

C3x
Blackader



VOL. III.—No. IX.

TORONTO AND MONTREAL, CANADA, SEPTEMBER, 1890.

PRICE 20 CENTS
\$2.00 PER YEAR.

—THE—
CANADIAN ARCHITECT AND BUILDER,

A Monthly Journal of Modern Constructive Methods,

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

PUBLISHED ON THE THIRD SATURDAY IN EACH MONTH IN THE INTEREST OF
ARCHITECTS, CIVIL AND SANITARY ENGINEERS, PLUMBERS,
DECORATORS, BUILDERS, CONTRACTORS, AND MANU-
FACTURERS OF AND DEALERS IN BUILDING
MATERIALS AND APPLIANCES.

C. H. MORTIMER, Publisher,

14 King Street West, - TORONTO, CANADA.

TEMPLE BUILDING, MONTREAL.

SUBSCRIPTIONS.

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

ADVERTISEMENTS.

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

EDITOR'S ANNOUNCEMENTS.

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

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

The publisher of the "The Canadian Architect and Builder" desires to ensure the regular and prompt delivery of this Journal to every subscriber, and requests that any cause of complaint in this particular be reported at once to the office of publication. Subscribers who may change their address should also give prompt notice of same, and in doing so, should give both the old and new address.

IT is to be hoped that the project of a monument to the late Mr. Howard, the donor of High Park, Toronto, will not be lost sight of. Although the by-law for a \$10,000 monument was defeated, we cannot but feel sure that if a definite scheme were brought forward looking to the erection of a building suitable for park purposes and durable in construction, dedicated to the late architect's memory, the people would gratefully vote the necessary money for its erection.

REFERENCE was recently made in these columns to the considerable number of accidents resulting from defective materials and carelessness in connection with the operation of freight and passenger elevators, and the consequent necessity for a system of regular inspection. It is a satisfaction to note that the subject has so impressed itself upon the attention of the City Council of Montreal, that the Legislature of Quebec is to be petitioned to take action regarding it.

IN about five months will be held the third annual convention of the Ontario Association of Architects and the first convention of the Association as newly organized under the charter of the Ontario Government. To make the meetings of practical benefit, a few thoughtful papers should be presented on live subjects. Now is the time to prepare such. Each member who is qualified to do so should feel it his privilege and duty to come

prepared with something which will be instructive and of benefit to the profession. The Registrar would be glad to correspond with such.

A CLEVER young lady belonging to Woodstock, Ont., who recently matriculated in arts at the University of Toronto, was taken with an irresistible desire to secure a memento of the old log house erected by her father at North Embro half a century ago. Driving several miles to the spot, she borrowed a saw and set to work to cut a block off the end of one of the logs. She soon discovered that a rock-elm log which had defied the elements for a period of fifty years, was reluctant to yield to the strength of a girl. Her determination was such, however, that after working upwards of an hour harder than she had ever done before, she had the satisfaction of carrying the block away in triumph. Her purpose is to send it to a firm in Chicago who will cut it into small pieces and erect therewith two miniature houses as nearly as possible like the original, and these, placed on the mantel of the modern home, will serve as a reminder of the past and an illustration of the progress in Canadian architecture.

AN editorial article which recently appeared in *Architecture and Building*, complained of the lack of sufficient time allowed for the preparation of designs in architectural competitions. The complaint is without doubt well founded. As a rule the members of building committees seem to imagine that architectural designs can be turned out at machinery speed. One of our contemporary's correspondents, however, referring to the subject, takes the opposite view, affirming that architects entering competitions spend too much time in the preparation of elaborately finished drawings, and that they would save themselves expense and add to their chances of winning prizes, were they to give more time to perfecting their designs, using only pencil outline drawings for the purpose of illustrating their ideas. We would not advise any of our readers who may engage in a Canadian competition to be guided by the above advice, however applicable it may be to competitions in the United States, as here a showy "picture" usually strikes at once the fancy of the judges, and carries off the premium, regardless in many instances of the questions of cost and adaptability.

SOME of the councillors in the Woodstock Court House Embroglio seem to be a little mixed in regard to the Toronto Architectural Guild and the Ontario Association of Architects. One man said that he was "sorry that expert testimony from architects outside the Toronto Guild was not obtained." Another said he was "specially instructed to secure the services of the president of the Guild, and he was unable to find any other architect to act with him except another member of the Guild." As we understand it, the Guild is not an official body in any respect. It has no president, and the only officer is a secretary-treasurer, while its rules are few and practically those of a social club. The Ontario Association of Architects is the official body, of which one of the experts, Mr. Storm, is the president. The other expert was Mr. Curry, a member of the Council. The two other experts who reported prior to Messrs.

Storm and Curry were Messrs. Langley and White, the latter a Woodstock architect, and both members of the Ontario Association. The County Council could not very well obtain an architect outside of the Association to join with Mr. Storm, seeing that about 95 per cent. of the profession in Ontario are members of that organization.

OUR attention has been called to a curious phase of external decoration for residences as exhibited in two instances in Fifth Avenue, New York. At the corner of one street are two large and costly mansions, buildings upon which no money has been spared either in the constructive or the decorative works. They are of stone, and the mouldings, panellings, corbels, etc., are all beautifully carved with very fine and intricate ornament; but in both cases the thickly-growing, small-leaved New York ivy has been allowed to overrun the whole of the ground story walls, enveloping every detail. The ivy has been carefully trained and fastened up, so that its outer lines are as straight and regular as the stone work it covers. The appearance is very artificial, and the upper part of the house rises out of a closely fitting green case, that looks as if it had been put on by the decorator at so much a yard. The question naturally arises as to what is the use of all the elaborate carving and the costly dressed stonework, if it is to be ultimately entirely concealed by evergreens.

WHEN the council of a town or city invites tenders by public advertisement from contractors, justice demands that bids by non-resident contractors should receive equal consideration with those of tenderers who may reside within the municipality. It is a regrettable fact, however, that the outsider cannot always count upon receiving such consideration, as instanced by the treatment accorded one of the tenderers for certain work in connection with the construction of a new sewerage system at Brantford. The lowest offer was made by a Mr. Dana, of Brockville, but it was found to be informal in the sense that accompanying it was a cheque for \$1,000 instead of \$2,000, as required by the advertisement. The committee, evidently understanding that the wrong amount had been placed on the cheque inadvertently, wired Mr. Dana that \$1,000 more security was required, and he immediately forwarded another cheque for the necessary amount. Notwithstanding, when the matter came before the Council for ratification, the slight irregularity in connection with Mr. Dana's tender was seized upon as an excuse by the majority of the aldermen to throw out the committee's recommendation of its acceptance, and call for new tenders, with the object doubtless of placing the contract in the hands of a home contractor. Some of the aldermen who were members of the Sewers Committee stultified themselves so far as to vote against their own report. Under such circumstances, it is not surprising that the chairman of the committee should have expressed disgust with the action of his colleagues, and tendered his resignation.

CANADA has to congratulate herself and the Grand Trunk Railway, on the successful accomplishment of one of the greatest engineering feats of the day in the practical completion of the tunnel under the St. Clair river at Sarnia, although it will scarcely be ready for traffic before the end of the year. The work has been conceived and executed by our men, showing that we are quite as capable of conducting great enterprises as are imported foreigners. It is simply a case of being given the opportunity. Our architects are as capable in their own line as are our engineers, but the opportunities are being withheld in an unpatriotic manner by those who ought to act differently. Given the money, our architects can, dollar for dollar, put up as good buildings in regard to both design and construction as can be erected by imported talent. The difficulties to be surmounted were enormous, and were further heightened by the rarity of the existing examples of tunnelling under like circumstances. Great credit is due to the skill and pertinacity of Mr. Joseph Hobson, the chief engineer, ably assisted by his enthusiastic lieutenant, Mr. T. E. Hillman, and a staff who vied with each other in inventing appliances to overcome the unprecedented difficulties

which were continually cropping up. The work was principally through blue clay; when the line of the river was reached, quicksand was encountered, and the water could only be kept out by the use of compressed air and heavy bulkheads with air locks for the passage of men and materials. A maximum pressure of 22 lbs. to the square inch was necessary towards the middle of the workings. The pressure was so great that horses could not stand it, mules having to be used. Only men of good constitution were employed after a medical examination. The cost will be over two and a half millions, towards which the Dominion Government has granted a subsidy of \$375,000. The length of the tunnel is over 6,000 feet, over 2,300 feet being under the river.

THE New York fire alarm boxes are a decided improvement upon those in use in most cities of Canada. Ours work very well, but their great disadvantage is that the key is not attached to them and has to be fetched from a neighboring house, the entrance door of which is sometimes up a garden path, with the possibility of a locked gate at the foot. To obtain the key it is necessary to ring up the servant, who may be newly arrived and know nothing about where it is kept. There is the further possibility of the key being mislaid or lost. The New York alarm boxes have no key, but a strong brass handle that has only to be turned to open the box, when upon pressure of the dial enclosed within it, the alarm is sounded. Instructions for sounding the alarm are clearly given on the outside of the box. It may be said that a handle that can be opened at will by any mischievous rough, is open to abuse—a cry of "fire" could bring out the whole brigade—but did this occur once or twice, the offender could soon be caught and made such an example of as would deter others from playing the trick again. Then again these boxes are placed in much more conspicuous positions. They form a part of a lamp post at a street corner, and are painted a bright red, so that they are easily distinguished at a distance and are not half hidden in one direction by the telegraph pole to which our boxes are secured. The cost of one of these boxes is considerably more than those in use by us, but it is generally conceded that every minute is of the greatest importance on the outbreak of a fire, whereby, it may be, several thousand dollars worth of property may be saved by the brigade's arrival a few minutes earlier rather than later; so that the cost of the box is hardly worth considering.

THE juvenile population of Toronto has increased at such an astonishing rate during the last five years that the energy of the Public School Board has been severely taxed in the effort to provide the necessary school buildings for its accommodation. Not only have many new buildings been erected, but the capacity of most of the existing schools has been enlarged. To do this work in the brief period in which it has been accomplished was no easy task, and accounts in some measure for the fact that some of the public school buildings of the city are lacking in architectural appearance. The principal cause of this, however, is doubtless the insufficiency of the funds at the disposal of the School Board. So great has been the unavoidable expenditure for new buildings, that the architect was compelled to carefully avoid everything intended simply for architectural effect. After all, the wisdom of erecting barn-like structures designed solely from the utilitarian standpoint and with the object of saving a few thousand dollars, is open to question if not to censure. This is being followed by the more than doubtful policy of putting up within many of the school grounds, and side by side with the school buildings, caretakers' "cottages" which are the very embodiment of ugliness. If the Public School Board cannot afford to purchase sites for caretakers' residences apart from the school grounds, or appropriate an amount sufficient for the erection of presentable cottages within the grounds, they might at least refrain from offending public taste by locating the "dog-kennels," such as they are at present building, in the rear of the schools, where they would be out of sight and therefore out of mind of everybody except the pupils. It seems a matter for regret that the children should be compelled to spend so much of their lives in contemplation of these cheap and nasty structures.

