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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL

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.

Vol. 10.

DECEMBER 6, 1899

No. 45

THE CANADIAN CONTRACT RECORD, PUBLISHED EVERY WEDNESDAY

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

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Advertising Rates on application.

Information solicited from any part of the Dominion regarding contracts open to tender.

SEALED TENDERS

Sealed tenders, addressed to the undersigned, will be received until noon of WEDNESDAY, THE 20TH INST., for the following, viz.:

- 1st. The Furnishing of all Cast Iron Water Pipe, 30-inch and 20-inch diameter, required between Sismet Avenue and Beach.
- 2nd. For the Enlargement of the Filtering Basin and Laying of Conduit.

Specifications, plans and all necessary information can be obtained at the office of the Manager and Chief Engineer of Waterworks, City Hall.

The lowest or any tender not necessarily accepted.

THOS. BEASLEY, City Clerk.

City Hall, Hamilton, Dec. 4th, 1899.



TRENT CANAL

TRENTON AND FRANKFORD DIVISION

NOTICE TO CONTRACTORS

Sealed tenders addressed to the undersigned, and endorsed "Tender for Trent Canal," will be received at this office until noon on SATURDAY, 30TH DECEMBER, 1899, for the construction of about nine miles of canal between Trenton and Frankford.

Plans, specifications of the work and forms of contract can be seen at the office of the Chief Engineer of the Department of Railways and Canals, at Ottawa, or at the Superintending Engineer's Office, Peterboro, where forms of tender can be obtained on and after Thursday, November 30th, 1899.

In the case of firms the names must be attached the actual signatures of the full name, the nature of the occupation and place of residence of each member of the same, and, further, an accepted bank cheque for the sum of \$5,000 must accompany the tender. This accepted cheque must be endorsed over to the Minister of Railways and Canals, and will be forfeited if the party tendering declines entering into contract for work at the rates and terms stated in the offer submitted. The accepted cheque thus sent in will be returned to the respective parties whose tenders are not accepted.

The lowest or any tender not necessarily accepted.

By order,
L. K. JONES,

Secretary.

Department of Railways and Canals,
Ottawa, 24th November, 1899.

Newspapers inserting this advertisement without authority from the Department will not be paid for it.

FOR SALE

6 Cast Iron Columns, 14 ft. 2 in. long, weight 78 lbs. each.
10 Cast Iron Columns, 10 ft. 1 in. long, 64½ lbs. each.
6 Cast Iron Columns, 6 ft. long, 65½ lbs. each.
Price, 2 cents per lb.

H. R. IVES & CO.,
Queen Street, Montreal.

CONTRACTS OPEN.

MAGOG, QUE.—A. Marchand is about to erect a two storey building.

HANOVER, ONT.—The Methodists purpose building a new church.

COBDEN, ONT.—Several new residences are to be erected in the near future.

KENPVILLE, ONT.—A. E. Hopper will likely build another residence next spring.

GRAND MANAN, N.B.—It is proposed to build a new church rectory at Grand Harbor.

CHILLIWACK, B. C.—J. Harris has purchased property on which he will build immediately.

GOLDEN, B.C.—It is understood that a waterworks system will be constructed next summer.

SUNDERLAND, ONT.—Dr. McDermott has commenced work on the foundation of his new hotel.

STRATHROY, ONT.—Last week the ratepayers granted a bonus to the Piano Upholstering Co.

WINCHESTER, ONT.—Arnott Johnson has purchased property and will likely erect a residence.

WINDSOR, N. S.—Judge DeWolfe is endeavoring to secure the establishment of a hospital in this town.

WINGHAM, ONT.—A. H. Carr, of this place, is considering the erection of a grist mill in Ripley.

SYDNEY, C.B.—T. McAvitty & Son, of St. John, N.B., will probably erect a store building here.

BRIDGETOWN, N.S.—The ratepayers voted down the proposal to raise \$11,000 for sewerage purposes.

ACTON, ONT.—The council will construct a considerable quantity of granolithic sidewalk next season.

ATHENS, ONT.—The question of installing an electric light plant is under consideration by the council.

ALMONTE, ONT.—The Almonte Rink Co. have decided to abandon for the present the erection of a rink.

SHELburne, ONT.—The ratepayers have defeated the by-law to raise \$6,000 for municipal electric light plant.

ARNPRIOR, ONT.—The Arnprior Electric Light Company purpose remodelling their plant.

ST. LOUIS, QUE.—A by-law has been submitted in council to borrow \$200,000 to redeem municipal indebtedness.

NANAIMO, B.C.—Bids close at 7.30

p.m. on 11th inst. for purchase of \$100,000 of debentures; S. Gough, city clerk.

PORT ROWAN, ONT.—At the municipal elections the ratepayers will vote on the question of laying cement sidewalks.

WEIDMAN, ONT.—W. A. Graham will receive tenders up to 9th inst. for construction of outlet for Cameron drain.

CAMPBELLFORD, ONT.—The by-law to raise \$7,000 for electric light purposes was carried by a small majority last week.

FORT COULONGE, QUE.—The agitation has been revived to bridge the Ottawa river between this place and La Passe.

AYTON, ONT.—The Lutheran congregation, of which Rev Nuneudorfer is pastor, are about to erect a brick church.

WINNIPEG, MAN.—The Winnipeg Elevator Co. intend to erect two elevators, one at Carlingville and the other at Miniota.

GLADSTONE, MAN.—Tenders for erection of brick hotel building here are invited by Joseph McAlpin up to Friday, 22nd inst.

DUNNVILLE, ONT.—An effort is being made to establish a beet root sugar industry here. The sum of \$7,500 has been subscribed.

