PUBLISHED MONTHLY IN THE INTERESTS OF

Architects, Civil and Sanitary Engineers, Plumbers, Decorators, Builders, Contractors, and Manufacturers of and Dealers in Building Materials and Appliances.

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Canadian Architect and Builder

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Contributions of technical value to the persons in whose interests this journal is published, are cordially invited, and if found to be of sufficient merit, will be paid for. Subscribers are also requested to forward newspaper clippings or written items of interest from their respective localities.

TO OUR READERS.

The publisher of the CANADIAN ARCHITECT AND BUILDER has now in course of preparation "The Canadian Contractor's Hand-Book." This book will contain reference material of the greatest value to persons engaged in the erection and equipment of buildings or other structures. A copy of this valuable book will be presented to every new subscriber to the CANADIAN ARCHITECT AND BUILDER. As the book itself will be well worth the price of subscription to this journal, every contractor should take advantage of this offer.

AMERICAN architectural journals have recently commented on the small incomes usually derived from the practice of architecture, and to that fact have attributed the readiness with which some architects have abandoned their practice to accept positions in the civil service to which very moderate salaries were attached. The same state of things appears to exist in Toronto, if it be true, as stated, that among the applicants for the position of Street Commissioner (salary $1500 per annum), were a number of city architects.

THE Building Inspector for the city of Pittsburgh, Pa., appears to be the right man in the right place. He has determined that those who erect buildings shall first obtain permits, and is manifesting his determination in the right way, by instituting legal proceedings against persons who refuse or neglect to comply with the law. We are much in need of such a thoroughgoing official in Canadian cities. As we have more than once stated, the law which requires permits to be obtained before new buildings are commenced, is, as a general rule, disregarded. New buildings are frequently nearing completion before the permit for their erection is applied for. Our City Commissioners and Building Inspectors are not fulfilling their duty when they allow the city by-laws to be thus evaded. We hope that the advent of the new year will witness an improvement in this particular.

WE had something to say last month regarding the apathy of the public in observing precautions for the safety of the public health. It would seem as though nothing short of a small-pox epidemic would induce anything like general compliance with sanitary laws. The Toronto Medical Health Officer, apparently realizing this fact, asks that authority be given the Health Department, in cases where owners or occupants neglect to keep their premises in proper sanitary condition, to have the work done, and tax the property for costs. The suggestion is worthy of adoption. There is a city by-law which provides that citizens shall clean the snow from their sidewalks before nine o'clock in the morning, or submit to be fined and have the work done by the corporation at their expense. How much more necessary is it that citizens should be compelled to remove causes of danger to their own health and that of the community at large!

IT would be difficult to estimate the benefits which have already and will yet accrue to mankind from the utilization of the electric light. As an aid to rapid construction, it will prove of great value. The advantages it offers in this direction are beginning to be made use of in this as in other countries. In the city of Montreal at present, building operations are carried on throughout the night as well as the day by means of the electric light. By its instrumentality also, the break in the Cornwall Canal, which stopped navigation at a most critical time, when vessels were carrying grain to market, was repaired in a much shorter time than would have been necessary if the work could not have been prosecuted night and day. Railroad construction has already been carried on by electric light, and the future will no doubt witness its employment in building operations in a much more extended degree.

WHILE the Toronto plumbing by-law is under consideration, with a view to its amendment, the system of plumbing inspection should be extended to cover old as well as new work. It is without doubt of the greatest importance that new plumbing should be subject to careful inspection; but it is not less important that the plumbing done prior to the existence of the plumbing by-law, should be regularly inspected also, and if found to be improperly done, or in any way defective and injurious to health, the owners should be compelled to make the necessary improvements. There is need for the employment of more inspectors, in order that the work covered by the by-law as it stands at present may be thoroughly done. While the work of the plumbing inspector necessarily occupies more time than that of the drain inspector, we understand the city employs four drain inspectors, but only two inspectors of plumbing.

WHAT a change may be wrought in a place in a very short time by a little industry and outlay! We were surprised at the improvement which has taken place at the Toronto Island during the past year or two. The work which is being done there shows that at last our city fathers have become aware of the great opportunities which the Island affords for park purposes. The city has been highly favored indeed in possessing such a valuable piece of land situated on the edge of a great lake, and but a mile across a bay from the principal thoroughfares of the city. A steady and judicious expenditure of money on the Island Park will, within a few years, work wonders with what is even now a rather barren spot. All the street sweepings or other matter of a like nature should be taken to the park, and used to make the place fertile and capable of growing a greater number of trees and shrubbery than at present. Every advantage should be taken of the lagoons to form small lakes, with water-ways connecting them with one another, the bay, and at one or two points, with the lake. What is proposed to be done should be thoroughly worked out, and the scheme carried forward to completion year by year, and thus it will not be burdensome on the tax-payers.

WE have been informed that although the Parliament Buildings were designed by one of the most renowned architects of the present era (in the opinion of the Hon. the Provincial Secretary of Ontario), it has been found necessary to re-design the centre pavilion. Whether this has been done because of the unfavorable criticism to which the first design has been subjected, or because the architect thinks he may be able to improve upon it, we do not know. We believe that he can improve upon it; he certainly should be able, for the task is not by any means a difficult one. However, we do know that a change has been made in the design, and that a considerable one. It seems very strange that such material changes should be found necessary at such an early date, especially when it is remembered that all changes mean additional expense. It is not quite two years since the first design was placed on paper, and then it was not done in haste; and yet it has been found necessary to modify it. The Canadian design which was rejected by the great American genius, had been on paper some five years when he was called upon to give his unbiassed (?) opinion to his own profit. Since he has found it necessary to alter his first design to meet with his own approval and those over him, after it had been on paper two years, would it not have been but fair and reasonable on the part of the same individual and individuals to have allowed the Canadian architects a like opportunity to have improved their design after it had been on paper five years? Not that it required improvement to surpass in artistic merit or in other respects the design according to which the present buildings are being erected. But Canadians are such broad-minded, honorable and unbiassed individuals, that they see good in foreigners when they can see no good in themselves. Of course, we are prepared to admit the superior intellectual and other qualities of our native politicians, and allow that Canadians have not the same ability to gain a like eminence in other walks of life. What we are not prepared to admit is, that they are inferior to them in like pursuits in other lands. Instead of worshipping the citizens of the United States and other lands, a little worship of ourselves, and a little patriotism for our country, might do both ourselves and our country good.

WE read the letter addressed to the Ministerial Association by the President and Secretary of the Anti Poverty Association, with considerable surprise These men apparently honestly think that they have grievances because a few men have been fortunate enough to make money without toil. They are not able to understand that what they would have us believe is the rule, is but the exception. The vast majority who possess land only receive from it a fair interest on the accumulated money of their industry, thrift and intelligence. No man is denied the privilege to acquire land by purchase. All that is necessary is, that he should have the

necessary qualities to make more money than he requires for his subsistence. Ignorance, indifference, laziness, thriftlessness and want of ordinary foresight, keep many poor, and always will do so. The time will never come when men will be made rich by legislative enactment, or any power outside of themselves. Personal effort and determination win success, not looking to others for assistance. The State has made, and is making, tremendous efforts to educate the masses, and if they do not receive the education which they profess to want so badly, they have no one to blame except themselves. If they would give less time to envying their more deserving and consequently more successful fellows, and give more attention to economic laws, they would be in a much better position to benefit themselves. At present they are ever prepared to cut their own throats by supporting wiley politicians, who flatter their vanities and call their ignorance wisdom, in preference to men who have their interest at heart, but will not stoop to gain their favor by upholding them in their shortsighted and fallacious vision. The poor suffer with the better off through bad legislation, obtained by all the contemptible and cowardly means known to certain classes of our politicians. The members of Anti-Poverty Societies, like others, will do all in their power to elect dishonest and corrupt men in preference to honest and noble men. Until the people understand the value and sacredness of a vote, very little can be expected of our legislators, except what will be for their own gain and that of their friends. The man who tells us of our faults is more our friend than he who encourages us in them. If the voter would but vote for principle and honorable conduct, and not for the man who pats him on the back, and thinks him a fool, or for a party or society, things in this world which are now all wrong would soon be righted. All men, though born free and equal before the law, are not equal one to the other. Some have more brains, or strength, or industry, or energy, or perseverence, or ambition, or other qualities than others; and these men will and must move ahead of their less gifted competitors. Each must strive for the best position he can obtain, and not fall to envying his better educated competitor.

SOME of the daily papers have been taking up the question of safe building. It has not been handled very thoroughly, but yet sufficient matter has been given the public for serious consideration. We have never been able to understand the apathy of the public to this question. Any man, no matter how ignorant, is allowed to construct on the very edge of our streets dangerous constructions, which may tumble at any moment and cause serious loss to life. That more accidents have not occurred, is due to the fact that we have not yet been able to entirely free ourselves from the bondage of good example set us by our fathers. But this time of bondage is nearly over. Ignorance is running a race with conceit to see which can approach most nearly to the point of collapse. If they were capable of judging when they had nearly approached the limit, it would be well, but that is not to be expected, and some day the innocent will be made aware of the fact that some one has blundered. That we have not had many accidents from buildings falling does not prove, as some people would have us believe, that our buildings are strongly constructed. There is a factor of safety which varies for different materials and under different circumstances, which has been adopted by all intelligent and competent constructors. This factor of safety is seldom less than three, and sometimes it runs as high as ten. Under the above rule of factors of safety, if a building or other construction falls under normal conditions, it must be held to have been only one-third as strong as it should have been. It is not that the constructor has built nearly as strong as he should have built, but that he did not build quite one-third as strong. In columns, the factor of safety is placed at ten when the column is thirty times its diameter in height. Therefore, a column 6 in. diameter and 15 feet high, should only be loaded with one ton, though its breaking weight is ten tons. That such a column may carry six, eight, or even nine tons, without breaking, does not prove that it should be loaded with more than one ton. Experience has shown the necessity of a high factor of safety to counterbalance any defects of casting in columns. There are many columns in this city of more than thirty diameters, carrying heavy fronts. That many have not broken under their loads, is something for which we should be thankful; but to go on being thankful, and not take any steps to prevent this trifling with human life, would deserve the most severe censure.

The most effectual method to stop this inferior construction, is to insist on those who have to do with such matters receiving a thorough training, and passing an examination which will show whether they are competent and deserving of public confidence. They should also be held fully accountable for all accidents which may result from their carelessness or ignorance. Let it be distinctly understood that loss of life will bring punishment on those who are the indirect cause, be it through carelessness or ignorance, and fewer will be found to undertake work beyond their abilities.

The proposal of the Minister of Education to establish a Chair of Architecture in the School of Practical Science comes at the right time, and we sincerely hope that it will at an early date become an accomplished fact. When the Government places the means of instruction within the reach of those requiring it, they should be forced to take advantage of the same by being denied the privilege of undertaking work for which they are not sufficiently trained. Want of knowledge of construction and sanitary engineering on the part of those who profess to have such knowledge, results most injuriously to the public. Accidents resulting in loss of life may occur through ignorance of the one, and sickness and death through want of proper and sufficient knowledge of the other. With an Architectural School to teach these and kindred branches, ignorance should not prevail. To give effect to the above, we would advocate that all who profess to have a knowledge of these branches and desire to practice them, should be trained in a somewhat similar manner to members of the medical profession. We do not know how this can best be accomplished, but we suppose that the first step should be made by incorporating an Architectural Association, with power to examine candidates who desire to practice as architects. We should be much pleased to receive the opinion of our readers on this most important question.

GAS MANAGERS' CONVENTION.

THE editor of the *Progressive Age*, New York, who attended the Convention of managers of American and Canadian Gas Companies held in this city last month, writes as follows: "The city of Toronto is one of the most sightly we know of, but, on the other hand, is one of the poorest lighted. Both electricity and gas are used, but of the former the lights are far apart on such few streets as they are employed, and very few are employed for indoor purposes. The gas service is so poor as to only make darkness more visible, and this in face of the fact that the works are on a very large scale. The daily consumption is about 1,500,000 feet, but the demand is in excess of that. * * * The fact that the inspection of gas and meters is under government control in Canada was incidentally brought out during one of the sessions of the convention in Toronto. The knowledge was apparently new to most of those present, but the general sentiment was that the idea was a good one. The country is divided into inspection districts, and an inspector, paid by the general government, is located in the principal town in each district. He is provided with an elaborate apparatus for making accurate tests of the gas, and visits every gas works in his district at such times as he sees fit to make an inspection, and his coming is not announced before hand. In fact, he may visit a town, sample the gas on the quiet and depart, all unknown to the gas company. The law exacts that meters must be taken out every five years and inspected, and, if found defective, new ones substituted. The act requires that the gas must not be less than .16 candle power, and imposes a fine for the existence of sulphuretted hydrogen.

MONTREAL GARBAGE CREMATORIES.

THESE crematories are worked under a patent owned by William Mann, of Montreal, and consist of two different plants. The one for garbage is situated in a thinly-settled part of the city and consists of a brick furnace, into which the garbage is received from an upper floor to grates within the furnace and the fire is allowed to pass over, evaporating the moisture which allows of the garbage itself igniting as soon as it becomes perfectly dry and the ashes resulting fall through the grate bars where they are removed to be used as filling. The chimney at the opposite end of the fire-box is about eighty feet high. No perceptible smell was present, and no complaint from the neighborhood had been received that the smoke caused any nuisance. The crematory for night soil consisted of two furnaces, upon a single chimney, and was in the main similar to the one for garbage, except that no grate bars were placed within the furnace, the night soil being allowed to rest upon a raised floor over which the fire passed in the same manner as already described. The fuel used is the cheapest kind of soft coal and coal screenings, and the amount needed about two tons per day.

NOTES OF A TRIP TO THE WEST.

By "ABACUS."

