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# CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF

PUBLIC WORKS • TENDERS •  
ADVANCE INFORMATION •  
AND MUNICIPAL PROGRESS

EVERY THURSDAY

This paper reaches every week the Town and City Clerks, Town and City Engineers, County Clerks and County Engineers, Purchasers of Municipal Debentures and leading Contractors in all lines throughout Canada.

Vol. 8.

NOVEMBER 4, 1897

No. 40.

## THE CANADIAN CONTRACT RECORD,

PUBLISHED EVERY THURSDAY

As an Intermediate Edition of the "Canadian Architect and Builder."

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### Canadian Contractor's Hand-Book

A new and thoroughly revised edition of the *Canadian Contractor's Hand-Book*, consisting of 150 pages of the most carefully selected material, is now ready, and will be sent post-paid to any address in Canada on receipt of price. This book should be in the hands of every architect, builder and contractor who desires to have readily accessible and properly authenticated information on a wide variety of subjects adapted to his daily requirements.

C. H. MORTIMER, Publisher,

Confederation Life Building, TORONTO

## TENDERS

Will be received up to 5 o'clock p.m., THURSDAY, NOV. 11TH, for the construction of Sections L, M, N and O of the London Sewerage System, consisting of 8,101 ft. of Brick Sewer and 3,632 ft. of 18-inch Tile Sewer.

Plans and specifications may be seen at the City Engineer's office, London.

The lowest or any tender not necessarily accepted.

A. O. GRAYDON,

City Engineer.

ALD. E. PARNELL, JR.,  
Chairman Board of Works.

WILLIS CHIPMAN,  
Consulting Engineer.

W. A. Currie & Co., painters, Ottawa, are announced to have assigned to W. A. Cote.

## CONTRACTS OPEN.

TWEED, ONT.—R. F. Houston will build a saw mill here.

CAMPRELLFORD, ONT.—The curlers will build a rink, to cost \$2,500.

CARDINAL, ONT.—The starch works are to be considerably enlarged.

WALLACEBURG, ONT.—J. W. Taylor has the foundation laid for a new store.

CASSELMAN, ONT.—A. McLellan has announced his intention of rebuilding at once.

TAVISTOCK, ONT.—J. Kalbfleisch intends erecting a new building in the spring.

AYLMER, ONT.—Stephen Pierce will construct an elevator of 40,000 bushels capacity.

ST. MARYS, ONT. H. Dewey has purchased property on which he will build in the spring.

WOODSTOCK, ONT.—The town council is considering the purchase of a steam road roller.

SOUTH RIVER, ONT.—It is announced that the South River Lumber Co. will erect a new saw mill.

HULL, QUE.—The purchase of a fire engine will be considered at the next meeting of council.

BARRIE, ONT.—It is probable that a large sum of money will be expended on waterworks improvements.

WELLINGTON, ONT.—L. A. Osterhout, of Gananoque, is making preparations to erect a residence here next spring.

CHICOUTIMI, QUE.—Plans have been prepared by Mr. Eaton for an office building to be built by the Chicoutimi Pulp Co.

BEAUHARNOIS, QUE.—The Church of England congregation are building a new edifice, from plans prepared by Mr. Potter.

THAMESVILLE, ONT.—J. A. Secord has purchased property west of Victoria street and intends building a brick residence thereon.

NIAGARA FALLS, ONT.—The Grand Trunk Railway Co. have offered a site and \$4,500 in cash towards erecting a Y.M.C.A. building.

ROSSLAND, B.C.—A company is seeking incorporation to build a railway from this town to Arrow Lake, and thence to Vancouver.

GRANBY, QUE.—The Granby Rubber Co., the Empire Tobacco Co. and the Lath & Furniture Co. are each enlarging their works.

CORNWALL, ONT.—The council are now considering the proposition of the Iron Works Company to establish works in this town.

WINDSOR, ONT.—The Lake Erie & Detroit River Railway Co. will ask Parliament for an extension of time for the completion of its line.

SMITH'S FALLS, ONT.—Tenders have

been invited for carpenter work, painting and glazing in connection with the Central School improvements.

WHITBY, ONT.—At the annual meeting of stockholders of the Ontario Ladies' College, it was decided to lay a granolithic pavement around the college grounds.

WOODSTOCK, N. B.—The provincial government are about to build a steel bridge across Bull's Creek, Carleton county, about three miles below this town.

LISTOWEL, ONT.—The contract for electric lighting having been awarded to Mr. W. H. Green, of Wingham, steps will be taken at once to build the power house.

