

PAGES

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TO ADVERTISERS.

For the benefit of Advertisers, a copy of this Journal is mailed each week to persons mentioned in the **CONTRACT RECORD** reports as intending to build, with a request to consult our advertisement pages and write advertisers for material, machinery, etc.

CANADA is the scene of some of the greatest engineering triumphs. It is therefore not surprising to learn that an official of the Russian Railway Department visited Ottawa recently by direction of the Czar, with the object of obtaining information touching the best practice in bridge construction.

THE amendments which were suggested by the Master Plumbers' Association to the Toronto plumbing by-law, cannot be incorporated into the by-law at the present time, owing to a recent decision given by Judge McDougall in the Toronto Courts. This decision is to the effect that the City Council has no authority to regulate the size and weight of pipe which shall be used in the plumbing system of a building. In view of this decision, it is understood to be the intention of the City Council of Toronto to make application to the Ontario Legislature at its next Session for authority which will enable a by-law to be passed to govern the manner in which plumbing shall be done.

WE regret to have to record the death on the last day of July, of Mr. Richard M. Hunt, the distinguished American architect. Mr. Hunt held the foremost place among the architects of the United States, and was the recipient of high honors from foreign societies. His art training was received at the School of Fine Arts in Paris, and for a time he practiced his profession in that city. He afterward returned to America and opened offices in New York city. In New York, Boston and Newport are to be seen many examples of his skill. He was the designer of the Administration Building at the World's Fair. He more than once occupied the position of President of the American Institute of Architects, was a corresponding member of the Institute of France, and the recipient quite recently of the Royal Gold Medal of the Royal Institute of British Architects.

IT is reported that in Duluth, recently, lumber dealers threatened to boycott any builder or architect who should specify Washington fir in any public buildings. The purpose, doubtless, was to make it necessary that home timber should be used. So far as lumber is concerned, it is almost impossible to talk of excluding any particular class of lumber from any particular district or country. No article of merchandise is so thoroughly cosmopolitan in its character as lumber, and the trade is becoming more so every year. Washington fir, or what is known in this country as the Douglas fir of British Columbia, is especially suited for certain work, and the world over, those who want the best lumber for shipbuilding, and in other cases where great strength and endurance are required, will be obliged to secure Douglas fir. In the Transactions of American Civil Engineers is published the following tests of woods: White pine broke at 3,872 pounds, all same sizes. Norway pine broke at 4,008 pounds, all same sizes. Douglas fir broke at 6,214 pounds, all same sizes. In other words Douglas fir was shown to be by a large percentage stronger than the strongest woods. This wood is becoming well known lately in its uses for bridges and other public undertakings. Some unusually large pieces have been sent east to Montreal to be used for dredger work there.

THE Montreal Masters Plumbers' Association have recently issued a circular to the trade, calling attention to the unsatisfactory conditions which prevail in the business as the result of master plumbers purchasing direct from the manufacturers instead of from wholesale dealers and jobbers, and the manufacturers and dealers selling direct to the general public. As a means of bringing about a more satisfactory state of things, the trade are asked to conduct business in future on the lines laid down by the resolution on this subject, adopted recently by the National Plumbers' Association of the United States, known as the Baltimore Resolution.

A VISIT to the site of the new Simpson building, at the corner of Queen and Yonge Sts., Toronto, serves to impress one with the change which has taken place in the methods and materials employed in the erection of large buildings. This building will rest almost entirely on iron supports. Even if the footings, on which rest the supports, are of iron, instead of stone, as heretofore, wood, stone and brick will be conspicuous by their absence, at least in the exterior of the building. In looking at the many tons of structural iron assembled for use in this building, the writer was led to remark that as the result of the change from stone, brick and wood, to iron construction, manufacturers of structural iron must be reaping handsome profits. The architect to whom this remark was addressed replied that such was not the case, but that on the contrary the cutting of prices amongst manufacturers and dealers in this material had apparently been carried to an extent which left but little room for profit.

DEFECTIVE construction of chimneys has not a little to do with the unsatisfactory working of heating furnaces, and as a rule, fault is laid at the door of the furnace manufacturer instead of being placed at the designer or builder of the chimney with which the furnace is connected. The two faults most commonly found in chimneys are, interior irregularity and flues of too small diameter. It is surprising what a large proportion of chimneys are defective in these particulars, and as a consequence hundreds of tons of fuel are being consumed every year to no purpose. Thus the builder of a chimney who aims by putting in a small flue, to save a few dollars on the cost of construction, thereby entails upon the occupant of the home a large unnecessary yearly expenditure for wasted fuel, and injures the reputation of the manufacturer who supplies the heating system. Architects should take notice of this matter, and see that chimney flues are sufficiently large and that they are carried up straight from bottom to top of the building.

THE Management Committee of the Public School Board of Toronto have under consideration the question of manual training. It is proposed that the forenoon of the last day of each week be set apart for the special study of subjects and designs in this branch; that the scholars have worked assigned to them suitable for their capacity; and that courteous discussion over their work be permitted the pupils during their exercises. The subjects included under this head are: Drawing, modeling in clay, plaster, cardboard, wood, cloth, metal or any other suitable material. An not unfrequent complaint against the school curriculum of the present day is that it covers too wide a field, and that pupils are being over educated in a direction that will render them little practical help in after life. To some extent, at least, there would seem to be reason in this charge. Where the future of the pupil is likely to run along professional lines it is important that there should be a breadth and comprehensiveness in the subjects studied. It is doubtful whether the man or woman, who will follow any of the leading professions, will not find help in almost any of the branches of study on the timetable of the public and high schools of to-day. It is a different matter, when it will become necessary, either from choice or necessity, for the pupil to take up, what is sometimes termed, the more practical lines of work. And in the case of a large percentage of the pupils who attend the public schools it may be expected that they will, from natural bent, as the children of those engaged in mechanical pursuits, follow in these lines; and where the professions are so terribly over-crowded we do not know but what this would be a wise course for others to pursue. Here the plan proposed by the School Board Management Committee would be exceedingly helpful, and if the success that

has attended the schools of technology in Toronto and other places in Canada, Great Britain and the United States is to be taken as a criterion there is good reason to suppose that the School Board are following along a line that would not alone be popular but productive of the most satisfactory results.

MANUFACTURERS of furnaces, radiators and heating supplies are said to be considering the advisability of increasing prices, in view of the heavy advances which have recently taken place in the price of raw material. As an illustration of how prices have advanced, it may be mentioned that within a very short period the price of pig iron advanced \$3 per ton, and within a period of one month, manufacturers were notified of five successive increases in price of iron pipe. Galvanized iron is another article used in the construction of furnaces, the price of which has advanced fully 30 per cent. It is difficult to see how manufacturers can continue to sell at old prices under these greatly changed conditions. It is a well known fact, that last year the iron producing establishments sold material at a loss, and this led to a corresponding reduction by manufacturers. Now these conditions are entirely reversed, so far as the far mills are concerned; instead of shutting down operations during the summer, as they have been accustomed to do, they find it necessary to run full time and over time, in order to meet the demands, stocks having been almost exhausted at the commencement of the present year. The sudden and large increase in the demands, and the impression which has got abroad that prices are on the up-grade, has created a sort of panicky feeling among buyers, which has resulted in forcing prices up to a point which possibly may not be long maintained.

SEVERAL protests have appeared in the London Timber Trades Journal—one by Mr. Carl Zeidler, recently of Toronto Junction, whose firm carried out the contract for interior wood-work in the Ontario legislative buildings—against the action of the architect for the new legislative building at Victoria, B. C., in awarding to a Chicago firm a large contract for oak lumber. Mr. Zeidler states that the specifications for the Toronto buildings called for Canadian lumber, just enough foreign timber being used to make a contrast, and adds that Canada has enough of its own timber to make the finest interior wood work without going out of the country. The Timber Trades Journal, in commenting on the matter, says: "There is as much sense in bringing oak from the east to use in any kind of a building on this coast, as there would be in bringing salt water from the Atlantic to Puget Sound to bathe in. Tacoma, Seattle and Portland have each paid heavily for imported stock to finish buildings that could as well have been completed with native lumber." Without professing to know anything about the circumstances of the present case, we are strong advocates of the use by Canadian architects of native materials, wherever these are to be had approaching in fitness and quality imported materials. On the same principle that Canadian architects object to commissions being given to foreign architects for the erection of buildings in Canada, the specifying of foreign materials in preference to native material by Canadian architects is an injustice.

TRADE IN WOOD-WORKING LINES.

A STUDY of the figures contained in the report of the Department of Trades and Commerce, for the fiscal year ended June 30th, 1894, now published, furnishes some suggestive thoughts as to the possibilities of extending Canadian trade in wood-working lines.