BRANDON, MAN.—The Hanbury Manufacturing Co. will extend their saw mill plant, and have asked for exemption from taxation.

TRURO, N.S.—T. G. McMullen has not yet abandoned the idea of building a pulp mill, although no plans have as yet been prepared.

NEW WESTMINSTER, B.C.—Mr. Wymond is at present in England completing arrangements for the rebuilding of the oil works in this city.

VERNON, B.C.—A petition will be presented to council asking that the sum of \$10,000 be borrowed for the purpose of building a city hall.

STANBRIDGE, QUE.—Miltimore & Holbrook, of Boston, have purchased the Chapman House and purpose making improvements thereto.

QUEBEC, QUE.—The Great Northern Railway Co. state that the elevator to be built in this city will cost in the neighborhood of \$250,000.

KEEWATIN, ONT.—The Keewatin Lumber Co. purpose putting in a new band saw, deepening the mill flume, and making other improvements.

PORTAGE DU FORT, QUE.—The council has decided upon the site for projected bridge, and the Dominion government will be asked to proceed with the work.

PARIS, ONT.—Wm & Walter Stewart, architects, of Hamilton, have been instructed to prepare plans for a twelve-room school building to be built in this town.

NIAGARA FALLS, ONT.—The Niagara Falls Park Commissioners on Saturday last reached an agreement with the Fort Erie Electric Railway Co., under which

the latter will extend their line a distance of 13 miles along the bank of the Niagara river to Slater's Point.

TATAMAGOUCHE, N. S.—Capt. A. Weatherby proposes building a schooner of about 200 tons at River John. C. H. McLellan will build a vessel of about 350 tons.

VICTORIA, B. C.—It is reported that arrangements are being made for the installation of an aerial tramway from the Lenora mine at Mount Sicker to the railway.

HULL, QUE.—Voting on the waterworks by-law takes place on the 18th inst.—The Geo. Mathews Pork Packing Co. intend doubling the capacity of their establishment here.

TORONTO JUNCTION, ONT.—The town council is at present considering the advisability of increasing the electric light plant for the purpose of supplying commercial lighting.

WINDSOR MILLS, QUE.—Voting on a by-law to raise \$25,000 for waterworks system took place on Saturday last, but up to the time of going to press the result had not been learned.

NELSON, B. C.—By-laws authorizing the issue of \$8,000 of 4½ per cent. debentures for waterworks and \$7,000 of debentures for electric light plant are now being considered by the council.

COLLINGWOOD, ONT.—On November 30th the ratepayers voted in favor of granting a bonus of \$50,000 to Alex. McDougall, of Duluth, and Long Bros., of this town, for the establishment of steel ship-yard.

WOODSTOCK, ONT.—An expert has reported that it will require an expenditure of \$1,650 to put the electric plant in good shape, and \$3,200 more for a reserve engine and boiler for establishing an all night service.

FOREST, ONT.—Bids close at 6 p.m. Thursday of this week for the purchase of \$5,519.43 local improvement debentures, payable in ten years, with interest at four per cent. Particulars from Geo. E. Monroe, town treasurer.

NEW ROSS, N. S.—Steps are being taken looking to the extension of the Nova Scotia Southern Railway from New Germany to Halifax via this place, with a branch line to Chester. O. S. Elliott is one of the promoters.

PEMBROKE, ONT.—The sewerage contractors have completed the mains and principal sub-mains of the sewerage system, but it is anticipated that a considerable number of laterals will be constructed next summer.

RENFREW, ONT.—Bids are invited by J. K. Rochester, town clerk, up to December 16th, for purchase of \$9,000 waterworks debentures and \$5,000 sewerage debentures, payable in thirty years, with interest at four per cent.

REVELSTOKE, B. C.—The Bank of Hamilton and the Imperial Bank of Canada are likely to erect buildings here next spring.—The curlers have decided to organize a joint stock company, with a capital of \$10,000, to build a rink.

ST. JOHN, N. B.—C. H. Peters' Sons have asked the council for exemption from taxation for twenty years in the event of rebuilding their tannery in this city.—The Annapolis Larrigan Co. will erect a two storey factory, 30x50 feet.

SARNIA, ONT.—Wm. Govenlock has purchased property and will erect a residence thereon next spring.—On January 1st the ratepayers will vote on a by-law to raise \$6,000 by debentures for remodelling the town hall and putting in heating apparatus.

INGERSOLL, ONT.—An American capitalist has obtained options from J. Miller and M. Walsh on vacant property adjoin-

ing the post-office. In the event of a purchase, it is understood to be his intention to erect a block of stores, with opera house above.

BARRIE, ONT.—It has become necessary to enlarge the Royal Victoria hospital.—A committee has reported to the county council that the erection of a jailer's residence can not be proceeded with, the tenders received being above the appropriation.

KINGSVILLE, ONT.—The promoters of the tobacco factory have secured a site, and will at once erect a main building, 162x142 feet, two storeys, with ware-rooms and engine room.—The Kingsville Electric Light Co. will probably make an addition to their plant.

HINTONBURG, ONT.—M. C. Edey, architect, of Ottawa, has prepared plans for a three storey furniture factory for J. Oliver & Sons, of Ottawa. The factory will be brick, with dry kilns, planers and other modern apparatus. Work on the foundation of the building has been commenced.

MIDLAND, ONT.—The town council has decided to submit to the ratepayers at the municipal election a by-law to raise \$5,000 to erect a four-room addition to the West Ward school.—M. Devine has purchased the store property here which he has occupied for some years, and intends to enlarge and improve it.