NAPIERVILLE, QUE.—The town of Napierville and the parish of St. Cyprian have voted a bonus of \$10,000 to the Southern Counties electric railway scheme.

VANCOUVER, B. C.—Sir William Van Horne states that the new works to be built in this city will consist of a station, to cost \$150,000, and new wharves costing about \$300,000.

BRAESIDE, ONT.—The Gilhes Bros. Co., have purchased a mill site at Madawaska Station, on Calabogie Lake, and will build a saw mill. They will also build a saw mill at this place.

NELSON, B. C.—The Nelson City Land & Improvement Co. were recently granted an order restraining the city from proceeding with the construction of the waterworks system.

BELLEVILLE, ONT.—J. P. Thompson, treasurer, will receive offers until Wednesday, 10th inst., for the purchase of \$50,000 of debentures, running for forty years, with interest at 4 per cent.

LEAMINGTON, ONT.—The trustees of St. John's church have decided to expend from \$1,500 to \$2,000 for repairs, including new seats, an addition of twenty feet, and the renovation of the ceiling.

L'ASSOMPTION, QUE.—It is the intention of the authorities of the Agricultural School of Quebec to erect a new building here, to be fitted with all modern improvements and ready for occupation early next year.

PAPINEAUVILLE, QUE.—The Dominion Electric Heating & Supply Co., of Ottawa, have made a proposition to the village council to supply light and power. They desire an exclusive franchise for thirty-five years.

RENFREW, ONT.—It is reported that John McLaren, who recently removed to Montreal, will return to town and build a new residence.—It is probable that T. Burton will throw up his contract for building the Ward school.

VALLEYFIELD, QUE.—The management of the Montreal Cotton Mills Co. contemplate substituting electricity for coal to dry the cotton, and arrangements are being completed for the erection of a large addition to the works.

SHERBROOKE, QUE.—A deputation from this town have urged upon the Min-

ister of Militia the necessity of erecting a drill shed here.—The management of the Q. C. railway intend to commence at once the construction of car shops.

**COLLINGWOOD, ONT.**—A committee, consisting of the mayor and members of the city council, has been appointed to agree upon a proposition to be submitted to the Grand Trunk Railway Co., for the erection of an elevator here.

**ST. THOMAS, ONT.**—The city council has decided to submit a by-law to the ratepayers to guarantee the bonds of the street railway to the amount of \$50,000, in consideration of the road being converted into an electric system.

**BRANTFORD, ONT.**—The Brantford Gas Co. will at once commence the erection of a new gasometer, with a capacity of 60,000 cubic feet.—It is expected that the Verity Plough Co. will rebuild their works recently destroyed by fire.

**COBOURG, ONT.**—The town council has purchased some twenty lots on the lake shore, on which American capitalists will build a large casino. It is also intended to build bath houses and swimming schools.—Alterations will be made to the G.T.R. station here.

**GUELPH, ONT.**—It is rumoured that James Hough's premises on East Market Square will be purchased and converted into an hotel.—A committee of the city council has reported against the proposition made by the G. T. R. to erect a new depot here, to cost \$20,000.

**PETERBORO', ONT.**—At the last meeting of the town council it was decided to submit a by-law to the ratepayers to provide the sum of \$2,500 for the reconstruction of Mud Lake bridge. The question of erecting a House of Refuge was also considered, but no action was taken.

**THREE RIVERS, Q'F.**—It is stated that the Three Rivers Ironworks Co. will increase the size of its works.—William Ritchie & Co. will build a saw mill on the Government Island, at the mouth of the St. Maurice river. The St. Maurice Lumber Co. is also building a saw mill.

**LONDON, ONT.**—William Clark has been granted a building permit for a two-story brick residence on York street, to cost \$2,000. J. A. Gauld, architect.—John McMartin, of the City Hotel, has purchased property on Elmwood avenue, South London, and will erect thereon a two-story brick residence.

**WINDSOR, N. S.**—Tenders have been invited by W. K. Dimock, municipal clerk, for the construction of a roof at the courthouse, and for repairing the walls of the same building.—The Dominion government has ordered the reconstruction of the post-office, custom house and drill hall, recently destroyed by fire.

**VICTORIA, B. C.**—The provincial government will assist the C.P.R. or any other company to construct a telegraph line from Telegraph Creek, on the Stickeen river, to Teslin Lake, the head waters of the Yukon.—The Department of Public Works at Ottawa have invited tenders for the construction of heating apparatus in the public building in this city.

