it will be found necessary to point the lens slightly upwards so as to take in all the subject. With a *fixed* back to camera, the result of a picture so taken would be some-

what like Fig. 2, owing to the dry plate being out of upright. By having a swing back, the dry plate can be placed in an upright position, thus ensuring vertical parallel lines. This is a very important item. The rising front is a moveable board at front of camera, and on which the lens is mounted—this is useful for cutting off any excess of foreground; a photo of a building with the roof line at top of picture, and about one-third up all foreground, gives a very unsatisfactory impression (see Fig. 3).

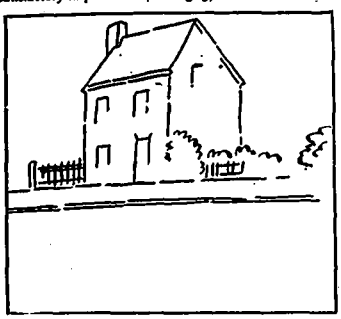


FIG 3.

Next to the camera comes the lens. Lenses can be divided into two classes, the *single* and the *compound*. The single lens is formed of either one disc of glass, or else two in optical contact. The compound lenses are formed of a series of two or three lenses fixed slightly apart in the one mount. The single class of lens is by far the cheapest, and for pure landscape work is all that can be desired, but for architectural subjects it causes a slight curving to all straight lines, especially those near the margins of a photo. The compound lenses of the rectilinear form are perfection for architectural subjects, but are rather expensive in comparison with the single class. I myself have always used single lenses, and find that the slight curvature given to some lines is hardly noticeable.

The focus of a lens, that is the distance of the lens from the focussing screen, varies according to whether the lens is a short focus or wide angle, a

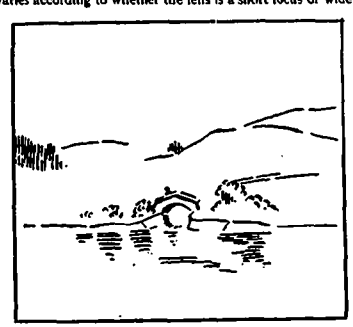


FIG 4.

medium focus, or a long focus or narrow angle. In a confined situation a wide angle lens is necessary to embrace the whole subject. A medium focus is useful for general subjects, and is the lens usually supplied with camera. A long focus lens is useful for distant shots. As an example of the special advantage of a long focus lens I have made these rough sketches of an imaginary bridge, the only point of view being the opposite side of a river. Fig. 4 would be the probable result with a wide angle lens, Fig. 5 with a narrow angle or long focus, and the medium focus would come about half way between. Lenses are provided with *stops* for increasing the detail

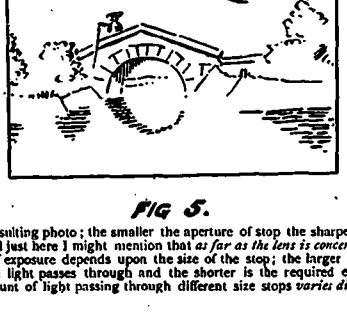
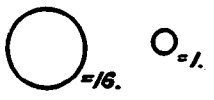


FIG 5.

in the resulting photo; the smaller the aperture of stop the sharper the detail; and just here I might mention that *as far as the lens is concerned*, the length of exposure depends upon the size of the stop; the larger the stop, the more light passes through and the shorter is the required exposure. The amount of light passing through different size stops *varies directly as the area of each stop*. For example I will take two stops an ½" (Fig. 6), and an ⅛" (Fig. 7). Now as the area of one circle is to another as the squares of their diameters, by finding the areas you get the proportionate exposure. And as a circle ½" diam. is 1/16 the area of one ½" diam., Fig. 7 stop will require 16 times the exposure of Fig. 6, because only 1/10 the amount or



½" ⅛"

FIG 6. FIG 7.

intensity of light will pass through. So when you have by experiment found out the time of exposure for one stop, you can easily arrive at all the others. Stops are of three makes: 1st, "the diaphragm," which is inserted in a slit in top of lens mount, and objectionable because they are loose and liable to be lost; 2nd, "the revolving," which is attached to lens mount; and 3rd, "the Iris," also attached, and by which any size stop desired can be formed. Besides the aperture of stop, the time of exposure depends upon two other factors, the quality of the light and also the rapidity of the dry plate.