I HEARD the praises of Chicago sung by my acquaintances until I gradually became impressed with the belief that it was not only a great commercial centre but also a centre for all the arts. I was asked repeatedly if I had ever been in Chicago, and was obliged to confess that I had not, and that my travelling had almost all been done in the East and Southeast. I would then be informed that I had much to see and learn, and that a portion of what I should see was the buildings of Chicago. They were all that the mind could conceive—they were large, high, grand, and in fact, magnificently complete in all things. I would ask if they were artistic, if the façades were well designed? And without a blush my informant would answer "Yes!" That the buildings of Chicago should fulfil practical requirements, I was fully convinced, A commercial people invariably build what will suit their purposes, but nearly always without regard to the beautiful. But, so long as they give no attention to art in their building, there can be little of interest in their edifices to an art-loving stranger. My impression had been that there was little or no love for art in Chicago, and I must admit that I was not very much shaken in that opinion at the time I decided to make a visit to the great distributing centre of the West. However, I expected to see much that would be of interest, understanding that the West had made great strides towards a proper appreciation of Art during the past few years.

My companion and I arrived in the great city in the early morning some months ago, and after making provision for our physical wants, sallied forth to see the architecture of Chicago. We saw large buildings on all sides, but none to interest us until we came to the Court House and City Buildings. These derived their interest not from their artistic merit, but as an example of what the masses even now consider magnificent architecture, and of what the architects of a few years ago were able to accomplish. We wandered about all morning through portions of the business centre, and in the afternoon we explored the South Side, without seeing anything meritorious until we came to the pavilion in Jefferson Park. This building is well arranged for its purposes, and its outlines are very satisfactory and pleasing from all points of view. It has a large amount of artistic feeling in its composition, and should be a very instructive art object lesson to the many visitors of the park. While we did not see much to admire, we saw much which was immensely amusing. Some attempts in the way of construction were simply wonderful, but by no means examples to be followed. A designer should not give himself a feat in construction which, no matter how well it may be met, results in an absurdity, and a caricature of true constructive methods. Many of the attempts at construction in Chicago prove conclusively that there are many men, not altogether unknown, entrusted with work which they do not understand. There are few cities where so much clever and sound construction may be seen, but at the same time there have been many attempts at construction of a very unnecessary nature.

We were in the city two or three days before we were successful in discovering any work which was artistically satisfactory. Much of it is well planned and fairly well designed, but there is very little which is interesting outside of the fact that all requirements have been met, with the exception of the æsthetic. A very large number of the most admired buildings of Chicago are planned badly, and enclosed by the most worthless and inartistic façades that it is possible to imagine. It is not the ugliness of poverty, but an ugliness which results from lack of artistic feeling and superfluity of wealth. If less money had been expended, the ugliness would not have been nearly so vulgarly offensive. An article which I have read, on the business architecture of Chicago, characterized it as the best in the world, for it was so ugly and uninteresting that no one would look at it, and would thus be obliged to notice the goods displayed in the plate glass windows. This forcing of people to look at goods which very probably they do not want, may be business; and while we admire the push and enterprise thus shown in the race after wealth, we cannot help pitying a people whose only object in this world seems to be to live like the beasts of the field—only in the highest condition pertaining to beasts—not one thought of another existence, not one desire for refinement in this life, living without culture, without happiness, for all the world as if they were but atoms in the world's existence, and that all is over when their places are taken by the next generation. It is right to admire energy and push, but not where the higher objects of life are sacrificed to the lower.

This everlasting worry and work has provided a few with means more than sufficient to gratify their wants, but left them deficient in culture and refinement. Having money, they proceed to build for themselves houses in which to live and entertain their friends, and, being in a hurry, the house must be built in less time than is necessary to its thorough and studied designing and complete construction. The architect is hurried, but no limit is placed on the expenditure. The result is a most inartistic and unstudied building, constructed of costly materials. Very often there is something about the general composition attractive and imposing, but the detail is so crude and so lacking in refinement, that one turns away in disgust, and is inclined to execrate the proprietor for his unreasoning haste, and the designer for preparing the design without proper and sufficient study. Many of the designers of these costly houses could do better work than they have done, if they would but study their work properly. When fifty or one hundred thousand dollars will be required to give form to a design, one would think it was worth a little additional time to have the form artistic. If I were sufficiently wealthy to build one of Chicago's costly houses, I should much rather wait a year or two for my house, and have it one to be admired by the cultured and refined rather than

by the masses, even though I should not be able to discern wherein the difference lay. Many times we were disappointed on seeing a building in the distance which composed well, but when examined closely, was lifeless and very often excessively vulgar. It would probably have some points which suggested a possibility of Art, but the detail would be bad—ostentation, vulgarity and crudeness being predominant.

There was but one house of all those on Michigan Avenue which satisfied our ideas of what a house should be. It is situated on the east side of the Avenue, and is built of brown stone. We cannot speak of the house in detail, not having taken any notes, but we know that we were impressed with the refinement, the repose and the completeness of the whole composition—showing plainly that the designer was an artist. That there is on Michigan Avenue only one house which calls for high praise, does not speak well for the residents of the street, nor for the architects of their houses. There has been more than sufficient money expended to have built good artistic homes, but it was thrown away in supplying costly materials, to be worked into crude and unstudied designs. Here and there we discovered a good piece of detail, showing what might have been done if a reasonable amount of study had been devoted to the whole work —or possibly it showed good cribbing powers. Strength, solidity, heaviness and barbarity, may impress the masses, but the cultured must have with the first two, refinement, dignity and repose. There are some houses on this Avenue which we should judge were the productions of disordered imaginations. They may please some in the present age, but we hope, few, and that as the years pass by, the number will be considerably lessened.

On the corner of Prairie Avenue and 19th Street, has been erected the most artistic house which we have yet had the pleasure of seeing. This house was designed by Richardson, and is all that the most fastidious could desire. It is dignified, quiet, unobtrusive, yet refined and homelike. While one looks at the house he feels that the occupants are cultivated and refined, and that he would like to know them. Unless the plan of this house was known to the beholder, he would be inclined to look upon it as retiring and gloomy in the extreme. The windows towards the street are few and small, which gives it somewhat the appearance of a fortress.

However, there is a large open sunlit court, into which all the principal rooms open, and, as there is no lack of glass surface, the house is exceedingly light, and cheerful, while at the same time it affords a retired and cosy retreat from the hurry and confusion of the neighboring streets.

There is another house by Richardson, situated on the Lake Shore Drive, which we admired, but did not consider nearly so satisfactory as the house on Prairie Avenue. There may be other artistic houses in Chicago which we did not see, but the number must be few indeed. We are not admirers of such mansions as Pullman's, and if their interiors are no more attractive than their exteriors, we do not envy their occupants.

The warehouse of Marshall, Field & Co., by Richardson, is a magnificent building, artistically expressing its purposes. It is simple to a degree, yet low, solid and artistic! There is not one feature about the whole building which does not speak of life and a purpose to fulfil. That one commercial building is artistically worth more to Chicago, than all its other buildings. It speaks of higher things than dollars and cents, and the sordid interest of a money hunting people.

We were all through the Rookery building, and were very much struck with its completeness and adaption to its purpose. It is well planned and thoroughly constructed. While the façades are striking and imposing, they cannot be said to be artistic. The ornament is rather indifferent, and much of it unmeaning. The building is, however, a credit to the architect, and to the enterprise of the city. The Board of Trade building is one of the most inartistic of Chicago, which is saying much, when one remembers the pile of meaningless ugliness called the Pullman Building. The Art Building is very satisfactory except in some of the detail, and in the carving, which is in our opinion, devoid of artistic quality and character. We did not see anywhere in Chicago, carving that would call for special mention. It was invariably lifeless, and consequently lacking in interest.

The church architecture of Chicago is extremely bad. We did not see a single building that was worthy of the least attention. Some of the churches have redeeming points, but there is so much that is bad even about the best of them, that one cannot speak even a single word in praise. The United States certainly holds the unenviable position of being almost entirely devoid of interesting ecclesiastical architecture. There are a few churches here and there, but not more than could be counted on the fingers of both hands, which are worthy of consideration. Taken as a whole, there cannot be found on the face of the earth a more uninteresting and meaningless lot of buildings than the churches of the United States. The writer remembers being in Baltimore some years ago, where they had a church which cost about quarter of a million dollars. Of course this building was pointed out as something wonderful and worthy of inspection. The cost of the building was also mentioned. We notice that the cost of everything is given in the States, as if the mere cost would give it intrinsic value. Much as we regret that so much money was expended in the erection of that building, we would like to see an equal amount, if required, spent in the removal of every trace of the first expenditure. One must regret that there is so much money forthcoming for the erection of such ungainly masses. There is no reason in the world why a church should not be an artistic building, suggesting and teaching "Peace on earth, good will to men." The form and every part of a church should speak to mortal man of God and immortality. Where is the man who can be impressed or led to give one single thought to eternity, when everything about him, even to the decoration, speaks in the coarse and vulgar tongue of his weekly surroundings? A man who enters a church decorated after the manner of a theatre or a saloon, will be more likely to have his thoughts go back to the last play he saw, or of the companions with whom he had very probably his last drink, than to a retrospection of his actions, and of the obedience and reverence which he owes his Maker. What may be excellent in one place may be extremely bad in another. Of one thing we may be certain, and that is, that nothing is too good for the house of God, and when we give, let us not only give our money, but also the best talent and ability of which we may be possessed. A church should speak through every stone in its walls of refinement and culture, meekness and courage, and obedience and reverence to the Almighty.

Chicago in a few years will have a magnificent system of parks and drives. The parks are yet too new to call for admiration, but when the trees have grown and other improvements have been made, no citizen of Chicago will need to be ashamed of the parks of his native city. We cannot speak favorably of the effects wrought by the fantastic arrangement of foliage plants which we saw at the entrance to South Park. The whole thing is ridiculously childish, and hardly worth mentioning. No good is obtained, except in the satisfying of vulgar curiosity, and causing thoughtless people to go away with an expression of wonder on their inane countenances. The same amount of money and time devoted to legitimate floriculture would give ten times the result, and would be one hundred times more refining to the beholder. What can anyone admire in the representation of the two candidates for the presidency running around a conical mound. The figures are far from shapely, and totally devoid of beautiful lines. All that is left is the mass of color, which would be much more pleasing if it had not been made to give form to a meaningless conception, Nature cannot be improved upon, but it may be assisted to a full development. Nature is certainly out of place playing pranks at the dictation of men who are unable to appreciate its beauty in all its varying richness of colors and changing moods.

A visit to a place like Chicago, of which one hears so much, and of which there should be so little heard except of a commercial nature, satisfies one that in living in Toronto, he lives in no mean city. We have not so large a city by any means, nor is it the commercial centre that Chicago is, but we have much which Chicago has not, and that of very great value.

In architecture, we surpass Chicago. We may not—in fact we have not—the same money value in buildings, but we have what is of more value than that which can be rated in dollars and cents. Where in all Chicago, or for that matter in the United States, can one find a building so full of æsthetic interest as our University Buildings? Does not Osgoode Hall compare in refinement and dignity with any building on the continent? And is not St. James Cathedral equal to, if it does not surpass, any ecclesiastical building north of Mexico? Then we have several exceedingly good pieces of church work in St. Paul's Church, Bloor street, St. James Cemetery Chapel, St. Stephen's Church, Holy Trinity and Trinity Churches. There is also St. Michael's Cathedral, the exterior of which is good as the interior is lacking in merit, the tower and spire being especially fine. We must not forget the interior of Trinity College Chapel which is modern in execution, and of great beauty and excellence. Our modern churches, while not so correct in style, are full of merit. Instead of one or two examples of good church architecture, we have many, and yet there are among us those who will worship bad work, if distant, and speak slightingly of good work, if at home. We have not all the good church work of the country in Toronto. There are churches throughout the Province which equal in merit the best buildings in Toronto.

Among our semi-public buildings may be mentioned the Molson's Bank, which is a refined and dignified piece of classical work, as is also the office of the Gas Company. The Trust and Loan Building, Masonic Hall, St. Lawrence Hall, Romain Buildings, and numbers of others of more or less merit. Of those buildings recently erected, we have the Montreal Bank, the Manning Arcade, and the London Loan Company building, all by Canadian architects. There are at the present time in course of erection three large buildings by an architect of Buffalo, one the Parliament Buildings, of which little can be said in praise, the Bank of Commerce, which is a very indifferent piece of work in composition and detail, and a building for the Canada Life Assurance Co., which is not yet far enough advanced to be judged. The only building so far erected by outside talent which is worthy of mention in the former list is the building of the Western Assurance Company which cost twice if not three times as much as any Canadian architect would have been allowed to devote to its erection. However, its designer has not been able to equal it in any of his later attempts, except that he has spent much more money with much less satisfactory results.

In house work, we have many good examples of plain, cosy houses of limited expense. We have not many which can be called expensive, and we regret that in one or two instances, the most costly houses are not equal in merit to the less expensive. We are not sufficiently wealthy to spend large amounts in the erection of private houses, but our architects have done very good work with the money at their disposal, and have shown conclusively that they are equal to the erection of costly residences when our merchants and others have acquired the necessary means. If there is one thing more than another of which Toronto may well be proud, it is the work done by her architects of the past and also of the present. May they be given the opportunity to which they are richly entitled to yet more worthily work in the interests of architecture in this city. Of late they have not received the encouragement they deserved, partly on account of the scandalous treatment the Ontario Government meted out to those who had sufficient confidence in its honor to devote their time and money to the preparation of plans for the proposed Parliament Buildings, in the hope that they would be entrusted with the carrying out of the work, and at the same time prove that Canadians were competent to meet worthily the architectural requirements of their native land. The example of the Provincial Government in entrusting the erection of these buildings to a citizen of the United States, has been followed by others who, not being capable of forming an opinion for themselves, followed the precedent set them, and are even inclined to claim that in employing an outside architect they are showing their superior knowledge of architecture, and freedom from local prejudices and influences. These men seem to forget that others may think just as lightly of their ability, because they are not in business in New York or Chicago, as they do of the capabilities of their fellow citizens who are unfortunate enough to practice architecture in a country which apparently does not desire to foster home talent, and yet who are not so lost to all sense of patriotism, as to leave the land of their birth for a foreign one, where, very possibly, their remuneration would be more commensurate with their abilities.

