

CANADIAN CONTRACT RECORD

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

EVERY WEDNESDAY

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.

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THE CANADIAN CONTRACT RECORD.
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Notice to Contractors

**Combined Traffic and Railway
Bridge for Fraser River, at
New Westminster, British
Columbia, Canada.**

SEALED, SEPARATE OR WHOLE TENDERS, properly superscribed, as the case may be, "Tender for Substructure, Fraser River Bridge," "Tender for Superstructure, Fraser River Bridge," "Tender for Fraser River Bridge," will be received by the undersigned up to and including 5th day of January, 1902, for the manufacture, erection and completion of the bridge in accordance with the drawings and specifications to be seen on application at the Lands and Works Department, Victoria, B. C., at the Government Office, New Westminster, B. C., and at the office of Messrs. Waddell and Hedrick, Consulting Engineers, New Nelson Building, Kansas City, Mo., on and after the 5th day of December, 1901.

Intending tenderers upon application at any of the above named offices may obtain, upon payment of ten (\$10) dollars, copies of drawings and specifications for either substructure or superstructure, or twenty (\$20) dollars for both.

Each tender must be made out on the form supplied, and must be accompanied by an accepted bank cheque or certificate of deposit on a chartered bank of Canada or National Bank of the United States made payable to the undersigned, or by gold, in the sum of five (\$5,000) dollars, which will be forfeited if the party tendering declines to enter into contract when called upon to do so.

The cheques or cash deposit, as the case may be, of unsuccessful tenderers will be returned when contract is awarded.

The agreement on the form of tender to furnish a bond for \$50,000, or equivalent satisfactory security, for the due fulfilment of the work, must be signed by the tenderer and his sureties.

The Department is not bound to accept the lowest or any tender.

W. S. GORE,
Deputy Commissioner of Lands and Works,
Lands and Works Department,
Victoria, B. C., 2nd November, 1901.

MUNICIPAL DEBENTURES FOR SALE

Debentures of the Town of Listowel offered for sale by tender, amount \$10,000, payable in twenty equal annual instalments of \$750 each, payable on the 15th day of December in each year at the Bank of Hamilton, Listowel. First instalment of interest and principal to become due and payable on the 15th day of December, 1902. Sealed tenders will be received by the undersigned up to the evening of December 9th, 1901.
WILLIAM BRIGHT, Clerk.
Dated November 29th, 1901.



NOTICE TO BUILDERS, ETC.

Separate tenders addressed to the undersigned will be received through registered post only up to noon on

WEDNESDAY, DEC. 18TH, 1901,

for each of the various trades required in the erection of new Office Building and Caretaker's Residence on Wellington Avenue, in the City of Toronto, in connection with the Cattle Market. Plans and specifications and form of city contract may be seen and all necessary information may be obtained upon application at the office of Mr. A. R. Denison, Architect, 20 King street west, Toronto.

Each and every tender must be accompanied by a marked cheque or cash deposit, equal to 2 1/2 per cent. on the amount thereof, if over \$1,000; if under that amount a cheque or cash for 5 per cent. Cheques must be made payable to the City Treasurer. Tenders must bear the bona fide signature of both the party tendering and of two sureties.

Tenders must be marked on the outside so as to show plainly for which of the above-mentioned works they are put in.
Each building will be tendered for separately. The usual conditions relating to tendering as prescribed by city by-law must be strictly complied with or the tenders will not be entertained. The lowest or any tender not necessarily accepted.

O. A. HOWLAND (Mayor),
Chairman Board of Control,
City Hall, Toronto, Nov. 26th, 1901.

DATE OF PUBLICATION.

Architect, engineers, municipal authorities and others are reminded that the CONTRACT RECORD is printed every Tuesday afternoon, and that advertisements should reach the office of publication not later than 2 o'clock p.m. on that day to insure insertion in the issue of the current week. Advertisements are frequently received too late for insertion, to avoid which special attention is directed to this announcement.

John Hoodless & Son, manufacturers of furniture and art wood-work, Hamilton, Ont., have assigned. The liabilities are estimated at about \$35,000 and assets \$50,000.

CONTRACTS OPEN.

RUSKVIEW, ONT.—Richard Lennon intends building a brick house next spring.

SARNIA, ONT.—A by-law to issue \$5,000 of debentures has been passed in council.

PARRSBORO, N. S.—Messrs. Spicer are preparing to build two more schooners.

ORILLIA, ONT.—Northway & Co. intend installing an electric elevator in their store.

SWAN RIVER, MAN.—It is stated that S. Cable will erect a flour mill here next spring.

MORRIS, MAN.—Negotiations are under way looking to the erection of a flour mill here.

HINTONBURG, ONT.—A suggestion has been made that a new town hall be built.

CHATHAM, N. B.—C. B. Champion, of Dalhousie, intends building a shingle mill here.

CREEMORE, ONT.—John Ayres has purchased vacant property and will likely erect a residence next spring.

FERGUSON, B. C.—Material is being placed on the ground for a smelter to be built by C. W. McCrossan.

BATHURST, N. B.—Miss Burns, daughter of the late Senator Burns, is building a fine residence here.

BRIDGEBURG, ONT.—The ratepayers have almost unanimously decided in favor of a waterworks system.

MARIA, QUE.—It has been decided to build a butter factory in connection with the Maria Cheese Factory.

CANNINGTON, ONT.—The Baptist congregation will commence the construction of a new church next spring.

LISTOWEL, ONT.—Hay Brothers have purchased property on Elm street, and it is rumored will build an oat-meal mill.

RIDGETOWN, ONT.—It is probable that the ratepayers will be asked to approve of the construction of a waterworks system.

