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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF
PUBLIC WORKS • TENDERS • ADVANCE INFORMATION • AND MUNICIPAL PROGRESS

EVERY SATURDAY

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Information collected from any part of the Hamilton regarding contracts open to tender.

ADVERTISING RATES ON APPLICATION.

At its Convention held in Toronto, Nov. 20 and 21, 1889, the Ontario Association of Architects signified its approval of the CANADIAN CONTRACT RECORD, and pledged its members to use this journal as their medium of communication with contractors with respect to advertisements for Tenders.

The following resolution was unanimously adopted at the First Annual Meeting of the Province of Quebec Association of Architects, held in Montreal, Oct. 10th and 11th, 1890: "Moved by M. Perrault, seconded by A. F. Dunlop, that the Architects of the Province of Quebec now assembled in Convention being satisfied that the CANADIAN CONTRACT RECORD affords us a direct communication with the Contractors, Resolved, that we pledge our support to it by using its columns when calling for Tenders."

Subscribers who may change their address should give prompt notice of same. In doing so, give both old and new address. Notify the publisher of any irregularity in delivery of paper.



NOTICE TO CONTRACTORS.

Tenders will be received by registered post, addressed to the City Engineer, Toronto, up to eleven o'clock a. m. on TUESDAY, SEPTEMBER 6th, 1892, for the following work:

CEDAR BLOCK PAVEMENTS:

On Edmund street, from the south side of the C. P. Railway tracks to Royce avenue.

On lane southerly from Adelaide street to lane in rear of the Arlington Hotel.

Specifications and forms of tender may be obtained on and after August 31st, 1892, at the office of the City Engineer.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 5 per cent. on the value of the work tendered for under \$1,000, and 2½ per cent. for the value of the work tendered for over that amount, must accompany each and every tender, otherwise it will not be entertained. All tenders must bear the bona fide signatures of the contractor and his sureties (see specifications), or they will be ruled out as informal.

The Committee do not bind themselves to accept the lowest or any tender.

JOHN SHAW,
Chairman
Committee on Works.

Committee Room, Toronto, Aug. 26th, 1892.

BUILDING A CISTERN IN JOINT CLAY.

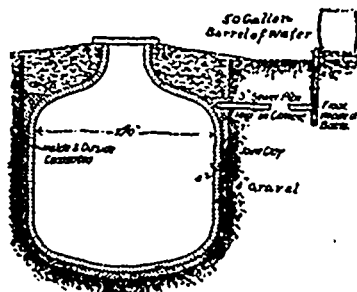
The material known as joint clay occurs throughout extended sections of the West. In recent geological times the territory north of Ohio and Missouri rivers was covered with glaciers. As these melted and receded they left extensive deposits of clay, especially along what had been their southern border. These clays are generally stiff and for the most part are impervious to water. When exposed to the air or when penetrated by wells, however, they shrink and crack, and are called joint clays. Another material to which the same name is given is the black city clay, sometimes called gumbo, which occurs on river bottoms.

The following scheme for building a cistern in joint clay is sent us by Mr. Gordon Dinsmoor, of Columbia, Mo., and may be of service to some of our readers. Mr. Dinsmoor says:

All attempts to make a satisfactory cistern in joint clay have hitherto failed. If such a cistern be lined with a dry wall of brick, it will hold water very well; but since the calcium carbonate in the soil soon renders the water hard, such a reservoir loses its value as a cistern.

If, on the other hand, the wall be laid in cement, and cemented inside and out, it will hold water until the joint clay dries and shrinks away from the wall; then the inside pressure breaks the wall and the water leaks out.

The accompanying design for a cistern in joint clay is intended to overcome these difficulties.



A 4-inch space is left between the joint clay and the brick, so as to give room to plaster the outside of wall with cement as it is carried up. After building a foot or more this space is filled with gravel, and so on up to the line (A B), when a circle of 3-inch drain tile is laid, connecting with a line of sewer pipes laid in cement, which is turned up and brought to the surface as shown in the plan. Water is now poured into the open end of the sewer pipes until all the interstices of the gravel are filled, thus causing a constant pressure upon the outside of the wall. The joint clay, being impervious, holds this water so that little is lost by percolation.