THE idea of a tunnel as a solution of the Toronto Esplanade problem is being mooted. The land damages would certainly be very small as compared with a viaduct, and many of the vested privileges of the Grand Trunk Railway would be left untouched, while traffic would be undisturbed pending its completion. But we doubt if it could be accomplished by the expenditure of a million dollars, as its promoters assert. Why not excavate the whole street and arch it over, as was proposed some years ago for Broadway, N. Y., making practically a two-storey street. The lower storey would serve not only for railway traffic, but could be used as a subway for electric light and telephone wires, gas pipes and even the trunk sewer, which could be made of iron for the distance traversed by the tunnel. The tunnel should be carried through Parkdale as far as the intersection of Queen street with the railway. By putting Queen street north of the railways till it reaches High Park as already proposed, and also carrying all streets over the railway tracks which will run along the Don Valley, our city front would be practically relieved of grade crossings. A grand union station should be located between Yonge and Bay streets, convenient to the principal steamboat and ferry landings. If it could be arranged as a terminal station it would greatly conduce to the comfort of passengers and to the better classification of trains and routes. It would be a great pity to duplicate and continue the present faulty arrangements, which are dangerous and inconvenient, but withal perhaps unavoidable in the case of a large station on a through line. The hundreds of passengers daily using the Grand Trunk Railway have to cross two tracks both inside and outside of the station in order to reach their trains, while it is very difficult for friends to meet travellers unless they have previously agreed upon some point of waiting. Passengers and non-passengers are hopelessly and inextricably mixed, the car steps and passages are blocked frequently by people who have no business on the train, a state of things which would not be allowed for a moment in a first-class station in any other city of similar size.

M. R. JENNINGS, the newly-appointed City Engineer, is fast getting a grasp of the various engineering problems which must be faced in the near future in Toronto. The proposal to build subways on the two principal streets is a step in the right direction. Now is the time, when new pavements are being mooted, to press this improvement, which can be done to better advantage than when the situation becomes still more complicated by additional buried wires, pipes, tubes, etc. New York down town streets are fairly honeycombed with a mass of pipes, tubes and wires that look perfectly appalling when laid bare. To lay other pipes amid this net work, or to repair or enlarge those already laid, must be a very expensive matter, in fact in many cases it would be cheaper to abandon them than to repair any great length. The grand jury, meeting recently in the above city, after making a presentment in regard to the evils of the present system, or rather lack of system, held that all companies using the streets be held to strict accountability for any damage occasioned by their neglect, and that no more permits be granted for uptearing streets already covered with pipes, etc. They wound up by the following recommendation: "As a future remedy, we suggest the appointment by the proper authorities of a commission of strictly non-political experts who shall consider the feasibility of vesting the management of street paving and of all underground pipes and sewers, and of devising a new system by which the benefits of steam, gas, water, electricity and sewage can be had more safely, and with less official obstructions." New York should have faced the problem years ago before so many underground conduits were laid. We have the example before us; the complications are beginning and will continue to multiply. Let us be wise beforehand, not afterwards, and the rising generation will bless us for our forethought. The scheme of the Engineer for a trunk sewer seems somewhat more complicated than those previously broached. To our unsophisticated mind a part of the lower intercepting sewer seems to run up hill, at least it takes a northerly direction, while all our streets running north and south have more or less fall to

the south. The fact of being able to avoid the expense, both first cost and running, of a pumping plant is a great point in its favor.

EVENTS transpiring in various parts of the world at the present time seem to indicate that the tyranny exercised by the trades unions will before long be broken. From the United States, England and Australia comes the intelligence that associations of employers are being formed for defence against the dictation of the walking delegate who assumes to represent the interests of labor. A serious state of affairs is at present existing in the city of New York, brought about by the use of the boycott by representatives of the union workmen in the building trades. The boycott was declared against four firms of brick manufacturers who refused to discharge their non-union employees at command of the walking delegates. The union mechanics of the city of New York refused to handle the bricks manufactured by these firms or to work on buildings where they were used. The master builders, in their terror of the power of the unions, acquiesced in this refusal. The Brick Manufacturers' Association of New York and New Jersey, which embraces the owners of over 120 yards, espoused the cause of the four boycotted firms, and determined that they would fight the unions with their own weapon by refusing to ship bricks to New York and Brooklyn so long as the boycott was continued. This means that if the boycott ordered by the unions is maintained, the supply of bricks obtainable in these cities will speedily be exhausted and 60,000 workmen will be forced into idleness. There are but few games at which two cannot play, and the boycott does not happen to be one of them. While we are far from upholding the principle of boycotting, the unions have carried their tyranny to the point where it has been found absolutely necessary to use some effectual means of putting a stop to its further progress, and they at least certainly have no cause for complaint if the methods which they have so often exercised, are brought to bear for this purpose. If employers everywhere would adopt the example of the New York and New Jersey brickmakers, a crisis would be precipitated which would doubtless result in the strike and the boycott being declared a crime, to be followed by severe punishment. This would be an important step towards securing the settlement of differences between employers and employees by more civilized methods. Since the above was written information has been received to the effect that a number of the wealthiest manufacturing concerns of the United States, employing between 50,000 and 60,000 workmen, have formed an anti-strike compact. Should the trades unions attempt to enforce unreasonable demands against any one of the associated concerns, all work will cease. The strikers are to be allowed to remain idle until they see fit to return to work and no factory is to employ another worker who may have left another factory on a strike. Neither is any associated factory to seek workers during a strike from any of the federated works. This important movement, as before stated, will undoubtedly extend throughout the world if the dictatorship attempted to be exercised by the trades unions be not abandoned.

M. R. J. R. Putnam, architect, of Boston, of anti-trap ventilation fame, and the inventor of the "Sanitas" plumbing appliances, has an incompleting series of articles in the July and August numbers of the *American Architect* entitled "Architecture under Nationalism," inspired largely by Bellamy's "Looking Backward." He defines Nationalism as the "substitution of universal co-operation and education for industrial and social warfare." Considered in its relation to the architectural art, he reviews first the general and then the specific advantages which nationalism will bring. Before enlarging on the benefits to be received to architecture and its practitioners through Nationalism, the writer cites some of the material advantages to be gained, which are quite as seductive as Dr. Lecte could have wished. After enumerating these advantages in a most interesting manner, he goes on to say, "What will be the effect upon the architecture of our country, of this universal enjoyment of wealth and cultivation, this immeasurably improved condition of

the whole people under Nationalism? It will develop a national style of architecture which will surpass in splendor anything hitherto known in the history of the art, even as the superior social state of the ancient Greek republic produced, in the midst of an age of comparative barbarism, the art of Phidias. He then affirms that the conditions which produced and fostered the arts of Greece and its great artists, will be reproduced under Nationalism, and says, "The great wealth of the Nation will give every citizen something of the leisure so fruitfully applied by the ancient Greeks to the study of art. With short working days of perhaps from four to six hours, and frequent and liberal vacations absolutely free from business cares, ample opportunity will be given for physical and intellectual development. Relieved from the all-absorbing occupation of money-making and money-losing, with its long train of consequent evils, and equipped with the complete education received in early life, consisting partly of manual and partly of mental training (the one or the other predominating in accordance with the natural aptitude of the individual), all the useless pursuits, legal, military and criminal, necessitated by the competitive system, being abolished, the entire energy of the whole people will be directed to the cultivation of the arts and sciences including manufacture, agriculture and transportation," and this leads to a reference of the telling words of Van Brunt's introduction to his translation of Violet Le Duc's "Discourses" where he speaks of the difficulties besetting the architect of the present day in regard to the lack of time allowed him for perfecting his designs.

The portion of Van Brunt's introduction to Le Duc's "Discourses" above referred to, is so appropriate to the times that we cannot forbear quoting, as follows: "The atmosphere of haste in which we live is another element distinctly detrimental to the development of good style. But the Greek democracy, says our author, 'had the inestimable advantage of leisure.' The Greek temple, therefore, is an expression of utter tranquility. The very essence of that great art was deliberation. The architect was never hurried; his inspiration proceeded, not from impulse, but from conviction. He built slowly. But with us he is pressed to the completion of his work amidst bustle and confusion. The public is impatient of delay; it must have promptness and despatch at all hazards. The modern Ictinus must supply the design for the new Parthenon, 'ready for estimates,' in three weeks at farthest; and the unfinished study is perpetuated in a workmanlike manner and with all its sins of omission and commission made permanent and monumental. Indeed, all the conditions of life in this country encourage the architect to habits rather of rapid composition than of study and reflection, and tend to make of his occupation rather a business than a fine art. The 'strenuous liberty' which we have inherited involves a constant and often harassing struggle for existence. Therefore the aim of the architect is to multiply his opportunities of professional work to the utmost extent, having in view, first, his pecuniary enrolments, of course, and second, his art. Under these circumstances he has no time to review his studies; he cannot afford, after his first sketches are made and his work is in progress of routine development in his office, to distrust and chasten his favorite *motifs*, with the solicitude and patience of an artist aiming at perfection like the Greek; much less having discovered on reflection a new condition in his problem which would enable him perhaps to raise to a higher plane of artistic excellence or fitness the whole sentiment of his work, to throw aside his old studies and begin anew. This costs too much. If the products of routine and conventionality will satisfy his impatient public, he has the strongest impulse under the circumstances to content himself with the superficial appearance and let the substances of art go for those who can afford it. Art is a mistress who is won by no such partial service.

"As a man sows he shall reap," is a Scriptural verity which seems to be quite as applicable to municipal corporations as to individuals. The difficulty in which the County Council of Oxford finds itself at present in connection with the erection of new county buildings at Woodstock, Ont., is sufficient evidence of this fact. A year ago the Council invited

competitive designs for a Court House, and announced that the completed building must not cost more than \$60,000. We pointed out that the extent of the accommodation required was so great as to render impossible the erection of a properly designed and constructed building for a sum less than \$100,000. The Council turned a deaf ear to our remonstrance and that of the architectural profession, and proceeded with the competition on the lines originally laid down. A few designs were sent in by Canadian architects, one of which was deemed highly satisfactory, but it had to be cast aside as the designer could not undertake to say that it could be erected for less than \$100,000. The plans of a Detroit architect who would undertake to keep inside the limit of cost, were adopted, and the contract for the erection of the building was given to a Detroit contractor.

The work was proceeded with, and nothing more was heard of the matter until last month, when the building committee ordered the contractor to cease work on the ground of inferior construction. A special meeting of the County Council was held, and two architects, Mr. Alex. White, of Woodstock, and Mr. Langley, of Toronto, were appointed to inspect and report on the building. These gentlemen reported unfavorably. The Council, wishing to be doubly sure, appointed Messrs. W. G. Storm and S. G. Curry, of Toronto, to make a second inspection. The result of the investigation which these gentlemen conducted was given to the Council in a formal report, of which a copy is printed elsewhere in this paper. On the strength of these reports, the Council dismissed the architect, one of the members stating that the architect had misled the council in the first place into a bad system and in not doing his work well. He was sorry to have to say that he did not believe it was altogether incompetency on the part of the architect. Subsequently the offer of another architectural firm to superintend the carrying out of the work for a commission of two and one-half per cent., was accepted. It was also thought advisable to appoint a clerk of the works. The original architect expresses his intention of bringing action against the County Council for wrongful dismissal. The contractor holds a certificate from the architect for upwards of \$3,000, and he, too, for a time threatened to make it interesting for the Council, who had refused him payment. Upon second thought, however, he consented to proceed with the work, leaving the newly appointed architects to decide regarding the sum which he may be entitled to receive. The former architect refused to surrender his working plans, consequently new ones must be prepared at the expense of the county. It is not known what course the newly appointed architects propose to follow for the purpose of improving the constructive qualities of the building. The proper and only satisfactory method would seem to be to undo entirely what has already been done, lay a proper foundation, and build thereupon in accordance with the recognized laws of construction.