NORTH TORONTO, ONT.—The chief constable has been instructed to ascertain the cost of a fire alarm system for the town.

ST. MARY'S, ONT.—It has been definitely decided to submit a by-law to the ratepayers to raise \$30,000 for street improvements.

EXETER, ONT.—Plans are being prepared for bank premises to be built by the Molson's bank, near the post office, to cost \$10,000.

HALIFAX, N. S.—Work has been begun on the foundation of an hotel to be built on Mr. Gilpin's property in the North-West Arm.

UXBRIDGE, ONT.—Bids for the purchase of \$4,000 town hall debentures

are invited by Charles Kelly, mayor, up to December 16th.

WOODSTOCK, ONT.—E. Borland, of Tilsonburg, will probably build a carriage factory in this city.

ST. THOMAS, ONT.—A sewer on Wilson street has been petitioned for, and the government has agreed to pay a portion of the cost.

PERTH, ONT.—A committee of Lanark county council has recommended that the Andrewville bridge on the county boundary be rebuilt.

GODERICH, ONT.—During this winter the Dominion Government will remodel at this place the steamer Lord Stanley, at a cost of \$10,000.

MILTON, ONT.—The council has instructed the county clerk to prepare a by-law as a preparatory step towards a system of road improvement.

PARK HILL, ONT.—At the municipal elections a by-law will be submitted to the ratepayers to raise funds to establish a system of waterworks.

PEMBROKE, ONT.—The Pembroke Southern Railway are about to ask for an extension of their charter to include a road from Pembroke to Shawville.

PENETANGUISHENE, ONT.—P. Payette is asking for tenders up to December 31st for brick work, plastering and painting of new dwelling house.

RIDGETOWN, ONT.—James Rush-ton, town treasurer, is asking for bids up to 10th inst. for purchase of \$10,000 twenty year four per cent. debentures.

LONDON, ONT.—Ald. Campbell has submitted a proposition to the council that a city hall and police station be erected on Park avenue, at a total cost of \$60,000.

NANAIMO, B. C.—It has been decided to have the Alberni-Clayoquot telegraph line constructed by contract instead of by day labor, as was first intended.

NEWMARKET, ONT.—Miss Fisher has purchased property on which she will build a cottage next spring.—E. S. Cane contemplates the erection of a wharf in front of Portsmouth.

REVELSTOKE, B. C.—A motion will be introduced in council to submit a by-law to the ratepayers to raise \$3,000 for building a central fire hall and \$1,000 for purchase of equipment.

SOUTHAMPTON, ONT.—C. M. Bowman, M.P.P., is advocating a scheme to build a dam across the Saugeen river, by which means it is expected that 1,000 horse power could be developed.

NEW WESTMINSTER, B. C.—The council hopes to secure the widening of the Lee Island bridge to 75 feet. It is improbable that the Vancouver and Lulu Island railway bridge will be widened.

BROCKVILLE, ONT.—The council are still considering the question of submitting a by-law to the ratepayers to raise funds for improvements to the lighting plant. The commissioners have asked for \$50,000.

PORT STANLEY, ONT.—The Port Stanley Electric Railway Co. will ask for amendments to their charter so that they may construct an electric railway to London and dispose of their franchise if desired.

OWEN SOUND, ONT.—A committee has been appointed by Grey county council to secure information regarding the cost of building a house of refuge, said committee to report at the January session.

BOWMANVILLE, ONT.—Bids are asked by John Lyle, town treasurer, up to December 10th, for purchase of the following four per cent. debentures: \$3,800 twenty year; \$5,000 twenty year; \$5,000 thirty year.

BANFF, N. W. T.—The proposed addition to the C. P. R. Hotel here will cost in the neighborhood of \$100,000. Each bedroom will have a bathroom attached. Contractors are now figuring on the plans for this work.

THOROLD, ONT.—There is a partial water famine, and some steps will have to be taken to construct a waterworks system. James Battle recently offered to put in a service, but a franchise was not granted by the council.

NEWCASTLE, N. B.—On December 5th the ratepayers will vote on a by-law to raise \$70,000 for the installation of a waterworks system and an electric light plant. D. Morrison is mayor, and R. T. D. Aitken, town clerk.

AYLMER, ONT.—Bids are invited by William Warnock, town clerk, up to December 14th, for the purchase of the following debentures: \$20,000 electric light system, 4 per cent. 20 year; \$38,000 water works, 4 per cent. 30 year.

SACKVILLE, N. B.—A public meeting was held last week to discuss the question of purchasing fire protection appliances, and a committee, including Dr. Allison and Capt. Thomas Anderson, was appointed to report at a later meeting.

SYDNEY, N. B.—An increase in the insurance rates is threatened if improved fire appliances are not installed.—Tenders have just been taken by W. A. McDonald, town engineer, for construction of a combined fire station and jail.

WIARTON, ONT.—A proposition from Charles Reckin to build a grist mill here has been passed in council and a by-law will be submitted to the ratepayers on January 6th authorizing the bonus asked for. Mr. Reckin agrees to build a stone or brick flour mill 30x60 feet, three storeys high, with iron covered roof, to cost about \$8,000.

ASCOT CORNER, QUE.—Wilfrid Duplin, secretary of the municipality, invites bids up to 8th inst. for the extension of a wooden bridge crossing the St. Francis river, and the reconstruction of the south abutment, the latter of stone, concrete or filled crib work. Plans at the office of the secretary, and L. A. Dufresne, C. E., Sherbrooke.

CHESTER, N. B.—Miss Ellison, of Philadelphia, Dr. Simons, of Baltimore, Keith Hudson, of Cowes, England, and Hon. Parry Heath, of Washington, will each build summer residences here next spring.—Prof. Keasbey and Captain Allen are interesting themselves in a new club house for the Chester Yacht Club.