A constant level of water in the gravel is maintained by the flow from the barrel, the outlet of which is automatically opened and closed by a float, as shown in the plan. The only attention needed is to see that the barrel does not become empty.

SLATES AND SLATING.

The best and most substantial roof known to the architects at present, says a writer in an English exchange, is the slate roof having at least a square pitch. Such a roof weighs considerably more than shingle roof, and it also costs a little more, but it is many times more durable.

Some queer technical terms are used in connection with slating. Names are used to indicate the size of slate. One 10x13 inch being known as a double. Smaller slates are called small doubles. The next larger size is known as plantations, the next size is called viscountess. Sizes ranging from 8x12 inch to 10x15 inch are called ladies; from 10x20 inch are called countesses; up to 14x24 inch, which are known as princesses.

There are slates that run through all the titles of nobility—marchioness, duchess, imperial—and then comes what is probably a poor man's slate; under the delicate title of rags. The noble titles are again resumed, and run queens, empresses, and end with princesses.

In American practice the slates run simply by inches, from 7x14 inch up to 17x24 inch. The thickness of slates ranges from 0.125 to 0.3215 inch, and their weight varies from 2 pounds to 4½ pound per square foot. A square of slating is rated as any other roofing equal to 100 square feet, the gauge is the distance between the courses, while lap is counted as the distance which each slate overlaps the slate lengthwise next below but one.

Lap varies from 2 to 4 inches, and a standard lap is about 3 inches. As above stated, a good slate roof should have about square pitch, but slates should never be put upon a roof which pitches less than 1 foot in 4 feet. When it is desired to compute the surface of a slate when laid and the number of squares of slating, subtract the lap from the length of a slate which is taken as distance from nail hole to tail, and one half the remainder will give length of surface exposed, this when multiplied by width of slate will give the surface required.

To ascertain the number of slates required for a square, divide 14,400, which is the area of one square in inches by the surface obtained above, and the quotient will give the number of slates required for one square. For an example, take a slate 12x24 inch, take a standard lap 3 inches, the number required for a square will be found by subtracting 3 from 24, equal to 21, and 21 divided by 2, equals 10½ inches, which multiplied by 12 equals 126 inches, 14,400 the total area to be covered divided by 126 which equals the area of one slate, gives 114 29 inch slates required for the square.

Slate weighs from 165 pounds to 180 pounds per cubic foot, and, in consequence of lap, it requires an average of 2½ square feet of slate to make one square of slating. When slate 0.125 inch thick is laid on laths, it weighs 4.75 pounds per cubic foot; when the same is laid on 1 inch boards, it weighs 6.75 pounds per cubic foot. Slate 0.1875 inch thick on laths and boards weighs 7 pounds and 9

pounds respectively. A 0.25 inch slate weighs 8.15 pounds and 11.25 pounds respectively. The thickest kind, gauging 0.3215 inch, weighs 11.15 pounds and 14.10 pounds on laths and boards.

A slate roof composed of 6x12 inch slate weighs 1680 pounds per square, and requires 480 slates. A 10x29 inch slate weighs 6720 pounds, and requires 171 slates per square. A 12x24 inch slating requires 125 slates and weighs 4480 pounds.—Carpentry and Building.

CONTRACTS OPEN.

HARTNEY, MAN.—Messrs. Hartney & Dickson intend erecting a new store.

SOUTH FINCH, ONT.—Messrs. Wood & Cameron will erect a grist mill at this place.

WINNIPEG, MAN.—Capt. Robinson will rebuild his saw mill at Fisher Bay, Lake Winnipeg.

BENFORD, QUE.—It is reported that the Eastern Townships Bank has decided to erect a new building.

WOODSTOCK, ONT.—Plans are being prepared for the Engineer's residence at the water works, to cost \$1,400.

GRAND BAY, ONT.—The Presbyterian congregation are making arrangements for the erection of a new church.

LONGUEUIL, QUE.—The Longueuil Boating Club has decided to erect a new club house, at a cost of from \$2,500 to \$3,000.