The export trade in doors, sashes and blinds during the past five years has grown at a satisfactory rate, the business for 1894 being more than double that of 1890. The figures are as follows: 1894, \$158,196; 1893, \$130,349; 1892, \$123,144; 1891, \$86,450; 1890, \$60,474. Let this increase continue in the same proportion for another five years, or why not at a greater ratio, and the trade will have assumed a very considerable size.

The difficult matter in building up an export trade is to obtain entry into foreign markets, but having done this then time will establish the merits of the goods imported. Furthermore, it take some years for manufacturers to ascertain what class of goods particular localities require, and this now done, the business in doors, sashes and blinds of Canadian manufacture ought

to grow apace. It is unnecessary to remark that no goods in these lines are imported into Canada, showing that the home goods are of a class that meet fully the requirements of our people, even those who may be deemed specially fastidious in their tastes, or who consider it the proper thing to look abroad for what is wanted.

If reference is made to the trade in mouldings it will be learned that the exports in this direction have since 1891 grown largely. The figures are: 1894, \$36,558; 1893, \$23,164; 1892, \$7,083; 1891, \$5,153. There was imported during 1891, mouldings to the value of \$31,745.

THE NEW COURT HOUSE ROOF.

WORK on the new Toronto Court House will be sufficiently advanced before the close of the year to permit of covering in, and the question now is, shall it have an iron roof? The matter came before the Property Committee of the City Council a week ago, and has given rise to considerable newspaper discussion since then. At the committee meeting Ald. Dunn objected to an iron roof on the ground that it provides no absolute security from fire in a building full of wood. This view has found expression in several newspaper communications. Is the objection well founded?

Architect Lennox, who, as might be expected, has given a good deal of study to the question, favors an iron roof. He argues that with a building costing one and a half million dollars, it would be poor economy to cover it with a roof of the ordinary kind. In his judgment, and experience, there is no doubt about the fire protection an iron roof affords. It must be remembered that the Court House roof will be about 1,400 feet around, and from 50 to 70 feet wide, and towering as high as this building does, it would be a ready target, in case of fire, not only from the buildings immediately surrounding it, but from fire even some reasonable distance away. In the case of some of the worst fires that have occurred in the city and elsewhere these have resulted through flying embers lighting on an inflammable roof, or finding their way through inflammable material surrounding the roof. Because Knox Church steeple was covered with metal the argument was that it could not catch fire and yet a flying ember from the Simpson building found entrance somewhere and fire was started.

One newspaper correspondent has stated that a fire starting in the building would work its way up to the roof, and then by the immense heat the iron would become warped or melted. If the building were one immense furnace, as it were, with no means of egress for the flames this might be the case, but separated by brick partitions and no lack of windows it is hardly possible that a fire could get under way to the extent suggested. It is also urged that the immense weight of the falling iron would bring down the walls with it to the extent that it would do them tremendous damage, so that not only would the roof be lost, but to a large extent the walls also. The writer of the letter containing this sentence may be a "Taxpayer," as he signs himself, but he can hardly have a practical knowledge of building. The view is not alone that of Mr. Lennox, but is very generally endorsed by architects, that the effect of the falling of the iron roof would be to go down and it would really serve as a means of burying and extinguishing the fire.

Experience in the erection of buildings of a similar character, though in many cases not involving nearly so large an investment, is emphatically in favor of an iron roof. The best public buildings, and those of a semi-public character belonging to monetary and kindred institutions throughout the United States, have the protection of an iron roof. The Freehold Loan Building, on the corner of Victoria and Adelaide Sts., Toronto, constructed under the superintendence of Mr. Lennox and costing less than three hundred thousand dollars, has an iron roof and is absolutely fire proof. The view of Canadian architects is almost generally with Mr. Lennox. To quote the language of one of the most prominent in Toronto, when spoken to about this matter: "The placing of an iron roof on the Court House would add nearly 75 per cent. to the fire protection."

The additional cost of an iron roof is the main, apparently, if not the only substantial, argument that has been employed. It seems, however, to be forgotten that it might be the worst of economy to expend the large amount of money that the new

Court House will cost, and then for the sake of perhaps forty thousand dollars additional, place the entire investment in serious jeopardy. The Court House is not built for to-day, but practically for all time, and every precaution necessary, and that experience would suggest, ought to be exercised to make it a building that may last for all time by being protected from every possible risk, and especially that of fire.

ROOFING TILES.

AMONG builders, certain technical names have been applied to different kinds of tiles, most of these names being derived from the shapes.

Plain or crown tiles are such as have a rectangular form and plane surface. In England a statute provides that they shall be 10½ in. long, 6¼ in. broad, and ¾ in. thick, and are manufactured with two holes in them, through which, by means of oak pins, they hang upon the laths. In use one tile laps over another, or is placed over the upper part of the one immediately below; that part of the tile which then appears uncovered is called the gauge of the tiling. The so-called Italian tiles differ somewhat from these, as, instead of being flat, they are slightly curved, fit easily one into the other, with a horizontal indentation across the upper part, to prevent the wind drifting the rain over the tile head; they have either wide or narrow vertical rolls.

White glazed tiles are used for lining the walls where reflected light is needed.

Three courses of plain tiles laid in cement and well bonded have been for many years employed for slightly curved roofs to form terraces, roofs for cellars under paving, as roofs over small back building, and for similar purposes. It has been asserted that the tiles should not be covered with cement. Portland or other cement laid on brick arches, or on tile, or on a flat concrete roof, supported by iron joists, also asphalted roofs, all generally cracked and let in wet, especially when there is any traffic on them, or their foundations are not perfectly stable. In England tarred roofing is formed of plain tiles in three courses rendered on the top to the thickness in all of about 4 in., carried over by arches slightly cumbered, spring from small brick piers, and tied by light iron rods, which form their cord line. These flats have an immense weight upon them, and are cast in one piece, as it were, there being no perceptible joint; they are completely watertight, and can be easily cleaned.

Plain tiles are laid on different gauges; 210 plain tiles, laid flat, will cover a square of tiling. Pan tiles are generally pointed in mortar, which, if it be not very strong, will not stick; in consequence of this the roofs require fresh pointing every few years, especially in exposed situations. Many tilers have a practice, when plain tiles are set in mortar, not to peg more than about one hole in ten. This is bad practice, as, with the decay of the mortar, the tile will slip down. In some parts of the country the ancient custom prevails to bed the tile in hay or moss, and when the roof is of the full pitch, this suffices without mortar. They may even then be laid dry. But with any less pitch some precaution must be used to keep out drifting snow, and such wet as may be blown up between the tiles, lifted by the force of the wind. In lieu of oak pegs, extra large flat-headed wrought nails, made of pure zinc or of zinc and copper, have been used, and it has the advantage of allowing a tile to be replaced from the inside of the roof by lifting up the others to place in the tile and drop in the nails in a few seconds.

Pan tiling is laid to a 10 in. gauge, and 180 pan tiles will cover a square.

Glass tiles have been used on roofs where a small modicum of light is required.

Tiling is measured by the square of 100 superficial feet; a square will require 800 at a 6 in. gauge, 700 at a 7 in. gauge, and 600 at an 8 in. gauge. The gauge necessarily regulates the distances of the laths, and at the same time must be dependent on the slope of the roof, which, if flat, should not be less than 6 in., as, for instance, above the kerb in a kerb roof, and not more than 8 in. in any case. A square of plain tiling requires about on an average a bundle of laths, two bushels of lime and five of sand, and at least a peck of oak pins. A bundle of laths 3 ft. long contains 160; 4 ft., 120, and the 5 ft., 100. The nails used are fourpenny. A square of pan tiling requires 180 tiles laid at a 10 in. gauge.—Illustrated Carpenter and Builder.

ILLUSTRATIONS.

COPY OF ORIGINAL DRAWING FOR THE ROOF OF UNIVERSITY CONVOCATION HALL, TORONTO, SUBMITTED IN THE O. A. A. EXAMINATIONS BY MELVILLE P. WHITE, TORONTO.

ENTRANCE TO A HOUSE—ERNEST WILBY, ARCHITECT, BUFFALO, N. Y.

NEW LIBRARY BUILDING, MCGILL UNIVERSITY, MONTREAL—A. T. TAYLOR, F.R.I.B.A., ARCHITECT.

Several exterior and interior views of the new library building in connection with McGill University, Montreal, are presented in this number. The building is one of many gifts presented to the university by Mr. Peter Redpath. The foundations were laid in the spring of 1892, and the completed structure formally opened by their Excellencies the Governor-General of Canada and Countess of Aberdeen, on the 31st of October, 1893.