SIMCOE, ONT.—At a public meeting held last week, it was decided to organize the Simcoe Pork Packing Co., with a capital of \$200,000, and to proceed at once with negotiations looking to the erection of the building. W. P. Innes was appointed chairman of an executive committee, and H. H. Groff secretary.

EAST TORONTO, ONT.—It is said that arrangements have been made for the erection of a number of residences early next spring.—The authorities of the G. T. R. have been taking measurements of the yard property, and it is thought they may have in view the erection of car shops at this place.

FREDERICTON, N. B.—The council is in correspondence with engineers regarding the preparation of plans for proposed sewerage system.—E. C. Crawford, of Boston, representing English capitalists who propose erecting a pulp mill in Canada, was in the city recently. He has acquired options on a water power at Grand Falls and on one on St. Maurice river in Quebec.

NEW GLASGOW, N. S.—J. D. McGregor, M.P.P., of this place, has sold his coal area at Fort Hood to a company composed chiefly of Toronto capitalists. The same company has bought undeveloped coal areas in the same vicinity which they propose developing. It is proposed to build a large shipping pier and a substantial breakwater.

GRAND FORKS, B. C.—It is expected that work on the new general hospital, for which a site has been given by J. P. Graves, will be commenced shortly. The building will be 84x116 feet, and will cost about \$12,000.—Engineers of the C.P.R. are surveying the proposed route of the Columbia and Western line through the Similkameen valley. The first contract to be let, it is understood, will be for 150 miles of grading.

KINGSTON, ONT.—The Alma Mater Society of Queens University are taking steps to build a skating rink, to cost \$1,000.—Crumley Bros. have purchased the Waldron property and will likely remodel it into a first-class dry goods store.—Folger Bros., of this city, who own large tracts of mining lands in the vicinity of Fort William, will ask the municipality of that town for a bonus to assist them in building a copper smelter and iron furnace.—Plans have been prepared by the Dominion government authorities for heating the drill hall here by hot water, but as

yet no tenders have been asked.—The Mooers Co. have purchased property on which to build a storage warehouse.

ST. CATHARINES, ONT.—The council has instructed the superintendent of waterworks to ask for tenders for eight fire hydrants, to be delivered not later than May 15th.—The Board of Works have reported that the railway bridges spanning the Niagara Central and Grand Trunk railway tracks at Queenston street are in an unsatisfactory condition, and have recommended that they be replaced by more permanent structures.—A motion has been passed in council appointing a committee, consisting of the mayor, Ald. Robertson and Ald. Woodruff, for the purpose of appointing a permanent city engineer.

BROCKVILLE, ONT.—At next meeting of council a report will be presented on the cost of installing a municipal lighting plant.—Debentures will be offered for sale by the city.—Sketch plans have been received from the Militia Department at Ottawa of the new drill hall which it is proposed to erect in this city.—The city council has given notice of its intention to construct granolithic sidewalks on portions of the following streets. Bethune street, cost \$1,660; King street, cost \$4,187; James street, cost \$3,074; Church street, cost \$2,089; King street, cost \$319.—A syndicate is being formed to purchase the Fitzsimmons farm for the purposes of a stock farm. It is understood that suitable buildings will be erected on the property.

HAMILTON, ONT.—The C. P. R. propose increasing their freight accommodation at this place.—Stewart McPhee, architect, has secured a permit for alterations to the old Wanzer building for Dowsell Bros., to cost \$2,000.—John Addison has secured options on about 300 acres of land between the smelting works and Geo. E. Tuckett's farm. It is believed that the property is intended for the proposed works of the Nickel Steel Co.—The Sewers Committee have decided to commence the Birch avenue sewer at an early date.—The city engineer has been instructed to prepare specifications and ask for tenders for a pile driver, to cost about \$500.—T. Beasley, city clerk, invites bids up to December 20th for furnishing cast iron water pipe for main between Sherman avenue and the beach, for enlargement of the filtering basins, and for laying of conduit.

VANCOUVER, B. C.—The Bell Telephone Co. are about to install a new switchboard in their exchange here.—Plans are said to be in course of preparation for a roller skating rink.—Hardie & Thompson have prepared plans for a steamer to be built by several leading shipping men.—Application will be made to the Dominion parliament for incorporation of a company to build a railway from a point in Comox district, Vancouver Island, through Sayward and Rupert districts to Cape Scott.—The Arrowhead & Kootenay Railway Co. and the British Columbia Southern Co. will each apply to parliament for an act extending the time for the completion of their undertakings.—P. Burns & Co. have taken tenders on erection of brick building.—The question of building a steel or iron bridge, 600 feet in length, across the C. P. R. tracks at Pender street, will be considered at an early council meeting.—Hon. F. Peters and E. J. Fader, of this city, have made application to Parliament for the forshore rights east and west of the Prospect Point lighthouse and Brockton Point, for the purpose of utilizing the power of the tide for electrical purposes.

MONTREAL, QUE.—Tenders closed yesterday for the supply of 500 toise of Banc Rouge stone required by the Harbor Commissioners.—The Fire and Light Committee have prepared their appropria-

tions for next year. The sum of \$10,000 will be asked for new apparatus, \$90,000 for new stations, and \$1,500 for machinery and tools for repair shop. The Market Committee will ask for \$59,483 for general repairs.—A meeting of the directors of the Great Northern Railway Co. was held at the Windsor hotel last week, at which the building of an elevator at Quebec was discussed. It will probably be commenced early in the spring. The advisability of building a branch road from Montreal to Joliette was also considered, but nothing definite decided upon.—The National Lacrosse Club have decided to purchase property, corner Bennett and Ontario streets, to be used as lacrosse grounds. A grand stand will be erected.—The Artificial Lumber Co. of America, recently incorporated in New Jersey, purpose erecting a branch establishment at some point in Canada.—The Harbor Commissioners have accepted the offer of the Connors syndicate for the construction of grain elevators and freight warehouses along the harbor front. This syndicate, composed of Buffalo capitalists, agree to erect a steel or combination elevator of 3,000,000 bushels capacity and freight warehouses on the lower portion of the harbor, and similar buildings on the southerly side of the Windmill Point slip, the total cost to be about \$2,500,000.—It is the intention of the Young Irishmen's Literary and Benefit Association to erect a new building next year on Drummond street, near Dorchester.

