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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.

VOL. 11.

AUGUST 29, 1900

No. 30.

THE CANADIAN CONTRACT RECORD,
PUBLISHED EVERY WEDNESDAY
As an Intermediate Edition of the "Canadian Architect and Builder."

Subscription price of "Canadian Architect and Builder" (including "Canadian Contract Record"), \$2 per annum, payable in advance

C. H. MORTIMER PUBLISHING COMPANY
of Toronto, Limited,
Publishers.

CONFEDERATION LIFE BUILDING, TORONTO.
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NOTICE TO CONTRACTORS

Tenders for Pavements

Tenders will be received, by registered post only, addressed to the Chairman of the Board of Control, City Hall, Toronto, up to noon on WEDNESDAY, SEPTEMBER 5TH, 1900, for the following works:

ASPHALT PAVEMENTS:

Huron Street, from Lowther Avenue to Bernard Avenue.
Dowling Avenue, from Queen Street to G. T. R. tracks.

MACADAM ROADS:

Maple Avenue, from Sherbourne Street to Glen road.
Sally Street, from Arthur to College Street.

CEDAR BLOCK:

Queen Street, from Pape Avenue to Greenwood Avenue.
Queen Street, from G.T.R. tracks to Pape Avenue.
Shaw Street, from Arthur to College Street.

SCORIA BLOCK PAVEMENTS ON TRACK ALLOWANCES:

York Street, from Queen Street to Front Street.

Conditions and specifications may be seen, and forms of tender obtained, at the office of the City Engineer. Contents of envelopes containing tenders must be plainly marked on the outside.

A deposit, in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 2 1/2 per cent. on the value of the work tendered for, must accompany each and every tender, otherwise they will not be entertained.

Tenders must bear the bona fide signatures of the contractor and his sureties, or they will be ruled out as informal.

Lowest or any tender not necessarily accepted.

E. A. MACDONALD (Mayor),
Chairman Board of Control.

City Hall, Toronto, Aug. 30th, 1900.

TENDERS FOR SEWERS

Sealed tenders, addressed to the Reeve of the Village of Chesley, will be received up to 6 p.m., THURSDAY, SEPTEMBER 6TH, 1900, for the construction of a Tile Pipe Sewer on Main and King Streets, and on High Street, in said Village, aggregating some 1900 lineal feet. Specifications may be seen at the office of the Reeve of the Village of Chesley.

A marked cheque for 5 per cent. of the amount of the contract, payable to the order of the Treasurer of said Village, must accompany each tender, the same to be forfeited if the party decline the contract or fail in the performance thereof, and will be returned in case of non-acceptance of tender.

The lowest or any tender not necessarily accepted.

DR. J. M. STEWART, Reeve.
JAS. McNEIL, Clerk.

TOWN OF ST. MARYS

TENDERS FOR STEAM PLANT AND POWER HOUSE

Sealed tenders will be received by the Town Clerk, St. Marys, Ont., until

Wednesday, August 29th, 6 p. m.

for the furnishing and erecting of:

- One 100 h.p. Tandem Compound Engine.
- One 30 h.p. Single Cylinder Engine, Shafing, Clutches, Pulleys, Etc.
- Two Independent Jet Condensers.
- Two 75 h.p. Tubular Boilers.
- Boiler Feed Pump, Piping, Accessories, Etc.
- Stone Power House, 65 feet by 36 feet.

Plans and specifications may be seen at the Town Clerk's office, St. Marys, or at the office of the Consulting Engineer, Toronto.

The lowest or any tender not necessarily accepted.

L. HARSTONE, Town Clerk,
St. Marys, Ont.
RODERICK J. PARKE,
Consulting Engineer,
409-410 Temple Building, Toronto, Ont.



SEALED TENDERS, addressed to the undersigned, and endorsed "Tender for Piers and Abutments, Des Joachims Interprovincial Bridge, opposite Upper Slide," will be received at this office until **FRIDAY, THE 31ST AUGUST, 1900**, for the Masonry required in connection with the projected Iron Bridge over the main channel of the Ottawa River opposite the Upper Slide at Rapids des Joachims, County of Pontiac, P.Q., according to plans and a specification to be seen on application to the Postmaster, Pembroke, Ont., and at the Department of Public Works, Ottawa.

Tenders will not be considered unless made on the form supplied, and signed with the actual signatures of tenderers.