And here it seems proper to inquire upon whom should rest the responsibility for all this expensive bungling? Undoubtedly the blame lies with the county authorities themselves. They required a large amount of accommodation, but fixed the appropriation to cover the cost at a sum which was absurdly inadequate for the purpose. When no architect of any prominence would risk his reputation in an effort to accomplish the impossible, the building committee, instead of increasing the appropriation to the extent necessary to ensure the erection of a good building, handed the work over to a foreigner, whose standing in the profession can easily be gauged by the fact that he immediately took up his residence in Woodstock and proposed to give his whole time to the one undertaking, from which the percentage he would derive would not afford him an income of more than \$1,000 per year. The contractor was also a foreigner and unknown, except to the architect, and subsequent events have led people to ask themselves whether there did not exist a business arrangement between the two by which they were to get all they could out of the undertaking. However that may have been, the course pursued by the County Council of Oxford has borne its legitimate fruit. Had they made a sufficient appropriation for the work, and engaged the services

of a competent architect, they would have had a building properly constructed and of creditable appearance, at probably less expenditure of money than will eventually be necessary under present circumstances. And in addition, they would have escaped the delay and annoyance through which they are now passing. There are profitable lessons to be learned from the costly experience of the Oxford County authorities, the Toronto Board of Trade, and the Provincial Government of Ontario which should not go unheeded by other Canadian corporations who may engage in similar enterprises, and which should afford sufficient cause for the revision of the Ontario Architects' Act at the next session of the Legislature.

THE WOODSTOCK COURT HOUSE.

FOLLOWING is the report of the experts employed to report upon the quality of material and workmanship used in the erection of the new county buildings at Woodstock, Ont.:

Toronto, August 13th, 1890.

W. Nancekivell, Chairman of Building Committee, Court House, County of Oxford:

DEAR SIR,—In pursuance of your instructions we visited Woodstock on August 6th and 7th and examined the foundation walls of the proposed new court house for the county of Oxford and now beg to report as follows:

That we made nine openings in the external walls and found that in six of the places opened the cement mortar or binding material had not set and that the same could be broken up with the pressure of the hand. In the other openings the cement mortar had set, but with the exception of the top of the wall at the north east corner it was not really hard. The material on the heart of the walls had the appearance of fine sand, almost devoid of cementing material.

We are unable to determine definitely the amount of cement or supposed cement, used in making the mortar which we found in the heart of the walls for the following reasons:

(1) The specification calls for Portland cement but does not define the quality and we are therefore ignorant of the quality of the cement used.

(2) The specification does not call for a proper quality of sand to mix with Portland cement, but instead either calls for or leaves it to be inferred that a fine sand is wanted.

(3) The method of using the cement according to the specifications was an improper one and would give bad results with the best of materials.

The specification should have called for a Portland cement of a definite quality and it should have been tested to ascertain if it was up to standard as it was brought upon the ground. Sand to be used with Portland cement should be coarse, sharp and clean. Portland cement to give good results should be thoroughly mixed with the sand in a dry condition and afterwards wetted with no more water than will damp it. If too much water is used it will injure the cement. In this case sufficient water was used to make the mixture into a grout, that it might be run into the intersices of the loose stone filling. The water not only injured the cement, but caused the sand to separate from the cement and settle at the bottom, leaving the cement to form a hard crust on the top of the wall.

The problem is to determine how far the quality of the cement, the quantity of cement used, the quality of sand and the methods of mixing individually and conjointly resulted in the inferior quality of the work as shown by the majority of the openings made. We are of the opinion that each and every of the above causes had to do with the result, but to what extent can only be determined after a long and careful series of experiments with samples of Portland cement and sand similar to that used in the walls, mixed in the manner called for by the specification.

If the Portland cement had been of good quality and mixed in the proportions called for in the specification with coarse, sharp, clear sand with a proper quantity of water, the mortar would have set firm and hard in a few days. That the mortar or grout did not set in three weeks and over proves that the materials used were not of good quality or that they were not properly mixed.

We cannot affirm positively that the contractor did not use the proper quantity of Portland cement, because the inferiority of the Portland cement, the bad quality of the sand, and the method of mixing and using were sufficient to give the results shown by the portions of the wall taken down. We have reason to believe and it is our opinion that the amount of Portland cement called for in the specification was not used, as the sand taken from the walls was much cleaner than it would have been if the one-fourth of its bulk had been composed of any quality of cement, good or bad.

The sample of cement which we brought with us from Woodstock is of an inferior quality and did not give good results under the simple tests to which we subjected it. We are convinced that a pail of such cement mixed with three parts of the sand used in the construction of the building would not give an adhesive mortar which would set firm and hard in a reasonable length of time. With regard to the external basement walls we are obliged to come to the conclusion that they are not sufficiently well built to carry the super-structure without settlements, cracks, etc., even if they do not entirely fail.

(1) Because the construction of the wall as called for by the specifications is exceedingly bad, and

(2) Because the cement mortar or grout has little or no binding qualities.

In our opinion it will be impossible to totally remove the stain from the face of the coarser stonework, as Portland cement will leave more or less stains on any stonework which it may touch.

In conclusion we beg to call your attention to the fact, that the specifications, while they call for work and material of a better quality in parts than is necessary, call also in other parts for very inferior work, and are so indefinite or entirely silent in other points that the contractor may read them very much as he may choose, so long as he does a reasonably fair piece of work, according to a fair interpretation of the drawings and specifications in their present condition.

We have the honor to be, sir,

Your obedient servants,

WILLIAM STORM.
S. G. CURRY.

AN AMERICAN CRITICISM.

"AN American architectural journal having called attention to the fact that Canada has a protective tariff on building plans, another architectural journal, published in Canada, intimates that Americans have no cause of complaint, as the American government also levies duty upon the drawings of foreign architects. It also accuses a prominent American architect of willfully, and without having the fear of Canadian customs officers before his eyes, smuggling a whole batch of American made drawings into the Dominion. And the CANADIAN ARCHITECT sternly demands that this "smuggler" be made an example of. And so we have been "protected" all along, and in our ignorance of the blessings that were being showered on us by a fostering government, have gone on growing poorer and poorer through these hard times! But now a new star of hope has appeared above the northern horizon. We will take our portfolios of unused designs and sneak over the border and, should we be lucky enough to elude or bribe the stern guardians of Canada's tariff laws, we may yet reap a golden harvest. Our lively Canadian contemporary devotes a great deal of attention to the encroachments of American architects upon Canadian preserves, and proposes to call upon all the power of the customs department to make as much trouble for the poachers and "smugglers" as possible. It strikes us that in making all this fuss our contemporary is but paying a left-handed compliment to our Canadian brethren. Are not they competent enough to hold their own in competition against men from a distance? It would seem that the CANADIAN ARCHITECT is so doubtful on that subject that it wants to throw the protection of the law around them. We saw, the other day, a beautifully designed house, in one of our northwestern cities, and, on inquiry, discovered that some man in Canada was the architect. Some Canadians can, evidently, hold their own. This Canadian had carried off some good American money, but hardly anyone living in the neighborhood he had enriched artistically would mourn over the fact. Are not our brethren looking too much to statutory law, instead of putting themselves into line with certain natural laws, to give them success? Probably no body of architects ever had so much of the former kind before as these, our brothers in the province of Ontario. But the Act passed for their benefit by their provincial legislature last winter does not seem to have much effect except to call down upon them the jibes of their brethren in the United States and England. Even the staid organ of the Royal Institute of British Architects cannot refrain from making a little joke to the effect that there have been architects and architects but now it "has been decided that, within at least the confines of the province of Ontario, there shall be architects and 'registered architects.'" It is time that some Americans as well as our brothers in Canada had found out the futility, the folly, of depending on legislative enactments to procure for them the prizes which, with courage strengthened hands, they may grasp for themselves."—*Northwestern Architect*.

In reply to the above it is proper to remark, that with the abstract theories of free trade versus protection, this journal has had nothing to do. It has simply dealt with conditions as they exist. The Government of the United States, in its wisdom, saw fit to declare that designs by Canadian architects should not be allowed to cross the border without paying duty. The Canadian Government, believing doubtless that if duties were necessary to protect the architects of so large and important a nation as the United States against the competition of a country of lesser importance, such as Canada, there must certainly be greater need for their imposition to protect the weaker as against the stronger competitor, readjusted the Canadian tariff with that object. We have no fault to find with the honorable competition of American architects for Canadian work, but in view of the fact that Canadian architects are shut out by the United States tariff from competing for American work, American architects who are not above adopting the methods of the smuggler, should not be allowed to "sneak" their plans into this country. We repeat that it is the duty of the Canadian customs authorities, whose attention has been drawn to the guilty parties, to make a determined effort to expose and put a stop to their dishonest practices. Canadian architects do not fear the competition of honorable men, but their ideas concerning the ethics which should govern the practice of men claiming to be members of an exalted profession, are such as place them at great disadvantage in competition with some at least of the American architects who aspire to "reap a golden harvest" in the Dominion. The

ability of Canadian architects to hold their own is in a measure admitted; indeed, in view of some recent examples of American work in Canada, the fact could not well be disputed. Finally, Canadian architects are not responsible for the fact that by the "Ontario Architects' Act" there has been created the absurd distinction of "architects" and "registered architects." The desire of the promoters of the Bill was that no person should be entitled to call himself an "architect" who had not given proof of his proficiency and registered under the Act. While on the legislative dissecting table where the measure was reduced to a mere skeleton of its original form, the word "registered" was inserted.

TORONTO ARCHITECTURAL SKETCH CLUB.

THE second year of this Club was auspiciously opened by a well attended meeting held on Tuesday evening, the 9th September. As at this meeting notice of motion had to be given of any desired changes in the constitution, some discussion took place on the subject, resulting in a notice of motion being given to add to the number of officers by two, namely, a Vice-President and one more Director. A notice of motion was also given to give the Executive Committee power to appoint sub-committees. These changes will be voted on at the annual meeting to be held on Monday, October 6th, when officers for the coming year are to be elected.

Mr. S. H. Townsend, Registrar of the Ontario Association of Architects, spoke at some length on the Architects' Act, giving much interesting information to the architects and students who were present. After explaining fully the necessary forms with which they must comply, he dilated on the bright prospects which were now opening to the profession in Ontario, showing how the rising generation more especially would reap the benefits of the hard work of the promoters.

The President, Mr. C. D. Lennox, then closed the meeting by drawing attention to the competition for Club room decoration, asking for a large response, the Club being anxious to make their rooms present an appearance that would be creditable to so artistic a body.

OUR ILLUSTRATIONS.

LONGUEUIL CHURCH, P. Q.—PERRAULT & MESNARD,
ARCHITECTS, MONTREAL.

The Longueuil church has been built on the site of the old church, which dated from 1812. The dimensions are as follows: Total length, 200'; with vestry, 244'; width of nave at the entrance, 86'; width of sanctuary, 77'; width of transept, 135'; height of front, including statue, 116'; height of principal spire, 265'; height of dome, 150'. To dispense with too many columns, and thus obtain a clearer view of the sanctuary, the architects chose a Grecian cross in preference to a Roman, although the latter form would be more in accordance with Gothic traditions. By so doing they obtained a very picturesque effect. The general design is very simple, but on the whole presents an artistic appearance. The furniture, such as the altars, pulpit, vestry, &c., are very complete, and as every one knows, the appurtenances of a Roman Catholic church are very complicated. The total cost of the structure is about \$130,000.

TORONTO UNIVERSITY (DESTROYED BY FIRE FEB. 14, 1890)—
MESSRS. CUMBERLAND & STORM, ARCHITECTS, TORONTO.