TORONTO ARCHITECTURAL DRAUGHTSMEN'S ASSOCIATION.

THE members of the above Association paid a visit to the Toronto Public Library on the evening of Tuesday, the 6th inst. Mr. Bain, the chief librarian, arranged the fine colored plates of St. Mark's Cathedral at Venice in such a manner that they could be readily examined, and otherwise exerted himself most successfully to make the evening one of pleasure and profit to the visitors.

AMERICAN INSTITUTE OF ARCHITECTS.

THE twenty-second annual convention of the above Institute, which took place at Buffalo last month, adopted the following resolutions :—

Resolved,—That this Convention deems the unification or federation of all the Architectural Associations of the United States of the utmost value and importance to the profession.

Resolved,—The American Institute of Architects recommends as proper and desirable, the employment of a Clerk of Works in the erection of all buildings of importance, as a means of obtaining the best results. He should be paid by the owner, but should be appointed by and under the direct control of the architect. The architect's supervision of and responsibility for the work should be in all cases insisted upon as vital to the vast interests of the owner, but such constant oversight as can be exercised by a competent clerk of works is an invaluable adjunct to the labors of the architect in securing uniformly good and honest work.

MONTREAL, Oct. 13th, 1888.

CHEAP HOUSES.

Blue prints, one quarter inch to foot, of "Witness" House Plans Competition prize city home, with two copies of the specifications for $2.50.

JOHN DOUGALL & SON.

Editor CANADIAN ARCHITECT AND BUILDER.

DEAR SIR,—The above is from last night's *Witness*, and this is the scheme : John Dougall & Son advertised for competitive designs for a city house of minimum cost, and to get their money back, issued the enclosed advertisement offering one set ¼ inch drawings and two sets of specifications for $2.50. It seems rather strange that a paper like the *Witness* should stoop so low as to steal from those who in the past have given them every aid by furnishing them with perspectives, drawings, and descriptions of prominent buildings. It is still more strange that some of our prominent architects should lend a hand to a scheme so mean and petty. Such a scheme is only worthy of pettifogging publishers, and throws discredit on a house like that of J. Dougall & Son. This should be a warning to professional men in future against associating themselves with affairs of this kind.

Yours truly,

J. A. RADFORD.

TORONTO ARCHITECTURAL GUILD.

THE attendance at the last monthly meeting of the Architectural Guild of Toronto was very large; the number present being greater than at any other previous meeting. The meetings seem to develop strength as the members become better acquainted. There was a large amount of very important business transacted, and at times, the discussions were exceedingly animated.

The fire by-laws of this city were criticized, and it was unanimously decided that they could be materially improved. The Secretary was instructed to write His Worship the Mayor, and draw his attention to its defectiveness.

The proposed changes in the plumbing by-law also received much attention.

After a long, earnest discussion, a committee was appointed to consider the advisability of attempting to form an Architectural Association for the Province of Ontario.

THE PROPOSED SCHOOL OF ARCHITECTURE.

WE are much pleased with the information that the Minister of Education proposes to appoint a Professor of Architecture in the School of Practical Science. Such a step should be a very great benefit to Architecture in this country, and will be most heartily welcomed by all architects. Those architects who are at the head of the profession in this Province will look upon the school as a means to educate the people to a proper knowledge

of good work, by increasing the number of thoroughly trained men. The work of the best men must necessarily always be in advance of the art intelligence of the community, and then the task of educating the masses is thrown upon them. This work is at first disparagingly spoken of, and not until it is understood, does it meet with general approval. They must be satisfied with the admiration of their designs by the cultured and refined, which in itself would be sufficient, if they did not find it necessary to obtain the means of subsistence.

It is to be hoped that much careful study will be given to working out the details of the scheme, and that every means of making the school thoroughly effective will be adopted.

OUR ILLUSTRATIONS.

PARKDALE HIGH SCHOOL.

THIS building, which is now in course of erection, is red brick, with brown stone and terra-cotta trimmings, and covers an area of 11,500 square feet. It is heated and ventilated by the Smead, Dowd & Co.'s system. Has seven class and four cloak rooms, science, head and assistant masters' and lady teachers' rooms, with store rooms, a library, the ceiling of which is panelled in plaster, and a large assembly hall on the top flat, with stage, dressing and cloak-rooms. In the basement are boys' and girls' waiting rooms, offices, &c. In close proximity to the school building, gymnasiums for boys and girls will be erected. Total cost of school building, $28,000. Geo. E. Miller, Toronto, architect.

COLLEGE STREET BAPTIST CHURCH.

Dimensions of church, 70 x 77 feet; of school building, 48 x 81 ft. Material, red brick, with dressings of Lake Superior brown stone. Front faced with Credit Valley brown stone to impost of entrances; jambs of entrances and quoins, of Lake Superior stone; arches and labels of entrances, of terra-cotta; spires roofed with red tiles, finials of terra-cotta. The Smead system of heating and ventilation has been adopted. Total cost, about $35,000. Messrs. Langley & Burke, Toronto, architects.

HALL INTERIOR—HOUSE OF FRANK SHEPARD, ESQ., CHICAGO.—KNOX & ELLIOTT, ARCHITECTS.

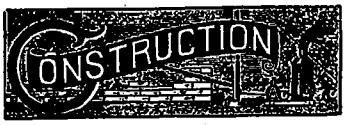
NEW COMPOUND FOR HARDENING WALLS.

A PATENT has been granted for a waterproof compound adapted to be applied to the floors and walls of buildings to prevent the access of water and dampness, and which will also withstand extreme and varying temperatures of air, and which will be practically indestructible. The composition consists of the following ingredients, combined in substantially the proportions stated, viz: New Zealand (or Portland) cement, 100 pounds; cream of tartar, 3 ounces, pulverized ivory, 1 ounce; quicksilver, 1 ounce; isinglass, 4 ounces; marble dust, 5 pounds; sand, 200 pounds; rain water, 1 pail. In compounding the ingredients, a small quantity of cement, for instance, one pound, is mixed with the cream of tartar, quicksilver and isinglass, and water enough to make a very thin paste, and the composition is let stand about twenty-four hours. If the weather be cold the composition should stand in a warm place. The remainder of the cement, the pulverized ivory, marble dust and sand are mixed dry, and the standing composition is thereupon added, together with enough rain water, about half a pail, to produce a plastic mass capable of being readily laid with a trowel or similar implement. After the compound is laid upon a suitable foundation, such as wood, earth, brick or metal, it becomes very hard, equal to steel, and capable of a very high polish.

Building operations in Winnipeg during the present year are expected to aggregate a quarter of a million dollars.

The McClary Manufacturing Co., of London, Ont., will erect a new four-storey building which will contain recreation and reading rooms for their employees.

The *British Architect* quotes from the *Estate Clerk-of-Works* a discussion on the relative advantages of different sorts of roof-covering for farm-buildings. Most of the participants in the discussion approve of good tiles, as being handsome and durable, and giving, when well laid, a very perfect roof. One person, however, prefers slate to tile, for the reason that tiles retain moisture, and rot the woodwork under them, while the timber, under slate roofs are almost always found dry and perfect. Another speaks of oak shingles as forming a good roof material, which when well nailed with zinc or cooper nails will last for centuries; while a third recommends roofs thatched with reeds, which remain good for fifty years or more, and form a covering which is warm in winter and cool in summer, and is thus well adapted for stables and cattle-sheds. Another roof which is mentioned is we imagine, new in this country, and consists simply of tarred felt, whitewashed out side. The whitewash is made with lime and skim-milk, and is renewed every spring. During the summer it reflects the sunlight, keeping the rooms under it cool, and in winter it helps to preserve the felt from the weather, besides, no doubt, checking in some degree the radiation of the interior warmth. So far as we know, shingle roofs are the only sort which are ever whitewashed here. These are occasionally treated with lime-wash and alum to preserve them, but the effect of the whitewash in repelling the heat of the sun is little thought of, although in our hot summers the practice of painting roofs white, as is done in China, and in Southern France, would certainly be advantageous —*American Architect.*



Architects, Engineers Builders, Contractors and others are invited to contribute to this department their experience regarding methods of construction. Also particulars—such as location, character, cost and name of owner, etc.—of any works of construction in progress.

CONSTRUCTION IN MANITOBA.

BY ARTHUR T. TIMEWELL.

IN a country where a comfortable habitation for both man and beast is so essential to the comfort, success, and happiness of the farmer, and profitable remuneration to the owners of the latter, a few remarks upon the above subject you could perhaps find space for in your valuable journal.

Foundations of buildings must always be a very important factor, and I have found that owing perhaps to the extreme dryness or the severity of the frost in this country, that it is not so necessary to excavate below frost line (as it is called) as in other countries where the frost is not so intense, except for projections, such as porticos, verandahs, steps, &c., and very light buildings. The posts do not heave under the main buildings. A thorough good foundation may be obtained by placing tamarac or cedar plank sufficiently wide and thick to form a base, on the virgin prairie, care being taken not to disturb the original turf. The roots of the grass, weeds, &c., are so tough and interlaced with each other, that they will support a very heavy framed structure. The foundation planking and sills above should receive a coat of creosote tar, or even limewhite, before being laid, and covered with earth. While advocating the above class of foundation, I do not wish to be understood to say that it is the best, but I have proved it to be good, and in a new country where expense is necessarily considered, it certainly meets the economical requirements of the people, more especially as in order to secure a more substantial foundation of concrete stone, &c., it is necessary to excavate so very deep to get through the top soil of rich black loam, that unless a solid bottom of shale, gravel, &c., is arrived at, it is not well to place hard substances with irregular surfaces, such as stones, upon a yielding substance, except in the case of the best Portland cement concrete, carefully and properly prepared and filled in the trenches to a depth of say three feet. Even this is generally ruled out because of the expense, although owing to the great adhesive properties of this material, and its well known resistance to a great transverse and tensile strain, if expense is not an object, this is no doubt the best foundation. Even concrete, however, should be laid on a hard bottom. While on the subject of concrete, I will say at once that I consider this material from every point of view the very best for construction of all classes of farm buildings, owing to its being fire proof, everlasting, impervious to vermin, and in most parts of the country, the cheapest material that can be used. The walls, floors, and even roof can all be built of concrete, composed in the following manner:—Three parts of stone or gravel broken into small irregular pieces about two inches in diameter, and two parts of sharp clean sand or ashes, to one part of fresh well-burnt lime, powdered or ground to a powder. The component parts should be carefully measured and mixed dry, and then well wetted and dumped into position. In the event of good Portland cement being used instead of lime, nearly double the proportion of broken stone would be a proper quantity. In all cases hollow walls, or outer and inner walls with an air space between, should be built. Wood sides three feet high, made of boards fixed together with ledges, should be placed on edge the required thickness of the wall apart, and a core or box, 4 inches thick, should be placed in the centre to form an air space. A round block of wood should be placed in the position required for chimneys, shafts, &c., and the door and window frames fixed where required. The wet mass of concrete is then to be dumped into the mould formed by the boards, and large stones can be pressed into the soft concrete in the centre of walls. This is to be continued round the building sufficient time being given to allow the concrete to set. The same boards, cores, &c., can then be removed, and fixed on the top of the wall, the same process being repeated until the full height of the storey is attained, inserting wood, bricks, lintels, plates, &c., as required. The outside of the wall, if lime concrete is used, should be rendered in Portland cement, to protect it from the weather. This work can all be done by unskilled labor. Should floors and roof of concrete be desired, it must be made with cement, with old railway iron or light flanged girders inserted every three feet in width. The properties of concrete and the method for using the same, is so well known to nearly all your readers that perhaps there was not any necessity to go into so much detail.

QUEBEC.

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

THE prospect of widening St. John street (within the walls) are improving. The city council has been empowered by the Local Legislature to issue bonds to the extent of $100,000 for the purpose. A good start may be made with this sum, but a further amount will undoubtedly be required. It is to be regretted that the proprietors, generally speaking, demand the high figures they do, especially in view of the fact that the value of real estate in this street has fallen so low that in many instances not more than 30 or 40 per cent. of the former rents can be obtained—this being largely due to the miserable narrowness of the street. Naturally the business has left for the wider and more open streets, where people may move about with some comfort. The lot occupied formerly by the Proran building, and acquired some time ago by the corporation, and subsequently sold to Dr. Casgrain, has been utilized by that gentleman, who has erected on the new line a dwelling and dental office on one half of the lot, purposing next season to build upon the remainder. The new building has two stories and mansard roof, built of white brick, with cut stone trimmings, neat but inexpensive; the cost has been about $600. The contractors were Messrs. Dixon & Bazin, the architect, Mr E. Charest.

St. John street (without the walls) has been embellished this season by the completion of Hetherington's Block, built on the same design as the portion erected last year, and pressed brick front and cutstone trimmings. Over the gateway leading to the factory yard, an oriel window has been erected, running up through two stories. The windows have leaded lights with bands of glazed tiles between the same; the whole terminates with cast iron cresting. The shop and offices occupy the front floor. The floors are laid with tiles, counters made by D. S. Rickaly, of cherry, with walnut mouldings, birdseye maple panels and red marble top. The new building completes the arrangements which the Messrs. Hetherington have been wanting for some years to enable them to carry on a very extensive plain and fancy biscuit manufacturing trade. The cost of the new building approximates $7,000. The structure was erected by Alex. Cummings, under the supervision of H. Staveley, architect.