GLENORA, ONT.—Mr. Wilson, formerly of Picton, will erect a first-class summer hotel here this fall, to cost about \$10,000.

FORT ERIE, ONT.—Tenders are being called up to Saturday, 27th inst., for the erection of a Town Hall. W. E. Edwards, Clerk.

BURNSIDE, MAN.—Tenders are wanted until the 29th inst., for the erection of a 30,000 bushel grain elevator. Wm. Kison, Secretary.

NEW WESTMINSTER, B. C.—A by-law will be introduced in Council to provide the sum of \$100,000 for the completion of the waterworks.

LONDON, ONT.—M. L. Buffy, architect, will receive tenders until the 29th inst., for the erection of a two-story residence on Queen's avenue.

WALKERVILLE, ONT.—Plans have been prepared for a new office building to be erected by Messrs. Hiram Walker & Sons, to cost about \$65,000.

SMITH'S FALLS, ONT.—At a recent meeting of the Committee of St. John's Church, it was decided to proceed at once with the erection of a new church.

SEAFORTH, ONT.—The ratepayers carried a by-law on Tuesday last authorizing the expenditure of \$14,000 for the erection of a new market building and fire hall.

PETERBOROUGH, ONT.—J. E. Hecher, architect, is preparing plans for the new Bank of Commerce. The front is to be of brown stone and Don Valley brick.

TOTTENHAM, ONT.—Geo. P. Hughes, Village Clerk, will receive tenders until to-day (Saturday) for the completion of the waterworks on the rotary pump system.

DORVAL, QUE.—At a meeting of the residents of the parishes surrounding Dorval, it was decided to erect a new Roman Catholic church on a site near Dorval station.

MONTREAL, QUE.—The contract with the Royal Electric Company expires at the end of 1892, and tenders will, in all probability, be called before that time for future lighting.

LEVIS, QUE.—The Town Council has passed an order granting a bonus of \$12,000 to Messrs. J. D. King & Co., of Toronto, for the erection and operation of a branch factory here.

CAPETON, QUE.—The Nichols Chemical Co.

will receive tenders until the 15th of September, for the erection of a dwelling house at their mines at Dillington. Plans at their office, this place.

NIAGARA FALLS SOUTH, ONT.—Tenders are being called for the erection of a new brick high school, in the township of Stamford. P. Prist, Secretary.

QUEBEC, QUE.—Mr. Jamieson, C. P. R. grain elevator superintendent, was in town recently arranging for the erection of a large grain elevator and flour shed.

LACHINE, QUE.—James W. Raitt, Secretary-Treasurer, will receive tenders until to-day, (Saturday), for the supply of water pipes, also until Thursday, the 1st of September, for the construction of waterworks for Lachute Town.

STRATHROY, ONT.—The Town Council are considering an offer from Mr. E. Harrison, to rebuild the knitting factory here.—Tenders will be received by Rev. Albert McKeon until to-day, (Saturday), for the erection of All Saints Catholic church.

OWEN SOUND, ONT.—It is now definitely stated that the North Shore Navigation Company will build a magnificent new steamer during the coming winter. It will be larger than the City of Midland, the cabins to accommodate 200 persons.—The Owen Sound Cement Co. will erect four new kilns.

SELKIRK, MAN.—It is stated that new tenders will be asked for the erection of the fish hatchery, owing to the contractor whose tender was accepted refusing to proceed with the work. The Dominion Government has, however, decided to postpone the erection until next year.

VICTORIA, B. C.—Mr. John Teague, architect, has been instructed by the directors of the National Electric Lighting and Tramway Company to prepare plans for a substantial structure of brick, stone and iron, to replace the power houses recently destroyed by fire.—Mr. Moore, who arrived here a few days ago from England, is looking for a suitable site for the chemical works which he proposes to establish.

OTTAWA, ONT.—E. F. E. Roy, Secretary Department of Public Works, will receive tenders until Friday, the 1st of September, for the erection of a post-office at Dartmouth, N. S.—The Marine Department is calling for tenders for the erection of a new lighthouse at Corunna, Lambton County.—A brick store on the corner of Bank and Slater streets is being pulled down to make room for a new three-story building.