For instantaneous work, that is when a shutter is used, it is necessary first to have a bright day, second, an open view with few dark shadows, and third, the largest stop of lens should be used and should be in diameter not less than 1/10 the focus of the lens—that is, if the distance from lens to plate is 5 inches, the stop should be at least ½" diameter. As for shutters, I will not touch on them now; their name is legion, they are all sorts, sizes and prices, and I should not advise a beginner to get one to start off on, as instantaneous shots are much more difficult to develop than ordinary time exposures, because they require rapid, or very sensitive dry plates, and the quicker the plate the more care and experience is required in development.

The next part is the tripod. This should be strong, light, and rigid when set up, should have sharp points at foot to grip a floor with, and should be easily and quickly set up and down, and make a neat and compact affair when folded up. All such inventions as walking stick tripods and folding tripods, warranted to go in vest pocket, are to be avoided; get something that can stand a gust of wind, which the beforementioned contrivances assuredly cannot do.

The dry plate holders are of two kinds—the "book holder," so called because it opens like a book; and the solid, both of which you can see here to-night; the solid is the best kind, being the most convenient. It is very necessary that they should be well made and thoroughly light tight; and even then it is best not to expose them more than necessary to direct sunlight. It is best to have three slides; each slide holds two plates, which are placed back to back, and have a thin sheet of opaque card between them to prevent exposure having effect on the back plate.

The prepared glass plates on which the image is taken are called dry plates, to distinguish from the old style of wet plate used in the early days of photography. In those days it was necessary when taking views, for the photographer to take a kit with him comprising a fully equipped dark room, with chemicals complete, right on the ground where the view was; he had to prepare and sensitize his glass plate right on the spot, and make the exposure and develop the negative while the plate was still wet, and as this had to be done in all weathers, you will recognize what a "snap" the modern amateur photographer has, especially with his aggressive little hand camera loaded for a dozen or more shots at all the out-of-the-way and novel bits his restless optic seizes on.

The dry plates are coated on one side with a mixture called "the emulsion," and composed chiefly of gelatine and nitrate of silver; the sensitiveness of plate is due to the nitrate of silver, the gelatine being chiefly a vehicle to carry the silver salt.

Dry plates are made of different degrees of sensitiveness or rapidity, the rapid being used as I have mentioned, for instantaneous work. It is decidedly best for beginners to work at first on slow plates, as there is a greater amount of latitude; the exposure and development has not to be brought down to the fine point that the rapid ones require.

Although the manufacture and subsequent working with dry plates is so well understood, it is a curious and remarkable fact that the true chemical effect the action of the light has on the dry plate has not yet been discovered.

The remaining necessity for exposure is a focussing cloth to throw over head and camera, so that image on ground glass can be seen while focussing. The best article is of rubber cloth, which would also come in handy for covering camera in case of a shower of rain.

I now come to the second head, viz., *Development*. For development, you will require scales and weights, chemicals, a glass graduated measure, two stoppered bottles, two trays, a dark room with red lamp, and plenty of clean water. Before lighting the red lamp, solutions of the necessary chemicals must be prepared. These are pyrogallic acid and an alkali—generally carbonate of soda—and cold solutions of these are poured into the glass bottles. The pyrogallic acid is the developer proper, but if used by itself would be tediously slow, therefore an alkali is used to quicken the appearance of the image, and this alkali is called the "*accelerator*." You will also require to prepare a solution of hyposulphite of soda, which can be at once poured into one of the trays.