A rather unfrequent erection in Canada, the hanging of a chime of bells, is now going on in the tower of St. Matthew's Church. They number eight, and weigh altogether close on 600 lbs. They are from the Warners, and are fitted with a chinning apparatus, although it is intended to have them rung by a guild of young men. The total cost of the bells including setting in place will be about $2,600. The Anglican Cathedral chimes hung 50 odd years ago, weighed nearly 800 lbs.; few cities in Canada can boast of two chimes, as can the "Ancient Capital."

HAMILTON.

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

The "Ambitious City" is decidedly on the march of improvement in the building line, as is evidenced by the decidedly growing taste for good design and modern sanitary improvements. Some of the villa residences now being erected in the suburbs reflect much credit on the designers. The fronts are generally done in red stock brick, and tuckpointed. The arches and strings being done in red, white and black brick, which will give an effective appearance. In the better class of residences, cut stone is used in the dressing with good effect; and, in this connection, to what perfection can the craft of bricklaying be brought for exterior decoration. Formerly brickwork was perfectly devoid of design—nothing more than filling in between cut stone dressing. Now, with the improvements in the mold in which the bricks can be formed in any shape, bevelled or moulded, and the improved chemical process of coloring the brick in different tints, the architect has a fair field for showing good design at moderate cost. It can be seen in some of the tastefully finished brick fronts in the cities of the United States, and to a great extent in Toronto and elsewhere. More than the ordinary bricklayer's skill will be required in such fronts. None but first-class workmen can be employed, for no matter how good the design may be, and the material of the best quality, still, if the work is not done in a first-class manner, the desired effect is lost. In fact, the time is coming when the bricklayer's trade will be more than a mere labor occupation. This advantage can be attained with the favorable opportunities now afforded to young mechanics to improve their time by studying in the Schools of Art and Design, and also in reading the periodicals bearing on Architecture.

It is generally conceded now that the bad results of the late strikes are fading away from the minds of the people. It is to be hoped that a repetition of the folly will not occur in the ensuing spring. If not there can be no doubt of a good season of business in the building trades. Experience has taught the Union a severe lesson, and we may reasonably hope that in future they will conduct matters with care and discretion.

I regret to say that our city fathers have so far made no perceptible effort to compel the record of new buildings. Only one half of the buildings commenced here have been entered in the Inspector's book. Some excuse may be made, however, as I understand the inspector, Mr. Morrison, has been for some weeks confined to his home with sickness, but it is to be hoped that when he is again able to attend to his duties, he will straighten out matters effectually.

OTTAWA.

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

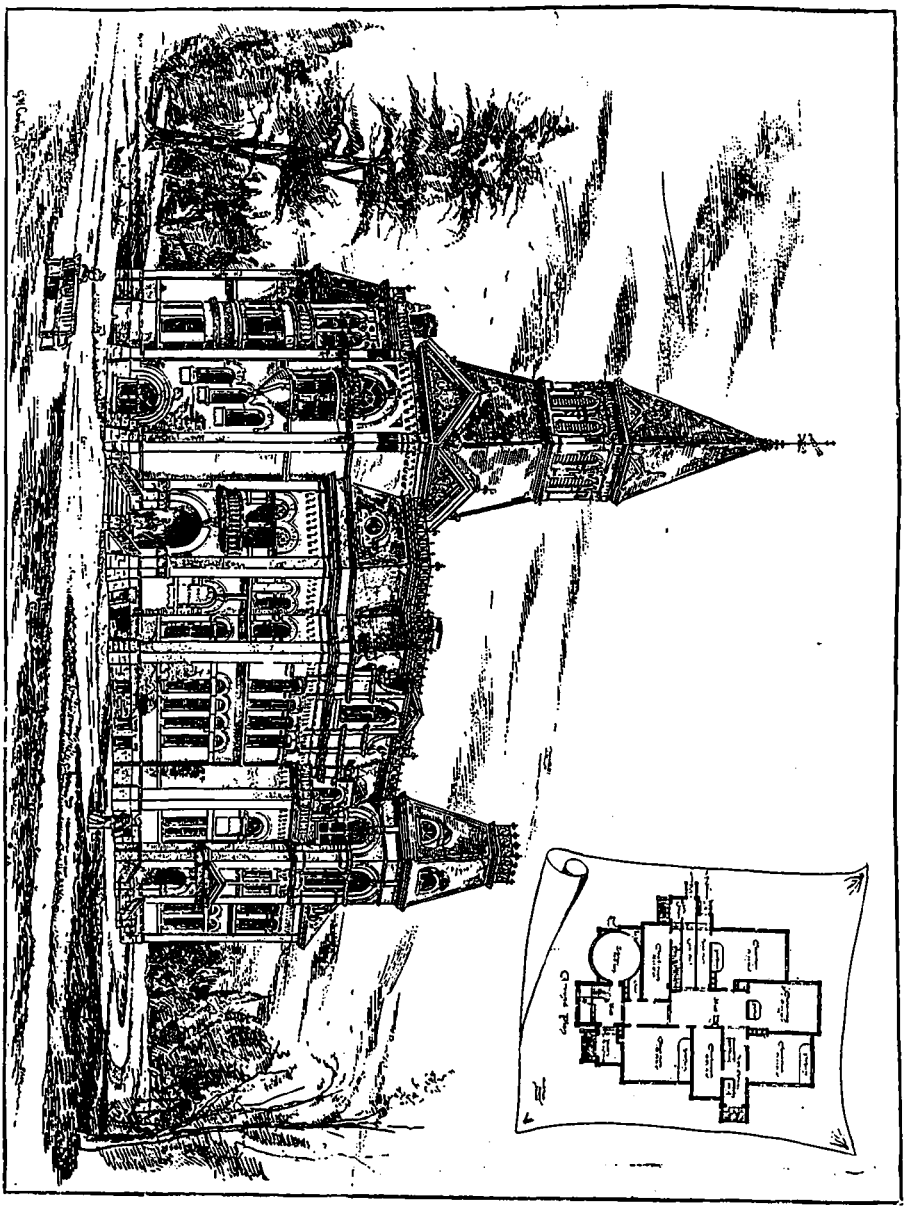
Since my last report building operations have been very brisk, the greatest drawback being want of sufficient hands to carry out the work under contract. As in former years contractors take hold of all the jobs they can get early in the season, without calculating how they are going to get through with them at the close of the season, with the limited number of hands here; whereas some contractors have not anything to do. This state of affairs necessitates a great deal of trouble to the architect, and loss to the proprietor.

A committee, consisting of the two city Engineers and the Chief of the Fire Department, along with architects Hodgson, Bowes, and Alexander, were appointed by the city council to draft a by-law for the guidance of a building inspector to be appointed. The committee have completed their labors. The draft of the by-law will be submitted to a special meeting of the city council next week, and if adopted, an inspector will at once be appointed. Already about fifty applications have been sent in. It is to be hoped a competent man will receive the appointment, otherwise the by-law will be a dead letter.

The competitive plans for the new police station have been finally disposed of, the plans of J. R. Bowes having been adopted. The building is now under way, and will cost about $15,000.

A great deal of dissatisfaction exists amongst the architects here, regarding the manner of letting out contracts, the custom being to let out the different trades to separate contractors, in consequence of which the architect is compelled to look after six contractors on each job, whereas if the work was let to one man, it would be less trouble to the architect, and more satisfactory to the proprietor, because under the present method the contractor puts the responsibility of all delays on the shoulder of the next contractor. An effort will be made next season to adopt the bulk tender system.

I regret that a stronger effort is not being made by the archi-



NEW HIGH SCHOOL BUILDING, PARKDALE, TORONTO.

G. M. MILLER, ARCHITECT, TORONTO.

of Ontario to form an architects association. I trust the architects of the Western cities will express their views through your columns, and that an effort will be made the coming winter to form an association. I would suggest that the architects of Toronto make the first move in the matter, and call a meeting for that purpose. The architects here are very much in favor of it.

I was much pleased with the illustration in your last issue of the Toronto City Hall and Court House. Such illustrations cannot but make your paper very interesting.

I am sure the architects throughout the Dominion will learn with pleasure that chief government architect Fuller, who was stricken with typhoid fever some weeks ago, and whose life was despaired of, is in a fair way to recovery, and will be again attending to his duties by the new year.

It is impossible yet to say what the building outlook for next year will be, but it is thought it will not reach this year.

The contract has just been let for a new Roman Catholic church to cost $6,000. An architect from the Province of Quebec prepared the plans.

The contract for a skating and curling rink has just been awarded, the price being $12,000.

ments at that time. After they had been prepared, however, the Council made no use of them, and until the present year, nothing further appears to have been done in the matter. At the present time, the Council has under consideration the draft of a proposed plumbing by-law, and those who are interested in seeing the sanitary condition of the city improved, hope that soon a law will be placed on the municipal statute book that shall decide the competency of persons who desire to do plumbing work, the method of doing it, and the character of the materials to be used.

The contracts for the new addition to the Windsor Hotel have been awarded as follows: Stonework, St. Louis Bros.; carpenter work, Wm. Begard; iron work, Dominion Bridge Co.; painting and glazing Cassels & Son; plastering, Wm. Cook; roofing, G. W. Reed; plumbing, Garth & Co. The building, which is to be constructed of lime stone with Ohio sand stone dressings, will have a frontage of 80 ft. 6 inches on Peel street, by 248 feet on Cyprus street. Messrs. J. W. & E. C. Hopkins, of this city, are the architects.

Construction has been suspended on the new Protestant Insane Asylum, owing to an injunction, granted to Mr. John Crawford, who claims that the institution would depreciate the value of property in the locality.

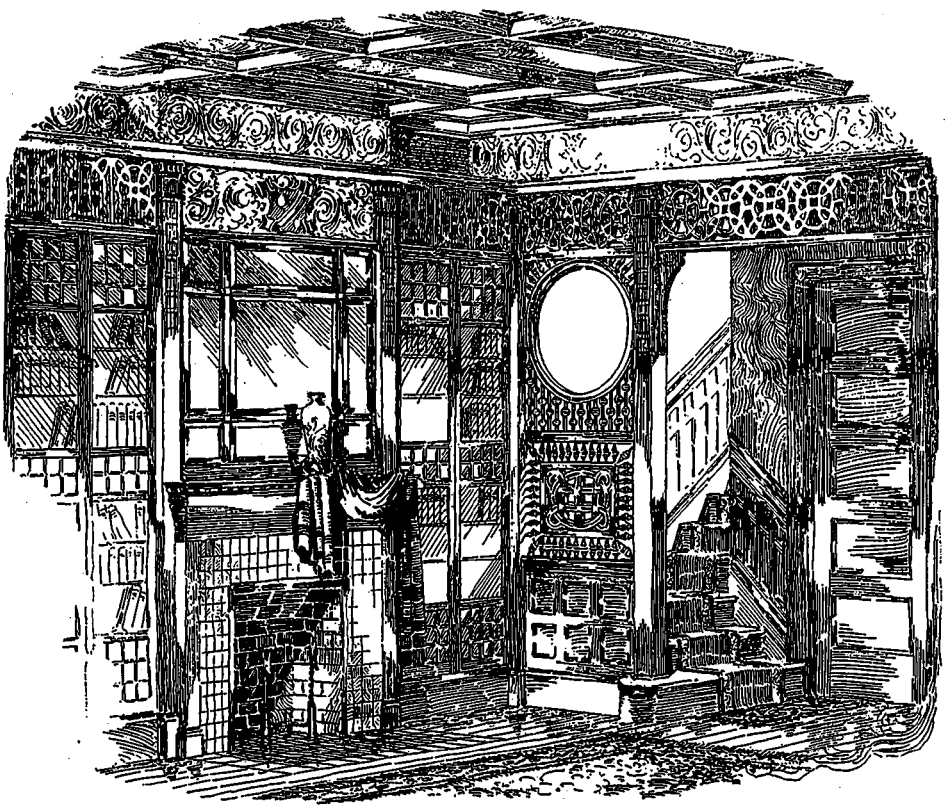
into an association, which should embrace only men who are known to have a proper knowledge of their profession obtained in the proper way. By this means those who with scarcely any knowledge of architecture have set themselves up to be architects, and are defacing the appearance of our streets with masses of ugliness, would occupy their true position outside the ranks of a profession which, under present circumstances, they bring into ill-repute.

It has been decided to substitute copper for Muntz metal for roofing the new city hall at Hamilton, Ont.

Messrs. Tambling & Jones, of London, have been awarded the contract for the new post office at Goderich, the figure being $13,000.

The contract for the new $17,000 post office at Brampton Ont., has been awarded to Mr. J. Perry, and Messrs. Mason & McCulloch, of that place.

Mr J. W. Hughes, of Montreal, writes as follows to the editor of the *Engineering and Building Record*:—" A friend of mine having trouble with a hot-air furnace, that was right according to all rules of trade and practice, and fully large enough for its work, tried the experiment of raising the inlet-pipe for the cold air some



Hall Interior Knox & Elliot. Architects. Toronto.

House of Frank Shepard Esq. Chicago.

MONTREAL.

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

IT is little wonder that Montreal is the scene of so much infectious disease, when the character of the plumbing done in a majority of the houses is considered. When I state that the number of competent plumbers in this city might almost be counted on one's fingers, and that there is no city ordinance for the regulation of plumbing, your readers will perhaps be able to picture to themselves what the sanitary condition of the city is like. The situation is briefly this: Any man who calls himself a plumber is allowed to do plumbing work, and may use such materials as he pleases. The result is, that a large proportion of the so-called plumbers are graduates of the tin shops, and what little knowledge of plumbing they may have, has been "picked up." They put earthen pipe under the floors of the houses, and do a hundred other things that would not be tolerated for a single day in a city where regard is had for human life. The Plumbers' Association, which is composed of *bona fide* plumbers, appears to be fully alive to the sanitary requirements of the city, and is doing what it can to bring about a better state of things. Your correspondent was shown documents prepared ten years ago, containing provisions which it was thought the City Council should embody in a by-law for the regulation of plumbers. These documents were prepared by leading plumbers at the request of the City Council. Many days were spent in considering their adaptability for the purpose, and there is every reason o believe that they would have been suited to the city's require-

The new St. James St. Methodist Church building is expected to be completed by Christmas. The wings and basement are already in use.