HAZLETON AVENUE CONGREGATIONAL CHURCH, TORONTO.—
MESSRS. DICK & WICKSON, ARCHITECTS.

RESIDENCE ON FARLEY AVE., TORONTO, FOR JOHN DOYLE,
ESQ.—GEO. W. GOUINLOCK, ARCHITECT, TORONTO.

The death is announced at St. Anne's, Que., on Aug 14th, of Mr. Albert Becker, who in former years was connected with the construction of several important public works in Canada, such as the Lachine Canal and the navigable channel on the Ottawa, opposite St. Anne's.

Legal action has been taken by a Montreal lawyer to set aside the patent on firmite held by G. M. Ford, on the ground that the invention was not patentable. The application was granted subject to the condition that the applicant give a bond of indemnity and with the reservation on the part of the Minister of Justice of the privilege of discontinuing the proceedings at any time should he think fit to do so.

THE PROPOSED QUEBEC ASSOCIATION OF ARCHITECTS.

A MEETING of Montreal architects was held on Sept. 11th in the Board room of the Mechanics' Hall to receive the constitutions and by-laws framed by the Committee of Organization, and to consider the adoption of a few alterations suggested by the Quebec Association of Architects. After full discussion it was decided to amend the By-laws as suggested, and to ask the Quebec Association of Architects to appoint a date for a general meeting of the architects of the province, to take steps at once to form a Provincial Association, and to proceed with the general routine in connection with the same.

MONTREAL.

(Correspondence of the CANADIAN ARCHITECT AND BUILDER.)

BUILDING operations in Montreal have become quite brisk owing to the widening of the various streets. The building material expropriated by the city on the south side of Notre Dame street has been sold by public auction and is now almost entirely removed from McGill street to Chaboillez Square, and builders are now actively engaged in the construction of new buildings to replace the old ones. Among others a large hotel adjoining the Balmoral hotel is under contract for the Smith estate. This will be a handsome limestone building, five stories high, practically fire proof and with all modern conveniences in plumbing, and accommodation for about seventy-five guests; adjoining this building estate Biron are erecting three large stores, Judge Barrie two stores and dwellings; the estate Rodier is also preparing to erect a large building in their property, while alderman Shorey, Mr. Miller and Mr. Wilson have bought in the old fronts and are rebuilding them on the old line.

MONTREAL COURT HOUSE.

The contract for the addition for the Montreal Court House has, I hear, been awarded to Messrs. Berger & Chartrand. The several tenders are reported to have been thrown out by the Government for not complying with the conditions. What the conditions were seems difficult to understand, as several contractors who have large experience in public works have had their tenders thrown out for irregularities. It is rumored that the Government required each tenderer to give a detail price list of all the work the tender included, which most of the builders omitted doing, simply stating in the usual way a lump sum as per plans and specifications.

APPLIED SCIENCE—MCGILL UNIVERSITY.

I hear McGill University has secured the services of two additional professors for the science department under the Macdonald endowment; one to be professor of mechanical engineering and the other professor of experimental physics. It is said that they are graduates of Cambridge and men well qualified for their respective positions. It is to be hoped that such is the case as practical professors of engineering, both mechanical and civil, are badly needed in this country, and now that a special technical building with all the necessary appliances is to be attached to McGill University, the students will expect to get more than theoretical instruction.

PERSONAL.

Mr. Steele, of the firm of Hutchinson & Steele, architects, is giving up practice and intends to reside in England. Ill health is the cause. Mr. Steele was considered one of the best designers in the city and will no doubt be missed.

CIVIC IMPROVEMENTS.

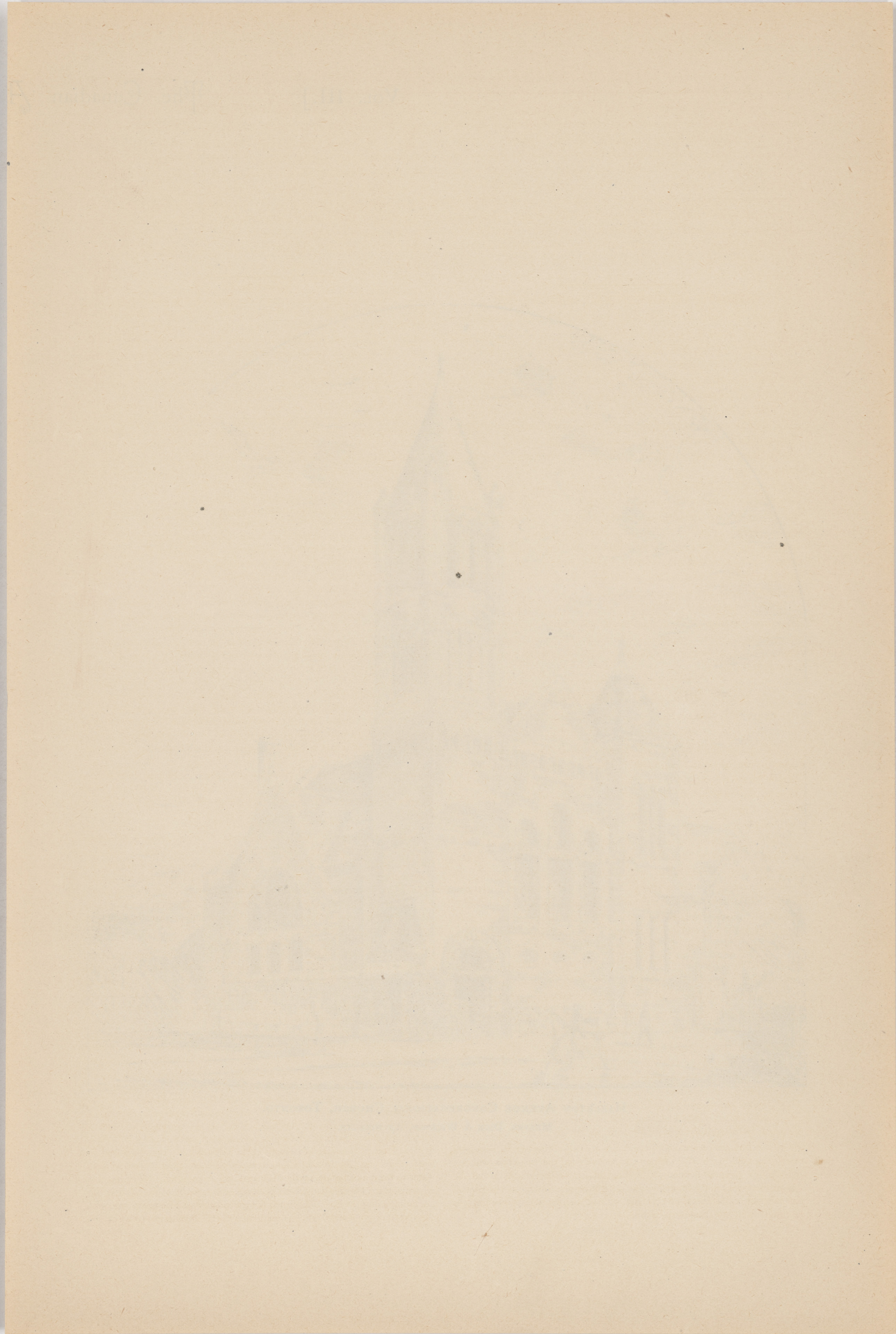
Montreal is this year spending a vast amount of money, whether judiciously or not, remains to be seen. One can hardly pass a street that is not being torn up either for water, sewers or paving. Considerable wrangling has been going on of late regarding the construction of civic work by contract or day's work, and no satisfactory solution seems yet to have been arrived at. Where work has been done by "day's work" property owners complain that they have been assessed more heavily than when similar work has been done under contract.

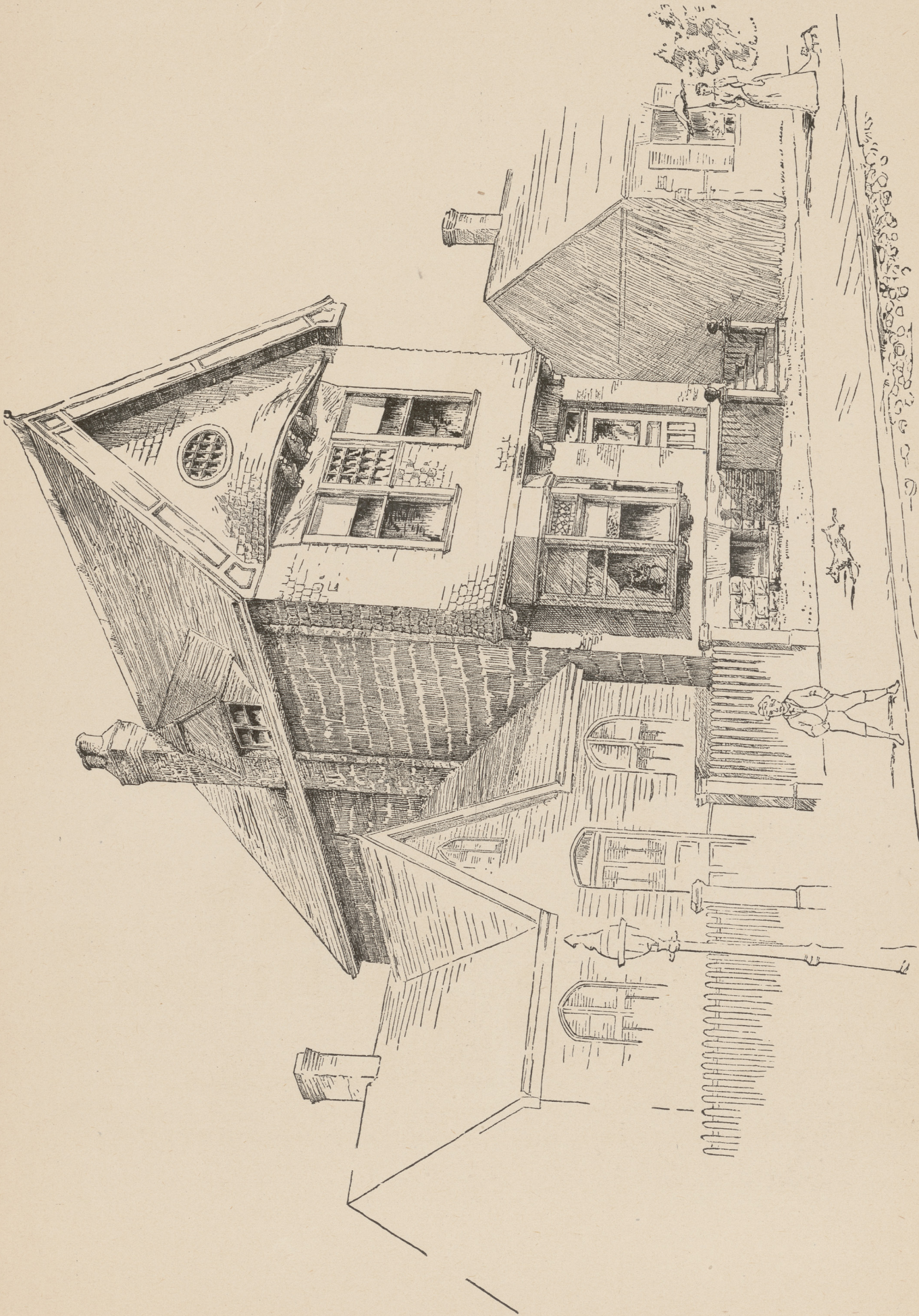
FLOOD PROTECTION.