**IROQUOIS, ONT.**—The by-law to authorize the council to borrow \$8,500 to purchase an electric light plant was defeated by a majority of 15 votes. The corporation have a wheel pit, intake pipe and tail race already constructed, and there is said to be a good opening for a company to put in a plant. Particulars may be obtained from Allen McInnis, clerk.

**ORILLIA, ONT.**—Sixteen sets of plans were submitted for the proposed House of Refuge to be built by the county. The Building Committee have recommended the acceptance of the plan submitted by Messrs. Smith & Bird, of Barrie, for a building to cost \$17,000. This firm also submitted another plan on

the cottage system, which would cost \$17,500. The fall session of the County Council will be called for the 15th inst., when the matter will be considered.

**GRAND FORKS, B. C.**—W. C. McDougall, late of Rosland, has organized an English company for the purpose of erecting two smelters and refineries of 100 tons capacity each, one to be located at Grand Forks and the other at Midway. In connection with these smelters, electric tramways will be used to carry the ore. The council is now arranging for a site.

**QUEBEC, QUL.**—James Reid, of this city, has sold the Pont Rouge pulp mill to Mr. McDougall, president of the Montreal Quarry Co. It is understood that from \$40,000 to \$50,000 will be expended on improvements.—Mr. Beliveau, manager of the Chateau Frontenac, states that the power house of the hotel will be rushed to completion at once.—Tanguay & Vallee, architects, are calling for tenders for the building of St. Victor de Tring church.

**FREDERICTON, N. B.**—A meeting of the York & Carleton Railway Co. was held in this city last week, at which matters in connection with the proposed road were considered. The company contemplate building a railway six miles in length from Cross Creek to Stanley.—The University Senate will ask the provincial legislature for a grant of \$1,800 towards providing a water supply for the University or heating the building with hot water.

**HINTONBURG, ONT.**—The council has decided to submit a by-law to the ratepayers to provide funds for supplying the villages of Mechanicsville, Hintonburg and Ottawa East with a water supply. The supply will be taken from the Ottawa river, at the Little Chaudiere Falls, by a 16-inch main. It is proposed to supply 4,000,000 gallons daily. The company formed for the purpose is composed of W. Scott, Hon. E. H. Bronson, A. Holland, T. Ahearn, and others, of Ottawa.

**WINNIPEG, MAN.**—Senator C. D. Buckman, of Little Falls, Minn., and Albert Berg, secretary of the State of Minnesota, are president and vice-president respectively of the company which proposes building a large canal from the Lake of the Woods to Rosseau river, a distance of fourteen miles.—The Bank of Hamilton have purchased property, corner Main and Owen streets, and will make extensive alterations thereto.—The Committee of Works have recommended that the city engineer be instructed to proceed at once with the erection of an overhead bridge.

**MONTREAL, QUE.**—The Minister of Public Works has signed the plan finally adopted for the improvement of the harbor, and work will be proceeded with at once. This plan includes two wharves, 700 feet in length and 300 feet wide, with space between reserved for two additional projecting wharves when required.—Plans have been prepared for three dwellings on St. Denis street and three on Drolet street for Mr. H. St. Pierre, nine dwellings on Sussex street for Alex. Hogue, and four dwellings on Mance street for Joseph Hogue. These buildings will cost about \$150,000.—The City Hall Committee will request the Finance Committee to grant the sum of \$10,000 for improving the sanitation of the city hall.—The Civic Committee do not view with favor the proposition made by the Grand Trunk Railway Co. to erect an office building on Victoria square. A conference with the manager will be held shortly.—There is some talk of building a Protestant church at Longueuil.—The Atlantic & Lake Superior Railway Co. are pushing ahead the construction of their road. The foundation for the bridges will be put in during the winter.

**HAMILTON, ONT.**—Tenders close today (Thursday) for the purchase of \$25,000 of debentures. T. Beasley, city clerk.

—In connection with the sewage disposal works, it has been found necessary to provide another sludge pump, at a cost of \$700.—Building permits have been granted as follows: Milne & Lyall, brick dwelling on Caroline street, between Bold and Duke street, cost \$1,500; John Doherty, brick dwelling on Claremont avenue, cost \$1,200; George Mills, alterations to premises of Leitch & Turnbull and the Gartshore Thompson Co.; Rastick & Son, architects, two 2-story brick dwellings on John street south, for John Morley, cost \$1,700.—G. W. Beardmore, of Toronto, one of the trustees of the Williams Estate, has announced his intention of spending \$30,000 on the Royal Hotel.—Mr. A. W. Peene, architect, has prepared plans for two residences on Bay street for Mr. F. E. Lowther, to cost about \$5,000. The contracts for masonry, carpentry and painting only have been let—the former to R. Pope and the latter to the Coleman Planning Mill Co., of Burlington, and Halcombe Bros., respectively. The same architect has prepared plans for a new factory building for the Hamilton & Toronto Sewer Pipe Co., to cost about \$10,000. Tenders are now in for the construction of the building. Outside tenders will be invited shortly for the steam heating apparatus.