An accepted cheque on a chartered bank, payable to the order of the Minister of Public Works, for fifteen hundred dollars (\$1,500.00), must accompany each tender. The cheque will be forfeited if the party decline to contract or fail to complete the work contracted for, and will be returned in case of non-acceptance of tender.

The Department does not bind itself to accept the lowest or any tender.

By order,
JOS. R. ROY,
Acting Secretary.

Department of Public Works,
Ottawa, August 3rd, 1900.

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

TENDERS WANTED

Tenders will be received by the undersigned up to the 10TH DAY OF SEPTEMBER, 1900, for the issue of (\$10,000) Ten Thousand Dollars Debenture of the Corporation of the Town of Listowel, under by Law No. 373. Payable in (2-) Twenty Years, at four (4) per cent. Interest and Principal paid yearly.

WILLIAM BRIGHT,
Listowel, August 24th, 1900. Town Clerk.

WATER POWER

BRACEBRIDGE

Sealed tenders, addressed to Alex. C. Salmon, Town Clerk, Bracebridge, will be received by the Corporation of the Town of Bracebridge until 6 o'clock p.m., **MONDAY, SEPTEMBER 10TH, 1900**, for the construction of a

Masonry Dam, Head Canal, Forebay, Power House and Tail Race.

with appurtenances, situated at Bracebridge Falls. Plans and specifications may be seen and forms of tenders obtained at the office of the Town Clerk Bracebridge, Ont.; the engineer, Niagara Falls, Ont. or the "Contract Record," Toronto, on and after Saturday, September 1st, 1900.

A certified cheque for the sum of Eight Hundred Dollars must accompany a tender.

The lowest or any tender not necessarily accepted.

JOHN THOMPSON, Mayor.
C. H. MITCHELL, C.E., Engineer.
August 25th, 1900.

CONTRACTS OPEN.

BRYSON, QUE.—The Upper Ottawa Improvement Co. are preparing to erect a new building.

DASHWOOD, ONT.—The ratepayers have defeated a by-law to raise \$500 for fire protection.

MEAFORD, ONT.—It is likely that next summer a number of granolithic sidewalks will be constructed.

BUCKINGHAM, QUE.—The town council have approved of the plans for the new post office to be built here.

BERLIN, ONT.—The new building to be built by D. Hibner & Co. will be 44 x 100 feet, brick, three stories.

WINDSOR, ONT.—The McLaughlin Steam and Air Brake Co. will probably establish a branch in this city.

TECUMSEH, ONT.—Alex. Reaume, reeve of Sandwich East, wants tenders this week for building brick town hall.

NELSON, B.C.—Plans have been completed for the new freight sheds for the C. P. R. The building will be 225 x 40 feet.

BRANDON, MAN.—The Brandon Electric Light Co. has been given authority to increase its capital from \$50,000 to \$125,000.

HUNTINGDON, QUE.—Boyd & Co. have made a proposition to the town to operate the electric light and waterworks systems.

BIRTLE, MAN.—The Northern Elevator Co. will build an elevator here.

NORTH HATLEY, QUE.—Mrs. Towne, of Brookline, Mass., has purchased a site on which to build a summer cottage.

NORTH NATION MILLS, QUE.—The rumor is again revived that the W. C. Edwards Co., of Ottawa, will establish a pulp mill here.

BURK'S FALLS, ONT.—The council will submit to the ratepayers a by-law to raise \$20,000 to assist Knight Bros. in enlarging their factory.

STURGEON FALLS, ONT.—The town council have submitted a proposition to the Lake Dechenes Milling Co. to establish a branch here.

COATICOOK, QUE.—The Coaticook Water Co. are about to construct a new reservoir.—The council will put down concrete sidewalks.

ROSSLAND, B. C.—The Department of Public Works at Ottawa invite tenders up to September 10th for erection of post office at this place.

GEORGEVILLE, QUE.—The Owl's Head Hotel Co. will build a large hotel this fall, to be five stories, 75 x 200 feet. Plans have been prepared.

OWEN SOUND, ONT.—A. J. Spencer, town treasurer, invites bids up to September 8th for purchase of \$28,117.44 five per cent. debentures.

ORILLIA, ONT.—N. James & Son are making a large addition to their veneer factory, and purpose putting in some new wood-working machinery.