The construction is as nearly fire-proof as possible, and the stack room is entirely so. The whole of the main floor is of steel beams and porous terra cotta arching. The other floors and the roofs, where not of this material, are of solid oak beams, and flooring on the slow combustion principle. The stairs are of iron and slate. Externally, the building is constructed of the Montreal limestone, of a whity-grey color in dressed ashlar work, except the basement, which is of rock-faced ashlar. The roofs are of blue Rockland slates and copper. The doors are of polished oak with wrought-iron grille work and fittings. The style adopted is a free treatment of Romanesque, which lends itself to the requirements of such a building, as being at once dignified and yet picturesque. The tower rises to a height of about 90 feet. The salient points of the design are accentuated by stone carving, embracing suitable subjects such as the symbolic figures of the four Evangelists, the College arms, the crest and motto of the donor of the Library. Convenience of arrangement and suitability for its purpose, combined with substantiality and solidity of construction, were the desiderata; afterwards came in the elements of beauty, proportion and grace, in some measure all of which have been attained without the sacrifice of one to the other.

After much consideration, the architect adopted the "stack" system as the best arrangement for the books. Stacks were selected of the "Library Bureau" type, with uprights of grooved steel, in which bracket ends slide up and down, being fixed at the required height by a wedge easily adjustable. The pattern of the bracket ends was specially made for this library; the shelving is of polished oak. This stack room has four storeys, with straight stairs, and a lift for books; on each storey there is a wide bay window, back and front, for special privileged readers, where they can consult any of the books on the spot, and not obstruct the passage ways between the books. In the future, when the stack room requires to be enlarged, these bays will form the centre of the stack, and the accommodation will be thus nearly doubled.

In the basement or lower floor, which is entirely above ground

with the exception of a small portion on one side, five studies or seminary rooms are arranged for special studies, fitted up with tables, chairs, and book-cases for books bearing upon these special subjects. These can be reached by a separate door from the campus, or by the main entrance. At the other end of the building is a wide entrance for the reception of boxes of books, which opens into the unpacking room. From here the books are then taken to the cataloguing room immediately above, by a lift in a small projecting wing in which also a staircase is arranged, for the exclusive use of the librarians. The rest of this floor is occupied by the caretaker's house, lavatories, heating chambers and coals.

On the main floor the principal feature is the great reading room, 110 feet long, 43 feet wide, and 44 feet high to the top of inner roof, with a high open timber roof having the hammer beams ornamented by carved heads of grotesque animals. At the further corners are lofty oriel windows with seats round same. In the centre of the S. E. side is a recessed fireplace or inglenook, with a red stone mantel inside, having the following motto cut in relief in a panel: "Cease not to learn until thou cease to live." At the entrance to the inglenook is a large massive carved oak mantel-piece about 14 feet high, with the following quotation from the Proverbs, cut on the carved frieze: "Happy is the man that findeth wisdom, and the man that getteth understanding." On the opposite side of the reading room is a lofty square recessed window with seats round. A large wide level gallery has been arranged at one end, which may be used for the display of rare illuminated books, manuscripts and missals in glass cases, and other purposes, and from which visitors can obtain a good view of the reading room, without disturbing the readers. Below this gallery, the Librarian's room and the cataloguing room are obtained, divided by an ornamental glass screen from the reading room. This is the working department of the building, where all the books are catalogued and arranged;

contiguous to this is the attendant's counter for the distribution of books, and from this is the entrance to the stack room already referred to, protected by steel fire-proof doors. Between the cataloguing room and the reading room are placed the Card Catalogue cases, opening on both sides, so that the cards may be placed in the drawers from the one side, and consulted by the readers from the other. The remainder of this floor is taken up by a well-lit room for periodicals, and by cloak-rooms. In the tower is placed the staircase, opening into the entrance hall and into the reading room by ornamental arches. The vestibule and entrance hall have marble and oak dados respectively, and both have marble mosaic floors. There is also a special Muniment vault for the care of precious books and muniments. On the upper floor, in addition to the gallery, are a Professors' room, and a large room or hall with a high ceiling for architectural casts, sculpture, etc. The fittings of the reading room are all of oak, of a substantial character and polished, the tables being arranged across the room so as to have the light right and left. Round the walls are arranged



STACK ROOM, NEW LIBRARY, MCGILL COLLEGE, MONTREAL.

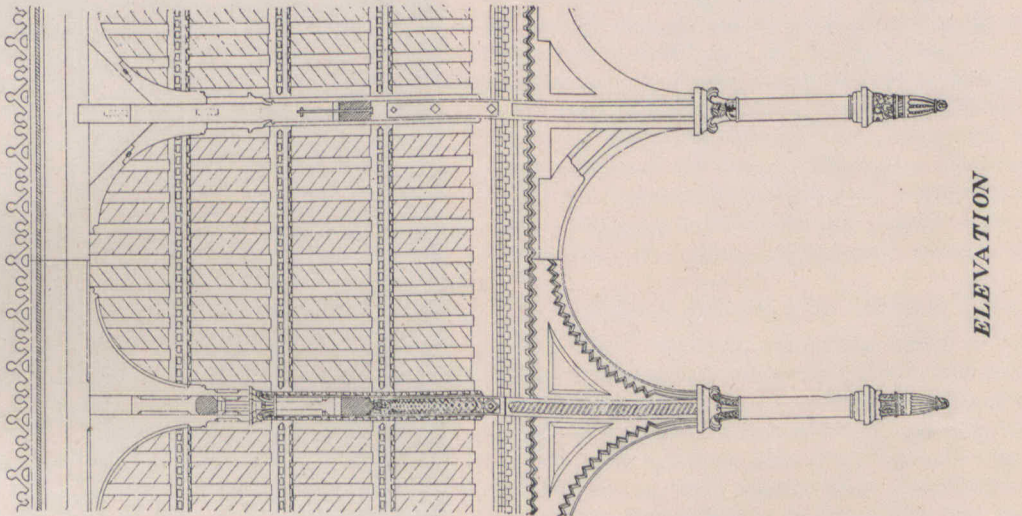


AN ENTRANCE TO A HOUSE.

ERNEST WILBY, ARCHITECT, BUFFALO, N. Y.

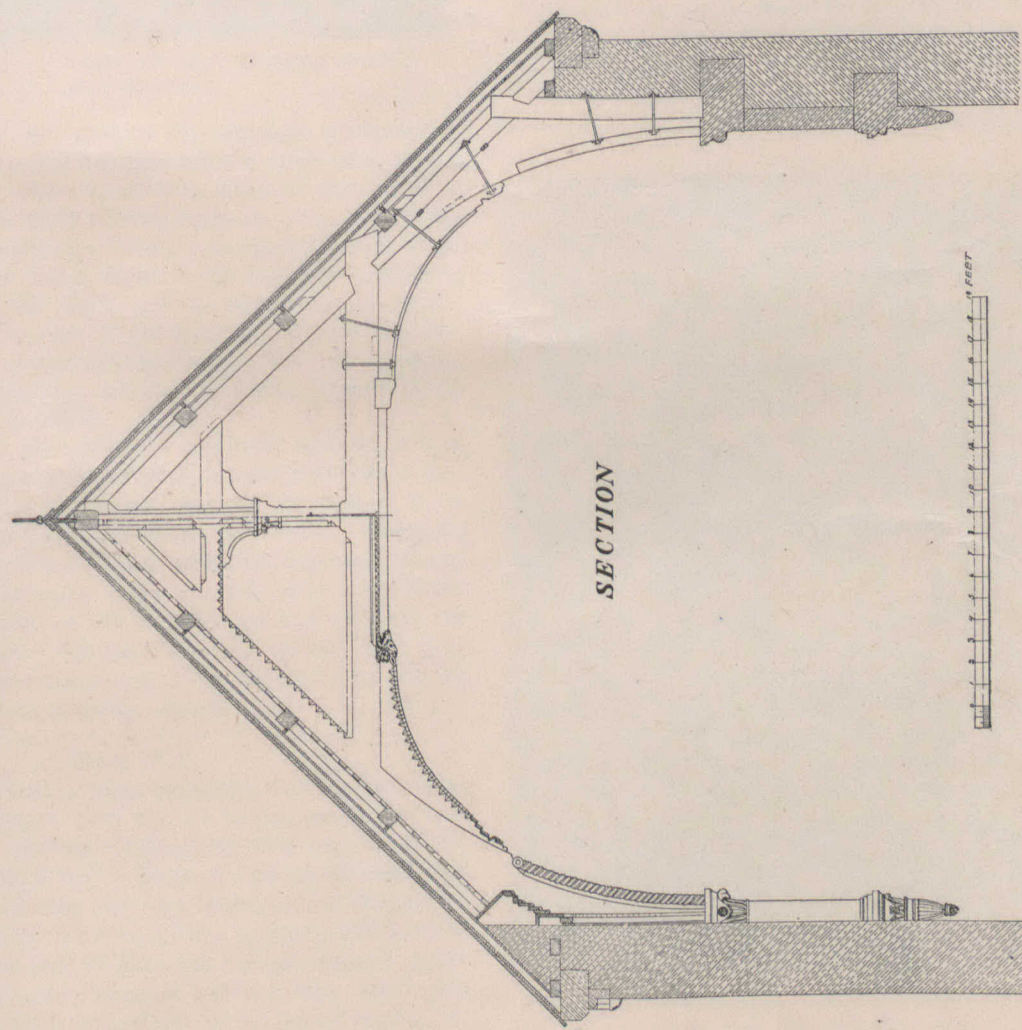
ROOF: OLD HALL OF CONVOCATION
UNIVERSITY OF TORONTO

Scale 4 Feet to 1/4 Inch



ELEVATION

Urberville P. White
Original Structural Plans



SECTION



book cases for reference books. The windows are glazed with leaded lights in geometrical patterns, having panels in same for quotations and inscriptions. It is the intention to have all these panels filled in with suitable mottoes painted on the glass as soon as a selection can be made. At present only a few have been painted on in the vestibule, entrance hall and staircase.