**TORONTO, ONT.**—L. O. P. Genereaux has purchased property in the Annex, and is having plans prepared for a residence to be built thereon.—Andrew Nelson, contractor, has purchased through G. H. Stinson, real estate broker, lot 25, on the east side of St. George street. It is Mr. Nelson's intention to build a residence thereon, to cost \$20,000.—The Board of Control has been authorized to advertise for tenders for an issue of \$213,000 of debentures.—It is understood that the authorities of the General Hospital have decided to establish a down town hospital, to be located west of Yonge street and south of Queen street.—The city engineer has recommended the construction of a 12-inch water main, to provide ample fire protection at the exhibition grounds. The cost is placed at \$6,250.—At the last meeting of the board of management of the Working Boys' Home, it was stated that a new building was urgently required, and efforts will be made to secure the erection of the same.—The public school board have applied to the city council for a grant for increased accommodation, estimated to cost \$152,400. The schools most needed were stated to be as follows: Pape avenue and Kew Beach, \$13,000; three additional rooms to Dufferin School, \$8,000; extra accommodation in Ryerson school, \$8,000; in Clinton, Newson, Grace and Givens street schools, \$28,000; in Gladstone avenue, Shirley street and Brock avenue schools, \$25,800.—G. M. Miller & Co., architects, King street east, have invited tenders for excavating for the Havergal Ladies' College building to be erected on Jarvis street.—The Board of Control have adopted the recommendation for the construction of an asphalt pavement on Station street and a macadam roadway on Davenport road.—Ald. Dunn has moved in council that the Board of Control be instructed to report upon the advisability of extending the street railway service to the Island, together with the cost of the work.—The residents in the vicinity of Wychwood Park have requested the council of North Toronto to provide a site on which to erect a fire hall.—A deputation from the city council interviewed the Ontario Cabinet last week regarding a water supply for the Central prison. The city desire the government to bear the expense of \$2,500 for 1,650 feet of pipe.—At a meeting of the Separate School Board, held on Tuesday last, the Sites and Building Committee asked authority to have competitive plans drawn for a four-roomed school on McDonald square, also to adver-

tise for ten'ers to erect the same.—Build- ing permits have been granted as follows: J. A. Carlow, add. storey to warehouses, 28 Wellington st. west, cost \$1,000; Ontario Wind Engine and Pump Co., one storey bk. factory, e. side Pacific avenue, near King st. w., cost \$2,000; G. C. Watson, 66 Close ave., 2 storey and attic bk. dwelling, w. side Beatty ave., near Queen st., cost \$3,000. The Board of Control will invite tenders in a few days for annual supplies.