BROCKVILLE, ONT.—W. S. Buell, chairman Finance Committee, wants offers by September 7th for purchase of \$100,000 twenty year 4 per cent debentures.

SHERBROOKE, QUE.—Mr. Clement is having some alterations made in the plans of his proposed opera house. He expects that work will be commenced in October.

THESSALON, ONT.—At a public meeting, held last week, a resolution was passed favoring the issue of debentures for the installation of an electric light plant.

WINDSOR, ONT.—The Windsor Bent Goods Co. invite tenders up to 31st inst. for the erection of a factory, including store room, engine room, water and fuel room.

MEDICINE HAT, N.W.T.—Tenders for sinking a natural gas well, a depth of 800 feet, are invited up to September 1st. Particulars from W. H. Adair, town clerk.

LONDON, ONT.—Engineer McKay, of the Lake Erie and Detroit River Railway, has gone over the ground for the switches to be built to the C. P. R. and G. T. R. tracks.

SELKIRK, MAN.—The Selkirk Electric Railway Co. are taking steps looking to the early commencement of their proposed electric road between this place and Winnipeg.

ANNAPOLIS, N.S.—A syndicate of American capitalists have purchased Becman's mountain, west of Digby Gut, and intend erecting thereon a large summer hotel and several cottages.

ORILLIA, ONT.—It is rumored that Allan McPherson intends erecting a new Y.M.C.A. building in this town, to be equipped with gymnasium and other modern conveniences.

WARKWORTH, ONT.—The building of an electric road in this vicinity is under consideration by Mr. Harden and Mr. Blackmar, of Toledo, Ohio. E. Cochrane, M.P., is also interested.

NIAGARA FALLS SOUTH, ONT.—Mr. Acheson, president of the Carborundum works at Niagara Falls, N.Y., has purchased property on Lundy's Lane on which he will erect a residence.

EDMONTON, N. W. T.—Tenders are asked by the corporation up to September 25th for the purchase of \$25,000 of debentures, in lots of \$5,000 each. Particulars from G. J. Kinnaird, secretary treasurer.

KAMLOOPS, B. C.—A bridge, to cost \$1,500, will be built across the Thompson river at this place.—Tenders are invited by the Dominion Government up to September 13th for erection of a post office at this place.

WESTON, ONT.—There is an agitation among the ratepayers for the construction of a waterworks system.—An American syndicate proposes to renovate the woollen mill here, and in the near future erect a large wall paper factory.

MALLORYTOWN, ONT.—J. F. Kelly invites tenders up to September 1st for furnishing material and building piers and approaches for a bridge at Larue's mills, in township of Front. Plans at office of J. W. Lane, M.D., this place.

ALMONTE, ONT.—The directors of the Almonte Rink Co. expect to proceed in the near future with the erection of the proposed buildings, for which plans have been prepared by Andrew Bell, architect.

REGINA, N.W.T.—J. S. Dennis, Deputy Commissioner of Public Works, wants tenders by 31st inst. for erection of library addition to the legislative building, and to the 30th inst. for the erection of a bridge over Wascana Creek.

SYDNEY, C.B.—It is said that New York capitalists will build a railway from Point Tupper to Louisburg. Dr. Kennedy, of this place, is interested in the project.—The cost of the proposed railway and bridge will be in the neighborhood of \$8,000,000.

CHARLOTTETOWN, P.E.I.—W. C. Harris, architect, has prepared plans for a new building to be built on the site now occupied by the Apothecaries Hall. The building will be 70x42 feet, three stories, with concrete floors, elevator, etc. Nova Scotia stone will be used.

LEAMINGTON, ONT.—The owners of the Deming House will likely rebuild it.—Surveys have been made by a Dominion Government engineer for a wharf to be built at this place, a grant of \$15,000 having been made for the purpose.

HULL, QUE.—Tenders for building fire and police station are asked by F. Boulton, city clerk, up to September 4th; plans by Bernier & Brodeur, architects.—A by-law will be submitted to the council to raise \$28,000 with which to build a city hall, to be built of brick.

PORT COLBORNE, ONT.—The council has authorized the clerk to invite tenders up to September 3rd for construction of cement sidewalks.—Large quantities of materials are being used in connection with the harbor improvements here. The piers will be 600 feet long.

LAC DU BONNET, MAN.—It is expected that a new saw mill and a brick yard will be established at this place. A new summer hotel is also looked for.—The new cement company, recently formed, intend to begin the erection of a first class plant in September.