A handsome classic front is being erected for the Imperial Life Insurance building on St. James Street.

The Royal Insurance Co. are expending sixty or seventy thousand dollars in improvements to their building. Four new stories of stone are being added, and fitted with elevators, etc., for use as suites of offices. The District Savings Bank building is being similarly treated, under the supervision of Mr. Raza, architect.

I regret to hear it stated that the directors of the Young Men's Christian Association have decided to give the work of designing and erecting their new building into the hands of an American architect. I trust that the example of the Ontario Government and some of the business institutions of Toronto in handing over important buildings to outside architects, will not be followed here. There are standing in this city many buildings which proclaim the ability of some of our local architects. Further than this, the money for the erection of this proposed new Y. M. C. A. building, was subscribed by the citizens of Montreal, local architects contributing their proportion. This being the case, it appears to me that the citizens have a right to expect that the money thus subscribed should find its way into the pockets of Montreal architects, contractors and supply men.

One method of securing for themselves fair treatment, is for the architects of this city, like those of Toronto, to form themselves

two feet up from the bottom of the ash-pit, where the usual inlet is. The result was a magical one: everything changed from almost a perfect failure to a perfect success. The same experiment was tried a second time on another furnace with similar results, and naturally the conclusion was come to that the cold air should not enter quite at the bottom. I have a theory that to me seems quite satisfactory, for accounting for the advantage claimed in changing the position of cold air inlet, but would like some of your correspondents to write something on the question. It may of course be common practice somewhere to bring the cold air in high up. In Canada the lower the better is the rule."

The new C. P. R. passenger depot at Montreal will cost about $2,000,000 and will be completed for trains to enter about 1st December. It will probably be the finest passenger station in America.

Messrs. Eby Bros. have purchased the foundry of Mr. C. E. Moyer, at Berlin, Ont., and have commenced the manufacture of the Boynton wood furnace, an illustration of which appears in their advertisement in this Journal.

The Montreal Bridge Co., have received a contract from the Public Works Department, Ottawa, to construct a stationary bridge to replace the present suspension over the Chaudiere Falls. The bridge will be of but one span, 236 feet in length, 45 feet wide and guaranteed to withstand a weight of over 200 tons. The price of the contract will reach $30,000.

COLORINGS.

IT might reasonably be supposed that colors used in outside painting would be selected with due regard to their durability, but the faded colors so frequently seen proves very conclusively that some painters either do not know what to use.

Among the durable colors may be named the following: In black, lampblack and vegetable black; in yellow, yellow ochre and Naples yellow; chrome yellow turns dark in bad air; in reds, Venetian red, Indian red, madder lake; carmine lake, vermilion and chrome red are not good for outside work; in blue, ultramarine is the only permanent one. Among the most durable and reliable colors may be found the ochres, raw and burnt umbers and siennas, the reds named above, Vandyke brown and their mixtures. Raw umber is very durable either in water or oil, and mixes with other pigments without injury. Yellow ochre can be mixed with lime without injury, and is thus well adapted to distemper painting.

Among the non-durable colors are all manufactured chemical colors; chrome yellow, chrome green, prussian blue, cobalt, Antwerp blue, indigo will all fade, either singly or in combination. Zinc white, though of less body than white lead, is more delicate and durable and should be used at the seaside especially, as sea air is particularly injurious to lead.

Greens direct from copper, arsenic, etc., are much more durable than mixed ones, although, of course, all productions of arsenic are more or less injurious to health.

Rinse your hair pencils out thoroughly in turpentine and work the brush about in dry dust.

Varnish, japan and all sorts of liquid dryers are based on oil, and while they compel a coat of paint, to dry quickly, they do not neglect to supply some building strength.

If it is the intention to calcimine on one-coat work, a very good finish may be made by using some hard finish on the hawk and hand float the surface with water in the brush.

Less cattle hair is required in the plaster on brick walls than on laths, and usually stone and brick walls have but one strong wall coat, and on this it is finished with lime and plaster-of-paris.

When the ceiling is simply tinted the first should be one that softens into the wall paper or wall color, not one that contrasts. Thus if the tone of the room is a soft grey blue, the ceiling should be of a clear fresh pink; or should a grey-green be picked out with black, a lemon color will be appropriate for the ceiling.

A solution of chloride of copper will show the difference between gilding for which gold has been used, and gilding with alloys of inferior metals. If the gilding be imitation gold, a touch of the solution will give a black mark, copper separating out through the zinc in the yellow metal; with pure metal no discoloration will occur. Common gold goods, of fourteen carat gold, will not change their color with nitrate of silver. Leaf gold is tested by being shaken up in a closed bottle with sulphur chloride.

PERSONAL.

Mr. William McLea Walbank, C. E., of Montreal, was married on Oct. 10th to Miss Isabel Richards, of Bideford, P. E. I. The happy couple have just returned from a tour of the Southern States.

Mr. James Adams, architect of the penitentiary, Kingston, Ont., recently had an encounter with a burglar, who knocked him down with a club, and escaped, followed by a shot from Mr. Adams' revolver.

The many friends of Mr. Fuller, chief architect of the Department of Public Works, Ottawa, will regret to learn that he has for some time been prostrated by an attack of typhoid fever. At one time grave apprehensions were entertained that he could not recover, but we are pleased to know that a change for the better has set in, and he is now on the road to recovery.

Messrs. R. McDougall & Co., Galt, Ont., manufacturers of the Plaxton Hot Water boiler, were recently burned out. They announce their intention of rebuilding on an enlarged scale. Meanwhile they have resumed manufacturing, and are filling orders as usual.

It is noticed that Oregon cedar shingles are beginning to be handled in New York. As this is the case, why would it not be just as feasible to open up a trade in Eastern Canada for British Columbia shingles? They are readily sold now all over Manitoba and the Territories, and a profitable market should be found for them further east.

HEATING BUILDINGS BY HOT WATER CIRCULATION.

By John. P. Armstrong.

MUCH has been written on the merits of the different methods of heating buildings, and it is admitted by all disinterested, intelligent persons, who have given the matter any consideration, that hot water circulation is far in advance in every way of either stoves, furnaces, or steam.

There are, however, a few apparently intelligent people who still hold on with tenacious grip to the almost exploded idea, that steam is the best, and these advocates are found amongst three classes. First, those who have a financial interest in sustaining that theory; second, those who imagine that the earth will surely crumble away if anything out of the old order of things is adopted; and third, those who, from a want of knowledge, honestly believe that steam heating is the best. The first two I will not try to disturb, but let them sleep on. They will awake up some day, and wonder what is the matter when someone laughs at them for dating a letter 1600 A. D. But to the third class of persons, I would like to present a few reasons why hot water circulation is far in advance of steam.

Steam heating is bad physically, because its effect upon the radiators or coils through which it passes is, that they are heated to such a high temperature that the atmosphere upon which they act, is robbed of at least one-half the humidity considered desirable from a health standpoint. This has reference not alone to animal life, but to vegetable life also, as I have seen frequently proved in greenhouse work. Some persons imagine that this injurious effect is overcome by keeping one or two open wells in the house. This is a mistake, because it is only the plants immediately surrounding these wells that will be benefitted thereby, while those at a distance will suffer almost as much as though there were no open wells in the house.

Steam heating is dangerous, because no matter what automatic appliances may be employed there is danger of explosions, and the temperature of the pipes is so high that there is a very great possibility of fire, either from contact with wood, the accumulation of dust on them, and the facility which rats find for making warm comfortable nests in the coils, in which have frequently been found bits of waste, and other inflammable matter.

Steam heating requires skilful attendance. The possibilities of accidents are so numerous, that it requires a man with a thorough knowledge of the apparatus to be in constant attendance upon it, and even then, it is impossible to guard against the many little accidents which often lead to sad, disastrous consequences. In the report of the fire marshal of the city of Boston for the year ending May, 1888, there were five fires which were known to have originated from the contact of wood, dust, waste or some other such substance with the steam pipes, and many other fires the origin of which were not and never will be known, but some of which, if the inanimate could speak, could without doubt be traced to the system of steam heating. In this respect Boston is not the exception, but rather the rule, as shown by the reports of other cities.

Lastly, though by no means least, steam heating is not economical. From the moment the fire is lighted until steam is generated, which is at least one hour, there is not the slightest change of temperature throughout the house; and once it is generated, the water must always be kept up to 212°, because if it drops below that, it ceases to give off steam, and that already in the pipes condenses and they become cold, although the water may be at 200°, which would be high for hot water circulation. So that to get any heat in coils or radiators heated by steam, necessitates a constant consumption of fire sufficient to keep the water at not less than 212°; and this irrespective of the weather. It requires just as much fuel to keep the water boiling when the thermometer is at 40°, as when it is 10° below zero (at least the fractional difference is so slight, it is hardly noticeable). The fact of the entire absence of heat through the building, when the water drops below 212° is especially fatal to plants in a greenhouse during the night, because the heat given off by the condensation of the steam remaining after the water has dropped below 212°, is so quickly absorbed by the large body of glass surrounding it, that the temperature in the house soon falls fatally low for any delicate plants which may be in it.

Now in all the foregoing points, hot water circulation is directly opposite to steam. Physically, it is the most perfect system of heating known. It gives a mild steady heat, and its effect upon the humidity of the atmosphere is so slight as to be imperceptible. On this account it is invaluable for heating greenhouses, in addition to the more important item of adding to the health of dwellings. With hot water, there is not the slightest danger of explosion, because the system is open to the atmosphere through the expansion tank, and the only pressure that can be on the boiler or pipes is the weight of the water in the system, and this, in a three story dwelling, would not be more than from 15 to 18 pounds to the square inch, or about atmospheric pressure, which is less dangerous than the ordinary cold water pressure in some city mains.

The freedom of hot water heating from the possibility of causing fire, is amongst the strongest facts which recommend it as the ideal method. I have never known, nor has any report ever reached me, of a case where the contact of any substance (with the exception of phosphorus matches or some such matter) with hot water pipes, was the cause of fire, because no part of the outside surface of the system is ever heated to a higher degree than about 190°, so that these surfaces might be exposed against wood, paper, &c., with perfect safety.

The simplicity of the apparatus required for this method of heating is such that a boy, girl, or any person able to lift a shovel-full of coal can, give it all the attention required, all that is necessary being to see that the fire is kept going and that the water is kept up to the required level in the expansion tank, which only needs attention about once in two weeks, and sometimes even a longer interval.

A slight consideration of the principles which govern hot water circulation will plainly show that it is by far the most economical method of heating. As before noticed, steam is not generated until water has reached 212°, and until this temperature is attained, there is no benefit to the house. With hot water, the moment the fire is lit circulation begins, even the burning of a newspaper in the fire-box being sufficient to start circulation, and that means an immediate rise in the temperature of the surfaces of the pipes, which in their turn affect the surrounding atmosphere, and will go on steadily increasing as long as the fire is kept up, until it reaches the maximum point, about 190°. Should the fire be allowed to burn out through forgetfulness or carelessness, the water in the coils or radiators will continue to give out heat for about four hours afterwards. This is a characteristic of the greatest value for greenhouses. Another very important feature is the fact that the consumption of fuel is regulated by the weather. To keep up steam it is necessary to burn as much fuel in moderately cold weather, as when the cold is extreme; but in hot water heating the fire is regulated according to the temperature of the atmosphere. This difference in working, causes a saving of an average of 30 per cent. in fuel. This, of course, depends, to a very great extent, upon the construction and capacity of the boiler.

A retired plumber thus gives a point for the gratuitous relief of householders: Just before retiring at night pour into the clogged pipe enough liquid soda lye to fill the 'trap' or bent part of the pipe. Be sure that no water runs in it until the next morning. During the night the lye will convert all the offal into soft soap, and the first current of water in the morning will wash it away and clear the pipe clean as new.

The Orillia *Packet* comments as follows upon the article which appeared in the CANADIAN ARCHITECT AND BUILDER recently, concerning the surprisingly small amount of space given by the daily press to the important subject of the preservation of the public health: "The *Packet's* experience in this regard is not encouraging to the press. Its persistence for years past in pressing for sanitary reforms has undoubtedly been productive of some good, but the advance made is so slow as to be almost disheartening. Even members of the Board of Health, and the officials under them, are content to do almost anything, or rather to neglect everything, for a quiet life, so little do many realize the importance of cleanliness and wholesome sanitary surroundings; and the paper which keeps dinning away at the subject is voted a 'crank' and a 'bore.'" Our contemporary should not get discouraged. A great advance has taken place in the direction of sanitary reform within the last decade, and if the subject is given its proper position in our public schools, the next generation will not be so apathetic as the present one. As to the advocates of this reform being called cranks and bores, that is a matter of little consequence, in view of the fact that some of the greatest and wisest reformers of history were similarly regarded.

CANADIAN VS. IMPORTED SEWER PIPE.

"THE editor of the CANADIAN ARCHITECT AND BUILDER is in receipt of the following letter from a gentleman in the United States, whose name we withhold for the present, having no authority to make it public:

'I am thinking of establishing a manufactory for sewer tile, etc., in Canada, if I can find a clay suitable for the purpose, and I think I know where I can get it.

I write to you for information regarding the market for sewer tile, and to find out if the demand is at all good; also if there is any manufactured in Canada at present, and to what extent. I, of course, refer to a vitrified, salt glazed tile, and I understand the largest size at present manufactured in the country is six inch.

Any information you can send me on the subject will be thankfully received.'