OTTAWA, ONT.—Tenders are invited by the Dominion government up to December 30th for construction of Trent Valley canal from Trenton to Frankford, a distance of nine miles. The work includes the deepening of the river and the construction of seven locks and seven dams.—The Walker mining property at Buckingham has been purchased by Ald. D'Arcy Scott, who, it is said, will at once put in machinery and take other steps to develop the property.—The C.P.R. have acquired a right of way along Patterson's creek, and it is said to be their intention to build a branch line from Rochester-ville to Ottawa East.—The city engineer has recommended that tenders be invited for the construction of a travelling crane for the waterworks pumping station, to be used in repairing machinery. It will cost about \$4,250. The matter will be taken up early in the new year.—A delegation from the city of Hull and the township of West Hull interviewed the Minister of Public Works last week and asked for assistance towards the reconstruction of the Alonzo Wright bridge over the Gatineau river.—Application will be made to parliament for the incorporation of the Alaska & North Western Railway Co., to construct a steam or electric railway from Pyramid Harbor, on the Lynn canal, through the Chilkat Pass, and thence by way of the Dalton trail to Fort Selkirk, in the Yukon district.—The Dominion Carbide Co. have decided to build a totally new furnace department.—Geo. R. Roe, of the Baldwin Iron Works, has purchased the Levi Young estate property on Lloyd street and purposes erecting thereon next spring a large three-storey foundry.

TORONTO, ONT.—A movement is on foot to erect a large hotel building on the north side of Queen street, taking in the greater portion of the block from Simcoe to University street. The money, it is understood, will be provided by Barlow Cumberland.—R. J. Edwards & Wagner, architects, invite tenders up to 5 p.m. of Friday, 8th inst., for erection of dwelling on Waverley road.—Building permits have been granted as follows: Ontario Power and Flats Company, rear 103 Niagara street, brick factory, cost \$2,000; J. Hoskin, Q.C., two-storey brick meeting house, 47 Buchanan street, cost \$600; John F. Urquhart, two-storey and mansard brick dwellings and stores, corner of

Huxley and Dunn ave., cost \$3,000; F. R. Gregory, two-storey brick-cased dwelling, north side Simpson ave., near Howland road, cost \$1,200; York County Loan & Savings Company, four detached two-storey and attic stone and brick dwellings, 212 to 224 Wright ave., cost \$10,000; S. H. Graydon, two-storey brick and stone residence, 51 Madison ave., cost \$8,000; O. Newcombe, one storey brick and rough-cast addition to kiln on Bellwoods avenue, cost \$2,000.—W. H. Pearson, manager of the Consumers Gas Company, will build a large residence on Sherbourne street, Rosedale, from plans by F. H. Herbert, architect. Work will be started at once.—Considerable improvements will be made to the store of H. A. Taylor, King street west, for the Rossin House Hotel Co. F. H. Herbert, architect, has the work in charge.—The American Air Power Co., of New York, are said to be considering the establishment of a branch of their works in Toronto.—At the annual meeting of the Working Boys' Home, it was stated that the new site on Church street had been secured, but that extensive alterations were necessary to make the building serviceable.—The Commissioner of Public Works is having plans drawn for a large circular pond to be constructed in front of the Parliament buildings in Queens Park.—A sub-committee of the Fire and Light Committee inspected the city hall on Saturday last for the purpose of deciding what steps should be taken to protect the building against fire. The committee will likely recommend that the rafters be covered with galvanized iron, that several large electric lights be placed there, that a steam pump with a capacity of pumping 1,000 gallons of water a minute be placed in the engine room, and that fire escapes be built from the attic into the court yard. These improvements will cost about \$25,000.—The city engineer has estimated that it will cost \$13,000 to replace the wooden bridge on Shaw street, near College street, with a steel structure.—The following works are recommended by the city engineer as local improvements: Asphalt pavements—North street, St. Mary's to Bloor, cost \$6,010; Wilton ave., Yonge to Sherbourne, cost \$33,640; Huron street, St. Patrick to College, cost \$17,310. Brick pavements—Pearl street, York street to a point 633 feet east, cost \$4,570; William street, Queen to Caer Howell, cost \$15,660. Cedar block pavements—Angusta ave., N issau to College, cost \$1,350; Argyle street, Dundas to Shaw, cost \$1,450; Dovercourt road, Dundas to Churchill, cost \$1,770. Macadam roadways—Eten place, Bathurst street to a point 334 feet east, cost \$920; Walseley street, Esther to Bathurst, cost \$5,380; St. Mary's, Yonge to the west end, cost \$7,450. Concrete walks—Huron street, west side, Bloor to Lowther, cost \$744; Howland ave., both sides, Bloor to Barton, cost \$1,673; Tyndall ave., east side, from a point 354 feet south of King to a point 456 feet further south.

FIRES.