HULL, QUE.—Wright county council will meet on December 11th, when the question of building a registry office will again be considered.—The Hull Brewing & Malting Co. have the foundation of their new building completed. F. X. Mattman is manager of the company.—The congregation of Zion church are considering the question of building an addition.

VICTORIA, B. C.—The Board of the Provincial Royal Jubilee Hospital are considering extensive additions. Preliminary plans have been prepared by F. M. Rattenbury, architect, for the following improvements: Children's ward, cost \$5,800; pay ward, \$10,000; diet kitchen, \$1,500; nurses' home, \$7,500; drainage, \$2,600. Robert S. Day is chairman of the building committee.

WINNIPEG, MAN.—A meeting of the shareholders of the Manitoba Water Power Electrical Co. will be held in this city on December 30th for the election of officers and for other purposes. Hunter Cooper, McIntyre Block, is secretary of the company.—The city is about to invite tenders up to December 14th for a

three ton and five ton steam derrick, and for the following sewer pipe: 2,500 feet 6-inch; 1,500 feet 4-inch; 50 4-inch traps; 25 4½ inch bends; 500 6 inch slants; 50 12x6-in. junctions.

BRANTFORD, ONT.—Building permits have recently been granted as follows: Slingsby Mfg. Co., brick building, cost \$2,000; S. Carty, brick residence on Sydenham street, cost \$1,000; Charles Fisher, two storey brick residence on Cayuga street, cost \$1,900.—Tenders are being taken for alterations and additions to building, corner King and Dalhousie streets for Jerry Dunn. Plans by L. Munro, architect, Hamilton.

FORT WILLIAM, ONT.—In a letter to the Mayor, General Superintendent Leonard, of the C.P.R., states that tenders are being taken for the construction of a large cleaning elevator at this place, and that the construction of a large coal dock and modern coal handling appliances will be commenced very shortly, the plans having already been prepared. The improvements to be made within the next year will cost in the neighborhood of \$400,000.

SAULT STE. MARIE, ONT.—The ratepayers will vote on a by-law in January to raise \$56,000 for macadam roadways, granolithic sidewalks, addition to fire hall and the purchase of road machinery, including a steam roller and stone crusher.—A site has not yet been selected for the new post office to be built at this place.—The chief engineer of the Manitoulin and North Shore Railway has just taken tenders for construction of abutments of the Spanish River bridge near Stanley Junction.

WINDSOR, ONT.—The franchise of the South Essex Electric Co. has been purchased by the Everett-Moore Co., of Cleveland. The charter and franchise extend from the city to Point Pelee and Leamington, and it is expected that the new owners will shortly commence the work of construction.—The city is offering for sale \$34,000 four per cent. debentures. Tenders received by Stephen Lusted, city clerk, up to December 13th.

OTTAWA, ONT.—The city engineer has reported that satisfactory progress is being made towards reaching a mutual agreement for the construction of flood protection works along the Rideau river.—Tenders are asked by P. W. Resseman up to December 18th for hauling 2,000 to 2,500 tons of zinc ore from Zenith Mines to Maggot River Siding, a distance of about sixteen miles.—It is not likely that the proposed Catholic church in Ottawa East will be commenced before the summer of next year.—Joseph Tobin, of College avenue, intends building a block of frame dwellings on Sweetland avenue, to cost \$2,500.—In connection with the increased accommodation required for St. Patrick's Orphan Asylum, it is now suggested that the building on the farm in South Gloucester be enlarged, at a cost of about \$10,000.

NIAGARA FALLS, ONT.—W. M. German, M. P., of Welland, and B. R. Payne, of this place, last week filed with the Dominion Government at Ottawa plans of the work proposed to be constructed by the Ontario Power Co., which proposes to take water by means of a power canal from the Welland River at Chippewa and a tail-race into the Niagara river below the falls.—It has been decided to submit a by-law to the ratepayers in January to raise \$15,000 for improvements to the electric light plant and \$1,600 for market improvements.—The Canadian Niagara Power Co. are about to invite proposals for the construction of wheel-pit.

ST. JOHN, N.B.—At a meeting of business men held last week it was admitted that a new Y.M.C.A. building was needed, and steps were taken towards securing the necessary funds for the purpose.—Mr. Robertson, one of the chief promoters of the proposed dry dock here, states that it will cost about \$800,000.—The council is considering the making of improvements to McLeod wharf, at a cost of about \$45,000.—John E. Moore has plans prepared for a modern saw mill which he proposes building at Pleasant Point. The building will be 150 x 34 feet, and the plant will include band saw, edger, lath mill, planer, stove machine, box making machinery, engines and tubular boilers. The mill will cost about \$30,000.

VANCOUVER, B.C.—The Vancouver Power Co., of which Mr. Buntzen is secretary, have submitted their scheme for developing power at Coquitlam Lake to the Provincial Government. It is proposed to construct a dam across the outlet of the lake and extend the water pipe which now gives New Westminster its supply.—J. Keith Fisher has returned from England, and is now purchasing the equipment for the cement plant to be established on False Creek by the Pacific Coast Portland Cement Co.—Robert McNair has sold his interest in the Hastings Single Mfg. Co. to his brother, J. A. McNair, and it is said that the latter will erect a new shingle mill on the water front.—The new foundry of Ross & Howard has been completed, and within the next year the following buildings will be built by this firm: Machine shop, 80 x 60 feet; boiler shop, 80 x 46 feet; pipe works, 80 x 40 feet; blacksmith's shop, 80 x 40 feet; pattern shop, 80 x 40 feet; store room, 80 x 40 feet. In the machine shop will be set up a lathe capable of handling work 14 feet in diameter and 6 feet face. The pipe works will be equipped to turn out hydraulic steel pipe, etc. Mr. Whitelaw is architect for the company.