OTTAWA, ONT.—John Henderson, city clerk, will receive tenders until Monday, 8th inst., for skids for the new fire station.—E. F. E. Roy, secretary Department of Public Works, invites tenders until Monday, 22nd inst., for the construction of heating apparatus in the public building, at Victoria, B. C. Plans at above depart- ment and at Victoria. Steps are being taken to furnish the new wing of the hos- pital, which it is expected will cost \$2,500.—Designs were recently invited from Canadian artists for statues of Her Maj- esty the Queen and Hon. Alex. McKenzie. No designs of the latter having been re- ceived, it is probable that the competition will be thrown open to British artists.—It is stated that a number of Montreal capi- talists have decided on the erection of a cotton mill at the Chaudiere.—In January a by-law will be submitted to the ratepay- ers to provide the sum of \$529,883 for the construction of a drainage system. The scheme embraces the following: Eastern sewer, Rockliffe route, \$179,606; western sewer, amended route, via Broad street, \$294,344; Willow street tributary, \$20,000; O'Connor street tributary, \$28,933; extending outlet, present main sewer, \$4,000; Kent street outlet, \$5,000.—Building permits have been granted as follows: S. J. Davis, two brick residences on Hender- son avenue, cost \$2,500 each; J. G. Davidson, three brick veneered houses, south side McLaren street, cost \$4,000.—Tenders are being taken for the copper, carpenter work, etc., of the new Sun Life building.—There is a movement on foot to build a new fire station in Victoria ward, to cost \$12,000.—The property bounded by Charlotte, Daly, Bessier and Wurtemberg streets has been obtained as a site for the new monastery for the Precious Blood Sisters. Plans of the building have been prepared by L. Z. Gauthier, architect, of Montreal, but the work of construction will not be com- menced until next spring. In the mean- time tenders will be called for.—The directors of the Canada Central Fair de- sire to make extensive improvements, in- cluding the building of a bridge across the bay.—The rumor is current that a mag- nificent hotel will be erected next spring by a syndicate of Montreal capitalists, on the table rock, above the Chaudiere Falls. Among those interested are Messrs. Grancher, Forget and Delormies. It is said a board of directors will be elected early this month.—H. J. Beemer, presi- dent of the Ottawa & Gaueau Valley Railway, states that plans for the Inter- provincial bridge are being completed, and that at an early date work will be com- menced. He states that the new central station in Hull will be the point from which the bridge will start. Plans of the road from Aylmer to Hull are also in course of preparation.—In connection with the C.P.R. project, it is proposed to erect a large trestle work over the canal, and continue it to the level of the bridge opposite the post-office.—Mr. Shaugh- nessy, of the Canadian Pacific Railway, is authority for the statement that the com- pany intend building a separate station in Ottawa and making other improvements, costing in the neighborhood of \$1,000,000.—The Deschenes Electric Company will supply electric light and power in the city of Ottawa and county of Carleton, having obtained permission to lay cables from the Ottawa river to the canal basin and deep cut.

**FIRES.**

A large dwelling house at Lower French village, near Fredericton, N.B., owned by Albert Everett, was burned last week.—The saw mill of James Overholt, at East wood, Ont., was recently destroyed by fire. Loss \$3,000, no insurance.—The planing mill and machine shop at West Gravenhurst, Ont., owned by Mickle, Dymont & Sons, of Barrie, was burned last week.—The residence, barns and out-buildings of Mrs. Norah Sweezy, of the township of King, about three miles south of Bradford, were destroyed by fire on the 1st inst.—Fire at Hampton, King's County, N. B., on Sunday last destroyed Mrs. Evanson's dwelling, the Methodist parsonage, and E. G. Evan's dwelling.—The residence of Jacques Lesperance, of Pace, near Windsor, Ont., was destroyed by fire last week, at a loss of \$3,000.—A brick residence at Bradford, Ont., has been burned. Loss, \$6,000; small insur- ance.

**CONTRACTS AWARDED.**

GATINEAU POINT, ONT.—The contract for waterworks construction has been let to Smith & Co.

NELSON, B. C.—The contract for sec- tion B of the sewerage system has been let to H. H. McDonald, at the price of \$1,131.25.

HULL, QUE.—Joseph Bourque, of this place, has been awarded the contract for re-building the Catholic churches at Cas- selman and South Indian.

HARRISTON, ONT.—Geo. Gray, archi- tect, has prepared plans and let the con- tracts for the several trades of a brick residence for Mr. Geo. Fulton, to have all modern improvements and to be com- pleted January 1st, 1898.

CORNWALL, ONT.—The Ottawa & New York Railway Co. have let the contract for building stations to Mr. Warwick, of Brockville, and the Rathbun Co., of Dese-

ronto. Fairbanks, Morse & Co. will build the tanks.—Leitch & Pringle have the contract for a block of stores, corner Pitt and Third streets.

COLLINGWOOD, ONT. Fred T. Hodg- son, architect, has accepted the following tenders for improvements to the property of David Wilson on Simcoe and Huron tario streets. Carpenter work, D. Peter- man & Son brickwork, A. Court; paint- ing, Anson Lee, roofing and plumbing, J. H. Duncan; plastering, John Lockton.

WOODSTOCK, ONT.—Mr. McNicol, contractor, has the following work on hand: Residence for M. Dawes on Rid- dell street, cost \$2,500, rink on Canter- bury street, cost \$4,500; addition to Dr. A. M. Clark's residence on Broadway, cost \$1,200; improvements to Glasgow House, cost \$1,000, improvement to Times building, cost \$2,000.