Parish church of St. Charles of Limoilou, near the city of Quebec, totally destroyed; loss \$45,000, insurance \$25,000.—M. Kinnon's summer hotel at Point aux Pins, nine miles above Sault Ste. Marie, Ont.; loss \$10,000, no insurance.—Dilworth's elevator at High Bluff, Man.; loss on building and contents, \$12,000.—Idyl Wyld Hotel on Rice Lake, Ont., owned by James Duty and leased by J. Macdonald; insurance, \$1,800.—Three storey brick building at Moncton, N.B., owned by McSweeney Bros., damaged to the extent of \$7,000; covered by insurance.

CONTRACTS AWARDED.

COLUMBIA, B.C.—Power dam for Granby Smelter Co.—Porter Bros. and McArthur, contractors.

ST. THOMAS, ONT.—The Bell Telephone Co. have been awarded the contract for fire alarm system.

AMHERSTBURG, ONT.—Sidewalk debentures for \$5,100 have been sold to G. A. Stimson & Co., at premium of \$75.

WINDSOR, ONT.—Wm. Englander has let contract for erection of dwelling house and store, corner Windsor and Wyandotte streets, frame, cost \$2,000.

ORILLIA, ONT.—The council has disposed of \$75,000 of debentures to the Central Canada Loan & Savings Co., of Toronto, for \$77,625, or at the rate of 103½.

NIAGARA FALLS, ONT.—Residence for J. J. McCartney; Carpenter work, Niagara Falls Planing Mills Co.; brick and stone work, John Blair; plumbing, Cole & McMurray; painting, J. A. Vandersluys.

VICTORIA, B.C.—Building on Yates street for Thos. Earle, M.P.; James Baker, contractor. The architect is Thos. Hooper. Building will be stone and brick, pressed brick front, three storeys and basement, cost \$12,400.

WINNIPEG, MAN.—The Canadian Rubber Company, of Montreal, have let contracts for warehouse 180 x 170 feet.—W. F. Lee has secured contract for supply of sewer pipe, at \$1,890.70.—For construction of sewer the tender of Dobson & Jackson, at \$1,318, has been accepted.—A. E. Wells & Co. have secured contract for heating apparatus for waterworks building, cost \$4,495.

TORONTO, ONT.—Residence on Sherbourne street, Rosedale, for W. H. Pearson; Masonry, Welch Bros.; carpenter work, R. Dinns & Son; other trades not let.—Detached residence on Maple ave., Rosedale, for Jas. Henderson, Q.C.; Brickwork, Thompson Bros.; carpenter work, T. V. Gearing; roofing, Rennie & Son; galvanized iron, A. B. Ormsby & Co.; painting, J. A. Berridge; plastering, C. B. Simpson. F. H. Herbert, architect of above.

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HALIFAX, N.S.—The council invited tenders for the erection of a power house for an electric light plant, the following being submitted: S. A. Marshall—building, \$11,498.60; chimney, \$3,400; coal trestle, \$4,230; total for whole work, \$19,128.60. E. Maxwell & Son—building, \$12,665; chimney, \$2,098; coal trestle, \$3,224. J. McInnis & Son—woodwork, \$19,800; foundation, 1,230. M. E. Keefe for whole work, \$19,000. The awarding of the contract has been left in abeyance until a decision is reached regarding the installation of plant.

BUSINESS NOTES.

Purcer & Son, plumbers, Windsor, Ont., have dissolved partnership, J. D. Purcer continuing.

Curre Bros. & Bent, contractors and manufacturers of sash and doors, Bridgetown, N.S., are reported to have suspended payment.

Leith & Turnbull, manufacturers of elevators, Hamilton, Ont., have dissolved, M. Turnbull retiring and C. H. Thompson being admitted.

THE STRENGTH OF CRANE SCAFFOLDING.

At the second ordinary meeting of the Royal Society of Edinburgh, Lord Kelvin presiding, Mr. R. G. Alford, M. Inst. C.E., delivered a paper entitled "Crane Scaffoldings; their Mathematical Calculation and Probable Theoretical Deficiencies." He based his calculations on two scaffoldings at the Royal Infirmary, Edinburgh, and the Waverley Station, Edinburgh, the latter of which was blown down on March 18th last. He described the construction of the two, and deduced certain rules which mathematical conditions seemed to imply as a necessity for safety. He dwelt on the supreme importance of effective combination of the towers. He made three suggestions to contractors. When there were towers they should adopt the strict equilateral triangle form, and so be prepared for any direction of the wind. They should never omit deep bracing girders between the towers half-way up, and when they did not stand on the ground their feet should be connected in a similar manner. The

towers ought also to be filled up with stones or bricks at each leg, to add stability to the feet.

DRILLING IN FROZEN GROUND.

A novel kind of mining drill, for use in Arctic regions, is the production of an invention in Arizona. It is hollow throughout, and is constructed to permit the passage of hot water or steam to the point of the drill, to thaw the frozen ground. In the sectional view of this drill, given in the Scientific American of August 12th, we notice that the admission of steam is controlled by a valve, the stem of which runs down to the point and up to the handle-bar, where it is provided with a cross pin engaging slots in a spring-pressed sleeve, which can be either turned or moved longitudinally, owing to the key-hole form of the slots. In admitting steam to the drill point, the sleeve is forced down against its spring, so as to insert the valve and permit the steam to thaw the frozen ground and wash out the precious metals. The valve is under the complete control of the operator, for when he grasps the sleeve to force the drill into the ground the valve will open, but will immediately close when he withdraws the pressure. The working of this drill renders necessary a small steam boiler close at hand.