MONTREAL, QUE.—The authorities of the Montreal maternity hospital have, in view of the donation of \$15,000 by Sir William MacDonald, decided not to purchase the Durocher street property for a new building, but to secure if possible a larger and more advantageous site.—Hutchison & Wood, architects, have prepared plans for an addition of 55 feet to the building of Henry Brks & Sons, jewellers.—The superintendent of the water department will ask the council for an appropriation of \$150,331 for next year. Among the appropriations asked for are the following: Distribution pipes, \$28,124; meters, \$3,997; hydrants, \$8,970; public fountains, \$1200.—The Harbor Improvement Committee have submitted to the commissioners a report on the Windmill Point wharf to be commenced next spring. This wharf will be built in concrete and will cost \$520,000. It has been decided, therefore, to advertise for tenders at once for the coming year's supply of timber, cement, sand, etc.—R. B. Angus intends rebuilding his residence, "Pine Bluff," at Senneville. Work will be commenced early in the spring, and the building will cost about \$100,000.—Building permits have been granted as follows: N. Masson, one storey residence, Huron street, cost \$1,000; Z. Riopel & Co., three storey residence, St. Dennis street, cost \$9,000 (A. St. Louis, architect).

TORONTO, ONT.—The Toronto General Trust Co. have sold to Richard W. Howe a lot at the corner of Yonge and Cumberland streets.—Plans for a con-

vocation hall for the University of Toronto were talked over at a meeting of friends of the university held last week.—Tenders are invited by the city up to Wednesday, December 13th, for the erection of a new office building and caretaker's residence on Wellington avenue, in connection with the cattle market. Plans at the office of the architect, A. R. Demson, 20 King street west.—It is understood that the project of erecting a new building for the medical faculty of Toronto University, to be occupied by the third and fourth year classes, has progressed so far that provisional plans have been drafted. They call for a building about 150 feet square, with a central court-yard.—The city has given notice of its intention to construct the following works: Brick pavement on Dovercourt road, from Queen to Armour streets, cost \$5,850; on Dorset street, from Wellington to King streets, cost \$2,970; macadam roadway on Dundas street, from Bloor street to north city limits, cost \$12,860; cement concrete sidewalk on King street, north side, from George to Sherbourne, cost \$1,156, and from Sherbourne to Princess street, cost \$700; on Bellevue avenue, east side, from Bellevue place to Oxford street, cost \$790; on Manning avenue, west side, from Harbord street to 363 feet north, cost \$656; on Sully street, west side, from Bloor street to 1056 feet south, cost \$605.—The city engineer has been asked to report upon the cost of a foot bridge across the Don to connect Bloor street and Danforth avenue, also upon the cost of straightening out the Don at Ashbridge's Bay.—The city engineer has recommended the construction of the following works: Brick pavement on Wellington avenue, from Tecumseh street to Sirachan avenue, cost \$16,950; concrete sidewalks on Madison avenue, both sides, from Bernard avenue to Dupont street, cost \$1,656; on West Market street, west side, from Esplanade to Front, cost \$554; on Spadina avenue, east side, from King street to Clarence Square, cost \$343.—The value of building permits issued in November was \$409,710. These were almost exclusively for residences, no less than 60 having been started during the month.—Building permits have been granted as follows: D. Heintzman, alterations and additions to

dwelling, Bloor street, near Huntley, cost \$4,000 (Charles F. Wagner, architect, W. J. Buley, contractor); F. Squires, pair semi-detached two store and attic brick dwellings, 51 and 53 Albany avenue, cost \$6,500 (C. J. Gibso, architect); M. Pattison, two storey and attic brick dwelling, Brunswick avenue near Bloor street, cost \$5,000 (R. J. Edwards, architect, J. M. G. Kilgore, contractor); Canada Biscuit Co., four store brick factory, corner King and Bathurst streets, cost \$5,250; G. Brown, alterations to residence, 105 and 107 Logg avenue, cost \$1,000; S. Brock, residence on Queen street near Waverly road, cost \$1,300; I. W. W. Plewes, residence 1 Spadina road, cost \$2,800; J. S. Ashfield, residence on Simpson avenue, near Holland road, cost \$1,300; Toronto Liqueur Carbonate Co., two storey addition factory, 578 Queen street east, cost \$1,000.

FIRES.

Chair factory of H. R. Wright Odessa, Ont.; loss \$2,000.—Presbyterian church at Rosemont, Ont., totally destroyed.—Residence of Sheriff Wright Searlton, near Charlottetown, P. E. I. T. house was one of the finest in the province.—Residence at Peterborough, Ont. owned by Robert Jones; loss \$2,500. Boiler and engine works of the C. C. Co. at Garden Island, near Kingston, Ont.; loss \$10,000. no insurance.—Buildings at St. John, N. B., owned by M. Martha Adams and A. E. Clarke.—T. immense barns and cattle sheds of Scotton Estate, situated at Ojibwa, n. Sandwich, Ont., were destroyed by on Sunday last, the loss being \$30,000.

CONTRACTS AWARDED.

DURHAM, ONT.—George Turnl has let the contract for a large brick residence to Mr. Cemke, of Elmwood.

VICTORIA, B. C.—The city purchased a rock crusher from Austin & Western Co., of Chicago.

HARVEY BANK, N. B.—Hard E. Graves has been given a contract the Cumberland Railway & Coal Co. build a large barge.

MONTREAL, QUE.—The C. P.

Good Roads Machinery Co. (Limited)

JOHN CHALLEN, Manager, HAMILTON, ONT.