MONTREAL, QUE.—The following ten- ders were received by the Road Commit- tee for the construction of sewers on St. Denis and DeMontigny streets:

	M. A. Cam- peau	N. La- porte & Co.	M. Gos- selin	Heffer- nan & Keegan.
St. Denis st., from St. Louis st. to near C. P. R. track	4.43	4.60	4.80	5.85
Rock excavation for do.	3.13	3.25	3.25	2.70
De Montigny st., from Beaudry st. to Mont- calm st.	5.21	2.70	5.75	8.50
Rock excavation for do.	3.00	1.00	2.00	3.50

The tenders of M. A. Campeau and Michael Gosselin have been accepted.—William Neville, architect, has accepted tenders as follows for a building on St. Andre street, brick front, for John Taylor: Masonry, John Taylor; carpentry, Wm. Cromhue; bricklaying, John Taylor.—L. R. Montbriant, architect, has let the contract for a house, wood, lined in brick, on Desery street, for F. X. Robillard, all trades to F. X. Robillard.—Mesnard & Daoust, architects, have let the contract for an addition to Ste. Elizabeth school to Avila Leger.—Building permits have

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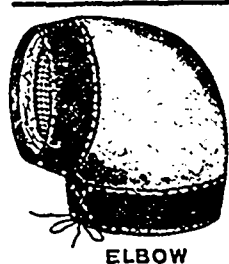
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  - THE ROYAL VICTORIA COLLEGE, Montreal.
  - THE PROTESTANT INSANE ASYLUM, Verdun, near Montreal.
  - THE GRAND HOTEL, St. Hyacinthe, Que.
  - THE NEW CUSTOMS-APPRAISERS STORES, NEW YORK, now building, which will consume 5,000 tons.
  - THE PARLIAMENT BUILDINGS, OTTAWA, portion of which was recently destroyed by fire and rebuilt.

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been granted as follows: One house, brick front, corner St. Urban and Vitre streets; proprietor, A. Sutherland; carpentry, W. M. S. Kelly. One building, cut stone front, on Roy street, for Thos. H. Smythe.

WINDOWS.

In a cased sash-frame each case consists of four pieces; the inside piece, on each side, or that next the aperture, is most commonly disposed in the same plane with the jamb of the stone, or side of the aperture, on the outside, the two sides forming parallel. These two pieces are entitled pulley-pieces, from their containing pulleys, over which the ropes pass, by which the sashes and weights are suspended.

The other three parts of each trunk are called linings; that parallel to the pulley piece, and next to the jamb, on either side, is called the back lining; the one next the outside, and parallel to the face of the wall, is the outside lining; and the remaining one, next to the inside of the room, is denominated the inside lining. The best made sash-frames have the pulley-pieces tongued into the outside and inside linings; the back lining is generally tongued into the outside, and nailed to the edge of the inside lining; on each pulley-piece two channels, of equal breadth, for the edges of the sashes to run in, are formed by nailing a slip of wood round the inner margin of the pulley-piece and suffering the outside lining to project within it, between which a narrow slip is inserted in a groove left in the middle of the intervening space. As the edge of this slip is generally rounded, it is called the parting bead; and the inner slip, for the same reason, is termed the inside bead, while the edge of the outer lining is called the outside bead. Within the case, there is also a vertical slip, suspended from the head, and passing longitudinally through the middle of the hollow space, for separating the two weights, which is therefore called the parting slip. The head, sill and inside linings have generally each a groove next to the inside of the room; the groove in

the head and sill is commonly 1/8 of an inch from the edge next to the opening; that in the head is for inserting the edge of the soffit, and that in the sill for receiving the edge of the capping bead on the upper edge of the back. The grooves, in the inside lining, are for the edges of the back lining of the boxing; the distance of these grooves from the inner edge of the inside lining depends upon the depth of the boxing and the distance of each line of hinges from the inner edge of the inside lining, or of that next to the opening. The line of hinges is generally about the eighth of an inch from the inner edge of the inside lining; so that the shutters, soffit and capping bead may have their terminating edges with sash-frame of the same margin all round; that is, at the same distance as the inner edge of the sash-frame. This, however, is not positively necessary, but may be varied at the discretion of the architect or workman.

The line of hinges being determined, the depth of the boxing is found by adding to the thickness of the wall, that of the inside finishing, whether of plaster alone, or of lath and plaster (the former requiring about an inch, and the latter two and a quarter inches); and subtracting from the sum, the thickness of the sash-frame, and its distance from the outside of the wall; then, if the remainder be equal to, or exceed half the distance of the hinge-line, such half distance is the breadth of

both the boxing and the shutter; it must, however, be observed that the outer edge of the shutter must not be rebated, as that would prevent the edges of the lathing coming close to the architrave or margin style which forms the side of the boxing, opposite to the inner lining of the sash-frame, when each shutter consists of one piece only; to remedy this, each shutter must consist of two folds, viz., a front part and back flap; and the breadth of the boxing must be contracted, either by introducing a margin style at the edge of each boxing, or, if one was necessary before, by making it broader; then the thickness of the two folds will be the neat distance of the groove from the line of hinges. If, on the other hand, the remainder before mentioned be less than the half distance of the hinge lines, it is the breadth of the boxing; divide the half distance between the hinge lines by the breadth of the boxing, and the quotient will give the number of folds; and if there be a remainder, there must be one fold more than is shown by the quotient.—National Builder.