ENTRANCE HALL AND STAIRCASE, NEW LIBRARY, MCGILL COLLEGE, MONTREAL.

Special attention has been given to the three-light windows facing the campus, and to the five-light window at the other end of the reading room. These have been filled in with beautiful painted glass, the gift of Mrs. Peter Redpath. The three light window is specially elaborate, having a number of groups of the men great in art, poetry and music. The five-light window is not so elaborate as the other, and the colors were purposely kept lighter, so as to obstruct the light as little as possible. These windows are respectively dedicated to law, history, philosophy, astronomy, medicine, and have medallion portraits of the great masters in each subject.

For artificial light, electric lamps are used entirely, and in addition to handsome polished antique-brass electroliers suspended by chains from the roof, the reading room is lit by standards, with green shades, placed on each table. The walls of the reading room are colored a soft shade of green, relieved with gold, so as to be restful to the eye, and yet not too absorbous of light. The walls of the entrance hall and staircase are colored a dull soft red. All the floors are covered with cork carpeting to deaden the sound. The heating is entirely by hot water on the direct radiation system.

MORTAR.

It was found by Berthier after an analysis that Roman cement is composed of carbonate lime 657, carbonate magnesia 005, carbonate iron 063, carbonate manganese 019, clay silica 180, clay alumina 066, water 013. Berthier considered that with one part of common plastic clay, and two and a half of chalk by weight, a very good hydraulic lime could be made, which would set as speedily as the English one; but it is not probable, he allows, that we can obtain by mixtures hydraulic lime which will acquire as great hardness and solidity as the natural mortar, because these qualities depend, not only on the composition, but also on the state of compactness. The greater density the material possesses, and if it slake without changing its volume, the greater facility will its particles have in becoming aggregated, and the less shrinking will there be during its consolidation. Berthier drew the following conclusions from a numerous set of experiments. A limestone which contains 6 per cent. of clay affords a lime already perceptibly hydraulic. When the lime

amounts to from 15 to 20 per cent., it is very hydraulic, and when from 25 to 30, it sets almost instantly, and may therefore be considered as Roman cement. He conceives that the iron and manganese have no effect whatever in occasioning the hardening. In a mortar which owes its solidity to the adhesion of the lime to the alloys, or substances with which it is mixed, there is evidently an advantage in multiplying as much as possible the surfaces of contact. Thus alloys with large grains do not afford mortar so solid as the pulverulent ones, because there are spaces filled with pure lime which do not present the same resistance to fracture as the other parts. On the contrary, alloys in powder, though they present the greatest surface, yet require a very large proportion of lime. To obtain, then, with the smallest possible quantity of lime, mortars possessing the greatest solidity, alloys must be used containing particles of different sizes, avoiding always the mixture of argillaceous substances, which form a paste with water, but have no coherence. These opinions have been put to the test of experiment on a large scale, the sand usually employed in Paris affording a better mortar when merely washed than when the fine particles are removed by a sieve.

BLACK BIRCH FOR INSIDE FINISH.

Black birch for doors, wainscoting, and other interior work, is being introduced to a considerable extent, and is certainly one of the handsomest of the many varieties of woods that are being introduced into new houses, while the cost is much less.

Black birch is a close-grained wood, and is as easy to work as walnut, and is much cheaper than either walnut or cherry. There is a great difference in the quality and color of birch, that growing upon high and dry land being hard and susceptible of good polish, while the growth on swampy land is soft, and therefore not well suited for the purposes the upland product so admirably fills.

Birch grows in our northern latitude, and the trees attain considerable height and size in localities, and there is a species of bird's-eye birch which is well calculated for furniture. It resembles bird's-eye maple, and when polished it possesses that sheen which renders satinwood so pleasing to the eye. We pre-



FIRE-PLACE AND MANTEL IN READING ROOM, NEW LIBRARY, MCGILL COLLEGE, MONTREAL.

dict for black birch an important place among the fancy woods for house finishing and furniture.

A convent to cost about \$42,000 is now in course of erection in the parish of St. Louis de France, Montreal, at the corner of Cadieux and Roy streets. The building will be of brick and stone, two storeys, with mansard roof and basement.



(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

THE AUGÉ BILL AS AFFECTING BUILDERS.

The amendments commonly known as the Augé Bill affecting that section of our civil code concerning builders and others engaged in the building trades, interest in such a degree the readers of this journal that it is probably opportune to say a few words about it. Mr. W. A. Baker, advocate, in a very able article in a recent issue of "La Revue Legale," exposes the situation in its true light and suggests several amendments, the principal of which are the restoration of the "proces-verbaux," and a restoration of the redemption system under the Augé Bill.

Article 2013 of the civil code as it existed before the late amendments, gave privileges on immovables to builders or other workmen, and architects, over the vendor and all other creditors upon the additional value given to their immovables by their works, provided an official statement (proces verbal) establishing the state of the premises previous on which the works were to be made, had been previously made by an expert appointed by a judge of the superior court in that district, and that within six months from the completion of such works have been accepted and received by an expert appointed in the same manner, which acceptance and reception were established by another official statement containing also a valuation of the work done. In this manner builders or workmen and architects were privileged to the amount of valuation ascertained by the above said second statement, and was reducible to the amount of the additional value which the immovables had at the time of the sale.

Article 2013 is now changed to read as follows:—"The laborer workman, furnisher of building materials and the builder (principal contractor) have on the immovables a right of preference to the amount of additional value given to the estate by works or materials furnished, etc."

As it will be noticed, the architect is excluded amongst the privileged and takes rank amongst other creditors. What is the reason for excluding him? Does he not contribute to create the additional value of the estate as much as the builder or any one else. And as to the supplier of materials, he certainly ought to come under the clause regulating traders and the general commerce, as if he sells to a contractor and has any doubt as to his responsibility, he has but to require of him the payment of his goods c. o. d., as is done in other lines of trade. The right of preference or privilege exists in the following manner: During the whole time that the work last, and with registration if effected within 30 days of the completion of the work, but for a period not exceeding two years unless there are arrangements to the contrary stipulated in the contract or a judgment to that effect. The conservation of the privilege is subject to the following conditions: The laborer and workman have to inform the proprietor in writing, or verbally, before a witness at every term of payment due them, that they have not been paid, and the furnisher of materials declare to the proprietor the contracts passed between the contractor and himself for materials, before they are delivered, and also their cost. The sub-contractor shall also declare to the proprietor the contracts made between himself and the principal contractor. What is the meaning of this clause? It is the most obscure in the bill. If it is deemed necessary to declare to the proprietor the contracts he closes with the principal contractor, is it that he has a right of preference or a privilege? It is not probable, as article 2013 ignores entirely the sub-contractor and mentions as privileged only the laborer, workman, supplier of materials and the principal contractor. It is a mere mine of exploitation for lawyers, as it is almost impossible to foresee the result of a law-suit based on this cause.

Another source of law suits in the Augé Bill is that there are no longer any "proces-verbaux." It would be well to advise those engaged in

the creation of the additional value, to make use of the "proces-verbaux" as in the past, but with this difference that each of the two interested parties should appoint an expert to guard their interests, as it is the best means of protection for all, and the foundation of the privileged credit.

In his article Mr. Baker concludes by saying that what prevents the Augé Bill from working is that all the accessories indispensable for its proper working have been ignored, and suggests that the sale by right of redemption be restored by an amendment to its former popularity, as according to him the right of redemption is an indispensable accessory for the security of the loaner who by the transaction has all the privileges of a proprietor, and has a right to the notices of the Augé Bill, and can therefore keep an eye on the transactions between the proprietor and the contractor. The falling into desuetude of this system is to be attributed to an amendment made a few years ago which declares that if the seller fails to bring a suit for the enforcement of his right of redemption within the stipulated term, the buyer remains absolute owner of the property. This scares all speculators, as for unforeseen causes they might not have realized the cash wanted at the required period and therefore lose all their rights.

PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.

The semi-annual examinations announced for the 25th, 26th and 27th July, were held as announced in the rooms of the association, but lasted only two days, the 25th and 26th, there being no candidates for the diploma. Four candidates presented themselves for matriculation examinations, all of which passed in the following order of merit:—1st. F. Dubreuil; 2nd. L. A. Venne; 3rd. L. Lionnais; 4th. J. L. Morin. The examiners were Messrs. A. C. Hutchison, 1st vice-president, A. T. Taylor, 2nd vice-president, and J. Venne, secretary.