"CHAMPION" Rock Crushers, Road Rollers, Road Graders, Road Plows, Macadam Spreading Wagons, Street Mud Cleaners, Wheel & Drag Scrapers.

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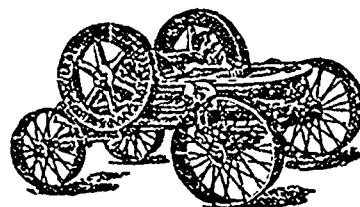
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MUNICIPAL DEBENTURES BOUGHT

EMILIUS JARVIS & CO. (Toronto Stock Exchange) 19-21 King St. West, TORONTO, (

awarded the masonry contract for new 100-ton track scale at Outremont. John P. O'Leary.

ESTON, ONT.—Contractor Wirgin has secured the contract for an live addition to Care Bros. & Co.'s factory. Plans by G. R. Mellish, architect, Galt.

BRANTIA, ONT.—The Cleveland Saw Mill Co. have let the contract to J. Mason & Co., of Detroit, for 12 wells to be sunk on their property by the shore.

BERBROOKE, QUE.—The tender National Bridge Co., of New York, has been accepted by the city council for construction of a bridge over the St. Lawrence river at Wolfe street.

BRANDONVILLE, ONT.—The James McMillan Co., of this place, have secured the contract for warming and ventilating a school at Kingsville. Three warm air generators will be used. Brown & Semple have been awarded contracts for heating new drill shed and for plumbing and heating of new general hospital.

VANCOUVER, B. C.—The contract for machinery for a steamer on the Howe Sound route has been let to Kie & Baxter, of Glasgow, Scotland. Peterson & Hackett have secured the contract to fit up the armouries in the Mill hall.—A. E. Carter has just secured a contract to build a wooden structure on stone foundation for the new street Methodist congregation. The church is to be remodelled into a Sabbath school building. Thos. G. G. of Victoria, is architect, and the work will cost about \$7,000.—It is estimated that the interior fittings and apparatus for the library building

will cost about \$10,000. Albert Adams, contractor for the building, has commenced the excavation. His tender was \$40,200, \$200 more than the estimate of the architect, G. W. Grant. The other tenderers were \$41,900, \$42,433, \$47,633, and \$56,200.—The building to be built by A. McDonald & Company, of Winnipeg, will be 60x100 feet, brick, with cut stone front, cost about \$14,000. Blackmore & Sons are architects, and D. Saul the contractor.

VICTORIA, B. C.—The city council opened tenders last week for the construction of the Point Ellice bridge. Tenders from the Canada Bridge Co., Walkerville, Ont., and Hamilton Bridge Co., were thrown out on the ground that they were not received until after the expiration of the stated time. The balance of the tenders were as follows: The Albion Iron Works Company, for the whole work, \$147,500. The Puget Sound Bridge & Dredging Company, for the whole work, plan A, \$78,100; A1, \$81,900; B, \$79,500.

B1, \$83,000; C, \$73,700; C1, \$81,600; D, \$76,000; D1, \$80,800; E, \$75,000; E1, \$79,200; F, \$94,720. For different foundations than those described in the company's designs the additional cost would range from \$2,000 to \$14,000, and for stone facings on the foundations the company would add another \$2,200. The Dominion Bridge Company, for superstructure, asked \$45,240. They would not undertake to complete the work in four months. The city must remove any part of the old bridge interfering with the work. The King Bridge Company, of Cleveland, Ohio, plan, 4,031 for superstructure, \$45,988; 4,031, with three sets of tubular piers, \$50,895; 4,032 for superstructure, \$43,295; same, with three tubular piers, \$57,200. The company would deduct \$2,500 from their bids if the city undertook to furnish the lumber. They wanted until August 1, 1902, in which to complete the work, but would not agree to any forfeit in case of failure to do this, as there is an uncertainty of delivery. The tender of the Puget Sound Bridge & Dredging Co., at \$92,600, has been accepted.

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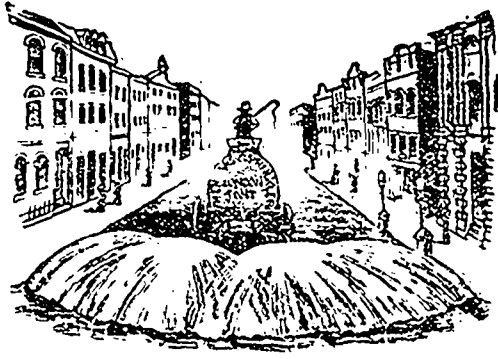
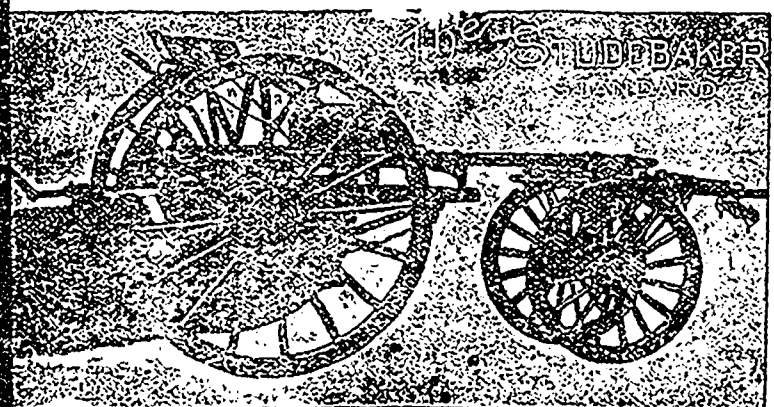
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This test is employed as a rule only when the presence of fish oil or rosin oil is suspected, and is made in the following manner: For Fish Oil.—Into a cylindrical test tube or two ounce round vial ten parts by weight of the suspected oil and three parts by weight of crude nitric acid is placed, and the tube or bottle well shaken for about a minute, then stood aside for say 30 minutes, when two layers or stratum will have formed, the oil on top and the acid in bottom of tube or vial. This should be done in a room of a temperature not less than 60 deg. F.