Little or nothing has been done in regard to this all important question. The plan submitted by the French engineer to the Government has been by them submitted to the harbor commissioners. His idea is to rectify the course of the St. Lawrence by running a line of wall or embankment across from the main land to Nuns Island and reclaiming all the land inside of that Island and above it to the fourth pier of Victoria bridge. The wall or shore line would commence on the lower end of Nuns Island, run to the fourth pier of Victoria bridge and from that with an inward curve to the point below the Canada Pacific elevators. Below the mouth of the canal the embankment would be a narrowing sphere of land coming to a point at the lower end opposite Brock street, thus reclaiming a large space from the river for harbor and docks and enclosing the still water basin. The long wharf would be cut away, half of Isle Rond would disappear, the channel between St. Helen's Island and St. Lambert would be deepened, leaving Moffat's Island in the midst of two deep channels. Between this Island and St. Lambert it is proposed to construct the bridge with sluices to permit the water and ice to pass in winter and to be closed in summer to send as much water to the main channel on the Montreal side as possible. He claims (like all other plans for the doing away of floods) the erection of a still water harbor and graving docks. The cost is not given but would be great—too great at least to be considered when compared with the advantages to be gained.

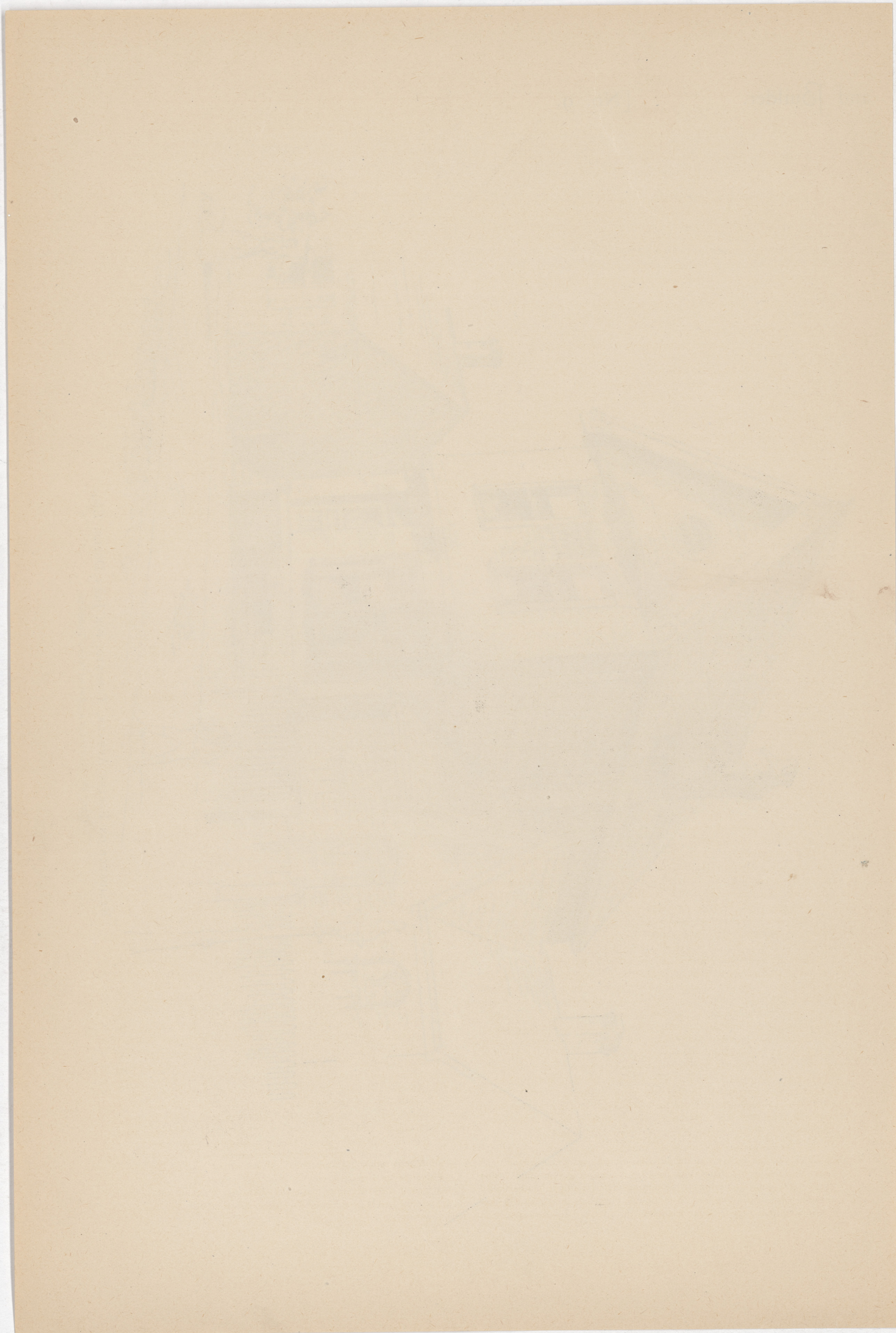


HAZLETON AVENUE CONGREGATIONAL CHURCH, TORONTO.
MESSRS. DICK & WICKSON, ARCHITECTS.





RESIDENCE ON FARLEY AVENUE, TORONTO, FOR JOHN DOYLE, ESQ.
GEO. W. GOUINLOCK, ARCHITECT, TORONTO.



VENICE.

TO-DAY Venice unites to the poetry of her arts the poetry of her recollections, and to the poetry of her recollections the poetry of her sadness. Her palaces are crumbling to decay, her statues fall in pieces from their pedestals, the smiling figures of her pictures vanish as the butterflies at the rude breath of winter.

The blow, which occasioned the variation of human movement towards other regions, as a consequence of the apparition of America in the world and the discovery of the Cape of Good Hope, the wound which ruined her commerce is not of a nature to be cured by her recent liberty, because liberty can not balance or undo geographical fatalities—Venice is dying—only in place of dying as an outcast in an Austrian dungeon, she dies like an honored matron in the bosom of her home and surrounded by her children.

Venice fell at the foot of the cradle of America, like Iphigenia at the foot of the cradle of Greece. The paths of humanity are strewn with victims, and progress is not exempted from this law of necessity. Life is nourished upon death. But on this account it is not the less sad to see a city perish—a city whose Doges had the imperial crown of Byzantium so often in their hands and repelled it by the Phrygian cap of the old republic; to see a city fall whose standard terrified the Turks, and awakened the powers and energies of commerce; to behold the death of a city whose liberties are the most ancient of the Christian era, and who alone has been the England of the Middle Ages; to watch the slow decay of a city who in her cups of crystal, in her bacchanalian banquets, in her sensual songs, in her coral garlands and sea flowers, brought to our hearts and imaginations the immortal aroma of the Renaissance.

How I regretted in that voyage through the streets of Venice that I was not a poet, or an orator, or a writer of any merit—that I could not lament with eloquence the death of that city unique in the world! Ideas of mourning and desolation only were inspired by those floating coffins, those sombre palaces, the magnificent half ruined windows, the tortuous labyrinth of narrow streets and gloomy canals, the shadows outlined on the high bridges, the broken steps of marble kissed by the wavelets, the murmur of the water like tear falling on tear, and the cries of the gondoliers, which sounded like a wail repeated by another lament.

Of the arts, I confess that in my opinion the most wonderful and impressive is that of architecture. The stones of Venice, shaped by design as the notes of a piece of music or the parts of a discourse, where beauty and harmony are both expressed, give pure and intellectual pleasure. The great lines, the broad spaces, the ambitious arches, the aerial cupolas, the columns with their adornments, the galleries with their perspectives, the court-yards and their cloisters, force upon the mind profound meditations, and always express the genius of the age with its symbolical character.

I admire greatly the Grecian architecture, its soberness, its severe simplicity, its infinite gracefulness, the facility with which it expresses great sentiments with small means, and attains to beauty without doing violence to form, putting a light frieze, squared, on four fronts of intercolumniations, the whole being in perfect harmony and proportion.

I also admire the Romans, who placed one over the other three kinds of architecture in their monuments, as they placed one above another the three ages of history in their code of laws and in their civilization; and I shall never forget the great dome of the Pantheon where Paganism expired, nor the triumphal arches and magnificent gates of the new age of the world.

Above all, the sentiment with which ancient art always inspires me is a profound admiration for simplicity of form, and for a resemblance to nature in expression. But this enthusiasm for ancient art does not prevent me from doing justice to all the bold and striking beauties of architecture. Nothing is more illiberal than the exclusiveness of art. The architects of the past age—those destitute of refined taste—in their great dislike of the Gothic, succeeded in erecting some grand buildings, not such as could speak to the imagination, but dumb, severe, rigid with all the stiffness of death.

There are styles of architecture distinguished by the knowledge they express, by their complete subjection to the laws of harmony and proportion—such are the Greek and the Roman. Over these centuries have passed, and other things more destructive than ages—the unthinking and devastating rage of men; but that has been unable to prevail against their imperturbable strength and stability. Doubtless there are architectures distinguished by their expression, such as the Oriental and the Gothic. Venice appears in Granada, because Venice has an exclusive and suitable architecture, born of her peculiar historical circumstances, and representative of the ministry exercised by her between the east and the west. In like manner the people of Granada, always preserving the Moorish character which arrived at perfection in the mosque of Cordova, approached the Gothic; the Venetians, preserving the Byzantine and Gothic styles, general in the middle ages, flung over them like a golden veil the rich jewels of the east.

Thus Venice has created this series of monuments that are the wonder of wonders by their variety and their riches. If you go and examine them with Vitruvius in your hand, with the rules of Vignola in your mind, taking with you a square and compass, submitting them to a rigid mathematical examination, demanding from them a blind obedience to the laws of proportion and harmony, ready to feel indignant if you see a gallery supported

by iron work, or a heavy column placed upon a slender one, as if ridiculing the general principles of gravity—if you see that a mass of marble weighs like a mountain over the delicate tracery of a light aerial gallery—if you place mathematics over all and above all, you do not appreciate those edifices of the middle ages, that above all and before all place the wealth of expression, the riches of greatness, far-fetched and hyperbolic perhaps, but at the same time extremely beautiful.

Whenever the arts unfold themselves they strongly influence their surroundings. Venice is a magician, who obliges artists to follow her, and impresses her kiss of fire on their foreheads. The artists of the fifteenth century built severe edifices in Rome at the same time that the florid Gothic expanded its open work roses in all Europe as the first flowers of the April of the Renaissance; and the Venetian architects, at the end of the sixteenth century and the beginning of the seventeenth, when the classic art had subdued it, without failing to follow it, crowned the friezes of their monuments, the cusps of their towers, the roofs of their palaces, with ornaments and enamelled chiselings, always of the Oriental and Venetian character.

Let us go then and look at Venice. Our gondola glides over the Grand Canal; the waters are of an emerald green, the heavens of a turquoise blue, the banks of sand are tinged with gold, the houses on the neighboring islets are bright and many-colored, and the marble churches are so transparent that they look like churches of crystal; the sun gilds all objects with its rays. The beauties of Nature and the soft breeze perfumed with the aroma of spring, with the saline exhalations from the sea, fresh and invigorating, invite you with their voluptuous caresses to the infinite joys of existence.

We have time to admire this Grand Canal, which the Venetian painters reproduced in all manners, from the dawn of the school with Carpaccio to its extinction by Canaletto, and have impressed indelibly on the retinas of the lovers of art.