MASTER PLUMBERS' ASSOCIATION.

The Montreal Master Plumbers' Association have petitioned the City Council to permit the use of tile drain pipe in certain cases, which is now forbidden by the drainage by-law inside of houses from two feet of outside of exterior stone foundation wall. The Association of Architects in revising the building by-law have attached a drainage and ventilation by-law to it, and have confirmed the existing by-law. It is thought that the Board of Health, to whom the matter has been referred, will not alter the present state of affairs, as the use of cast iron pipe is recognized the best, and is being now more extensively used than ever in large cities.

Montreal importers of drain pipe are about to make and organize a more suitable appraisalment of this class of goods by the Customs Department, individual efforts in this direction not having met with success. The importers claim that the arbitrary basis upon which the duty is levied at present was adopted at a time when abnormal prices obtained in the European market as the result of the great coal strike a few years ago, and that consequently the standard of valuation does not correspond in any way to prevailing values. A prominent dealer whom I interviewed said: "Mr. Douglas, the appraiser, examined two or three dealers in this city, but the enquete came abruptly to an end for unknown reasons. The arbitrary scale on which the prices are based are about double to what is being paid for the material. Invoices shown by manufacturers in Scotland are shown to Customs officials here, but are not accepted."

PERSONAL.

Mr. W. H. Carrick, manager of the Gurney Foundry Co., Toronto, accompanied by Mrs. Carrick, sailed a fortnight ago for Europe on a pleasure tour.

We regret to announce the death from paralysis, of Mr. Wm. Elliott, of the firm of Elliott & Son, wall papers and stained glass, Toronto. The sad event occurred at his residence on Sherbourne St. about the middle of July. He was born in Ireland in 1829, and came to Canada when a boy, locating in Toronto, where he has been in business for nearly forty-five years.

We are pleased to learn that the enterprise displayed by Mr. J. A. Pearson, of the firm of Darling, Sproatt & Pearson, architects, Toronto, in opening an office and taking up his residence for about two years in St. Johns, Nfld., immediately following the great conflagration in that city, has brought him large reward, not only in the shape of commissions, but in the form of one of the fair daughters of the ancient colony, whom he has recently brought home as his bride. Regardless of the opinion of the majority, there is a minority who believe that the great St. Johns fire was a most fortunate occurrence, it being the means of introducing to one individual both a new-found-land and a new-found-happiness. May the latter continue as long as the former.

The firm of Arnaldi & Calderon, architects, Ottawa, has been dissolved, Mrs. Calderon continuing for the present.

The Toronto Steel Clad Bath and Metal Co. have published in pamphlet form a number of excellent testimonials from architects and others as to the merits of their steel clad baths.

The idea that ten cents for the Cosmopolitan means inferiority from a literary point of view is dispelled by the appearance in the August number of such writers as Sir Lewis Morris, Sir Edwin Arnold, Edgar Fawcett, Tabb, W. Clark Russell, Lang, Sarcey, Zangwill, Agnes Replier, etc.



LIBRARY—VIEW FROM MUSEUM.



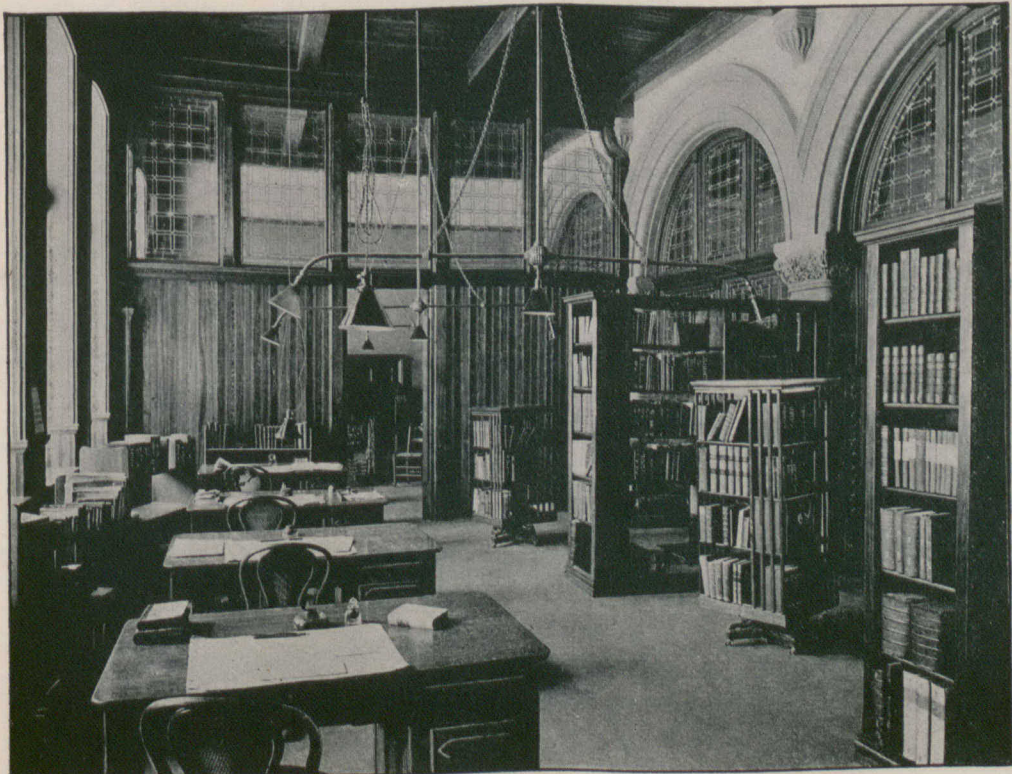
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THREE LIGHT WINDOW.



CATALOGUING ROOM.

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STUDENTS' DEPARTMENT.

PHOTOGRAPHY IN NATURAL COLORS.

A. AND L. LUMIERE point out that the indirect method of photographing in natural colors has not received a proper practical application, because of the difficulty experienced in selecting the colors, and in preparing and superposing the monochromes. They recommended the use of orange, green and violet screens for preparing three series of negatives presenting a maximum of sensibility to the rays which the respective screens allow to pass. Specimens of photographs so prepared were exhibited before the Paris Academy of Sciences. The printing and superposition of the monochromes have been successfully accomplished by employing birchromated gelatine to which are added substances insoluble under certain conditions. If, for example, five per cent. of ammonium bichromate, and five to ten per cent. of silver bromide in the form of emulsion, be added to a ten per cent. solution of gelatine, and the preparation be spread in a thin layer upon a plate of glass, a surface is obtained which can be exposed under a negative, and will reproduce the picture by the action of light. After exposure, the plate is washed with cold water, and the portion of the film acted upon by light being rendered insoluble, remains and serves to print the image form on the application of suitable colors. The silver bromide, which, by the way, may be replaced by other insoluble precipitates, is easily removed by the action of sodium hyposulphite, and proofs can then be printed from the plate in any color, showing all the gradations of tint present in the negative. Polychrome prints may be obtained by receiving on the same plate monochrome red, yellow, and blue images successfully, by means of three corresponding negatives, and isolating each image from the preceding one by an impervious layer of collodion. By employing dyes of greater or less concentration, or by simple decoloration with water, variation in the relative intensity of the monochromes is readily obtained.

USEFUL HINTS.

A GIVEN number of feet of radiating surface properly placed, will be found more effective than a greater amount located to save floor space or be out of the way.

CHLORIDE of zinc paint, although virtually a water-color, dries quickly and hard, so that it can be washed with soap and water when necessary, and will be found a preservative of wood, rendering it almost incombustible.

WIRE nails for joining dressed boards or barrel heads by being driven into the different edges, will be made by machinery and the price greatly reduced. This will dispense with the use of the brace and bit and wedge-plug for that use.

FOR filling up the pores of the wood before commencing to polish: For white wood, equal proportions of whiting and plaster of Paris, thinned to a paste with turpentine and well into the grain of the wood; for mahogany, add rose pink, or whatever the color of the wood is, and dry color to match up to same.

A NOVEL engineering scheme in the construction of a foundation we have heard of is the one recently used in New York—to freeze a bed of quicksand which impeded the work. A row of 4-inch pipes was sunk to a depth of 40 feet. These pipes were capped at the bottom, and contained inside similar pipes opened at the bottom. From a large condenser cold air was forced through these smaller pipes into the larger, from which it returned to the condenser. The air was cooled to a temperature of about 45 deg., thus freezing the surrounding mud and wet sand, and checking their flow into the excavations.