Upon receipt of the above letter, we instituted enquiries, with a view to obtaining the information sought for. We were informed by the principal dealers in sewer pipe in this city that a wide field lies open to the manufacturer of a first-class article in that line in Canada. There are at present two manufactories in Canada—one in Ontario, the other in Quebec. These, we are informed, supply but a very small percentage of the sewer pipe used in this country. The largest proportion is imported either from Scotland or the United States. We enquired whether it was owing to the limited capacity of the Canadian manufacturers to produce these goods that such a large proportion had to be imported. The answer was that it was due rather to the inferiority of the pipe at present manufactured in Canada as compared with the imported article. The city of Toronto, it was said, would not allow the use of the native article, and that one dealer alone imported into Toronto last year 200 car loads of drain and sewer pipe. We give these statements to the public as they were given to us, with no desire to injure in any way any industry at present operating in Canada, but rather to point out to the proprietors of such the apparent necessity of improving the quality of their output, if they desire to supplant the manufactures of other countries at present used so largely in our public works. We also consider it a duty to encourage the establishment in Canada of manufactures whenever there appears to be a profitable opening for the same."

The article quoted above was published in the CANADIAN ARCHITECT AND BUILDER for October. The statements contained in it are disputed by the managers of both Canadian sewer pipe manufactories. The following letter has been received in regard to the matter from the Hamilton and Toronto Sewer Pipe Company:—

HAMILTON, OCT. 27th, 1888.

Publisher CANADIAN ARCHITECT AND BUILDER, Toronto.

DEAR SIR,—We notice in your October issue, page 10, an article on the manufacture of sewer pipe which is incorrect, misleading, and calculated to injure the industry in Canada. We think you should have made enquiries from the manufacturers as well as dealers before making such a statement. Although not solicited, we hope you will excuse us for offering you some statements respecting the make of pipe in Canada. The factory in Hamilton, established in 1860, and which was very weak in the beginning, has become a large business, making all sizes of pipes from 4-in. to 18 in., including junctions, elbows and traps. Our trade has increased to double what it was three years ago. We supply nearly all the pipe used in Ontario except in Toronto, where a prejudice has arisen against the use of Canadian pipe through the use of a slip glazed pipe which was made in Yorkville for several years and used largely in Toronto, where of course it did not give satisfaction, and it is well known that slip glazed pipe is a thing of the past and will not answer the purpose. Years ago we was made at this factory in the same way, not having a clay that would stand the taking of a salt glaze. We have supplied and do at the present time supply all the pipe used in the following cities: Hamilton, St. Catherines, St. Thomas, Brantford and Chatham. London up to the present year got part of their pipe from the States. And until this year we supplied Kingston, the St. Johns Co. supplying part. Then all the small towns, Sarnia, Strathroy, Dunnville, Guelph, Galt, Owen Sound, Barrie, Niagara Falls, have got all their pipe from us. Enclosed we have sent you a tabulated statement of the sewers in the city of Hamilton up to 1st January, 1888, and several miles have been laid this year.

At the back of this statement you notice certificate from City Engineer, showing that the pipes were all from our factory, except the 24 inch pipes imported from the States, and which gave very poor satisfaction, a large proportion of them having to be taken up. As this matter is of so much importance to us we will take the trouble to call on you the next time we are in your city. I have written Mr. Trotter, of the Standard Drain Pipe Co. of St. Johns P. Q., with whom I was connected, calling attention to it also. The output of the two factories will not be far short of $200,000 per year. Trusting you have ascertained that pipe larger than 6-in. are made in Canada, we are,

Respectfully yours,

THE HAMILTON AND TORONTO SEWER PIPE CO., (L't'd,)
A. R. CARPENTER,
Pres.

The editor of the *Canadian Manufacturer* having solicited the opinion of Mr. Trotter, President of the Standard Sewer Pipe Co., of St. John, Que., regarding the statements contained in the article printed in this journal, that gentleman writes in reply as follows:—

"When our factory was started here in 1884, the question was at once raised by importers of Scotch pipe as to the strength and durability of our product, and the argument was advanced, 'Scotch pipe has been used here for fifty years, and is known to be of good and durable quality. If you buy Canadian pipe you do not know what you are getting.' Notwithstanding which opposition, some of the large dealers took up the sale of our pipe, the article affording the utmost satisfaction. Pipe of our manufacture has been subjected to the most severe tests, and has proven to be first quality in every respect, not-only fulfilling the requirements of engineers as regards resistance of crushing pressure, but far exceeding any possible requirement. For instance, our contract with the city of Montreal calls for twelve inch pipes which will sustain a crushing weight of 2,000 pounds to the square inch—but the official test, made by P. W. St. George, Esq., C. E., City Surveyor, shows that our twelve inch pipe withstood an average pressure of 5,696 pounds to the square inch, which was 3,696 pounds in excess of the requirement. In a competitive test as to the absorption of moisture made by Mr. St. George as between Scotch pipe and that manufactured by this company, the results showed that our pipe absorbed but one unit in forty-six units of pipe, while the Scotch pipe absorbed one unit in eighteen of its weight. This shows greater density of body and non-absorbing qualities two and a half times greater in our pipe than in Scotch pipe. Again, our pipe has been subjected to the 'smoke test' in competition with those brands of Scotch pipe most largely imported into Canada. The test was made in the Montreal corporation yard and conducted by R. P. Fleming, Esq., C. E., Engineer to the Sanitary Association of Montreal. In Mr. Fleming's report he says: 'A drain consisting of eight lengths of straight pipe and three junction pieces, was submitted to the crucial smoke test, which the pipe withstood in a most satisfactory manner; while a second drain of inferior pipe from another factory, when submitted to the same test showed numerous defects through which the smoke escaped in large quantities.' The drain of inferior pipe referred to was laid with Scotch pipe."

With a desire to do full justice to the manufacturers of Canadian sewer pipe, we have printed their statements and denials in full, and we cheerfully invite them to use our columns to any reasonable extent if necessary to sustain their position. Having thus we trust manifested our desire for fair play, we shall proceed to explain our own position in relation to this matter, and to publish such evidence as we have been able to obtain bearing on the case.

First of all, then, as to our own position. The reader will observe that the article in question states: "Upon receipt of the above letter, we instituted enquiries, with a view to obtaining the information sought for." The statements contained in the article are substantially in accord with the information supplied to the editor of this journal, by the individual to whom he was recommended to apply for the facts requested by our correspondent. That individual was Mr. Robert Carroll, a well known dealer in sewer pipe in this city. Mr. Carroll's statements were condemnatory of the quality of Canadian manufactured pipe, and tended to show that a profitable opening existed in Canada for the establishment of a factory for the manufacture of pipe more nearly equal in quality to the imported article. Speaking on the subject Mr. Carroll said, that so far as he was personally concerned, he found it more profitable to handle imported pipe, and that consequently the establishment of another manufactory in Canada, would not benefit him directly. He added, however, that as citizens of Canada, we should seek to develop the country, and by so doing we would as a matter of course, be conferring indirect benefit upon ourselves. With the view, no doubt, of still further encouraging our correspondent in his purpose of engaging in the manufacture of sewer pipe in Canada, Mr. Carroll asked us to accompany him to the office of a gentleman named Mutton, on Adelaide street east, who was the owner of a bed of clay which had been declared to be well adapted for the manufacture of sewer pipe. Mr. Carroll introduced us to Mr. Mutton, who explained to us the nature of the clay, and the location and extent of the deposit. He stated that a sample of the clay was among the exhibits from Ontario at the Cincinnati Exhibition, where it attracted considerable attention, and where, possibly, our correspondent might have seen it. At Mr. Mutton's suggestion we took a sample of the clay, and forwarded it with a letter, setting forth all the information we had received, to our correspondent.

We did not solicit the information with a view to its publication, but simply for the purpose of putting our correspondent in possession of it. In looking over our letter file last month, we came upon our correspondent's letter, and we then formed the intention of publishing it, together with the information received from Mr. Carroll and embodied in our letter replying to our correspondent's enquiries.

Upon reading the denials of the Canadian sewer pipe manufacturers to the statements contained in our article, we at once set to work to make a full investigation into the whole subject. We addressed the following enquiry to the City Engineers of the leading cities throughout Canada:

DEAR SIR,—Will you be kind enough to inform me what proportion of imported sewer pipe, and what of Canadian manufacture is used in your city? What proportion of the imported pipe comes from Scotland, and what from the United States? Will you also kindly give me your opinion regarding the comparative quality of Canadian, American and Scotch pipe? An early reply will greatly oblige,

Yours truly,
C. H. MORTIMER.

The replies which have been received to these letters appear below.

With the object of getting further information to sustain the statements made in our previous article, a representative of this journal called on Mr. Carroll a few days ago, but was surprised to learn from that individual that he had almost entirely forgotten the interview with the editor of this paper. Our representative was still more surprised when Mr. Carroll denied that the information contained in the article was furnished by him, and assuming a position exactly the opposite of that which he had taken in the previous interview, proceeded to argue that the pipe manufactured at St. John, Que., was fully equal in quality to American pipe. Our representative, not being personally in a position to dispute Mr. Carroll's denials, left, with the latter's promise that when Mr. Trotter, President of the Standard Drain Pipe Co., should visit Toronto a day or two later, he would accompany him to the publication office of this journal, and there discuss the matter. A few days after, learning that Mr. Trotter had arrived in the city, we sent a message to Mr. Carroll asking him to bring the gentleman over, which he did.

We were at a loss to understand Mr. Carroll's conduct, but met him with an honest desire to discuss matters in a friendly way. He opened the discussion by admitting that his recollection of the previous interview was exceedingly vague, but upon being reminded of the statements he had made, his recollection suddenly became clear as noonday, and he characterized as untrue every statement attributed to him. Up to this time we had supposed that Mr. Carroll was laboring under some misapprehension, but when he denied in detail, in language more forcible than gentlemanly, every one of his previous statements, the truth dawned upon us that, for reasons best known to himself, he had determined to repudiate everything he had said, and if possible, shift the responsibility for his statements from his shoulders to ours. Because we firmly declined to be placed in such a false position, Mr. Carroll allowed his anger to get the better of his honest judgment as well as of his sense of politeness, and charged us with uttering wilful falsehoods. In vain we reminded him that twice previously he had admitted the indistinctness of his recollection of what took place at the first interview, and that in the light of this, and of the fact that we made notes of the interview at the time it took place, his claim to greater accuracy of knowledge than ourselves was ridiculously inconsistent—he was not in a reasoning mood, and evidently chagrined to find that he could not bulldoze us into relieving him of the onus of statements, the authorship of which he is justly entitled to bear, he left us without even saying adieu.

In Mr. Trotter we found a gentleman whose better acquaintance we shall esteem it an honor to possess.

Having placed the responsibility for the statements contained in our previous article where they justly belong, we present for the consideration of those interested the evidence touching the relative quantity and quality of Canadian and imported sewer pipe used in this country:

OTTAWA, November 7th, 1888.

Publisher CANADIAN ARCHITECT AND BUILDER.

DEAR SIR,—Replying to yours of the 5th inst., I would state that the corporation of the city of Ottawa does not permit the laying of any other brand but Scotch vitrified clay pipes. We have had no experience with American pipes, and while their quality may be good, we are situated so in the east, that railway freights and high cost at works, precludes their competition here with Scotch brands.

Yours very truly,
E. E. PERREAULT,
City Engineer.

CITY ENGINEER'S OFFICE,
ST. JOHN, N. B., 8th Nov., 1888.

Publisher CANADIAN ARCHITECT AND BUILDER.

DEAR SIR,—In answer to your inquiry I beg to say that *all* the sewer pipe used here is imported (terra cotta) and is imported from Scotland—at least I never heard of any other. At one time we used to get some from Nova Scotia, (Enfield,) but it was not satisfactory, and, I have been told, its manufacture has been discontinued.

Cement sewer pipe is made at St. Stephens, in this Province, by Mr. Vroom, but I have no experience of its character. Twelve inch terra cotta costs here 55 cents per foot, and other sizes in proportion. Any further information I can give you on this subject or any other matter I will cheerfully furnish.

Yours very truly,
HUBD PETERS,
City Engineer.

KINGSTON, ONT., Nov. 8th, 1888.

Publisher CANADIAN ARCHITECT AND BUILDER.

DEAR SIR,—In reply to yours of yesterday, I beg to say, that we use Scotch sewer tile altogether here. The city did put in some Canadian pipe before my time, but I am not aware that any American was ever used here.

I am not at all acquainted with American sewer pipe, consequently can give no opinion on it, but I must say I prefer Scotch pipe to any Canadian I have ever seen.

Yours very truly,
J. O. BOLGER,
City Engineer.

CITY ENGINEER'S OFFICE,
HALIFAX, N. S., 9th Nov., 1888.

Publisher CANADIAN ARCHITECT AND BUILDER.

DEAR SIR,—In reply to yours of 5th inst., the bulk of drain pipe hitherto used in this city is of home manufacture. Smith & Kaye of Enfield, N.S., were formerly the makers. Lately the work has been carried on by H. C. Preedy. Within the past year some pipe from St. John, P.Q., has been used, and Dutton's pipe, (London) are sometimes imported by local builders. No American pipe has been used to my knowledge. The English pipe are the best I know of here. The demand is principally from builders and private parties. The city uses very few pipe for drains or sewers, except for sizes under 12 inches. When drains are required of larger dimensions, either brick or concrete is used.

Yours truly,
E. H. KEATING.

LONDON, ONT., Nov. 13th, 1888.

Publisher CANADIAN ARCHITECT AND BUILDER, Toronto.

DEAR SIR,—In reply to yours of the 5th I beg to say, that owing to our being so far west, we never use any Scotch sewer pipe, the freight making it too expensive. We therefore use Canadian and American pipe, and find these very good, the Canadian pipe being quite equal to the American. The only fault that can be sometimes found with the Canadian is, that they are not sufficiently burnt, but that is a fault only occurring rarely.