KINGSTON, ONT.—Messrs. Frost Bros., J. M. Clark, F. A. Bethune, and Capt. Foster have purchased the Ward mill and water power at Sly's Rapids, Smith's Falls. The syndicate intend to utilize it for electrical purposes, and machinery will be put in to furnish running power.—Mr. Frank Davis has purchased a lot on Alfred street, near Brock street, on which he will erect four detached residences.—It is said that the Thousand Island Steamboat Company will erect a new hotel at Alexandra Bay next summer.

HAMILTON, ONT.—The Council are discussing the best means of introducing water into the new fair grounds. It is possible that a mile of six-inch main will be laid, at a cost of from \$2,600 to \$3,000.—Wm. Stewart, architect, is calling for tenders for the erection of a dwelling house on South Hughson street.—Building permits have been granted as follows: Bowman Hardware Company, alterations to store, corner King and Catharine streets, cost \$1000; William Fairley, alterations to two-story brick dwelling on King William street, opposite Walnut street, cost \$1000; Canada Screw Company, brick addition to its building on the corner of Wellington and South streets, cost \$3700; Thomas Hayes, two one-and-a-half story dwellings on John street, between Macaulay and Wood streets, cost \$1,400; Bush & Hennessey, four two-story brick dwellings on Euclid avenue, cost \$4,800; and four two-story detached brick dwellings on Ontario avenue, cost \$6,000; John Lindner, five two-story brick houses on Grant avenue, between Main and Stinson streets, cost \$5,200; Edward Lindner, two two-story frame houses on Myrtle avenue, cost \$1,200.—Tenders are wanted until the 31st inst., for the brick and stonework of three houses on Barton street east. Plans at store, cor. King William and Hughson streets.—Mr. Thomas Meston will

receive tenders until the 29th inst., for the erection of a grand stand for the Central Fair Agricultural and Industrial Company. Plans at office of James Balfour, architect.

TORONTO, ONT.—A new steel steamer will be built this winter for the Niagara Navigation Company. The plans are being prepared by Mr. Frank Kerby, of Detroit.—The City Solicitor has received a communication from the Department of Public Works at Ottawa, stating that the plans for the new bridge over the Don river at King street have been approved. Copies are now being prepared for submission to the Railway Committee of the Privy Council, after which the work will be proceeded with.—G. M. Miller, architect, 1 Queen street east, will receive tenders until the 1st of September for the erection of a residence on the corner of St. George and Bloor streets.—Tenders are wanted at 35 Richmond street west, for the erection of a solid brick, two-story house.—Building permits have been granted as follows: C. S. Rathbone, two det. 2 story and attic bk. dwellings, s. s. King st., near Jameson ave., cost \$10,000; Land Security Co., 2 story bk. stable, rear of 407 and 409 Queen st. w., cost \$1,000; J. Baker, three att. 3 story bk. stores and dwellings, 1084 to 1088 Queen st. w., cost \$9,700; A. Jacobs, two pr. s. d. and one det. 2 story bk. dwellings, e. s. Macdonnell ave., cost 6,500; Samuel Young, bk. alterations to dwelling, 30 Prince Arthur ave., cost \$3,000; H. Pellatt, mansard roof to rear of dwelling, 559 Sherbourne st., cost \$1,000; J. B. Andrews, det. 2 story and attic bk. dwelling, 159 Jameson ave., cost \$4,000.—F. H. Heibert, architect, Yonge st. Arcade, is preparing plans for a residence on Bedford ave.—A fire hall and large assembly room is to be erected at Wychwood Park, North Toronto.

FIRES.

The Great Western flour mill at Woodstock, Ont., owned by Messrs. McDonald & Thompson, was burned on Saturday morning last. The insurance on the building was \$10,000, and on machinery, \$15,000.—Mr. John Allen's saw mill on Snow road, near Kingston, was burned last week. Loss, \$2,000, no insurance.—Abbott & Co.'s Metropolitan Rolling Mills in Delor miere avenue, Montreal, were destroyed by fire on Wednesday last. The loss is said to be \$125,000, which is nearly covered by insurance.

CONTRACTS AWARDED.