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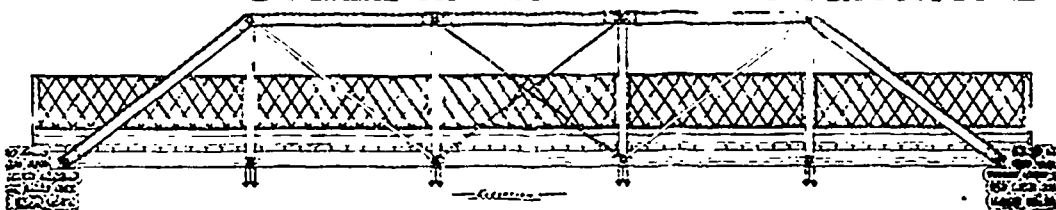
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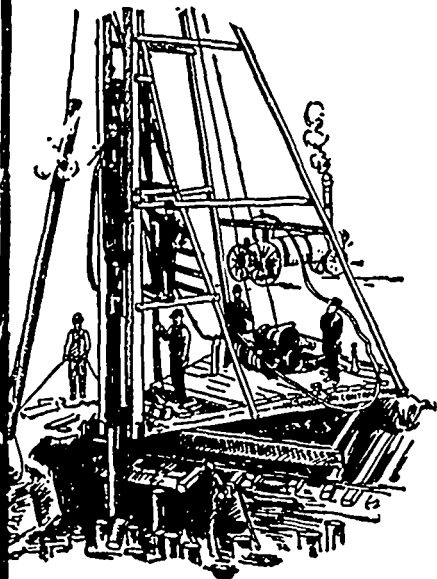
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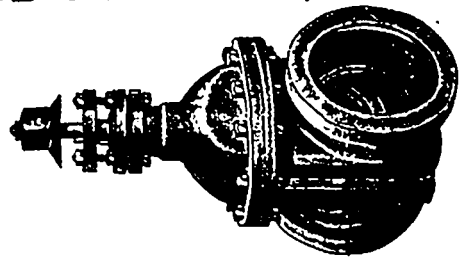
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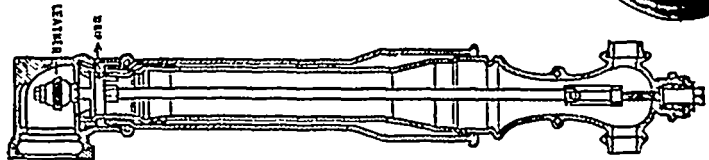
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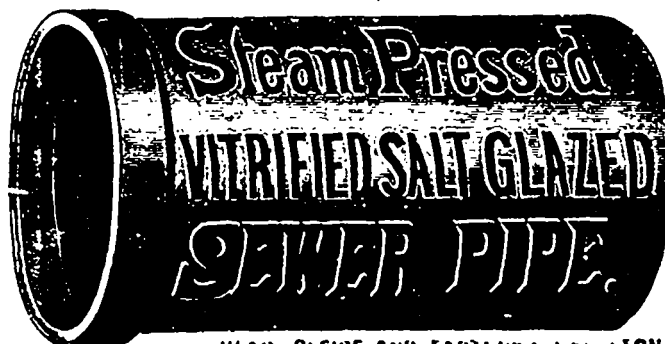
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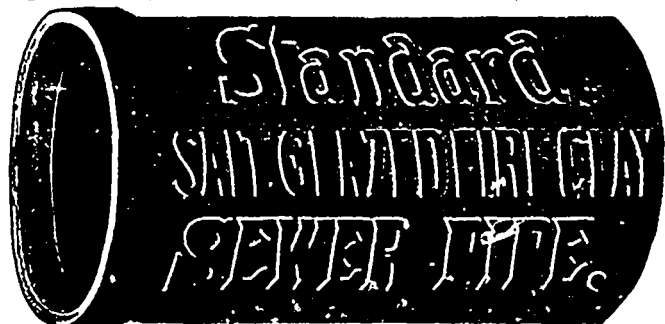
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DANGEROUS SCOUR CAUSED BY BRIDGE PIERS.

The Gatineau river bridge, Ottawa, Canada, is about 900 feet long and consists of four spans and a draw, supported on five channel piers, which together interpose an obstruction about 75 feet long against the direction of the current and disturbed the equilibrium of the river's regimen to such an extent as to cause a serious modification of the channel. When the bridge was built it was supposed that the width of the river was so great and the character of its banks and current such that no material effect would be produced by the presence of its piers, but the event demonstrated the changes which are always likely to attend the construction of a channel, the danger of scour when the river bottom is yielding, and the peril that may be developed for supposedly secure bridge piers if they have only surface foundations on soft or loose soil which may become exposed to the action of a current. It also demonstrated the necessity and efficiency of proper protection against erosion, and that the wise provision of additional security for the piers besides that which was requisite for the simple bearing strength, abundantly paid for itself and resulted in the salvation of the whole structure when it was in a critical condition.

The fixed span piers have bottomless timber cribs 9x22 feet on top and battered one in twelve to low water. The tops of the cribs are 30 feet above low water and they were sunk on the smooth level surface of the shallow bottom, which is composed of sand and sawdust compactly filled in to a depth of about 16 feet above the solid clay. After the cribs were landed in position sixty 12-inch piles about 40 feet long were driven in each to a penetration of about 10 feet in the clay, and their tops left projecting at irregular heights above the bottom. The spaces around the tops of the piles were filled with broken stone packed in to the tops of the cribs.