If the oil is pure linseed oil, the upper stratum will be a dark muddy olive green, the lower stratum practically colorless. If the fish oil is present to the extent of only five per cent., the upper stratum will show a dark brown color, the lower stratum a dark orange, or when a large percentage of fish oil is present, a deep red color. In the case of boiled oil, the strata show a somewhat deeper color, otherwise the effect is similar.

For Rosin Oil: Place equal volumes of the suspected oil and nitric acid of 1.40 specific gravity in the test tube or vial; shake well for a minute or so and stand aside, until two strata have formed, the upper stratum representing the oil; the lower one the acid. The color of the layers or strata will be as follows:

In the case of—	Upper Stratum.	Lower Stratum.
Pure raw linseed oil	Light cinnamon brown.	Colorless.
Pure boiled linseed oil	Cinnamon brown.	Colorless.
Raw linseed with 5% rosin oil	Cinnamon brown.	Nearly colorless.
Boiled linseed, with 5% rosin oil	Dark cinnamon brown.	Light straw color.
Raw linseed, with 30% rosin oil	Dark brown.	Light straw color.
Boiled linseed, with 20% rosin oil	Very dark olive.	Dark straw color.
Boiled linseed, with 50% rosin oil	Nearly black.	Orange color.

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For Mineral Oil: The saponification test is used; in this case. The suspected article is mixed with a concentrated solution of soda and potash and well shaken. Warm water is added and shaken again, when it is allowed to stand for an hour or so. If any mineral oil present, it will separate from the soap.

REAL ESTATE TRANSFERS.

The following transfers of vacant property in Toronto are recorded since last issue:

MARKHAM ST., E. S.—North British Canadian Investment Co. to James D. Young, 37x129, being north 3 feet lot 212, south 34 feet lot 225, plan 574, assessed at \$1,110; no improvement.

DUFFERIN ST., W. S.—Farmers' Loan & Savings Co. to Oliver J. Fuce, 66x200, being lot 25, plan 431, assessed at \$1,056; no improvement.

PEARSON AVE., N. S.—George Rundle to Thos. W. Button, 26x135; being part lot 2, plan 585, assessed at \$260; no improvements.

PEARSON AVE., N. S.—George Rundle to Henry C. Stevens, 26x135, being parts lots 2 and 3, plan 585, assessed at \$260; no improvements.

WITHROW AVE., S. S.—Robert A.

Dale to A. J. Gladman, 20x130, being west part lot 2, plan 578, assessed at \$100.

WITHROW AVE., S. S.—Matthew J. Dale to Joseph G. Gladman, 20x130, being east part lot 3, plan 578, assessed at \$100.

WITHROW AVE., S. S.—S. G. Spence to Thomas Benie, 23x131, being part lot 5, plan 578, assessed at \$115.

ALBANY AVE., W. S.—Robert C. Vaughn to Novle J. Craig, 25x135, being north half lot 69, plan 608, assessed at \$450.

BELLEVUE AVE., W. S., No. 20.—Wm. Moffatt to Eliza J. Robertson, same as preceding parcel.

LANSDOWNE AVE.—Lots 30 and 29, plan 595, Emilie Adelaide Anderson to Alexander James Ross, assessed, land \$180, vacant lot.

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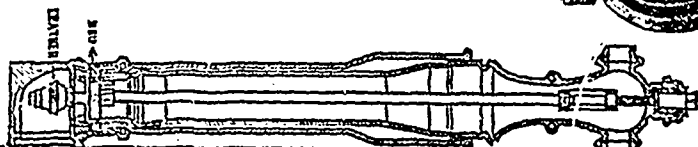
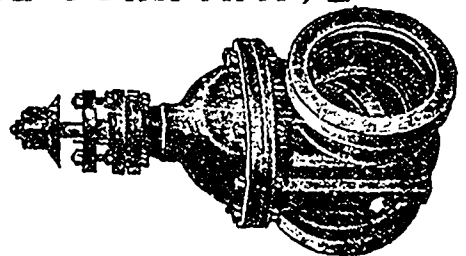
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MUNICIPAL DEPARTMENT

THE VENTILATING AND FLUSHING OF SEWERS.

By JOHN DRYCE, M. I. C. E., BURGH ENGINEER,
PARTICK.

(Continued from last week.)

My opinion, meantime, is that in wet weather the flow of water from the gutters will induce an inward current, but in dry weather this will not always prove true. As a matter of fact, I have had to remove a few of these untrapped gullies and replace them with properly trapped cess-pools. The adoption of factory chimneys as a means of ventilating sewers has been tried by some authorities with a certain measure of success. In places where actual observations have been made, the effect has been found to be entirely local, and not extending beyond a radius of 200 yards. Most engineers assert that the actual efficiency is doubtful, while the difficulties connected with securing privileges, and the unsatisfactory conditions of having an arrangement not absolutely under the control of the local authority, make the adoption of this method undesirable except, perhaps, in a special case where it would be impossible to adopt any other method. The suggestion by some that house chimneys should be utilized to carry away sewer gas is beset with so many risks and dangers that it is needless to remark anything on such a proposal.