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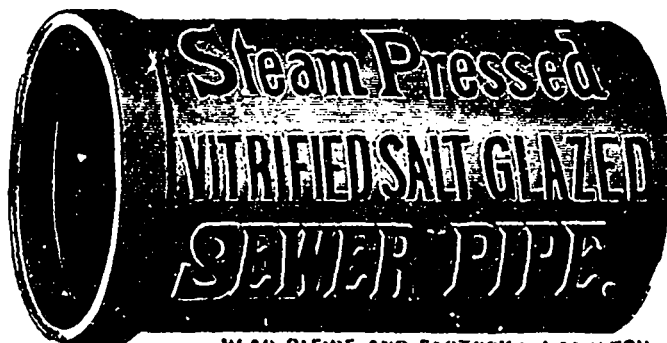
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### TO MUNICIPAL OFFICERS.

The CONTRACT RECORD is desirous of publishing, as far as possible, advance information regarding projected works of construction in all parts of Canada, such as sewerage and waterworks systems, railways, street pavements, public and private buildings, etc. Municipal officers would confer a favor upon the publisher by placing at our disposal particulars of such undertakings which are likely to be carried out in their vicinity, giving the name of the promoter, character of the work, and probable cost. Any information thus furnished will be greatly appreciated.

### THE SCIENTIFIC BASIS OF SEWAGE TREATMENT.\*

By W. J. DIBBIN, F. C. S., ETC., AND GEORGE THURDICHUM, F. C. S.

(Concluded.)

It may not be out of place to state here what, in the opinion of the authors, are the conditions which must be fulfilled by an effluent: (1) It must contain practically no solids in suspension. (2) It must not contain in solution a quantity of organic matter sufficiently serious to rob the stream into which it is discharged of its oxygen. (3) The organic matter it contains must be in such a condition as to yield readily to the natural purifying influences exerted upon it. (4) It must not be liable to putrefaction or secondary decomposition. (5) It must contain nothing inimical to microbial growth and activity; in other words, it must not be sterilized or treated with antiseptics. (6) It must not contain pathogenic organisms. By many who are wedded by long practice to the old methods the new departure is naturally viewed with no little suspicion. Having regard to the large number of solutions of the sewage question which have been put before the public from time to time, this attitude need not cause surprise; and, indeed, were it not for the results of experience during the last six years, the authors would probably be the first to advise caution. In fact, this is indeed their present attitude in a large number of cases, as, where factory refuse has to be dealt with, experimental enquiry is by far to be recommended, as without careful study of the conditions obtaining in each case disappointment and failure may result. On the other hand, indifference and obstruction to scientific progress are to be condemned.

It has been laid down by the State Board of Massachusetts that the purifying action of the bacteria in a filter depends upon the passage of thin films of water over surfaces in the presence of air. During this process the air dissolved in the

water is being continually used up by the life action of the bacteria, and will need replacing in order that the supply may be continuous. This re-absorption of air will take place with considerable rapidity when the exhaustion is great, but at a greatly reduced speed as the degree of aeration increases, and it necessarily follows that the rate of work done must be governed by that of the power of the water to re-absorb fresh supplies. Just as the conditions relating to the supply of air must be under efficient control, so must the quantity of organic matter in the form of sewage be regulated to the requirements of the organisms. Thus the number of times the bacteria beds can be charged with sewage, consistent with good and continuous work, will depend upon the quantity of solid matters in the sewage; as it may be supposed, that when the organisms are present to a maximum extent permissible with good work, their powers for the destruction of these will be limited, and if they are fed beyond that point they will grow beyond the capability of the water to supply them with oxygen, and putrefaction will result. Of later years it has become a stock expression to refer to the nitrification of the organic nitrogen. If the nitrogen formed the major constituent of the foul matters, the reference would be more in order. As, however, the carbon and hydrogen are present to a much larger extent than the nitrogen, it would be far more correct in some respects to refer to them as indicating the extent of the work accomplished, and therefore the older expression oxidation is to be preferred, as it applies to each of the three constituents instead of to only one. On the other hand, it may be argued that as the nitrogenous matter is the most objectionable and most easily rendered putrid, the destruction of this is therefore more important, and the nitric acid is the only measure of the extent of the oxidation of the nitrogenous matters. Briefly put, and without reference to analytical factors, the foregoing may be looked upon as a short resume of the present position of the question so far as relates to the disposal of the foul matters which render sewage offensive, repugnant to our senses, and dangerous to health, and the authors are confident that it will only be by careful and continuous study of the question on these lines that advance will be made. The moment that neutral agencies around us are interfered with, and force attempted