The winter floods attained a height of 25 feet above low water and produced a scour in the bottom of the river which dug away the loose material at both sides of the piers and excavated holes 20 feet deep, penetrating some distance into the solid clay and leaving the piers seated on the tops of mounds with steep sloping sides. Some of the sand and sawdust under the cribs was undermined and allowed a considerable amount of loose stone filling to escape through the open crib bottoms at the corners. In the interior of the cribs the piles retained the filling and it was not disturbed. Fortunately the clay stratum was tough and solid, and afforded sufficient support to

the piles to enable them to hold the pier against the force of the six-mile current. Without them it is probable the whole bridge would have been wrecked, but with them it resisted the flood and after its subsidence was found in undisturbed level and alignment. No repairs were made to the piers except to replace the stone filling which had escaped at the corners, partly refill the holes around the bases of the cribs, and protect their slopes against further scour by rip-rap. Since these repairs the bridge has shown no signs of further damage from scour and is considered satisfactory by the engineer, Mr. Frank A. Hibbard, Ottawa, who constructed it and executed the protection works described.—Engineering Record.

A SEVERE TEST OF BRIDGE MASONRY.

The highway bridge across the St. Francis river at Richmond, P.Q., Canada, consists of five 150-foot steel spans with trusses 20 feet deep and 18 feet apart in the clear. These are supported on stone piers founded on the shallow bottom of the river and rise to a height of about 25 feet above ordinary stages of the river. The bridge was built, according to the Engineering Record, twelve or fifteen years ago by the Toronto Bridge Company, of which the late Job Abbott was then chief engineer, and it remained in service in good condition until the winter of 1898-9, when an unusually high flood swept great masses of thick ice down against the bridge and finally swept away one span and damaged one of its piers without overthrowing it or injuring the remainder of the superstructure.

The pressure was so great that the whole of the top and the lower part of the down stream end of the pier was moved bodily down stream four or five

feet, sliding on the pier foundation and splitting the pier vertically from the bottom to the fifth course from the coping. The masonry was composed of large blocks of hammered stone laid in good cement mortar and moved as a whole without destroying its integrity. The upstream end opened in the joints so as to form an arch with one end resting on that part of the footing which was not displaced, and the structure preserved its stability until after the flood had receded. The span was then temporarily supported on falsework, the pier taken down and rebuilt with most of the old stone, and a new span built by the Dominion Bridge Company, Montreal, Mr. Phelps Johnson, M. Am. Soc. C.E., manager, and Mr. G. H. Duggan, M. Am. Soc. C.E., chief engineer.

COST OF PAVEMENTS.

The following is an approximate estimate of the cost of different kinds of pavements:

Wooden blocks (concrete 6 in.), per square yard.....	\$2 25
Brick, sand 1 in., concrete 6 in.....	2 84
Gravel 8 in., brick laid flat, sand 2 in., brick on edge.....	2 23
Bituminous rock 2 in., concrete 6 in.....	2 70
Bituminous rock (Salt Lake).....	3 00
Stone blocks (Denver), \$3.30 to \$3.47.....	3 38
Asphalt (Denver), \$2.85 to \$3.13.....	2 99
Cedar block, pine plank foundation (St. Paul).....	1 15
Asphalt (St. Paul).....	2 65
Brick, concrete foundation (Detroit).....	2 75
Asphalt, concrete foundation (Detroit).....	3 37
Brick on edge, sand 1 in., brick flat 3 in. (Bloomington, Ill.).....	1 25

According to the report of Mr. P. W. St. George, city surveyor of Montreal, the area of permanent pavements in that city on December 31st, 1898, was 659,698 square yards, or 145,750 lineal feet. The materials used include granite, rock asphalt, scoria, tamarac, syenite, porphyry, round cedar blocks, Massillon blocks and Trinidad asphalt. The first permanent pavement was constructed in 1875.



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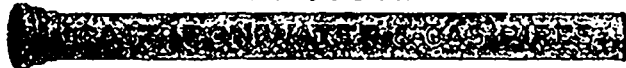
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Architectural Sculptors and Carvers. Holbrook & Mollington..... i	Drying Apparatus Cummer & Son Co... 230	Time. Ontario Lime Association..... xii	Sanitary Appliances Ideal Mfg. Co..... xi The James Morrison Brass Mfg Co .. viii
Architectural Iron Work. Dominion Bridge Co. I	Drain Pipe Bremner, Alex..... i Hamilton and Toronto Sewer Pipe Co... xi	Luxfer Prisms. Luxfer Prism Co..... viii	Stained and Decorative Glass Bloomfield & Son, Henry..... i Horwood & Sons, H. I. Lyon, N. T..... i Leonard, B..... i Mackey Stained Glass Co..... i McKenzie's Stained Glass Works..... i The Robert McCausland Stained Glass Co..... i Wood & Co..... i
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Artists' Materials. Hearn & Harrison... ix The Art Metropole... III	Embossed Moulding Bovnton & Co.....	Mantles, Grates, and Tiles. Chas. Rogers & Sons Co..... vi Holbrook & Mollington i Rice Lewis & Son... IV	School and Church Furniture. Can. Office & School Furniture Co..... x
Builders' Supplies. Bremner, Alex. i Montreal Directory... xii O'Neil, Wm..... x Ontario Lime Association..... xii Rice Lewis & Son... IV Toronto Directory... xi	Engravers. Can. Photo-Eng. Bureau..... x	Matt Outes. The Cutler Mfg. Co.. x	Ventilators Boston Blower Co... III Wood & Co..... i
Building Stone Dealers. Amherst Red Stone Quarry Co..... v Erodie, James..... v Credit Forks Mining & M. G. Co..... v Fessey W. H..... v Hood & Son..... ix Robertson & Co., D.. v The Longford Quarry Co..... v	Folding Partitions. Seaman, Kent & Co... 20 Springer, O. T..... viii	Mortar Colors and Shingle Stains. Cabot, Samuel..... IV Muirhead, Andrew... I	Wall Paper. Scantlebury, C. B.... vi
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BRICKS. Beamsville Brick & Terra Cotta Co... viii Toronto Pressed Brick & Terra Cotta Co... v	Flag Staffs and Windmills. Gould, Sh. pley & Muir..... II	Painters. Montreal Directory... xii Toronto Directory... xii	
Contractors' Plant and Machinery Rice Lewis & Son... IV	Grilles and Railings. Dennis Wire & Iron Co. vi Toronto Fence & Ornamental Iron Work. vi Southampton Mfg. Co. II	Plasterers Hynes, W. J..... 230	
Cements. Bremner, Alex..... i Commercial Wood & Cement Co..... IV Owen Sound Portland Cement Co..... IV The Ratbun Co..... ix	Granite Brunet, Jos..... v Brodie, James..... v Stanstead Granite Quarries Co..... v	Patins & Furnishes Muirhead, Andrew... i	
	Heating. Boston Blower Co... III Clare Bros & Co... iv Dominion Radiator Mfg. Co..... I, iii Darling Bros..... 210 General Engin. Co... II Gurney, Tilden Co... ii J. Sm & Smart Mfg. Co... v Lehnard & Co, S. E.. IV Ormsby & Co., A. B.. I Robb Engineering Co. ix	Parquet Floors Elliott & Son Company vi	
	Plumbers Montreal Directory... xii Toronto Directory... xii	Plate Glass Lyon, N. T..... i The Consolidated Plate Glass Co... xi Toronto Plate Glass Co..... vi	
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Roofing (per square).	Toronto.	Montreal.
" red.....	17 50	20 00
" purple.....	8 50	10 00
" untinting green.....	8 50	7 00
" black.....	7 50	6 50
Terra Cotta Tile, per sq.....	20 00	25 00
Ornamental Black Slate Roofing	8 80	6 80