A departure from natural methods to the employment of heat as an aid to ventilation, and as a means of destroying the noxious gases from sewers, was introduced in 1887, and is now known as "Keeling Holman's patent sewer gas exhauster and

destructor." Somewhat similar arrangements are in the market, known as "Webb's patent," and another as "Deakin's patent." Methods of this nature are very advantageous in places where columns can easily be erected, and where sewers are foul enough to make their erection necessary. Several are now erected in Glasgow and some of the larger towns in Scotland in connection with underground conveniences, and as substitutes for open gratings closed up, where large numbers of people pass in certain busy thoroughfares, and these, taken by themselves, have proved satisfactory. But the success of several lamp columns of this kind is no solution of the whole difficulty connected with sewer ventilation. It would rather tend to conceive a condition of things in the sewers which is injurious. The root of the evil is not effectually dealt with, but is merely glossed over by getting rid of the chief evidence of its existence. In fact, the more foul the condition of the sewer the more successful would be an apparatus of this kind, and it reminds one of an American's remarks on the usefulness of the Newfoundland dog, when he states that if you want to keep a Newfoundland dog and make it useful, you also require to keep a pond with children drowning in it. Time forbids me from making but a simple reference to the charcoal treatment and the "Caink" system, which, owing to the excessive care and attention necessary to keep the process in good working order, cannot be commended as practical methods worthy of adoption by any local authority. In fact, the former of these two systems is now practically abandoned.

A somewhat more effective method of treating sewer air with an admixture of chemicals has been introduced within recent years, and is termed the "Reeves" system. Existing manways are utilized, and a recess built into the side wall for the apparatus. Without going into a long description of the system, the apparatus consists of several vessels of chemicals

with perforated trays and discs, while a steady supply of water is introduced to set free the chemicals and produce the solution, which, overflowing and falling into the sewer underneath, has the double effect of deodorising the sewer air in the manway and disinfecting the sewage in the sewer. This system was introduced on the Water of Leith sewer in Edinburgh, three years ago, and 50 manways were altered to receive the apparatus. The reports from Edinburgh and several places in England certainly indicate that the method is effective, and in conditions of emergency is to be recommended as an instantaneous means of removing a nuisance in sewers. In Edinburgh the system was adopted because of the very offensive smell from the open manways, largely created by the heavy percentage of trade refuse which entered the sewers from certain breweries and distilleries, and which is reported to have had as high a temperature as 135 deg. F. A serious objection, however, to this system, apart from the constant attention and opening of manways to renew the apparatus, is the cost of maintenance.

The capital cost to Edinburgh in altering the 50 manways and supplying the apparatus was £910, or about £18 per manway, while the cost of maintenance, taking everything into consideration, must be about £10 per manway per annum. The late Mr. Cooper, city engineer of Edinburgh, in his annual report for 1909, while admitting the effectiveness of the Reeves system on the Water of Leith sewer, pointed out that the chief objection to the more

(Continued on page 8.)

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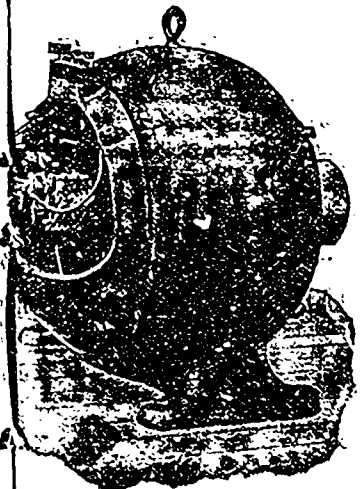
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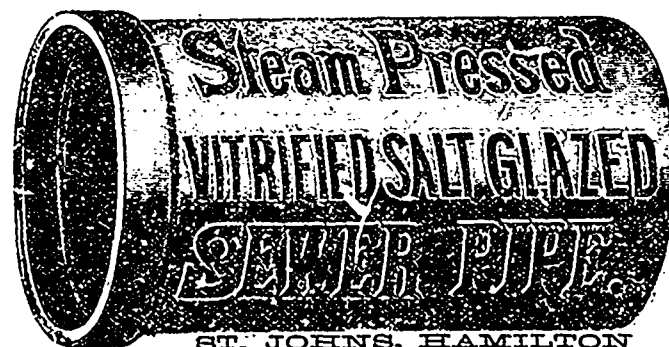


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general adoption was the cost of water necessary for the working of the apparatus, the charge in Edinburgh being 3d. per 1,000 gallons. I am not aware how this price will compare with other places in Scotland, but when you consider that in Partick we have to pay the Glasgow Corporation at the rate of 10d. per 1,000 gallons consumed, you will at once see that, for us at any rate, the Reeves system has no attractions whatever.

In the spring of 1898 Sir A. R. Binnie, engineer to the London County Council, convened a meeting of all the sanitary and municipal engineers within his jurisdiction to consider the question of sewer ventilation, with a view of establishing a uniform system for dealing with complaints as they arise. The resolutions of the conference were three in number—viz.: (1) "That the closing of sewer ventilators in response to complaints increases the general evil, the diminution of which is to be attained by the multiplication of the ventilators at regular frequent intervals. (2) "That in connection with any interceptor hereafter fixed on a main house drain it is advisable to carry up a ventilating pipe from the sewer side of the interceptor up the front, side, or back of the house to the satisfaction of the local sanitary authority, and that the outlet drain from the interceptor shall not be flap-trapped in sewer unless required by the local sanitary authority. (3) "That pipe ventilators up buildings, or otherwise where possible, should always be adopted in addition to surface ventilation."

From these resolutions it will be seen that the conference did not attempt to solve the whole question of sewer ventilation, but limited its view rather to the best emergency methods when complaints arose. The solution of the whole problem is still an open one, and while so little progress has apparently been made during the last quarter of a century, there is promise that by the increased attention given to the subject, and the tendency of local authorities to promote all the phases of sanitary reform, satisfactory principles will be established to guide in ventilating both existing and new sewerage systems. A paper read by Mr. Shone, C.E., at Eastbourne recently advocating an extractor fan driven by electricity, is perhaps the latest phase of the subject; but the difficulties of introducing this system on existing sewers, and making them airtight, presents a most formidable objection. The proposal, however, is a good one which the new sewerage system can be carried out.