In every town you first look for a monument or point whereon to fix attention—in Seville, the cathedral; in Granada, the Alhambra; in Cordova, the Mezquita; in Rome, the Colosseum; in Naples, Vesuvius; in Pisa, the Campo Santo; in Florence, La Piazza della Signoria; and in Venice, the Square of Saint Mark. We arrive at the foot of its magnificent flight of stairs—we remain there in delighted astonishment.

I must confide in the goodness of the reader and hope he will excuse me for so ill describing this place. There is indeed a superb panorama before my eyes and a feeble pen in my hand. In the first place, the lagune, splendidly illuminated by the heavens, and the sun which borders its rays; at the north is the mouth of the Grand Canal, with its rows of palaces; at the extreme right of the mouth is the marble church of Santa Maria della Salute, whose white cupolas are outlined wonderfully in the lustrous air. Before the church, elevated on a graceful tower, is a great sphere of gilded bronze, with an angel of dark bronze on the top. At the left side of the canal is a terrace, blooming with gay spring flowers and butterflies; near is a little square and the palace of Sansovino, sculptured like a work of Cellini, and surmounted by a group of statues—the palace of the Doge at the other end, resting its mass of red and white marble on a double gallery of Gothic arches interlaced by a capricious arrangement of oriels, and adorned at the upper part of the columns with Byzantine sculptures, which harmonize and mingle admirably with the diadem of sharp triangles and the airy belfry above. Before these two monuments, the two columns of Oriental granite, two colossal monoliths, and, above, the crocodile of Saint Theodore and the lion of Saint Mark, which seem to exhale hot breath from their open mouths; in the back grounds to the left, the Campanile, light and elegant, paved by a marvellously sculptured tribune, and crowned by an angel standing on a point and raising his wings on high; farther on, at the right side, the Basilica—Oriental, Gothic, Byzantine, Moorish—a mixture of all orders of architecture, an epitome of all epochs, its blue arches sown with stars, its columns of different colored jasper, its statues and its fantastic bell-towers; the four horses of Corinth above the door, mosaics of Venetian glass in the recesses, from the golden groundwork of which wonderful figures of all colors detach themselves; the cupolas above, small copies of those of Santa Sophia, like an apparition of Asia; and in the vast proportions of that panorama, the Riva degli Schiavoni filled with vessels, realized by the picturesque costumes of the Turks and Greeks, by the great Venetian population continually passing in that wide street; beyond, the isle of San Giorgio, with its church of red and white marble, the Gindecia, with its buildings of all colors of the rainbow; San Lazzaro, with its American convent, whose Oriental towers look like the curved sail of a huge vessel; the Lido, with its groves of trees which touch the lagune with their branches, the nightingales filling the air with melody, the gardens like floating islands or gigantic bouquets flung upon the water, all crossed by the blue stripes of the canals, all varied by colors, and gilded or silvered by the sand banks—all diversified by the contrast between the white lateen-sails and the black venetian gondolas which glide around, all lulled by the waves of the Adriatic; the Alps in the distant west, resembling an army of celestial pyramids, and in the far east, like an eternal music, the wind which comes from the shores of Greece. It is unequalled in the world.

The Alderly Brick and Terra Cotta Co. has been formed at Victoria, B. C., with a capital of \$50,000.

A Kingston despatch states that Gordon & Fraser, extensive quarrymen of Grindstone Island, have leased for a term of fifteen years the Deer Lake granite quarry.



THE ACCESSORIES OF ARCHITECTURE.*

BUT for the various other accessories of a more practical and definite nature which perhaps more properly claim our attention, let me tabulate in a desultory way some of those with which it is my intention to deal. These, as they occur to me just now are, sculptor work, figure and ornamental; bronze casting, hammered work in all materials, cast-iron, plaster work; decoration, interior and exterior, embracing such things as papers, painting, fresco, mosaic work, glass tiles, upholstery and cabinet work, and landscape gardening. Any of the topics above mentioned you will think might of itself offer sufficient consideration for the subject of a paper, and I can merely to-night make a few observations upon each.

Before doing so, I will say, however, that in the last 50 years there have been marked strides in every one of these departments, and that the architecture of to-day, from the fact that it can call in to its aid so many independent accessories in a comparatively developed condition, ought to be not only interesting but thorough. The questions involved in the consideration of the above are those with which we are brought every day in contact, and in addressing a meeting of gentlemen like the present I am speaking to those who from their position must necessarily have considerable intimacy and knowledge of the various points. In speaking of calling in the aid of these accessory arts, I do not mean that we are to hand over the designing or detailing of any special branch to others, but that we are to use their deftness and ability to carry out our ideas so far as they are consistent with the subject under consideration, and are to consult with regard to points about which, from their intimate knowledge and experience, they are able to give a sound opinion. I have found, and you must all have found, say with regard to cast iron, men who had worked all their lives in that material, but whose opinion on a piece of design for that very branch was simply not worth having, generally because they had not the capacity to think for themselves, or else had got so much into a groove that they accepted as right all that they had been accustomed to; and the same somewhat severe criticism applies with almost equal force to all the accessory arts. I might say that the same criticism applies in a great measure to modern architecture, for we do not find, even among ourselves, those with large practices and a considerable notoriety, many who never produce any piece of original design or ingenious adaptation, but who are content, from year's end to year's end, to reproduce, *ad nauseam*, what they have been taught.

In considering the accessory arts of architecture, I should wish to direct the attention of our profession to the advisability of invariably, when we can, employing the artists of our own country, yea, even of our own town, in the execution of our commissions, from a purely selfish point of view—that is, of course, always when such employment is not going to interfere with the quality of the work executed. The selfish point of view to which I refer is, that by so doing we raise around ourselves a body of men who, by practice, are able to do thoroughly the commissions they are entrusted with, and who, by being immediately available, do in a great measure strengthen our hands and expedite the work on which we happen for the time to be employed. I would not, of course, advocate the employment of a local artist as such, but in the case where a local artist will do the work as well as another, say, from a distance, I think the preference should always be given to the local man.

Of all the accessory arts of architecture, there is probably none which plays a more important part than that of sculpture. There has been no period of architecture which has not been indebted to this for substantial aid. From the very beginning of our art in the remote ages till the present day, sculptor work, both figure and ornamental, has played a most important part. There have been periods when it seemed to be the only consideration, and when architects seemed to revel in it, not as an assistance, but as the end to be gained. It is almost needless for me to tell you, gentlemen, that such periods were not happy in their results. But I think for the future that these times are not likely to come again, and the chances even are that we do not sufficiently use what, when judiciously used, lead to a very happy combination, and justifies by the results the fashion of the art. Great care should be taken in the way in which sculpture work, both figure and ornamental, ought to be applied. When only a limited amount may be applied, preference, I think, ought to be given to placing it near the eye, where it may be seen, for although the gods may see all around and high up, yet the enjoyment of a comparatively close inspection to a mortal is greater than the knowledge that high up there are works of art worthy of careful attention and inspection, the artistic value of which can be only guessed at from below. In the use of sculp-

ture work, only the very best possible ought to be accepted, as any carving of an interior sort, instead of being an aid, is a decided hindrance to the effect of any building. Great care should be taken to employ the artists who are masters in the style of carving suitable for the building being decorated, for it is often found that one who is a very good artist in Classical or Renaissance carving does not understand in the least the spirit of Gothic or Romanesque carving, and *vice versa*.

It is now my intention to make a few remarks on the use of metal work. The effects to be gained from a judicious use of metal in architecture are particularly valuable, not only from the rich coloration which may be got, but from the difference in texture of different materials, which is as valuable in architecture as in painting. Who has not been forcibly impressed with the effect of a rich colored bronze, either in the round or the flat, against the cooler gray of stone or granite, or the sweet curves of a fine piece of wrought iron work in an elaborate gate, or adding interest and picturesqueness to some old street in the projecting signs and grotesque forms of a bracket supporting a lamp.

The play of imagination evident in some of the torch bearers, so common on the front of Italian buildings, or the door handles and escutcheons decorating the doorway of some French chateau, indicate a wealth of fancy, and furnish a source of inspiration which no art architect can afford to neglect. What a difference there is always to the art lover in the carefully considered adornments in metal which the real architect causes to be used at his buildings, and which he designs in harmony with the rest of the structure and in appropriateness to the materials used, and the stereotyped patterns culled from some enterprising manufacturer's catalogue, designed in forms glaringly inappropriate to the materials used, and utterly discordant with the general effect of the building.

The temptations to use what one finds ready to hand are undoubtedly great, and the considerations of cost and expedition are often put forward as an excuse, also the lack of interest and appreciation on the part of a client; but the cost of having things appropriate is not greater than that of having them discordant, and after all it is to ourselves that we ought to be true in matters of taste, for it is our taste which will be called in question, and we who will be judged and criticised, when the beauty and appropriateness of the buildings we erect are being discussed. Such considerations as the extra trouble are not really worth contemplating, and are such as no real architect will for a moment consider, as we may take it that his desire is to do the best he possibly can. Of course it is not absolutely necessary that every piece of metal work be specially designed, although it is best in most instances that it should be so. The pieces which may be used are those which have been properly designed for a special occasion, and which happen to be appropriate for the case in point. It is, however, for interior decoration of architecture that metal work is most valuable, and in this connection many metals which are not suitable for exterior work may be used.

You all must have seen how rich were the effects and how varied the forms of which bronze and brass are capable. The rich candelabra, the ingenious or quaint balustrade, the imaginative scone, with its archaic forms and accidental light shadows and reflections, all add interest to the interiors of our houses. How happy, also, is the use of similar materials in different ways, such as the working in of hammered and cast work together, each process being designed with appropriate forms, and yet the effect of the whole being made more perfect from the assistance which it gains from both processes.

One great advantage to be gained from the use of the *repousse* work is, that in the practice of that art great room is left for the individuality of the workman to develop, that is, if he has the personal capacity in himself. From the nature of the work exact repetitions of any set form is as difficult as it is undesirable, and with each piece of work comes a problem, in the solution of which the mind is kept active, and the possibility of further development increased.

Perhaps the most fatal objection to our modern cast iron work is that it goes out of its own province, which is by no means a limited one, to reproduce designs which are only appropriate to wrought iron. The result of course is, that if the piece of cast iron is placed in a position where it must bear the brunt of ordinary traffic, the inappropriate scrolls are soon conspicuous by their absence, and the want of consideration on the part of the producer is patent to every passer by. Scroll work of almost every description is inappropriate to a cast material, but forms the basis of all hammered materials, which, from their fibrous nature, have strength in themselves to withstand any slight pressure which may be put upon them. It must be evident to all, that from the great thickness with which scrolls in ironwork are generally cast, and even then the frequency with which they are broken and mutilated, that this class of design for cast work is thoroughly inappropriate. It is strange, in spite of the many lessons we have received of this, that still the scroll forms the basis of most cast iron designs.

Great use can be made of cast iron, but it is much more

* Abstract of a paper by Mr. John Keppie, Past President of the Glasgow Architectural Association.

appropriate for panel decoration than for the light treatment which it generally receives. One of the principal reasons for its being used in this way is, that it stands the action of the atmosphere better than any of the hammered metals; but if greater care were taken to design in a method more appropriate to this material, its usefulness would be greatly increased. The use of hammered copper as a means of interior decoration, such as in the panels of chimney pieces, as friezes, etc., will, I think, develop in the course of a few years to a great extent. The various tints and shades which this metal can take, points to it as a most useful material, and one in which we may expect much greater things to be done than we have hitherto seen.