to be used in the shape of antiseptics, heaping vast masses of putrefying sludge together, etc., failure will inevitably dog our footsteps as it has done for so many years past in place after place.

### LEGAL DECISIONS AFFECTING MUNICIPALITIES.

**BROUGHTON V. TOWNSHIPS OF GREY AND EIMA**—Where the council of a municipality assumed to pass a by-law under section 585 of the Consolidated Municipal Act of Ontario, for the construction, maintenance and repair of drainage works, and thereby to charge and assess lands in an adjoining municipality for benefit as for outlet, in order to raise the funds necessary to meet the cost of such works, the Supreme Court of Canada held, reversing the judgment of the Court of Appeal for Ontario, and of a Divisional Court, that as the drain only emptied into a natural stream extending into the adjoining municipality, the lands in such adjoining municipality purported to be affected by such by-law were not assessable for a liability thereunder to contribute towards the cost of the works, and so far as they were concerned, the by-law was ultra vires of the initiating municipal corporation; and that a person whose lands might appear to be affected thereby, or by any by-law of the adjoining municipality proposing to levy contributions towards the cost of such works, would be entitled to have the adjoining municipality restrained from passing a contributory by-law, or taking any steps towards that end, by an action brought before the passing of such contributory by-law.

At the recent convention of the American Society of Municipal Improvements held recently in Nashville, Tenn., the following Canadians were elected to membership in the Association: Mayor Gallagher, Quebec; Mayor Bingham, Ottawa; Charles McMillan, City Clerk, Calgary, N.W.T.; E. G. Barrows, City Engineer, Hamilton, Ont.; E. H. Keating, City Engineer, Toronto; Ald. Saunders, Toronto. Mr. Keating was subsequently elected 2nd vice-president, while Ald. Saunders was appointed on the Committee on Municipal Franchises, and Mr. Barrow on the Special Committee on Casting of Cast Iron and Steel Rivetted Pipe.

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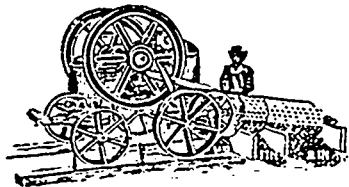
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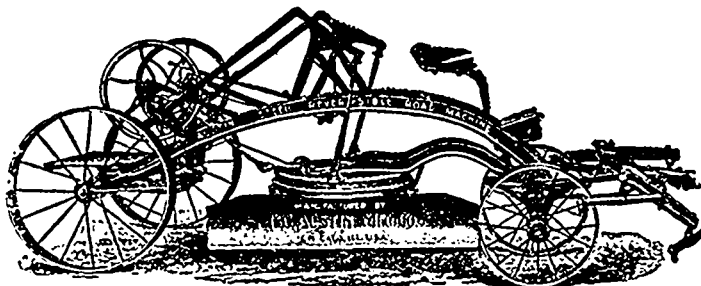
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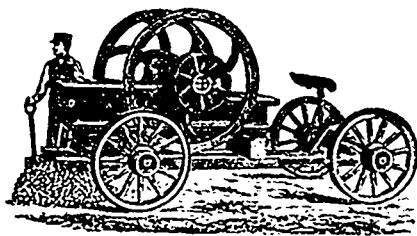
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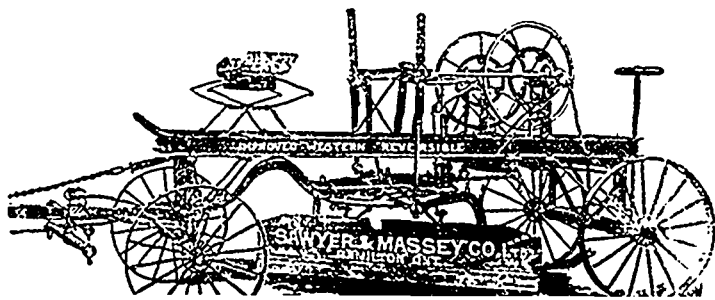
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