A very close connection exists between the ventilation and flushing of sewers. When it is said sometimes that a certain sewer is requiring proper ventilation, it actually transpires that what is needed is proper flushing. The neglect of systematic flushing of sewers in the summer months, and especially in those with flat gradients, is at the root of many of the complaints of sewer smells. Of many sewers in our large towns and cities it is a fact that not the slightest provision has been made for flushing arrangements, owing to the fact that the sewers in certain large districts, which ultimately were taken over by the authorities, were laid down by the estate owners, the aim being to put in the barest means of draining the properties without any thought of flushing arrangements for the

future. An arrangement for flushing sewers adopted in the past, and which is now to a large extent condemned, is the damming up of sewage within the sewer by the fixing of iron or wooden doors on certain manways, and suddenly discharging the contents through the lower parts of the sewers. The only advantage this system has is that of economy, the objections being the possible silting up at house drain connections and the imperfect flushing attained, the deposit being only shifted further down the sewer.

Sewers are more thoroughly cleaned out with pure water than with sewage, and where there exists in the vicinity of pipe sewers a series of fire-plugs, it is found that the introduction of a hose pipe $2\frac{1}{2}$ in. in diameter into the mouth of the sewer at the bottom of a manway is a very effective means of flushing, provided that the pressure in the water-main is about 50 lb. to the square inch. Another arrangement, now largely adopted by local authorities, consists of flushing vans constructed to carry from 400 to 1,000 gallons, which when full can be placed over a manway and suddenly discharged through a hose from 6 in. to 12 in. in diameter. This arrangement is very satisfactory where fire-plugs are not available, and where the water pressure is below 50 lb. to the square inch.

The most attractive arrangement, however, for flushing sewers is certainly that of an underground tank to work either automatically or by the usual siphon arrangement, built at the dead end or bend of a sewer, and supplied with clean water from a pond, stream, or the waste from hydraulic lifts, or anywhere, in fact, where comparatively clean water is running to waste. A tank like this with a capacity of from 300 to 1,000 gallons, as necessity requires, secures that systematic and effective flushing will be carried out without any attention, and consequently little or

no expense, except for water where it necessary to connect with the water-main. Much, however, might be done to keep sewers clean by means of house drains. If these are flushed systematically, no attention paid to keep them clean, the sewers would also receive a benefit. The example of Liverpool is to be commended in this matter. That city undertakes to flush all house drains twice a year in the poorer localities free of expense to the owners, with a marked improvement of the general health of the district.

The idea of ensuring that house drains are periodically flushed by the local authority is a good one, and could be extended with very marked improvement around. This need not always be carried out as in the case of Liverpool. Another method would be for the local authority to provide and introduce, either at the back of the building or in the intercepting chamber under the footpath, an automatic flushing tank of from 10 to 15 gallons capacity, situated so as to collect all the waste water from sinks, baths, etc., as the rainwater from roofs and courts. Connection with a single house this arrangement would flush in dry weather at least ten times a day, while for a tenement of eight houses the tank could be 30 gallons capacity, and would empty its contents at least 40 times a day. Any arrangement of this nature, whether at the front or back of a dwelling, would, from a sanitary point of view, be a decided improvement on the present system of allowing a large volume of comparatively clean water run to waste in small discharges, and considering the benefit derived would be eminently economical, whether the expense of its introduction were borne by the landlord or the local sanitary authority.

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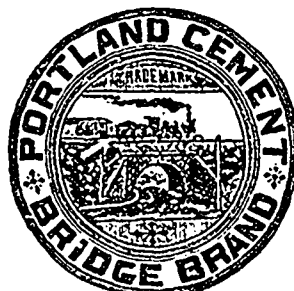
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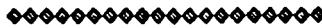
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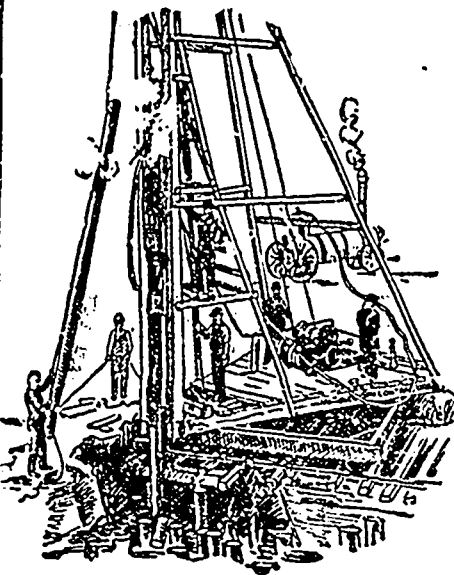


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Index listing various categories of advertisements such as Architects, Contractors' Plant and Machinery, Lime, Reflectors, etc., with corresponding page numbers.

Continuation of the index listing categories like Paints and Varnishes, Roofers, Slate, etc., with corresponding page numbers.

Beamsville, Montreal.

Table listing prices for various types of slate.

SLATE.

Table listing prices for various types of slate, including roofing and decorative slate.

STONE.

Table listing prices for various types of stone, including granite, sandstone, and rubble.

CEMENT, LIME, etc.

Table listing prices for various types of cement and lime.

ARCHITECTURAL VARNISHES.

Table listing prices for various types of architectural varnishes.

CREDIT VALLEY STONE.

Table listing prices for various types of stone from Credit Valley Stone.

F.O.B. Quarries.

Table listing prices for various types of stone from F.O.B. Quarries.