But I cannot, if I am not to detain you unduly, dwell longer on these most interesting subjects, but must proceed to give you some remarks on the other accessories which have been mentioned. Of these I will first notice plaster work. This is a material which, from the facility with which it can be worked, and the fact that decoration in it is generally out of reach, and consequently out of danger of being broken and mutilated, lends itself in a great variety of ways to the ornamentation of our conceptions. The fact also that it is moderate in cost, and when properly used, effective, makes it one of the most popular materials. From the architectural work of past days it is not difficult to find how to use this material properly. There is hardly an old castle in the length and breadth of Scotland where we do not find some panelled ceiling, or other piece of beautiful and interesting plaster work. And in our old towns the same fact holds good; in Edinburgh, especially, to anyone who has the curiosity and will take the trouble to hunt up this class of work, there is a particularly wealthy field, but in almost every town the same holds good. City improvements are gradually doing away with most of the old houses in towns; but architectural societies, notably the Edinburgh one, are doing good work, in preserving records of the best examples; and in their recently published sketch book there are several ceilings which are most interesting in themselves, and valuable as showing what ought to be done in plaster work.

Of these to me the characteristic feature is the delicacy and fineness of the moldings used, the cornice is generally small and self-supporting, *i. e.*, without wood brackets, and the ceiling, instead of being a plain surface, with a large and unmeaning centre flower, is panelled with slight bands, and divided into compartments of varied forms. The existence of these old examples is a somewhat severe criticism on a great deal of our modern work, with its cornices enriched with brackets and modules, dentils and eggs, and darts, representing a class of design only appropriate for a stone treatment, and that almost never omitted, but utterly unreasonable centre flower, which is the glory of most of our tenements, and which, from its gorgeous and ostentatious form and coloration, speaks forth the taste of the producers of that class of work, and hampers the decorator unnecessarily in his desire to make our rooms beautiful. The use of plaster fiber for panelled ceilings, from the nature of the material, makes it easier for us to design in that way, and from the fire-resisting nature of some kinds of it, helps in a great measure to make our houses fire-proof.

But now let me direct your attention to the subject of decoration, a subject which of recent years has received a great deal of attention, and which ought to command, from the large part it plays in the beautifying of our homes and buildings, a still larger interest than it at present does. The art movements of the day have to a great extent placed decoration on a more reasonable basis than it formerly occupied. The taste for marbled pillars in stucco, with ingenious painting, has to a great extent departed, and our staircases and halls do not so often, as formerly, present to the eye the appearance of costly marbles and granites reproduced in a charmingly inexpensive manner, the polishing being represented by the judicious use of two or three coats of varnish. Now there seems to be a tendency to allow that paint is paint, and paper paper, and that surfaces may be beautiful without at the same time being false. Graining also is to a great extent a thing of the past, and it is difficult to know how much we owe to Mr. Ruskin for the able manner in which he has seen fit to show up this falsehood. If we cannot always use hard woods, we are now coming to the conclusion that it is not absolutely essential that we should always appear as if we were using them, and we are beginning to realize that using less costly materials and producing pleasing surfaces by well-selected tints is not after all a disgrace.

The foregoing remarks tend to show that a more reasonable taste is setting in in decoration, and that we are coming to the conclusion that our houses are more beautiful the truer they are, and that it is not essential for every man, no matter what his position, "to dream," for after all it was only a dream, the falseness of which was patent to all, "to dream he dwelt in marble halls." Some decorators sigh, I believe, for the good old times, when art was well nigh dead, and when picking out in gold leaf and marbling and graining were the order of the day, and when interior stone work was never left its natural color, but was painted and marbled beyond recognition. But these and such as these belong to the order of things that are past and days

that are done, and if they intend to hold their position had better come to the resolution to let bygones be bygones, and had better try to fill their position in the general development, and consider that the improvements which are being made now are but the earnest of the improvements that shall still be made.

In no department of decoration is there a more marked improvement than in the design of wall papers. The stereotype forms and the loud and vulgar coloration are not so universal, although still to be found, as they once were. Conventional forms, in pleasing and harmonious colors, are to a great extent taking the place of natural forms, badly drawn in unnatural colors. And it is even possible in some instances to use self-colored papers, or tints which, a few years ago, would not have been tolerated for a moment. The class of papers which seem to me to be most worthy of being used are those in which there is not a great number of colors, but on which the pattern merely gives a pleasing suggestion of a rich effect. When there are forms on the paper they should be well drawn, and any such pattern should not be obtrusive or pronounced, but should hold its own place, and merely add to the general effect.

The use of frescoes in our public and private buildings can be made a source of education, but fresco, as used by the mediævalists, is now almost a thing of the past. In France, where the class of decoration known as fresco is more used than in Britain, the process is now entirely departed from. The fact that frescoes form an integral part of the building, and may be easily destroyed by the presence of damp or accident, has led to the use of canvas and oil paint, which, as it can be removed when desired and placed in another position, or in a place of safety when the times demand, seems to be a movement in the right direction. The painting on canvas or linoleum, or any of the materials now used, gives also a much greater opportunity to the artist to alter and amend his design, and render it as perfect as he is capable of making it. When possible, however, paintings of this class ought to be done in the position they are to occupy, and with the surrounding in which they are to be set, as without this precaution there is great danger of the work not harmonizing with its surroundings, or with the other works of a similar kind already occupying a similar position in the building. As far as possible the works of this class in each room ought to be done by one man, or immediately under one man's supervision and responsibility. If this is not done, you may have as many different effects as you have artists, and the whole suffers accordingly. The exact effect of this may be very distinctly seen in the Pantheon at Paris, which has been decorated by the most distinguished French painters, but as each man has worked out his own idea, there is a great want of continuity in the various compartments, not of history, for they are all scenes in the history of Paris, but in color and form. Although I mention the Pantheon, I do not say that that is the type of decoration at which we ought to aim, for to my mind there is only one decorative work, *viz.*, that of M. Previs de Chevannes; the other works, from their naturalistic treatment, being pictures put in to fill compartments, and not really decorations at all.

In this class of work for the decoration of building conventionality is an essential, for if there is no convention the decoration must really represent a scene such as might be seen through a window or opening, and consequently represent a hole in the wall, which, of course, is not decoration. Anyone who has seen the sparkling and jeweled mosaics of Ravenna or Orvieto will know how valuable such an accessory as mosaic may be to architecture; but in Scotland we have little opportunity of using it, except in the case of an altar or baptismal font. Surface tiles and floor tiles are, however, often within our reach, and from the exquisite colors and rich polished surfaces it is possible to get in these, they also form a valuable aid.

It is now my intention to direct your attention very briefly to cabinet work. Time was when the architect paid little attention to this branch of his art, but was content to leave that to the cabinet maker, he merely doing the house without considering what was to go in to it either in the matter of decoration or furniture. But with a greater knowledge of architecture there has grown up quite a different spirit, and the architect now is not considered capable unless he can carry out and direct the work from the foundation to the time when the house is occupied. From the amount of fineness, and the delicate molding and carving of which furniture is capable, you can easily understand how to many it has proved a most attractive study. The same principles hold good here as in other branches of our art, which have been summed up in the well-known adage of "decorate your construction, do not construct your decoration."

The last accessory of which it is my intention to speak to-night is landscape gardening. Half the beauty of the jewel is lost if the setting is ungainly or vulgar. If we are to have beautiful houses, we must see that they have beautiful surroundings. The proper placing of the building, the proper intersection of paths and roadways at appropriate points, the placing of our grounds, summer-houses, fountains and other embellishments, which add so materially to the beauty and comfort of our surroundings, clearly proves that a study of landscape gardening is one of the first duties of an architect.

PUBLICATIONS.

"A Successful Man" is the title of what is probably the brightest American story—typically American—which has appeared for many years. It is a story of life prominent in fashion and politics, written by a member of New York's highest society who displays a genius as a writer destined to make her name famous—although she substitutes a *nom de plume* for her own well known one. "A Successful Man" will appear in two parts in the *Cosmopolitan Magazine*—the first in the September issue—and is illustrated by Harry McVickar, the drawings being made from life from acting models who were guests and servants at a Long Island country house. At every page the story is bright and clever, and we are much mistaken if it does not attract the widest attention.

The bursting of a gasoline stove recently caused slight damage by fire to Longhurst & Son's stained glass works at Hamilton.

The offices of the Ontario Terra Cotta, Brick and Sewer Pipe Co. have been removed to the Livingston Building, 34 Yonge street, Toronto.

Calgary brown stone is coming into use at Winnipeg. The cost of dressing is said to be very much less than that of the stone procured in the Winnipeg district.

The Sicily Asphaltum Company, Montreal, has been incorporated with a capital stock of \$30,000, for the purpose of refining asphaltum and preparing it for use for street paving, etc.

We learn that the Rathbun Co.'s porous terra cotta and hard tile brick is coming largely into use for the lining of outside walls, doing away with one course of the ordinary brick and also the lathing, making all outside walls where such treatment is given absolutely dry (on account of the hollow brick or tile) and also being a fire and vermin proof protector, as plaster takes very kindly to porous terra cotta without lathing.

THE CROMPTON SYSTEM

INCANDESCENT AND ARC ELECTRIC LIGHTING, OF ENGLAND.

This system is acknowledged by all the impartial experts to be the best in the world. For isolated Plants or Central Stations there are none superior. Cost is very low.

General Agents in Canada:

THE KEEGANS-MILNE CO., - - MONTREAL.

INTERIOR WIRING A SPECIALTY. WRITE FOR ESTIMATES.

F. H. COLMAN, President.

PERCY C. HAMILTON, Sec'y-Treas.

LOUIS BACQUE, Sales Agent.

THE COLMAN-HAMILTON COMPANY, LTD.

IMPORTERS OF

SEWER AND WATER PIPE,

Fire Brick, Fire Clay, Fireproofing and all Fire Clay Products.
FIREPROOFING.

► PAVING BRICK ◄

Of highly vitrified Fire Clay for Sidewalks, Areas, Stables, Landings, Railroad Stations, and Streets with heavy traffic. Are noiseless, clean, healthy and lasting. Adopted in many of the leading cities of the United States.

OFFICE AND YARDS { 44 Price Street, North Toronto.
and C. P. R. Yards, North Toronto.

Telephone 3763.

Architectural Sculptors and Carvers.

W. STIVENS HICKS,
Architectural Sculptor and Modeller,
13 RICHMOND ST. EAST, TORONTO.
All kinds of Stone and Wood Carving.

FREDERICK TURNER,

—) Architectural (—
STONE CARVER AND MODELLER.
WOOD CARVER.

10 Rebecca St. (near James), HAMILTON.

B. H. CARNOVSKY,

Interior Cabinet Decorations

And all kinds of Furniture made to order.

CHURCH WORK A SPECIALTY.

128 & 130 ONTARIO ST., - KINGSTON.

WM. R. JOHNSTON & SON,

Architectural

Stone Carvers and Modellers.

Wood Carvers.

335 Euclid Ave.,

TORONTO.

F. B. GULLETT, SCULPTOR,

112 Church Street, - TORONTO.

Estimates given for GRANITE COLUMNS, PILASTERS,
MONUMENTS AND VAULTS, polished and hammered.
ALL KINDS OF BUILDING WORK.

THOS. MOWBRAY, **ARCHITECTURAL SCULPTOR**

In Stone and Wood,

SUCH AS

Altars, Fonts, ♦

♦ Reredos, Pulpits,

Together with general architectural work for public and private buildings.



Christian Art

A SPECIALTY.

ADDRESS:

YONGE ST. ARCADE, - TORONTO.

YOUNG & COLLINS,

Architectural Carvers and Modellers.