WE have long had slag paint and pavement, but the latest is a slag brick chimney. According to L'Industrie, this plan was adopted by the Courrieres and Ortricot companies, and their example is followed by the works of Arbel and Douai. The latter establishment planned a chimney 164 ft. high, and to weigh but 379 gross tons, about half the weight of a brick chimney of the same dimensions. A special cement was to be used which would bind together the blocks composing the chimneys so firmly as to require no chain or iron band for strengthening. This is an interesting application of a cheap industrial by-product, which, should the experiment prove a success, will be appreciated by metallurgists.

THE scientific journals describe a series of tests lately made to determine the loss of heat from steam pipes due to radiation, three distinct conditions being observed in the calculations, namely, bare pipes, pipes covered with 1 inch of composition, and pipes over-laid with 1 inch of composition and three surfaces of hair felt, each $\frac{1}{2}$ an inch

in thickness. The steam pressure used was from 45 to 60 pounds, and the result showed that with 1 inch of composition out of a possible loss of 100 per cent., $83\frac{1}{2}$ per cent. was saved, and with the extra felt covering, $8\frac{1}{4}$ per cent. additional marked the saving. It is marked that if a single pound of coal is required to evaporate 8 pounds of water into steam at 60 pounds pressure, then six and a half hundredweight of coal would be needed every year to make good the loss of heat for every square foot of uncovered steam pipe.

PROCESS OF GALVANIC BRONZING.—By means of a recent French improvement, the process of galvanic bronzing is said to have been made not only more simple, but capable also of giving every tone, from that of barbedian bronze to antique green, governed by the length of time that the copper is allowed to remain in contact with the liquid; after the piece has been well scoured, it is covered by means of a brush with a mixture composed of twenty parts of castor oil, eighty of alcohol, and forty parts each of soft soap and water. Thus treated, the piece left to itself for a period of twenty-four hours becomes bronzed, and if the duration of contact be prolonged, the tone changes, a very great variety of tones, pleasing in their appearance, being obtainable in this manner. The drying is finally effected with hot sawdust, the only remaining operation being then that of coating the piece with colorless varnish largely diluted with alcohol, thus insuring work of the finest character.

PRESERVING WOOD BY LIME.—On the preservation of wood, a Canadian experimenter writes: "I have for many years been in the habit of preparing home-grown timber of the inferior sort of fit, Scotch spruce and silver, by steeping it in a tank, or a hole dug in clay or peat, which was fairly watertight, in a saturated solution of lime. Its effect on the sapwood is so to harden it and fill up its pores that it perfectly resists the attack of the little wood-boring beetle, and makes it, in fact, equally as durable as the made wood. I had a mill which was lofted with Scotch fir prepared in this way in 1850, and it is in perfect preservation. The timber is packed as closely as it will lie in the tank, water is let in, and unslaked lime is thrown on the top and well stirred about. There is no danger that the solution will not find its way to everything in the tank. I leave the wood in the solution for two or three months, by which time an inch board will be fully permeated by it. Joists and beams would, of course, take a longer time for saturation; but in practice we find that the protection afforded by two or three months' steeping is sufficient, if the scantlings are cut to the sizes at which they are to be used."

WEATHERING OF NAILS.—Mr. Samuel Cabot writes as follows to the American Architect:—When a plain iron nail in any structural woodwork is so placed that water can gradually work between the nail and the wood, a hydrated peroxide of iron is formed by the oxidation of the surface of the nail. This oxide acts rapidly and very destructively upon the fibre of the wood, which in chemical parlance is almost wholly cellulose, the same material which we find in cotton and linen. The action of this hydrate upon the cellulose, seems to be a completely destructive one, resulting finally, in the case of a nail, in its becoming so loose in its place that it can be frequently removed with the fingers, as you draw a pin from a cushion. If the examination is then made, all the adjacent parts of the wood will be found to be deeply tinged with the red-brown color of the hydrate of iron, and to be completely disintegrated and decayed by the oxidizing effect of the hydrated iron oxide. This, of course, tends to gradually diminish the structural strength of the part so effected, and in such cases, for instance, as piazza rails and posts, may result in dangerous fickle support and so in perhaps serious accident. Of course, the means of avoiding these objections are quite obvious: The first is to shun, as far as possible, the exposure of the nail head or point in a position where water can trickle upon it and follow down between the nail and the wood; but a still more radical, though more expensive cure, is the use of galvanized nails, or still better, composition nails, in all such cases, and it is the writer's conviction that such construction would be a great economy in all cases such as above cited. If any of your readers will carefully observe the conditions that obtain in such cases, they will need no better testimony than their own eyes.

CEMENT AS A SAFE MATERIAL.—The Improvement Bulletin gives the following interesting test of the fire-proof and non-heating conducting qualities of cement: A safe constructed of cement, with steel wire netting placed in between, was tested by order of the Reichsbanks, the German Government's banking establishment. The question to be decided was whether it is practical to build vaults of this material for safety against fire. A safe was placed upon a pyre of logs drenched with kerosene, which, after being set on fire, kept the safe for half an hour exposed to a heat of about 1,800 degrees Fahrenheit; that is, a heat in which iron will melt. Two hours after the safe was opened and the contents—silk paper, draft blanks and a maximum thermometer—were found to be absolutely uninjured. The maximum thermometer showed that within the safe the temperature at no time during the test rose above 85 degrees. This seems to prove that cement safes within buglar-proof steel vaults fill all the requirements that can be possibly expected.

COLLINGWOOD GENERAL AND MARINE HOSPITAL.

By the munificence of Mrs. Lett, the Trustees have been enabled to erect a large addition to the Collingwood General and Marine Hospital. The new wing will contain upwards of twenty rooms, including wards, corridors, operating room, mortuary chamber, lavatories and offices, and will be fitted with a fair supply of modern hospital appliances.

The building has a frontage of eighty, and an average depth of forty feet; it is constructed of cream colored bricks on a rubble stone foundation, and is three stories high, including basement.

The whole building throughout is to be heated by steam and is to be fitted up for electric light, bells, etc. The kitchen, dining room, laundry, furnace room, buttry, vegetable cellar, and fuel rooms are in the basement, which is well lighted, airy and dry. All the wards, operating room and convalescents' parlors, are well ventilated.

The illustration shown herewith presents a front view of the building with the new wing added. When completed, this hospital will be one of the best equipped in the Dominion, outside the large cities, and in its own way will do an immense service to suffering humanity in this part of the country. The management of the institution is in the hands of a number of charitably disposed ladies of the town, to whom much credit is due for the efficient manner in which the hospital work in the past has been pursued. The generous gift of several thousands of dollars by Mrs. Lett, one of the most assiduous workers in behalf of the hospital, will extend the sphere of usefulness of the institution, and enable the management to still further diffuse its blessings.

The new building will be ready to receive patients sometime this month (August), when an efficient staff of trained and experienced nurses will be retained for service if required.

The contractor for the building is Mr. John Peterman; the designs for the new work were prepared by Fred. T. Hodgson, architect, who is also supervising the work.



GENERAL AND MARINE HOSPITAL, COLLINGWOOD, ONT.

MOVING A STONE DWELLING.

A RATHER interesting piece of work in the way of moving a dwelling house was recently completed in the city of Brooklyn, N. Y., where an old stone mansion covering an area of 58 x 68 feet in size, and weighing about 1,300 tons, was carried a distance of about 50 feet and placed upon new foundations. The work was of such a nature, says Carpentry and Building, that many were skeptical as to its successful performance, but such progress has been made in late years in the methods of moving buildings that the structure was transferred without the development of any visible cracks in its walls. One of the difficulties encountered in the execution of this piece of work was the lack of solid side walls to the house, these being composed of rock faced ashlar with a backing of broken stone. There were also window openings on all four sides which had to be taken into consideration in the moving.

The first step was the cutting of a large number of openings in the stone foundation walls so as to admit the timbers which were to support the building and carry it to its destination. The blocking used was of spruce and yellow pine measuring 10 x 10 and 12 x 12 in cross section and cut in lengths of four feet each. This was arranged in position under the building, and by means of hydraulic jacks and screws the structure was lifted from its foundations. Immediately under the first tier of floor beams were placed 12 x 12 inch timbers, the ends of which pierced the front and rear walls. Under this tier of timber and at right angles to it was another tier of 14 x 14 inch pieces which pierced the two side walls, these two tiers of timber being the ones having an immediate bearing on the walls of the house. Under these was placed a tier of 14 x 14 inch timber to

serve as sliding ways, these moving on 14 x 14 inch pieces placed upon the ground and extending in the direction of the new site of the building. These were known as "ground ways" or skids, and between them and the sliding ways lubricants were placed for the purpose of reducing friction to a minimum. When this had been done 10 screws were placed in position along the side of the house, one end of each screw abutting against a piece of heavy timber secured to the ground ways by means of heavy chains, while the opposite end of the screw worked in a hollow log called a "pump," which pressed against the timbers upon which the building rested. In moving the structure two men took position at each screw and upon a given signal by the foreman the screws were given a quarter turn. This was continued until the screws had been run out practically to the full length, when the chained pieces were moved forward and again made fast, the operation being continued until the building had been forced forward 20 feet. The bearings were then changed and the structure moved in a direction at right angles to the first for a distance of 30 feet. Such care was taken in the moving that one day was required for the 20 feet and nearly two days for the 30 feet. When the building had reached its destination 100 screws and 10 hydraulic jacks were placed under the timbers and the house raised to an elevation to correspond with its new foundations. The latter were left with openings to correspond with the position of the projecting timbers under the building, so that when it was lowered in place the blocking could be removed and the timbers easily withdrawn.