You now light the red lamp and see that no stray rays of white light find their way into dark room. On taking dry plate out of plate holder, it will be found on examination to have the same appearance as it had when placed in holder before exposure; no trace of image can be seen. The plate is laid in tray, gelatine side up, and a small quantity of the two solutions is then mixed, just enough to cover plate, and is poured evenly over. The tray is gently rocked and the image begins gradually to appear, the sky or any other high lights showing at first as dark patches. Development is finished when image begins to show through to back of plate, which must be watched. The plate is then rinsed in water to wash off the developer and is then laid in fixing solution. Up to this part the plate, although showing every detail of picture, has retained its semi-opaque creamy appearance, but on placing in fixing bath this is dissolved out in about ten minutes, leaving the negative perfectly clear and transparent in the shadows, and when it is so fixed it must be taken out and given a good washing in cold water. The plate after washing is then laid to drain and dry, and when perfectly dry your negative is complete. The development of a plate is by far the most fascinating part of photography, and the charm of watching a picture full of rich detail, slowly appear on the surface is quite sufficient to account for the enthusiasm that all amateur photographers feel for this their hobby.

The third heading is the *Printing*. For this you will require a printing frame, sensitive paper and chemicals. The negative is placed in frame, film

side up; the sensitive paper is placed on negative prepared side down; this can be done in an ordinary room, but not too close to a window; the sensitive paper has nothing like the sensitiveness of the dry plates. The frame is then placed in a good light, not direct sunlight. It can be taken indoors and examined from time to time, and printing should be carried on until the print is a few shades darker than the finished photo is required, as it loses depth in toning. When a sufficient quantity are printed it is necessary to tone them and then fix the image. Toning can be done by gas or lamp light; and you will require to mix up a solution of chloride of gold with sufficient alkali to neutralize the acidity of the gold. The prints are first washed to get rid of the free silver, which leaves them of a brick red color, and then placed in toning bath. It is best to use crockery ware for the necessary dishes for toning. I myself generally make a raid on the kitchen for my supply. In a few minutes after placing in toning bath the prints will change to a more pleasing tone, and can be taken out at any stage desired, or can be left in until the tone is almost a black. Prints are then rinsed and placed in fixing bath for 15 minutes; they are then given a good washing and left to dry. All that then remains is to trim them and mount with starch.

There are several methods of printing, each of which has its own particular beauty and suitability for special subjects; you will find on table a few specimens of the different methods.

The many by-ways of photography, such as "lantern slide making," "enlarging," "stereoscopic work" and other branches, all have their devoted followers and enthusiasts, and all help to raise photography to that summit of true art which it richly deserves. When a camerist has perfected himself in the purely mechanical part of the processes, he then stays his hand at reckless firing off at everything he sees. He finds himself almost unconsciously developing a taste for something better than a merely good technical photograph, and by this means his mind is expanded; he sees beauties in nature he would otherwise have passed unheeded, and he finds himself the possessor of bits of composition that all help as an inspiration and make him feel that life is very well worth living.

Coming now to that very practical and important part, the cost, I think I can give you a full price list of the various articles required. A camera like mine, called the "Instantograph," will cost $15 complete with camera, lens, shutter, plate holder and tripod. The dry plates cost 45 cents a dozen; scales and weights, 75 cents; 2 trays, 20 cents each; a 2 oz. glass measure, 30 cents; 2 stoppered bottles, 12 cents each; printing frame, 20 cents. The cost of chemicals and paper is purely nominal; I have worked out the cost of six prints finished complete, and it comes to an average of 10 cents for 6 prints, which includes everything except cost of dry plates. All these prices are for ¼ plate size.

I think I have now exhausted my subject, and I sincerely hope you are not in the same condition. I would say in conclusion that if there are any present who think of becoming amateur photographers, both our worthy president and myself are entirely at your service for any advice or help that you may require.

THE POTSDAM RED SANDSTONE CO.