WIARTON, ONT.—The contract for the intake pipe to the waterworks has been awarded to L. W. Henderson & Co., of Toronto, at the price of \$3,147.

LONDON, ONT.—The Ontario Stained Glass Company, of this city, has secured the contract for the windows for the new Methodist church at Amherstburg.

OTTAWA, ONT.—The Department of Public Works has awarded the contract for the erection of a new post office at St. Henri, Que., to Messrs. Dionne & Lachance, of Hull.

CAMPBELLVILLE, ONT.—The Ontario Terra Cotta & Brick Co. have received the contract from H. Walker & Sons, of Walkerville, for \$12,000 worth of terra cotta and brick.

OWEN SOUND, ONT.—The contract for the extension of the Bay st. sewer has been let to Mr. Thomas Farley, of Toronto, at \$2,731. The Standard Drain Pipe Co. will supply the pipe.

VICTORIA, B. C.—Mr. J. W. Carter has secured the contract for the erection of the Yates building on Wharf street. The block will be 66x90 feet, two stories, and will cost about \$14,000.

TORONTO, ONT.—The Dominion Government has awarded the Forsyth Granolithic Concrete Pavement Company the contract for the sidewalks round the Custom House in Front and Yonge streets. Mr. Henry Kerby is the representative of the company in Toronto.

VANCOUVER, B. C.—The contract for the erection of the new C. P. R. station and general office buildings has been awarded to Mr. Thos. Tompkins, of Brockville, Ont., who has the contract for the new Government buildings. The amount of the tender is in the neighborhood of \$160,000.

WINNIPEG, MAN.—Mr. John Farquhar has received the contract to erect a residence for Mrs.

Rowand, on Kennedy street, to cost \$4,000. Mr. Chesterton is the architect.—Messrs. John Inglis & Sons, of Toronto, are manufacturing two large steam boilers for additional power for the Northwest Electric company. The contract for enlarging the power house has been let to Messrs. Gray Bros.

WALKERVILLE, ONT.—The Globe Furniture Company, of this town, have secured the contracts for seating the following churches; Baptist church, corner of Wainier Road and Lowther avenue, Toronto; Baptist church at Carman, Man.; Presbyterian churches at Niagara Falls, and Harrow, Ont.; Siloam Methodist church at London, Ont.

HAMILTON, ONT.—The following are the separate tenders accepted by the Markets, Fire and Police Committee for the erection of a weigh house on the John street market. Masonry and brickwork, Martin & Smith, \$374; carpenter work, T. Meade, \$300; plastering, James McKee, \$38; painting and glazing, F. W. Kirk, \$28.50. Tinwork, John E. Riddell, \$17.—The Board of Works have awarded the contract for the construction of pipe sewer on Main street, between Ontario and Grant avenues, and on Grant avenue, from Main to Stinson streets, to J. J. Armstrong, at 33 3/4 c. per foot.

MONTREAL, QUE.—Messrs. C. Lefebvre & Co. have been awarded the contract for the entire decoration of the Church of St. Anthony. The cost will be about \$6,000.—Messrs. Wright & Son, architects, have awarded the tender for alterations to the building, cor. of St. Antoine and Cathedral st., to W. McDonald.—Perrault & Mesnard, architects, have let the contracts for the Monument National as follows: Masonry, Plant & Dubuc; carpenter work, Lambert & Son; Roofing & Plumbing, Brodeur & Lessard; Brickwork, Jos. Brunet & Son; Structural Iron, Canadian Bridge & Iron Co. They have also awarded contracts for a Seminary of Philosophy as follows: Masonry, Boucher & Huberdeau; Carpenter work, Paquette & Godbout; Plumbing, Paquette & Godbout; Brickwork, J. Morache; Plastering, J. Morache; Iron work, Canadian Bridge & Iron Co.; also for a residence on Hutchison street; Masonry, Boucher & Huberdeau; Carpenter work, A. Renaud; Roofing, Brodeur & Lessard; Plastering, J. Pelletier; Painting, O. M. Lavoie; Brickwork, J. Brunet & Son.—W. E. Doran, architect, has awarded contracts as follows for a 3-story dwelling on Notre Dame street, for P. Wright, Esq.: Masonry, E. Gauthier; Carpenter work, J. B. Gratton; Roofing, Montreal Roofing Co.; Plastering, J. B. Mailhot; Painting, E. Belanger; Plumbing, D. Hill; Brickwork, Alfred Gauthier.—Fowler & Bowe, architects, have accepted the following tenders for a three-story residence on Seymore ave., for W. Scott, Esq.: Masonry, W. Owen; Carpenter work, John O'Leary; Roofing, Campbell & Co.; Plastering, O. H. Vidal & Lesage; Painting, W. H. Lsherwood; Plumbing, W. H. Duckrill; Brickwork, W. Lavers.—J. A. Chausse, architect, has awarded contracts for two four-story dwellings on Church street, for A. Guenette, contractor.