Yours truly,
THOMAS H. TRACY,
City Engineer.

CITY ENGINEER'S OFFICE,
MONTREAL, Nov. 12th, 1888.

Publisher CANADIAN ARCHITECT AND BUILDER.

DEAR SIR,—In reply to your letter of the 5th instant, I beg to say, that the city have had a contract with the Standard Drain Pipe Co., of St. John this year, and I have found their pipes to be of good quality. It is impossible for me to tell the exact proportion of Canadian, American or Scotch sewer pipe used in this city, as we receive pipe from all countries. I have made a great many tests, and it gives me pleasure to say that the Canadian pipe compares most favorably with any imported from Europe. The city contracts for sewer pipes are open to competition to everybody, and as the Standard Drain Pipe Co., of St. John, happened to be the lowest, it was given to them. As long as the pipe is of good quality and gives us satisfaction, it is the one we usually adopt.

Yours truly,
PERCIVAL W. ST. GEORGE,
City Surveyor.

Mr. Edward Terry, one of the largest dealers in sewer pipe in the city, was asked to read the article in question and give his opinion concerning the correctness of the statements therein contained. Having read the article, he said: "I consider your article fair and true." He added that the Canadian manufactured pipe was not up to the standard of the Scotch and American. In his opinion, the St. John pipe was better than the Hamilton pipe, owing to the fact that the former contained a proportion of fire-clay, which the latter did not. The St. John pipe was roughly finished as compared with imported pipe. He had seen St. John pipe that was equal to American, but the output of the St. John factory was not even in quality. Regarding the test which Hamilton pipe was said to have withstood, he was in a position to make an explanation. He had urged the Hamilton people to improve the quality of their pipe by using about one-third fire-clay in its composition, and had consented, if this were done, to handle their pipe. A short time ago, he received from the Hamilton factory some samples of pipe manufactured in the way he had suggested, with the request that he would put his name on them and have them submitted to a test, without mentioning the name of the manufacturers, unless the test should prove satisfactory, in which case he was to make it known that the pipe was made by the Hamilton & Toronto Sewer Pipe Co. He put his name on the pipe and had them tested, the result being entirely satisfactory. Those pipes, however, were made in a different manner from the pipe ordinarily manufactured at this factory—they were made specially for testing. If the Canadian factories would place on the market a grade of

sewer pipe equal to this special sample, he ventured to say no imported pipe would be sold in this country. The Canadian manufacturers were quite competent to turn out such a grade of pipe, if they would use the proper materials and exercise greater care in manufacturing.

Mr. John Maloney, another large dealer, said: "I quite agree with the statements contained in the article in the CANADIAN ARCHITECT AND BUILDER. We either want a new sewer pipe factory that will make pipe equal to that imported, or the present factories to bring the quality of their output up to the American standard. The architects refuse to specify Canadian pipe. Although I sell from 75 to 80 per cent. of Hamilton pipe, I must say I think your article fair.

Opinions similar to the above have been given by other dealers, which simply goes to prove that, aside from the correctness of the opinions expressed, Mr. Carroll, in making the statements he did, was expressing his honest convictions, which it is now evident he would not have done if he had known his statements would be given to the public. As Mr. Carroll is attempting to shirk the responsibility for his statements, and furthermore charged the editor of this journal in the presence of Mr. Trotter, with uttering untruth "with intent," we have taken the trouble in the annexed affidavit, to affirm under oath that the statements contained in our article are substantially in accord with the information supplied to us by Mr. Robt. Carroll:—

I, Charles Herbert Mortimer, of the City of Toronto, in the County of York, Editor and Publisher, do solemnly declare that the article in the CANADIAN ARCHITECT AND BUILDER for October, headed "Proposed New Sewer Pipe Manufactory in Canada," was written from information supplied to me by Mr. Robert Carroll, of the City of Toronto, and the matter contained in said article is substantially in accord with the information given by the said Robert Carroll.

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 the City of Toronto, in the County of York, this sixteenth day of November, A.D., 1888. } C. H. MORTIMER.

WM. DAVID MCPHERSON,
A Notary Public for Ontario.

This is our case. We leave the public to judge of its merits.

PLASTER.

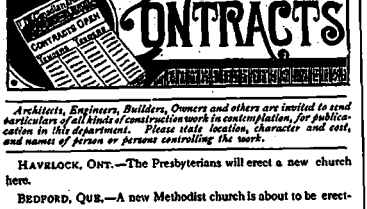
FEW people have an idea, says the *California Architect*, what a valuable material plaster of paris is, and how it enters into the things of every day life about us, from the hard finish on the wall to the lamp collar which is fastened with it.

It is found in raw state in almost every land, and is made of gypsum rock, (a sulphate of lime.) It is quarried, calcined, ground to various degrees of fineness and then encalcined or boiled in huge cauldrons, and is then fit for use. The best is made mostly in New York, from rock quarried in Nova Scotia, and is the kind used by dentists for all sorts of fine castings. We get another on account of a blue cast in it. This kind is used mostly for hard finishing on walls. Another grade, coarser plaster, comes from Iowa, which has been used extensively for what it called "stucco plastering," in which a mortar is made of one part of plaster to two of sand and enough glue size to keep it from settling too quick. It makes one of the hardest kind of walls, but can be attempted only by the most skilled mechanic.

Plaster in setting can be retarded or accelerated by the use of various ingredients. Glue size is best for retarding as it makes it materially harder after it is dry. Sugar, molasses and cream of tartar can be used for the same purpose. Cream of tartar is dangerous to use, as a little too much will kill the plaster from settling entirely. Two of the best things to use in making plaster set quick are common salt or alum. Plaster that has been kept a long time and has gathered moisture, or that has been set in a damp place, will also set quick. This can be remedied by removing all lumps that may have formed, and heating it on a stove in some metal vessel. When heated it will appear to boil like a liquid. Grónkal, uncalcined plaster is used extensively to improve what are called sour lands. Plaster in setting heats slightly which causes it to expand. An eminent authority claims that this expansion will cause it to fill the crevices of a mold. But this is a mistake, as the expansion does not take place until it is quite hard.

A good quality of slate, blue-black in color, smooth surface and good grain, suitable for roofing slate, mantels, etc, is reported to have been discovered near the C. P. R. track, east of Golden, in the Northwest.

The Kingston *News* says the new terra cotta works being built at Deseronto by Rathbun Company will be the largest in Canada. The main building is 262 feet in length and 77 feet wide. The south-east extension is 180x20 feet, with three stories, and is chiefly used for drying purposes. The south wing is 170x69 feet, three stories high. Part of its ground floor is fitted up with hot-air tunnels for drying red brick; the other floors are used for drying terra cotta ware. In the south wing the different floors give an area of 38,760 feet for drying purposes, and this, added to the 21,600 feet in the main building, gives a total area for drying purposes of 60,360 feet. A large trestle runs through the entire length of the main building, on which run the railway cars carrying the clay and fuel for the works. The new burning kiln has been finished and will contain about 80,000 bricks. A track runs south of the large burning kiln for convenience in loading cars for shipment of material.



Architects, Engineers, Builders, Owners and others are invited to send particulars of all kinds of construction work in contemplation, for publication in this department. Please state location, character and cost, and names of person or persons controlling the work.

HAVELOCK, ONT.—The Presbyterians will erect a new church here.

BEDFORD, QUE.—A new Methodist church is about to be erected here.

DUNDAS, ONT.—A company is being formed to rebuild the curling and skating rink.

MARKHAM, ONT.—The by-law to raise $7,500 for waterworks was carried by a majority of 24.

SPRINGHILL, N. S.—The adoption of the electric light system of street lighting is talked of here.

DUNDAS, ONT.—The by-law providing for the extension of the waterworks system has been carried.

EXETER, ONT.—Messrs. Veidy & Son will build an addition to their foundry to cost about $10,000.

SMITHS FALLS, ONT.—The congregation of St. Andrew's Church is about to build a $2,500 manse.

TORONTO, ONT.—The management of the Ontario Veterinary College contemplate the erection of new buildings next year.

PORT ARTHUR, ONT.—A by-law has been carried by three of a majority authorizing the expenditure of $5,000 for the purchase of a site for a customs house and post office. An effort will be made to quash the by-law on the grounds that the government should bear the cost of the structure.

STRATFORD, ONT.—The Stratford Water Supply Company have decided to erect a stand pipe costing between $16,000 and $17,000.

BRANTFORD, ONT.—The By-Laws to raise $185,000 and $10,000 for waterworks and drill shed purposes respectively, have been carried.

COLLINGWOOD, ONT.—Three by-laws to raise $85,000 for water works, electric light and market buildings are before the people of this town.

WINNIPEG, MAN.—Plans are being prepared at the Department of Public Works, Ottawa, for a new building at Batoche for the Mounted Police.

HALIFAX, N.S.—The Government is asking tenders for the erection of a large warehouse at the Richwood terminus of the Intercolonial railway.

ST. ANDREWS, N. B.—Among the improvements contemplated here is a large hotel, gravitation system of water supply, and an electric light plant.

WOODSTOCK, ONT.—It has been decided by the Senate and Board of Governors of McMaster University, to expend $25,000 on improvements for Woodstock College.

LONDON, ONT.—The city council of London Ont., has decided to offer the Grand Trunk Railway company a cash bonus of $100,000, to rebuild their car shops. The McClary Manufacturing Co. will erect a new four storey building.

LAKEFIELD, ONT.—The By-Law to raise $10,000 for a fire hall and council chamber, and also for the purchase of a first-class steam fire engine and hose reels, and for the sinking of tanks throughout the village has been carried.

OTTAWA, ONT.—It has been finally settled that a ship railway is to be constructed from the Bay of Fundy to Baie Verte, at a probable cost of $5,000,000. The first ship railway in the world is therefore to be constructed in Canada. Mr. J. C. Keefer, President of the American Society of Civil Engineers is one of the Provincial directors named in the Act of Parliament incorporating the Chignecto Marine Railway Company.

THE RIGHT USE OF TERRA-COTTA.

THE assertion that terra-cotta ought to be used in small pieces like bricks, because it is a sort of a brick, and not in large pieces that might be mistaken for stones, is an idle assertion and a mischievous one, for it would limit its profitable use. If it fulfils the purpose for which it is wanted, what does it signify whether it is like stone or brick? What can it matter whether a soft material becomes hard by artificial or natural processes? We want a certain form—in one case it is moulded, in the other, cut, for use or appearance the result is the same. Why should we be troubled with plausible theories which puzzle the weak, and attempt to limit at once our art and our use? If a material is unfit for the use to which it is applied it will not be used; but if it is fit, it is ridiculous to prove from "true principles" that it ought not to be used. Take, for instance, a cornice. The line of argument is this: A cornice is a stone structure, and a deep cornice can only be made of large stones. Terra-cotta is nothing more than brick, and, therefore, ought to be small, and consequently is not adapted to large cornices. I reply that terra-cotta can be and is made in large pieces, and that cornices are made of it, and that in every respect it fulfils its practical and artistic purpose.—*The Architect.*

Mr. Wm. Haywan has obtained the contract to erect the large addition to the McLary Mfg Co's Works, at London, Ont, and will introduce a new feature in construction in that city, viz.: a derrick for lifting bricks and mortar to the upper stories.

It is expected that the new drydock at Halifax, N. S., will be completed before the close of the year. The caisson, or floating gate, will be 100 feet long and 36 feet high, and is to have 250 tons of stone ballast. Pumping machinery is being erected which is to empty the dock in about three hours. The walls are very massive, being from three feet to ten feet in thickness, according to the heads in the rock shaken loose by blasting, and which look as if built of one stone. Some 5,000 tons of cement will be required in its construction, and $2,000 cubic feet of granite. Attached to the dock are all the work-shops necessary for repairs to vessels and machinery.

BUILDING MATERIALS.

LUMBER.

CAR OR CARGO LOTS.

1¼ and thicker clear picks, Am. ins..	$30 00@32 00
1¼ and thicker, three uppers, Am ins.	37 00
1¼ and thicker, pickings, Am ins.....	27 00
1 x 10 and 12 dressing and better.....	30 00 32 00
1 x 10 and 12 mill run.....	15 00 16 00
1 x 10 and 12 dressing.....	15 00 16 00
1 x 10 and 12 common.....	12 00 13 00
1 x 10 and 12 spruce culls.....	10 00 11 00
1 x 10 and 12 maple culls.....	9 00
1 inch clear and picks.....	23 00 25 00
1 inch dressing and better.....	18 00 20 00
1 inch siding, mill run.....	13 00 15 00
1 inch siding, common.....	12 00 13 00
1 inch siding, ship culls.....	10 00 11 00
1 inch siding, mill culls.....	8 00 9 00
Cull scantling.....	8 00 9 00
1½ and thicker cutting up plank.....	22 00 25 00
1 inch strips, 4 in. to 8 in., mill run....	14 00 16 00
1 inch strips, common.....	12 00 13 00
¾ inch flooring.....	15 00
¾ inch flooring.....	13 00
XXX shingles, sawn.....	$2 40@2 50
XX shingles, sawn.....	1 30 1 50
Eastlake painted iron shingles, per square, (50 feet).....	4 50
Eastlake painted tin shingles, per square.....	4 50
Eastlake grooved galvanized iron shingles, per square.....	7 00
Imitation brick siding, per square.....	3 50
Special siding, per square.....	3 50
Lath, sawn.....	1 80

YARD QUOTATIONS.