THE quarries of this company are situated at Potsdam, N. Y., and their selling yards for the Canadian trade at Prescott, Ont. The Parliament Buildings at Ottawa, are constructed of this stone. Prof. J. S. Newberry, of the Columbia College School of Mines., made an examination of the Potsdam quarries in 1860, and in his report says:

As I have said, I was surprised to find in the different quarries of this Company so many varieties of color in the stone. In the west quarries, the typical "Red Potsdam," either plain or banded, prevails. On their southern tracts are out-crops of homogeneous and monochrome, chocolate colored stone, in heavy ledges, which will yield blocks of any desired size. while in their quarries on the east side are exposed about fifty feet of rather massive layers, seperated by a band of fifteen feet of foundation or bridge stone. The upper and lower bands composing the fifty feet referred to, are mainly of light colored homogeneous stone, to which I was a stranger before visiting the quarries. This is of a reddish cream color, very uniform in tint and pleasing to the eye. It comes out in layers from two to six feet in thickness, and splits with ease and certainty in any direction. With the choclate colored stone, to which reference has been made, it may be combined with fine effect, one variety being used for trimming to the other, as corner stones, door and window caps, porches, etc., or associated as block stones in plain walls. This cream colored variety works with comparative ease, and may be wrought into mouldings and ornaments, much more cheaply than the harder varieties, which will be best used when hammer dressed, a style of treatment to which every phase of the stone will lend itself, as it breaks true and even under hammer.

The different tracts of land controlled by this Company comprise about two hundred acres.

The long-established hardware firm of Aikenhead & Crambie, Toronto, has been succeeded by the Aikenhead Hardware Co. The business will be continued as before in the premises at No. 60 Adelaide street east, which will, however, be altered in such a way as will best serve the requirements of the business. A specialty will be made of builders' hardware. Mr. Thos. E. Aikenhead is the manager of the new company.

SHAVINGS.

Messrs. Carroll & Vick, Toronto, are preparing specimens of brown Credit Valley stone for exhibition at the World's Fair. The block will be 3 feet high by 2½ on the side, and will be richly carved with foliage and the name of the stone, also the Ontario coat of arms.

The Toronto Chemical Smelting Company, of Port Colborne, Ont., is about to manufacture hard, black glass building and paving brick. The material is obtained as a result of the use of a new patent process of reducing and refining nickel from the ores, and would, unless utilized in this manner, be an absolute waste. It is claimed for these brick that they will be extremely hard and durable, and especially adapted for paving purposes. One of the streets in Port Colborne will shortly be paved with them.

Messrs. Pilkington Bros., the well known English glass manufacturers, have recently opened a Canadian agency in Montreal, and are protesting against the action of the Canadian Customs authorities in imposing a higher import duty on their material than is charged Belgian glass of the same quality. The matter is under consideration by the Controller of Customs. The effect of the discrimination against the English house is said to amount to about $100 in duty for every 1000 boxes of 100 feet of glass sold.

Mr. Wm. Jones, who was the original contractor for the erection of the Freehold Loan Company's new building, Toronto, but was dismissed from the work by the architect, Mr. E. J. Lennox, on the ground that satisfactory progress was not being made, has caused writs to be issued against the Freehold Loan for $20,000 for work done, also for $20,000 damages for breach of the contract; against Mr. Lennox for $20,000 for trespass, and against Mr. Snarr, to whom the completion of the contract was entrusted, for $5,000 for taking possession of the plaintiff's property.

SHAVINGS.

Mr. Wm. Hallman, builder, of Galt, has made an assignment. The assets are expected to balance the liabilities.

The Trades and Labor Council of Hamilton has adopted a resolution asking for the appointment of an inspector of plumbing, and recommending that the new official should be chosen by competitive examination.

The Bras D'Or Marble Company, whose extensive quarries are situated on Marble Mountain, near West Bay, Inverness County, C. B., are now laying tramways and opening up the quarry, having purchased the most improved quarry machinery.

The third annual convention of the Stonemasons' International Union was held in Toronto last week, and the following officers were elected: W. Langley, Baltimore, president; Duncan Burden, Toronto, vice-president; George Jones, Pittsburg, secretary; Valentine Arnold, Pittsburg, treasurer.

STATUTORY DECLARATION.

HAMILTON, Jan. 5, 1892.

The following is a statutory declaration made by me before Mr. J. V. Teetzel, of the firm of Osler, Teetzel, Harrison & McBlain, Hamilton, to contradict misleading and unwarrantable charges of a Mr. John Watson in letters sent by him to the CANADIAN ARCHITECT AND BUILDER.