The case of Bottems v. the Mayor and Corporation of York, heard in the Court of Appeal last week, is no doubt one containing a serious warning for contractors. The plaintiff had contracted to make a sewer of several miles run, and after an apparently superficial examination of the ground, had sent in a tender which turned out to be the lowest, and which, in fact, was so unexpectedly low that his attention was called to it and he was given the opportunity of reconsidering his estimate, but on doing so adhered to it. No excavations or trial-holes had been made from which the nature of the soil could be ascertained, and when the work was commenced the soil was found to be of such a muddy and porous nature that not only was extensive timbering necessary, but a great deal of the work was ordered by the engineer (who was quite within his rights on this point) to be re-constructed owing

to the manner in which the brickwork had been crushed by the pressure of the soil. The contractor found the work would be ruinous to him, and claimed that the reconstruction ought to be counted as new work. Mr. Justice Mathew decided against him with reluctance (though there could hardly be any doubt as to legal obligation of the contractor) and on appeal there was the same result: judgment for the defendants, accompanied by judicial expression of sympathy for the plaintiff. The practical lessons, from this important and unfortunate case are, that contractors should take every pains to ascertain the nature of the ground before undertaking such a contract, and that it is desirable, in fairness to both parties, that some clause should be inserted providing for special modification of the conditions on the judgment of the engineer, on the discovery of any exceptional difficulties which could not be ascertained beforehand. But there is perhaps a moral consideration suggested also. The defendants in this case claimed only their legal rights; but what about their moral duties? The additional cost of the works was not the fault of the contractor; the condition of the ground being such as it proved to be, the cost in any case must have been far greater than the contractor's estimate; and we must say that the spectacle of employers availing themselves of the want of caution of a contractor to compel him to execute work for half the sum which it must in any case have cost is not an edifying one, and we do not think the Corporation of York have any reason to be very proud of their position.—*The Builder.*

MUNICIPAL DEPARTMENT.

MUNICIPAL ENGINEERING.

Whether the time will ever come when our knowledge and our application of the knowledge will be so exact as to bring about the perfection of the human being, we cannot tell, but the knowledge we already have proves that the fate of man is largely in his own hands and that if he uses the knowledge he has the world would speedily change for the better. The duty of the sanitary authority is simple and definite. It is not to use the authority as a club to promote the tenets, or creeds, or opinions of any sect or party. It is to carry out the various Public Health and other Acts which have for their object the improvement of the health and comfort of the people; to this end and to no other should the members of every authority devote their energies. On economical grounds alone it is to the advantage of a community to spend a portion of its earnings on the sanitary improvements of its district; in a word, to raise the district or borough rate, and to decrease the poor and police rates. Statistics clearly show that the expenditure in the larger towns has resulted in a saving to the community, and that the neglect of expenditure on needful improvements has resulted in loss and suffering. Who can estimate the benefits accrued in our large and crowded centres by the introduction of pure air and water, the widening of thoroughfares, and the attendant demolition of hotbeds of vice and filth, the establishment of parks, open spaces, and places of recreation for the rising generation? and yet the difficulties met with in large bodies of people when such improvements are mooted are many and the originators of them are subjected to all kinds of abuse and misrepresentation. Roads, sewers, and means of water supply have been and still are constructed on too meagre a scale. A few years pass, and the works prove inadequate; then the town is forced to spend large sums in acquiring additional property, which has

*Abstract of inaugural address of the president of the Association of Municipal and County Engineers, England.