Mill cull boards and scantling.....	10 00
Shipping cull boards, proxiscuous widths.....	12 00
Shipping cull boards, stocks.....	13 00
Scantling and joist, up to 16 ft.....	14 00
" " 18 ft.....	15 00
" " 20 ft.....	16 00
" " 22 ft.....	17 00
" " 24 ft.....	19 00
" " 26 ft.....	20 00
" " 28 ft.....	22 00
" " 30 ft.....	24 00
" " 32 ft.....	26 00
" " 34 ft.....	28 50
" " 36 ft.....	30 00
" " 38 ft.....	32 00
" " 40 to 44 ft..	35 00
Cutting up planks, 1¼ and thicker, dry	25 00 30 00
" " board,	16 00 20 00
Dressing stocks.....	16 00 18 00
Picks, American inspection.....	40 00
Three uppers, American inspection....	30 00
Cedar for block paving, per cord.....	5 00
Cedar for Kerbing, 4 x 14, per M.....	12 00

S. M.

1¼ inch flooring, pressed.....	85 00 90 00
1¼ inch flooring rough.....	14 00 15 00
¾ " dressed.....	23 00 25 00
" undressed.....	14 00
" dressed.....	16 00 20 00
" undressed.....	12 00 14 00
Beaded sheeting, dressed.....	18 00 20 00
Clapboarding, dressed.....	12 00
XXX sawn shingles, per M.....	2 75 2 90
Sawn lath.....	2 25
Red oak.....	20 00 25 00
White.....	25 00 30 00
Basswood, No. 1 and 2.....	18 00 20 00
Cherry, No. 1 and 2.....	50 00 60 00
White ash, No. 1 and 2.....	25 00 30 00
Black ash, No. 1 and 2.....	20 00 25 00

BRICK.—₱ M.

Common Walling.....	$ 7 50
Good Facing.....	10 00
Sewer.....	9 50

Stone:

Common Rubble, Per Toise, delivered	14 00
Forge flat " "	18 00
Foundation Blocks, " Cubic Foot..	35

Slate: Roofing (₱ *square*).

" green.....	5 00 6 00
" " unfading.....	5 00 6 00
" purple.....	5 00 6 00
" red.....	10 00
" black, Lehigh.....	3 50 4 00
" " Chapman.....	——
" unfading black, Monson, Me.....	5 50 8 00
" black slate.....	7 50
Tiles, American, ₱ M.....	
N. Peach Bottom, warranted unfading	

Sand:

Per Load of 1½ Cubic Yards.....	1 5

PAINTS. (*In oil, ₱ lb.*)

White lead, Can.....	6 6 50
" zinc, Can.....	6½ 8 50
Red lead, Eng.....	5½ 6½
" venetian.....	6½ 7½
" and amber.....	90 7 00
" Indian, Eng.....	10 12
Yellow ochre.....	6½ 12
Yellow chrome.....	15 25
Green, chrome.....	7 12
" Paris.....	30 40
Black, lamp.....	17 25
Blue, ultramarine.....	15 25
Oil, linseed, raw (*₱ Imp. gal.*).....	56½
" " boiled, "	59
" " refined, "	62
Turpentine, "	55 59
Varnish, coach, "	
Shellac, "	
Putty.....	2½ 3
Whiting, dry.....	75 1 00
Paris white, Eng., dry.....	1 25 1 50
Litharge, Am., "	6½ 8
Lienna, burnt.....	15 20
Umbe "	8 12½

CEMENT, LIME, etc.

Lime, Per Barrel of 2 bushels, Grey..	60
" " White ..	80
Plaster, Calcined, New Brunswick..	2 20
" " Nova Scotia....	2 10
Hair, Plasterers', per bag.....	1 00
Cement, Portland, per bbl.....	3 00
" Thorold, "	2 50
" Queenston, "	1 50

HARDWARE.

Cut Nails:

American Pattern, 1¾ inch, per keg....	4 35
" " 1¾ to 2¼ inch, per keg	3 00
Canadian Pattern, 1¾ inch, per keg ..	3 85
" " 1¾ to 1¾ inch, per keg	3 25
" " 2 to 2¼ inch, "	3 35
" " 2¼ to 2½ inch, "	3 10
" " 3 inch and larger.....	2 85
Steel nails 10c. per keg extra.	
Finishing nails, 1 inch, per keg.....	6 05
" " 1¼ inch, "	5 30
" " 1½ " "	5 05
" " 1¾ " "	4 80
" " 2 inch and larger.....	4 00

Iron, etc.

Refined, ₱ 100 lb. or ordinary size....	2 35
Common, ₱ 100 lb	2 10
Patent metals, ₱ lb.....	0 12
Anchors, ₱ lb.....	0 06
Chain cables, ₱ lb.....	0 06
Rigging chains, per lb.....	0 3½

MONTREAL PRICES.

Lumber, Etc.

Ash, 1 to 4 in., M.....	$13 00@30 00
Birch, 1 to 4 inch, M.....	16 00 25 00
Basswood.....	12 00 18 00
Walnut, per M.....	55 00 95 00
Butternut, per M.....	25 00 40 00
Cedar, flat.....	20 00 25 00
Cherry, per M.....	65 00 90 00
Elm, Soft, 1st.....	15 00 17 00
Elm, Rock.....	25 00 30 00
Maple, hard, M.....	20 00 22 00
Maple, Soft.....	16 00 18 00
Oak, M.....	40 00 90 00
Pine, selects, M.....	30 00 40 00
Pine, 2nd quality, M.....	21 00 23 00
Shipping Culls.....	13 00 15 00
Mill Culls.....	8 00 10 00
Lath, M.....	1 80 1 90
Spruce, 1 to 2 inch, M.....	10 00 11 00
Spruce Culls.....	4 50 6 00
Shingles, 1st quality.....	2 00 2 50
2nd "	1 25 1 00

Cement, etc.

Portland Cement, per barrel.....	$ 2 45@ 2 75
Roman "	2 75 3 00
Fire Bricks, per M.....	22 00 30 00

Cut Nails:

Hot-cut Am. or Can. pattern, 3 inch and above.....	$2 65
Hot-cut Am. or Can. pattern, 2¼ inch and above.....	2 90
Hot-Cut Am. or Can. pattern, 2¼ and 2 inch.....	3 15
Am. pattern, 1¾ and 1¾ inch hot-cut " 1¾ inch "	3 40 4 15
Can. Pattern, cold-cut, 1¾ and 1¾ inch " 1¾ inch.....	3 15 3 65
Finishing Nails, per 100 lb. keg, 1¾	4 50
Finishing Nails, per 100 lb. keg 1½ to 1¾ inch.....	4 25 4 00
and 1¼ inch.....	$ 3 25 4 70
Finishing Nails, per 100 lb. keg, 2 inch and up.....	1 65 3 50

Paints, etc.

White Lead, pure, 25 to 100 lb. kegs.	6 00 0 00
" No. 1.....	5 25 5 50
" No. 2.....	4 75 5 00
" No. 3.....	4 50 4 75
" dry.....	5 25 5 75
Venetian Red, English.....	1 50 1 75
Yellow Ochre, French.....	1 25 3 00
Whiting, London, washed.....	0 50 0 60
" Paris, "	1 15 1 25

Oils:

Linseed, raw.....	0 68 0 60
" boiled.....	0 60 0 62
Olive, pure.....	1 10 0 00
" machinery.....	0 90 1 00
" extra, qt., per case.....	3 00 3 25
" pts., "	3 40 2 00
" ½ pts., "	2 10 3 07
Spirits turpentine.....	0 63 0 65

ST. JOHN, N. B.

Lumber.

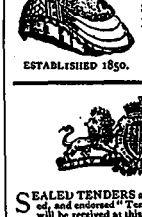
Spruce deals, Bay Fundy Mills.....	8 00 8 25
Spruce deals, City Mills.....	8 50 9 50
Antigonish P. B., Nos. 1 and 2.....	40 00 45 00
No. 3.....	30 00 35 00
No. 4.....	15 00 20 00
Aristook P. B. shipping.....	15 00 16 00
Common.....	12 00 12 00
Spruce boards.....	7 00 8 00
Spruce scantling (sent'd).....	7 00 8 00
Spruce, dimensions.....	11 00 14 00
Pine clapboards, extra.....	5 00 40 00
No. 1.....	0 00 30 00
No. 2.....	20 00 25 00
No. 3.....	11 00 12 00
Laths, spruce.....	1 25 1 35
Laths, pine.....	3 50 4 00
Palings, spruce.....	5 50 6 0

Iron, etc.

Refined, ₱ 100 lb or ordinary size.....	2 25 0 00
Pearson, 100lb.....	2 10 0 00
Assiet metals, ₱ lb.....	0 00 0 11
Cachors, ₱ lb.....	0 00 0 00
Chain cables, ₱ lb.....	0 03 0 06
Rigging chains, ₱ lb.....	0 03 0 3½
Galvanized Iron Roofing, per square..	5 00

Nails.

Cut, 3dy, ₱ 100lb	3 75 4 00
Cut, other sizes.....	2 74 3 50
Ship Spikes.....	3 70 5 00
Galvanized.....	5 25 6 50



J. H. WALKER
DESIGNER
—AND—
Engraver on Wood,
Forestry Chambers,
Old Post Office Building,
enter by 132 St. James St., or by 116 St. Francois Xavier St., Montreal.
Fine Art Engraving,
Portraits, etc.
ESTABLISHED 1850.

SEALED TENDERS addressed to the undersigned, and endorsed "Tender for McGregor's Creek," will be received at this office until Friday, the 23rd November next, for the construction of pile protection work at McGregor's Creek, town of Chatham, Kent County, Ontario, in accordance with a plan and specification to be seen at the Department of Public Works, Ottawa, and on application to Mr. A. McDonnel, C.E., P.L.S., Chatham.

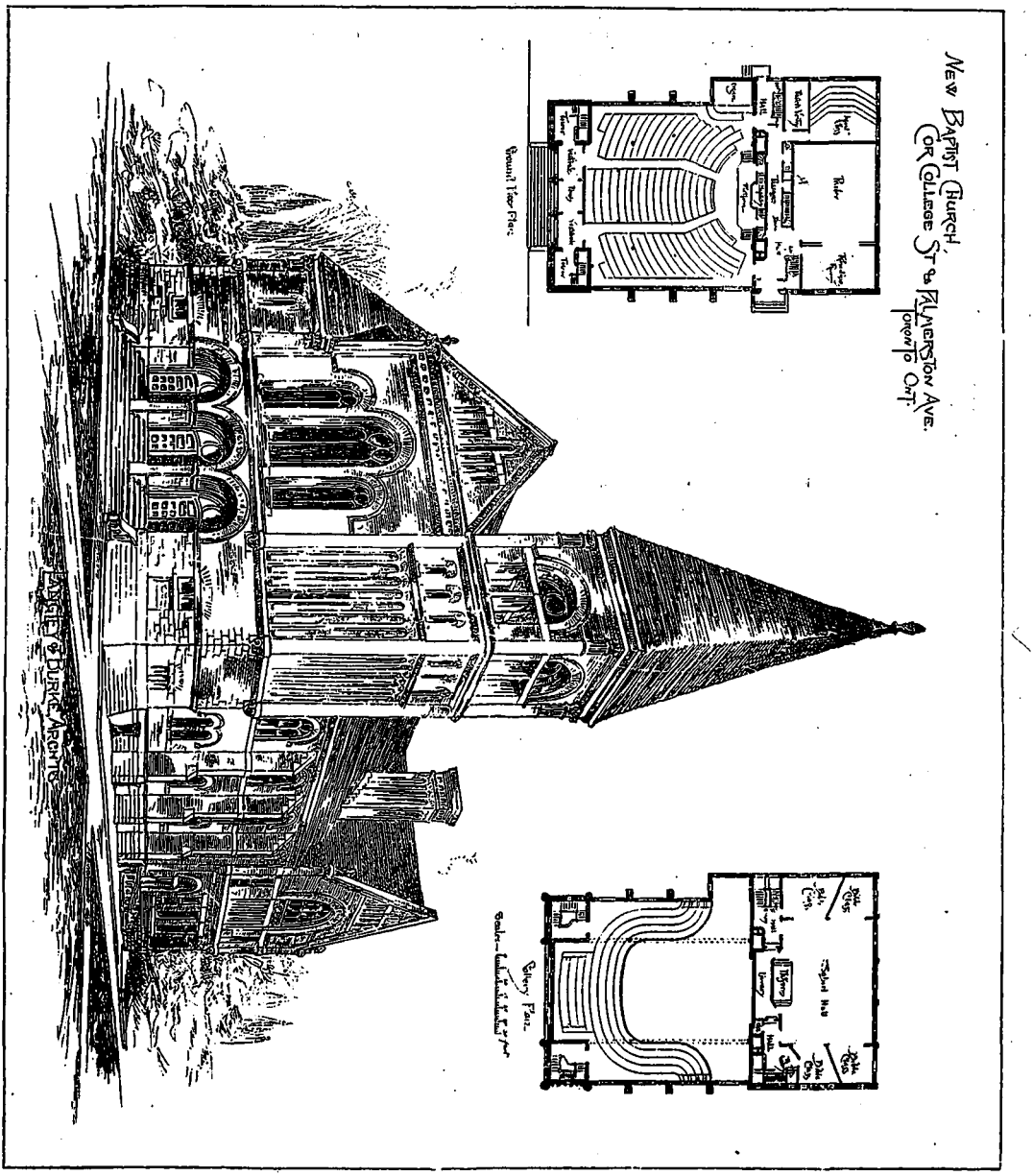
Tenders will not be considered unless made on the form supplied and signed with the actual signatures of tenderers.

An accepted bank cheque, payable to the order of the Minister of Public Works, equal to *five per cent. of amount of tender*, must accompany each tender. This cheque will be forfeited if the party decline the contract or fail to complete the work contracted for, and will be returned in case of non-acceptance of tender.

The Department does not bind itself to accept the lowest or any tender.

By odrer,
A. GOBEIL,
Secretary.

Department of Public Works,
Ottawa, 29th October, 1888.


NEW BAPTIST CHURCH,
COR COLLEGE ST & PALMERSTON AVE.
TORONTO ONT.
GOUNOD & BURKE ARCH'TS