CEMENT, LIME, etc.

Portland Cements—			
German per bl.....	2 90	3 10	2 55
London ".....	2 95	3 00	2 25
Newcastle ".....	2 70	3 00	1 95
" Joseph Bra Portland ".....	3 05	3 25	2 70
" Dyckerhoff ".....	3 05	3 25	2 75
North's "Condor".....	2 95	3 10	2 65
English, artificial, per bbl.....	2 85	3 00	2 35
Belgian, natural, per bbl.....	2 50	2 75	2 00
Canadian, artificial, ".....	2 85	3 00	2 60
Roman ".....			2 20
Parian ".....	5 25	5 25	5 75
Superfins ".....	1 25	7 50	8 25
" Karlstadt" (German).....	3 05	3 25	2 75
" Germania" (German).....	3 05	3 25	2 75
" Rooster" (Belgian).....	2 25	2 50	2 20
" Key-st n" (Belgian).....	2 25	2 50	2 20
" A vil" (Belgian).....	1 95	2 05	1 95
" Burham" (English).....	2 95	3 00	2 25
Hydraulic Cements—			
Thorold, per bbl.....	1 50		1 65
Queenston, ".....	1 50	1 50	1 60
Napanee, ".....	1 50		1 50
Hull, ".....	1 50		1 50
Ontario, ".....	1 25		

Keene's Coarse "Whites".....	7 50	8 00	6 50	7 00
Fire Bricks, Newcastle, per M	30 00	35 00	16 00	21 00
" Scotch.....	30 00	35 00	19 00	21 00
Lime, 100 lbs., Grey.....		25		30
" " White.....		2 00		1 50
Plaster, Calcined, N. B.....		2 00		1 50
" " N. S.....		2 00		1 50
Hair, Plasterers', per bag... 80	1 00			0 00

HARDWARE.

The following are the quotations to builders for nail at Toronto and Montreal:

Cut nails, 50d & 60d, per keg	2 65	2 65
Steel " " " "	2 75	2 75

CUT NAILS, FENCE AND CUT SPIKES.

40d, hot cut, per 100 lbs.....	2 65	2 65
10 to 22d, hot cut.....	2 75	2 75
8d, 9d, " ".....	2 85	2 85
6d, 7d, " ".....	2 95	2 95
4d to 5d, " ".....	3 05	3 05
3d, " ".....	3 20	3 20
2d, " ".....	3 65	3 65

Cut spikes, 10 cents per keg advance.
Steel Nails, 10c. per keg extra.
Wire nails, 3-40 base 1/16c.

Iron Pipe:

Iron pipe, 1/2 inch, per foot.....	5c.	6c.
" " 3/4 " ".....	7 1/2	7 1/2
" " 1 " ".....	8 1/2	8 1/2
" " 1 1/4 " ".....	12	12
" " 1 1/2 " ".....	17	17
" " 2 " ".....	24	24
" " 2 1/2 " ".....	30	30
" " 3 " ".....	43	43

Lead Pipe:

Lead pipe, per lb.....	7c.	25 per cent. dis.
Waste pipe, per lb.....	7 1/2	

Galvanized Iron:

Adam's—Mar's Best and Queen's Head and Opolo:		
16 to 24 gauge, per lb.....	4 1/2c.	4 1/2c.
26 gauge, ".....	4 1/2	4 1/2
28 ".....	5	5 1/2
Gordon Crown—		
16 to 24 gauge, per lb.....	4 1/2	4 1/2
26 gauge, ".....	4 1/2	4 1/2
28 ".....	4 1/2	4 1/2

Note.—Cheaper grades about 1/2c. per lb. less.

Structural Iron:

Steel Beams, per 100 lbs.....	2 75	2 75
" channels, ".....	2 85	2 85
" angles, ".....	2 50	2 60
" tees, ".....	2 80	2 80
" plates, ".....	2 55	2 55
Sheared steel bridge plate.....		2 70