The work was done by B. C. Miller & Son, of Brooklyn, N. Y., who, our readers will recall, successfully moved the brick railroad station at Mott Haven, a description of which appeared in these columns some months ago. The scheme there employed was followed in all its essential features in the moving of the Brooklyn house.

Not far from this stone house was a frame building which was moved by the same concern in nearly a half circle, so as to change the front

around and make it face on another street, running parallel with its original position. The work was done by laying the "ground ways" in such a way as to describe a semi-circle and employing capstans operated by horses instead of jack screws. The method of timbering was practically the same as in connection with the stone house, except that less material was required.

PRESERVATION OF WOOD FROM DECAY.

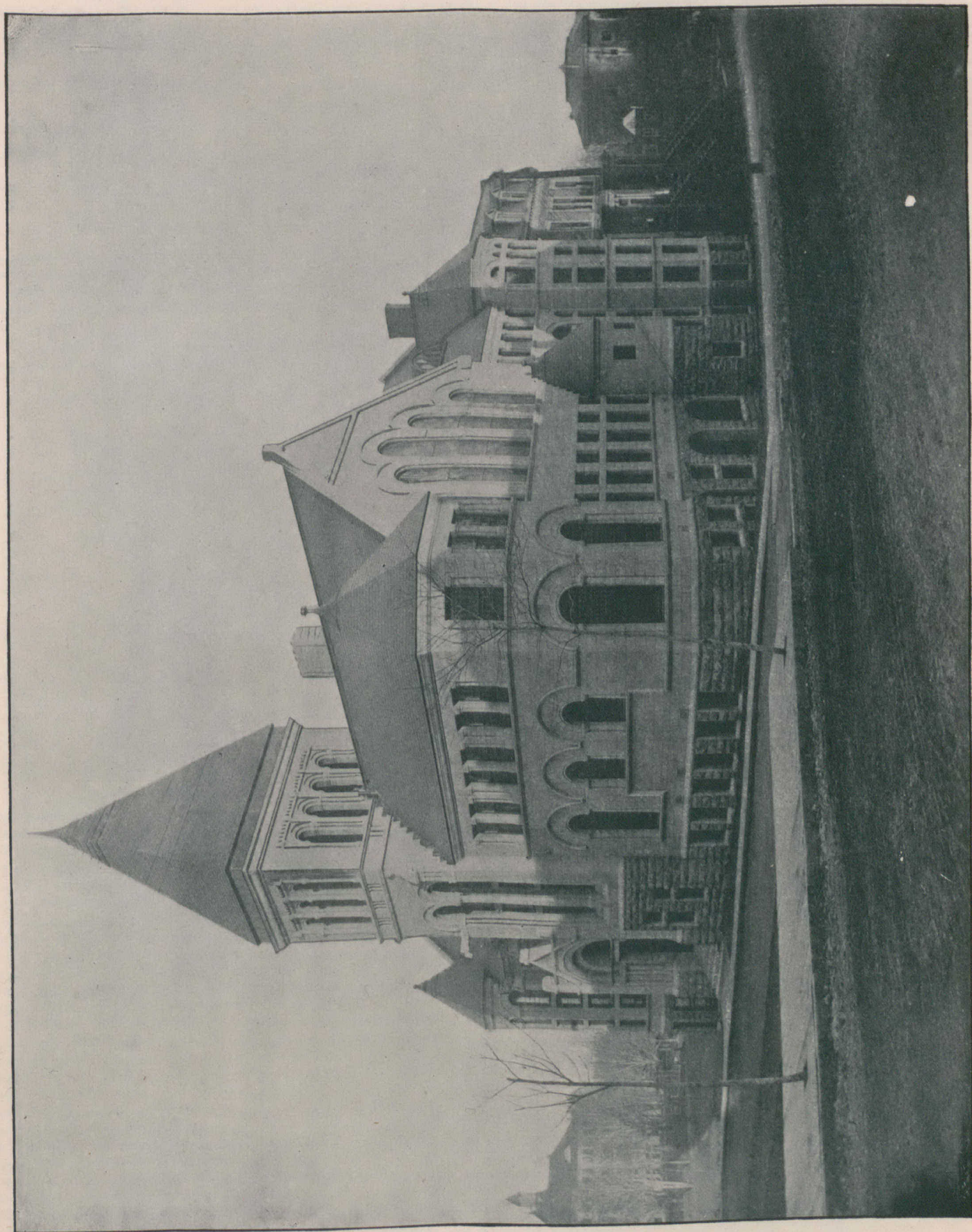
A SPECIAL committee of the American Society of Civil Engineers, detailed to investigate the subject of the preservation of wood from decay, has spent four years in practical experiment and observation, besides inquiry into the experiments and conclusions of others extending over a period of more than thirty years. Their investigations included all the established methods of preservation, such as treatment with creosote, zinc salts, etc., and also with the products of petroleum. The latter have been claimed by many to be strong in preserving properties; and as they are very cheap, the substantiation of these claims was of special importance. Below are given some extracts from the report of this special committee, showing the conclusions deduced of the comparative value of petroleum products, and the best of the established methods:—

"Experiment proved that oil of tar, or creosote, was perhaps the most powerful coagulator of the albumen (of wood), while it, at the same time, furnished a waterproof covering for the fibre, and its anti-septic properties prevented putrefaction."

"There seems to be no question that when creosoting is well done it is effective."

"It thus appears that there is no process of wood preserving the efficacy of which, when well done, is better established than creosoting."

"The conclusion drawn was that crude petroleum, by excluding moisture, would prove a preservative as long as it continually saturated the wood; but that if merely injected once for all, its volatile nature would result in its evaporating and leaving the timber unprotected."



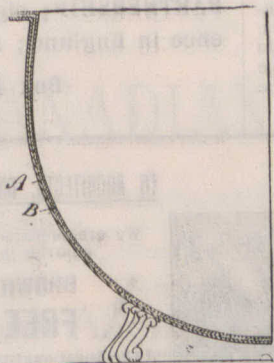
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RECENT CANADIAN PATENTS.

THE following patents have recently been granted to Canadian inventors:—

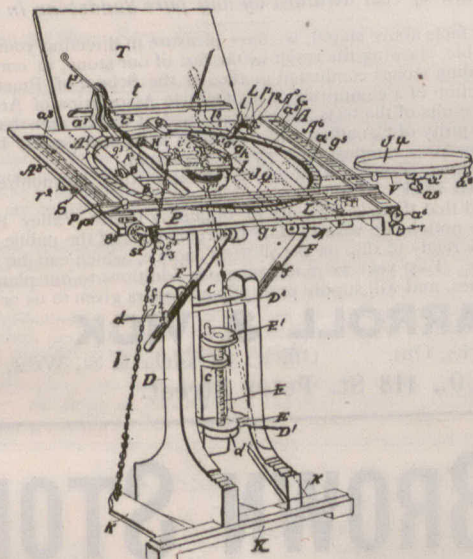
No. 48,804, for a bath tub, to George Booth, Toronto, Ontario, Canada, 1st May, 1895; 6 years.



BATH TUB.

A bath tub made in three sections, each section of which is composed of a sheet metal outer casing having an inner casing of copper, aluminum or other light, flexible material, and a lining of asbestos or other non-conducting material placed between the two casings substantially as and for the purpose specified.

No. 48,825, for a drawing table, to Samuel John Laughlin and James Hough, both of Guelph, Ontario, Canada, 2nd May, 1895; 6 years.

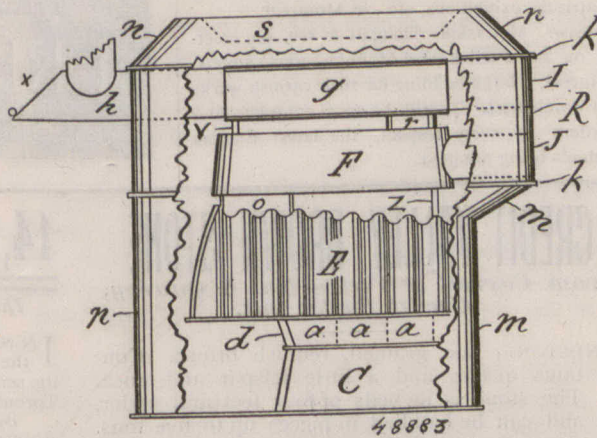


DRAWING TABLE.