MUNICIPAL ENGINEERS, CONTRACTORS, AND MATERIALS.

often greatly increased in value through the former improvement, it may be. Many instances could be recorded where owing to such increased values, improvements have been delayed or so modified as to render them of little value beyond temporary benefit, or perhaps permanently shelved altogether. An experience of 30 years in municipal matters has shown me the error of procrastination. The longer necessary improvements are delayed—and where is the town not requiring improvements in some form?—the worse it will be. The health, the happiness, the prosperity of the community will suffer. The sanitary science is making headway in our midst, as is shown by the interest taken by a large number of people in the transactions of the Institute of Civil Engineers, the British Association for the Advancement of Science, and various other kindred societies, still there exists much ignorance in matters pertaining to public health. There is plenty of work for our scientists, philanthropists, and teachers of all grades. The bulk of the people need to be shown that money expended on the improvement of sanitary condition is money well invested, that it is to their interest for such works to be of the best and most perfect description, and that as by their nature such undertakings must necessarily be costly, it is the duty of representatives to obtain the best advice. It is best to pay a few hundred pounds in salaries than to spend thousands on imperfect works designed by incompetent and less remunerated advisers. There are, however, municipalities who have grasped the importance of following the dictates of true sanitary science, and who stand as beacon lights to less favored localities. The vast sums of money spent upon sanitary improvements in London, Liverpool, Manchester, Birmingham, Leicester, and other large towns bear witness alike to the knowledge and enterprise of their rulers and advisers. There are also smaller communities who according to the means at their disposal are endeavoring to pursue the same policy. I have not enlarged upon the many branches that properly come within the scope of the profession of a civil engineer viz, hydraulic, naval, mechanical, mining, and electrical sciences—all of which we, as municipal and county engineers, are expected to know something of, but have contented myself with making a few practical though desultory remarks upon our status, responsibilities, and the relationship we bear to the association and to the community. I trust you will not consider that I have taken too gloomy a view of the situation, if any conclude so, let me disabuse their mind by saying that there is every encouragement to go forward. We have only to compare the advancement made in the common necessities of our everyday life to see this is so. Compare the tallow dips of our grandmothers with the gas and electric light of our own day; the tinder-box with the lucifer match; the cobbles of 50 years ago with our improved wood, asphalté, and granite pavements; the advance in the speed of steamships; the remarkable progress of the locomotive. I will now conclude with this observation, that the capacity of

man's invention is unlimited. As an illustration take the recent advancements made in the science of electricity. Since our last annual meeting the exhibitions of Frankford and London have demonstrated how much may be done in lighting our streets and buildings and in the generation and transmission of motive power, exemplifying with much force Tennyson's lines:

The thoughts of men are widened
With the process of the suns.

As in all other sciences and professions so in our own immediate sphere of labor, skill, application, and perseverance must prevail and bring success. The Institution of Civil Engineers is by consent the representative head of the civil engineering profession, but to the branch of engineering devoted to sanitary science our own association has become and will continue to be a power and help.

PERSONAL.

Mr. A. Davis has been appointed Superintendent of Water Works in Montreal, *vice* Mr. McConnell, resigned. The salary is \$3,500 per year.

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Prices of Building Materials.

Table listing various building materials like lumber, shingles, and their prices in Montreal and Toronto.

Table with columns for Toronto and Montreal prices for items like planks, flooring, and shingles.

Table listing prices for brick, pressed brick, and various types of masonry.

Table listing prices for sand and stone materials.

Table listing prices for various types of lumber and wood products.

Table listing prices for state materials like paint, lead, and other building supplies.

Table listing prices for various types of paint and oil products.

Table listing prices for cement, lime, and plaster products.

Table listing prices for hardware items like nails, spikes, and cut nails.

Table listing prices for various types of nails and hardware.

Table listing prices for structural iron, steel beams, and other heavy metal products.

INDEX TO ADVERTISEMENTS In the "Canadian Architect and Builder."

Large index table listing various contractors and their services, categorized by profession such as Architects, Plumbers, and Electricians.