SHOP:

154 Richmond Street West, - TORONTO.
Residence: 102 Manning Avenue.

USE THE



STAR VENTILATOR

FOR THE

VENTILATION

OF

Churches, Public Buildings, School-Houses, Theatres, Residences;
Cotton, Woolen and Carpet Mills,
Machine shops, Foundries,
Breweries, Stables, &c.

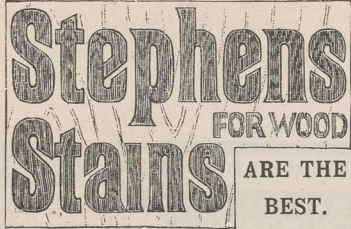
Upon application we will furnish a Blue-Print sketch showing detail and uses of the

STAR * VENTILATOR

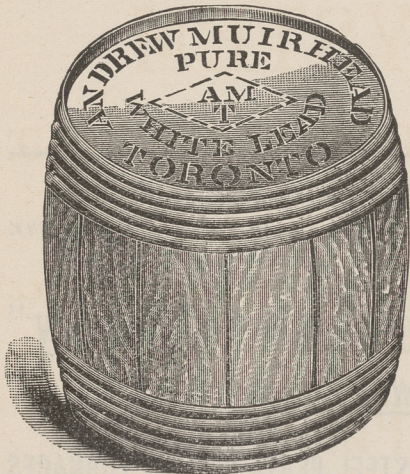
MERCHANT & CO.

Philadelphia, New York, Chicago, London.

Architects, if you want a first-class article



Samples and prices on application to
BUNTIN, REID & CO.,
Agents, **TORONTO.**



Importer and Dealer in
**Paints, Dry Colors, Varnishes, Chamois
Skins, Glues, Bronze Powders
and General Manufacturers' Supplies.**

Agent for Samuel Cabot, Boston, U. S., Interior
and Exterior Creosote Stains and Mortar Colors; and
for Lewis Berger & Sons', (Ltd.) Celebrated Carriage
and House Painters' Varnishes, London, Eng.

ANDREW MUIRHEAD,
82 BAY STREET - TORONTO, ONT.

EXCELSIOR PAVEMENT CO.

Sidewalks, Carriage Drives, Corridors, Landings, Steps,

MALT, CELLAR & STABLE FLOORS, VASES.

Estimates given promptly on application.

Office, 299 College Street, - **TORONTO.**

TELEPHONE 1199.

T. J. WHITTARD, Superintendent.

J. WATSON, Manager.

STUART'S Patent Granolithic

FOR

SIDEWALKS, FLOORS, STEPS, LANDINGS, CORRIDORS, AREAS AND STABLES.

No building perfect without Granolithic Footpaths. It has stood the test of years and climates.

IMPERIAL STONWARE LAUNDRY TUBS

Are without parallel the finest and most complete Tubs in the market. Guaranteed perfect.

*Building Granite, Granite Paving Blocks, Polished Granite of every kind, Monumental
Work. Marble for Interiors, Plumbers, Furniture, Cemetery, or any
purpose, and of all kinds of Marble in the market.*

Send for Estimates.

ROBERT FORSYTH,

MONTREAL: 130 Bleury St.

TORONTO: 14 Toronto Arcade.

House Painting and Decorating

AN ILLUSTRATED MONTHLY MAGAZINE VALUABLE TO

**House Owners, Builders, House Painters, Coach Painters, Car Painters, Fresco
Painters, Sign Writers, Paper Hangers, and all interested in Painting and Decorating.**

*Every number contains a Colored Plate and
Forty Pages of Reading Matter.*

The following serial articles are now running: SIGN PAINTING, (illustrated with examples
of lettering, banners, monograms, etc.); DECORATION, COACH PAINTING, DRAWING
FOR PAINTERS, HARD WOOD FINISHING, WALL PAPER DESIGN; with much useful
information, recipes, etc., etc.

\$1.00 a Year.

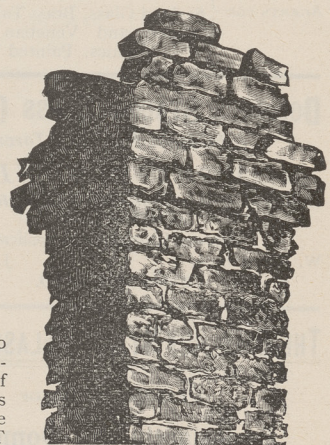
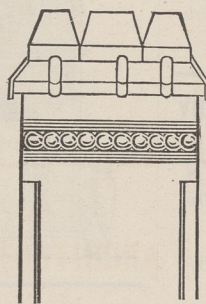
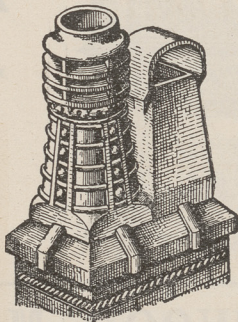
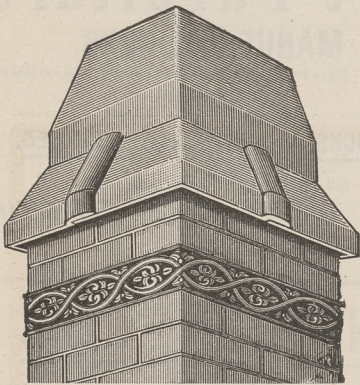
Send postal card for free sample copy.

House Painting and Decorating Publishing Co.,

1130 South 35th Street, PHILADELPHIA, PA.

THE HANSEN Salt-Glazed Terra-Cotta Weather-Protecting Chimney-Topping.

Patented in the United States and Canada.



Indorsed by Architects throughout the country; are mainly designed to
replace the common corbeled chimney top; for the PROPER PROTEC-
TION of chimney masonry from the usual EARLY DESTRUCTION of
same by the action of rain and frost. These toppings are manufactured by steam press
and dies, same as first-class salt-glazed sewer pipe, for keeping in stock in same
manner, and as made in pieces (see diagrams) present the CHEAPEST, MOST
PRACTICAL ever READY and LASTING material for bricklayers' use in topping out chimneys. Deducting value of
mason's material and time saved when using these toppings, their COST PER FLUE does not exceed 50 to 60 cents that
of common brick tops, which secures absolutely PERMANENT chimney masonry, and saves annoyance and REPAIR
EXPENSES, the usual and too frequent experience of owners.

HARALD M. HANSEN, Patentee,

88 La Salle Street, Chicago, Ill.

THESE CHIMNEY TOPPINGS ARE MANUFACTURED AND SOLD UNDER LICENSE BY

THE STANDARD DRAIN PIPE CO.,

St. Johns, P. Q.,

SOLE MANUFACTURERS FOR CANADA.

Responsible Agents to carry stock and handle these goods wanted. Write manufacturers for sample and terms. Correspondence solicited.

HAMILTON ART STAINED GLASS WORKS

MANUFACTURERS OF

Church and Domestic Stained Glass.

LEAD GLAZING AND SAND CUT A SPECIALTY.

H. LONGHURST & CO.,

16 JOHN STREET N. - HAMILTON.

J. C. SPENCE & SONS,

ARTISTS IN STAINED GLASS,

ECCLESIASTICAL AND DOMESTIC.

Mural Decorations, Art Tiles, Brasses,
Church Furniture, etc.**BLEURY STREET, - MONTREAL.****G. & J. E. GRIMSON,**

39 UNIVERSITY ST., - MONTREAL.

**STAINED, PAINTED & DECORATIVE
EMBOSSED GLASS**

For Church and Domestic Purposes.

*Estimates given for all work at low prices,
according to design and finish.***Dominion Stained Glass Works**

60 KING WILLIAM ST., - HAMILTON.

STAINED AND PAINTED

WINDOW GLASS

For churches, public buildings & private residences.

W. C. BARNES, SON & GILSON.

STAINED GLASS

Memorials

—) AND (—

Church Decorations

**CASTLE & SON**40 Bleury Street, Montreal,
Can., and New York.**CHARLES EVANS & CO.,**
(London, Eng.)AGENTS FOR Stained Glass, Brass Tablets, Cera-
mic and Venetian Glass,
Mosaics, Painted Tiles**DOMINION STAINED GLASS COMPANY**

77 Richmond St. W., Toronto.

MEMORIAL WINDOWSAnd every description of Church and Do-
mestic Glass.

Designs and Estimates on application.

W. WAKEFIELD. J. HARRISON.

Telephone 1470.

THE BELL ART STAINED GLASS WORKS

MANUFACTURERS OF

Ecclesiastic and Domestic

ART GLASS

Of Every Description.

LEAD GLAZING AND SAND CUT

A SPECIALTY.

**110 RICHMOND ST. WEST,
TORONTO, ONT.**

D. BELL, - MANAGER.

**T. POLITO,
GLASS BENDING WORKS,**

39 UNIVERSITY STREET, MONTREAL.

Glass Bending in all its branches.

PAINTER AND DECORATOR.

Bell Telephone 4689.

Federal Telephone 1544.

JOHN WHITFIELD,

174 and 176 Front Street East,

SUPPLIES ALL KINDS OF

IRON AND STEEL WORK

FOR BUILDERS, &c.

Telephone No. 2099.

**TORONTO FURNACE CO.**

8 & 10 Queen St. East, TORONTO.

TELEPHONE, 1907.

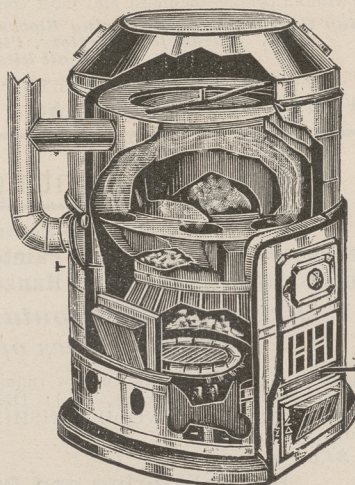
Manufacturers of

"The Celebrated Novelty"**HOT WATER & AIR COMBINATION**

AND

STEEL PLATE HOT AIR FURNACES*Steel Ranges. Hot Air Registers.
NEWEST! CHEAPEST! BEST!*

Write for Catalogue and Estimates.

Headquarters for Construction, Building and
Jobbing Castings. Column Gratings,
Sash-weights, etc., etc.

J. WRIGHT

F. WRIGHT.

J. SYCAMORE.

WRIGHT & CO.

Designers, Carvers,

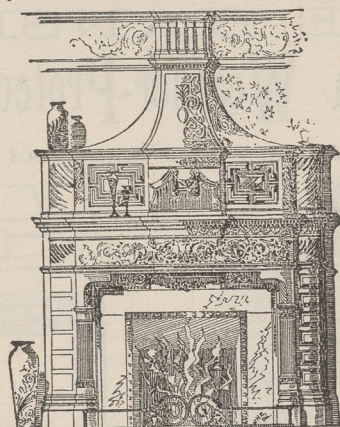
—) AND (—

**Art Furniture
MANUFACTURERS.***Mantel Pieces and Ecclesiastical Furniture
a specialty.***DESIGNS AND ESTIMATES SUPPLIED.**

64, 66 and 68 Grange Ave.,

- TORONTO.

A large stock always on hand.

**HARDWOOD MANTELPIECES.****W. SCOTT & SONS,**

MONTREAL,

— MANUFACTURERS OF —

*Mantelpieces and Fine Furniture.**A Large Stock of English Grates and Tiles,
Open Fireplaces, etc.*

FINE ART DEALERS AND GILDERS.

1739 NOTRE DAME ST., MONTREAL.