The combination with a circular drawing board G, the arc-shaped clasps O, pivoted at o, on the edge of the board and designed to fit between the bent retaining pin o', and the edge of the board over the turned down corner of the paper, a spindle H, journaled in the bars H, H, extending between the central cross-bars A', A', and having a square upper end extending into corresponding hole in the plate at the bottom of the board, a pulley I, on the spindle h, guiding pulleys i, i, on the spindle i', extending between the cross-bars, a chain secured to the pulley I, and extending over the guiding pulleys i, i, the lower end of the chain being connected to the forward end of the pedals k, and the cross-bar K, secured to the lower portion of the standard, and extending out each way, and having the pedals hinged to it, a catch g^o in its edge and means for rotating the table of stops adjustably held at each side, and within the sweep of the catch, the stops being located at approximately ninety degrees apart so as to permit of a ninety degrees swing to the board, screw pins I' extending through blocks I^o, provided to adjust the stops to a nicety, a pivoted spring clamp secured at the rear of the table and having its free end extending over the board, a screw pin extending from the top of the table through the clamp, and a pressure knob screwed upon the screw pin above the clamp. The combination with the table A, provided with cross-bars and pivotally supported upon the spindle B, having bearings beneath the cross-bar upon the upper enlarged end of the vertical single standard C, the standards D, D having cross-bars D', through which the standard C extends, the bracket d' forming part of the cross-bar D', the bracket c forming part of the standard C, the screw spindle secured in the bracket d' and extending through the bracket c, and provided with a hand wheel, the slotted stays F, F pivotally connected to the cross-bars A', and secured to the standards D, D by the thumb screw d, d, extending through the slots having the raised ends A^o and A^o and a circular opening a, and circular board G, rotatably supported within the opening and having its surface flush with the surface of its raised ends of the rule P, extending across the board and raised ends and connected at both ends to cords by depending blocks and means whereby the cords are given a uniformity of movement, so as to keep the rule when being moved parallel to the rear and front of the table, the cords being endless and extending around

front and rear pulleys r and r', and wound around central pulleys r, which are secured at each end to the common spindle B, the scale A^o held securely within the longitudinal recess a^o, in any definite position by the adjusting screw a^o, rotatable bar journaled in the recess a^o and provided with longitudinal ratchet shaped notched strips and grooves longitudinally arranged, a catch tooth P depending from the rule and designed to engage with a notched strip of the bar when underneath the tooth, the scale marked collar s' on the supporting spindle s, the pointer S', knob s^o, toothed wheel s^o, and dog s^o. In a drawing table in combination a circular drawing board rotatably supported having a pointer on the edge of the board and a protractor arranged around half of the circumferential edge of the board, suitably divided and indexed from nought to ninety from the centre outwardly to each end, a spring clamp for holding the board in any desired position and a rule arranged to have a parallel movement to a straight line between the ends of the protractor.

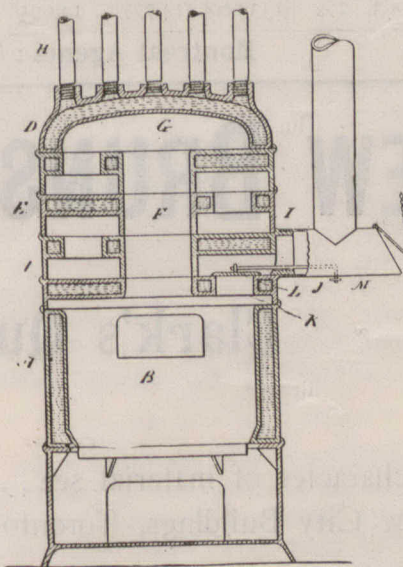
No. 48,883, for a domestic heating furnace, to John Albert Crossman and John Alfred Laws, both of Amherst, Nova Scotia, Canada, 8 h May, 1895; 6 years.



DOMESTIC HEATING FURNACE.

The combination in a domestic heating furnace of the ash-pit C, with the fire-pot d, and the body E, the combination of the body E with the radiator substantially as described.

No. 48,927, for a hot water boiler, to John Galt, Toronto, Ontario, Canada, 13th May, 1895; 6 years.



HOT-WATER BOILER.

In a hot-water boiler, a series of water sections, each of the water sections provided with an upwardly curved lip extending into the outflow to prevent the upflow of the water, from the lower water sections, interfering with the outflow of the water from the said section, and provided with a downwardly curved lip extending into the inflow, to direct the water from the inflow into the respective water section. A downward passage from the secondary chamber to the outlet to the chimney, a central partition separating the upward passage from the downward passage, and the outflow pipes connected to the topmost water section substantially as specified.

There is a tendency toward stronger colors in paperhangings, says the New York Upholsterer. For several years the protest against the very delicate shades has been in progress, till now really dark colors can be used. This, of course, gives the decorator an opportunity to employ rich reds, vivid greens and glowing yellows. It gives him a better opportunity, also, to consider appropriateness in decoration. The rooms are different, and used for different purposes; hence, even in the cheap styles of decoration, he may select colors, not simple tints, to suit Radical colors, even, are coming into vogue.

The new Wesley College building at Winnipeg has been completed. It is the largest building devoted to educational purposes in the province, and cost \$85,000.

The following is the Board of the Sydenham Glass Co., of Wallaceburg, Ont., for the ensuing year: Capt. J. W. Steinhoff, W. DeC. O'Grady, John Scott, George Mitchell, J. C. Shaw, J. H. Fraser, and D. A. Gordon.

The Winnipeg Commercial states that one of the features of the recent Industrial Exhibition, in that city, was a stove built specially for burning our native lignate coal. It is the invention of a resident of St. Paul, Minn.

P. A. Lariviere, W. E. Blumhart, Henry C. Bellevue, and others are projectors of a scheme for the erection of a building to be known as the Auditorium, to be leased for use for opera, concerts, theatricals, exhibitions, etc., in Montreal.

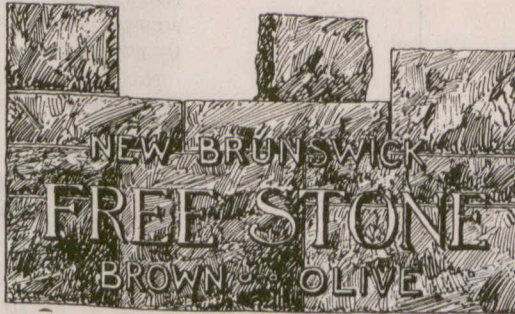
Messrs. McCaskill, Dougall & Co. are erecting on St. Patrick and Manufacturers streets, Montreal, a large building for their varnish works and warehouses. It will be most complete and modern in every respect, the latest English methods being adopted.

The striking plumbers of Buffalo are said to have played an ingenious trick on the master plumbers of that city. The fine in the United States for importing alien labor under contract amounts to \$1,000 for each offence. Several Toronto plumbers obtained from the Buffalo bosses an agreement with their signatures attached engaging them to take the place of the strikers, and almost immediately on their arrival in Buffalo communicated with Inspector DeBerry, with the result that action was at once taken by the authorities against several plumbing firms.

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WANTED—Situation with view to **PARTNERSHIP**; eight years' experience in England; small salary.

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of the finest quality and of any dimension.

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CREDIT VALLEY BROWN STONE

From Carroll & Vick's No. 6 Quarry, Credit Forks, Ont.

SANDSTONE, fine grained, reddish brown. Contains quartz, and a little felspar and mica. The stone is in beds of four feet and under, and can be handled in pieces up to five tons. Quarry 300 yards from Railway.

Specimen.	Section under Pressure	Height.	Crushing Load.	Crushing Stress per sq. in.	Average Crushing Stress per Square Inch
	Ins.	Ins.	Pds.	Pds.	Pds.
A
B	2 7/8 x 3	2 7/8	131,000	15,188	
C	2 15/16 x 3	2 7/8	130,000	14,751	
D	3 x 3	2 7/8	133,000	14,777	14,905

14,905 pounds is the average crushing strength per square inch of our Credit Valley Brown Stone.

The highest standard of test attained by any pure Sandstone in America.

IN confirmation of the facts above stated, we have pleasure in directing your attention to the accompanying table, showing the result of the test of our stone, in connection with the series of tests of building stones conducted in 1892 at the School of Practical Science, Toronto, under the direction of a committee of the Ontario Association of Architects.

By referring to the results of the tests above mentioned, it will be seen that the average crushing stress of the majority of Canadian and American sandstones is far below that of ours, the difference in our favor ranging from 75 to 50 per cent.

The Credit Valley Brown Stone, owing to its modest tone, harmonizes beautifully with red or cream colored brick.

It has been reported that there is difficulty in obtaining Credit Valley Brown Stone. To correct this mistaken notion, we wish to state to architects and the public that we have a large quantity of stone ready to ship on the shortest notice, which can be followed up with an unlimited supply. Last year we made extensive additions to our plant and opened up new quarries and mines, and will supply promptly all orders given to us or our agents.

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