DOMINION OF CANADA
COUNTY OF WENTWORTH } To Wit:

I, CHARLES HERBERT ACTON BOND, of the City of Hamilton, in the County of Wentworth, architect and sanitary engineer, do solemnly declare that in Mr. Watson's first letter he says that my criticisms on the carving of the Grand Opera House and Mr. Tuckett's residence were made because the sculptor had laughed at a drawing furnished by me. Now, I was not aware, or in fact had not the slightest idea that the drawing had been criticized by anyone. I knew it had not been followed, but as it was only a suggestive motive for the carving, did not think much of this. I know as soon as the stone was cut that my drawing could not be carried out as the stonecutter had not made allowance for the profile suggested. I thought this was a mistake of the stonecutter and therefore could hardly blame the sculptor for not keeping to my idea. This is sufficient to prove that I felt no ill-will to the sculptor whatever. I merely criticized the drawing to try and raise the standard; at first I did not mention Mr. Tuckett's carving, but ultimately spoke of it to avoid the appearance of partiality to my then employer, who is architect of the building, this being one of the principal jobs of the season. Mr. Watson says in his first letter "that no carving was done on Mr. Tuckett's residence until the 15th of September," and in the second, "I most emphatically deny that any was executed until long after your correspondent's spiteful notes had been forwarded to you." My notes were written and sent to the Editor of the CANADIAN ARCHITECT AND BUILDER in the middle of August and were published on Saturday, September 17th. At the time these notes were written a large quantity of Mr. Tuckett's carving was started and so far forward as to justify criticism; there has been very little done on some of it since then. As to when it was commenced, I can only state that I with two eye witnesses, Miss Newton and Mr. H. Newton, of Toronto, visited the building on Saturday, July 23rd, and saw that the carving was then started; I also have correspondence dated July 26th referring to the carving. In his first letter, Mr. Watson wrote under a *nom de plume*, and when in the second he declared himself, I was very much surprised, as he on two separate occasions told me personally that he thought Mr. Tuckett's main entrance would have looked better if my drawing had been followed.

And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the Act respecting Extra Judicial Oaths.

Declared before me at Hamilton, in the County of Wentworth, 5th day of January, A. D. 1893. } C. H. ACTON BOND.

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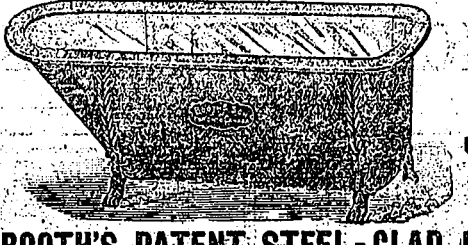

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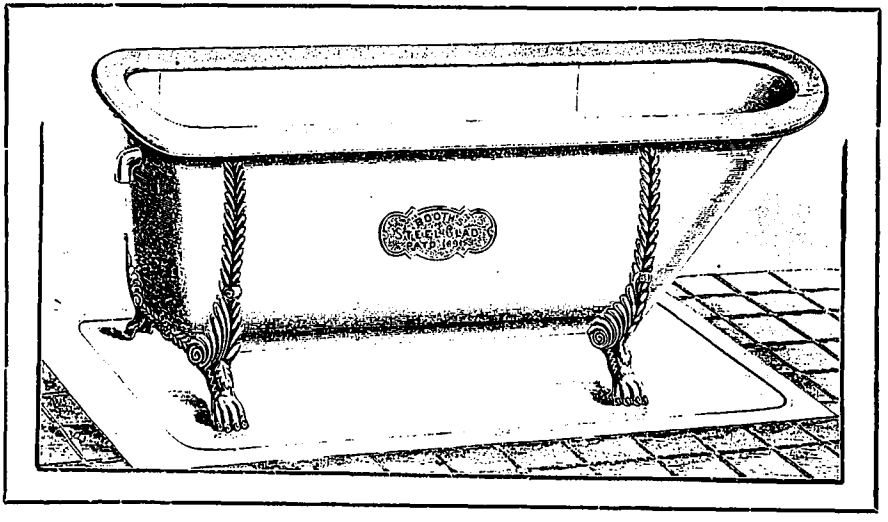

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