MORRISBURG, ONT.—The corporation invites tenders up to September 4th for the erection of an electric lighting and power plant, to include three distinct sections, as follows: Hydraulic development and building, water wheels and steam works, electric plant. Particulars from Geo. F. Bradfield, reeve.

COLLINGWOOD, ONT.—Fred. T. Hodson, architect, is preparing plans for a two story and basement residence, corner of Third and Oak streets, for John Hogg, to be built of brick.—Capt. Currie and Eugene Coste have secured a franchise to supply gas in Collingwood. They agree to complete a system of gas mains within two years.

BRANTFORD, ONT.—No tenders were received by the city for construction of cement and plank walks, and it has been decided to carry out the work by day labor.—The city engineer has been instructed to prepare plans for proposed flood prevention works, including the building of new head gates.

ST. JOHN, N. B.—Edward Maming, secretary board of school trustees, invited tenders up to August 31st for erection of public school building at Carleton. Plans by H. H. Mott, architect.—The Board of Public Safety is in favor of engaging an expert to report on the cost of installing a municipal electric light plant.

CHATHAM, N.B.—F. C. Coffin, C.E., of Boston, has been engaged to prepare plans for proposed waterworks and sewerage systems for this town. The supply of 600,000 gallons will be obtained from Garrison Brook. An electric light plant, for which plans are being prepared, will be erected in connection with the pumping station.

SARNIA, ONT.—R. W. Fawcett, architect, has recently prepared plans for the following buildings: Presbyterian church at Tiverton, cost \$10,000; Methodist church at Sarnia, cost \$9,000; Methodist church at Medicine Hat, cost \$8,000; dwelling house at Sarnia, cost \$3,000; dwelling house at Plympton, cost \$1,800; dwelling house at Sarnia, cost \$1,400.

PELEE ISLAND, QUE.—Plans are being prepared for the Pelee dock. It will be 420 feet out into the lake, 15½ feet deep, of solid crib work, built of round timbers, the superstructure to be of timber 12 x 12 in chwide. There will be an L 50 x 60 feet. The work will probably be built by contract.

SHAWINIGAN FALLS, QUE.—A company, entitled the Belgo-Canadian Pulp & Paper Co., has been organized in Brussels, Germany, and will build pulp and paper mills at this place. The plans for the pulp mill, sulphite mill, and paper mill are being prepared by A. C. Rice, of Worcester, Mass. The building of the ground wood pulp mill will be commenced at once and is to be completed by June, 1901.

KINGSTON, ONT.—It is expected that next year a new steel reservoir will likely be built at St. Mary's cemetery.—Tenders for remodelling the Nickle wing of the General Hospital were opened last week, but the governors may postpone the work until next season.—Power & Son, architects, are taking tenders this week for additions and improvements to the residence and surgery of Dr. Third, Wellington street.

FREDERICTON, N. B.—Hon. C. H. Labllois, acting commissioner of works, has issued tenders for the following works: Salisbury, Westmoreland Co., highway bridge; Gullivar bridge, Bas du Vin, Northumberland Co.; Molasses Hill bridge, Upper Blackville, Northumberland Co.; Dunlap bridge, Gloucester Co.; McIntosh bridge, Cloucestre Co.; Indian bridge, Madawaska Co.; Rolph bridge, North West Miramichi, Northumberland Co.; Long Marsh Creek bridge, Riverside, Albert Co.

VICTORIA, B. C.—The Grand Forks and Kettle River railway charter was thrown out by the legislature last week.—Application has been made to the provincial legislature to incorporate the Lake Bennett Railroad Co., to build a railway from the Adey river to Lake Bennett.—Work is about to be commenced on the erection of a doctor's residence at the Jubilee Hospital.—Mayor Houston invites tenders up to September 15th for purchase of debentures as follows: Fifteen thousand dollars for extending the water system; \$15,000 for extending the electric light system; \$20,000 for extending the sewer system; \$20,000 for street improvement, and \$6,000 for a road making plant.

HAMILTON, ONT.—Tenders are invited up to noon to-day (Wednesday), for heating and plumbing work of new factory for National Cycle and Automobile Co. The Board of Governors have ascertained that it will cost \$3,500 to make necessary accommodation for infectious diseases at the General Hospital.—The promoters of the proposed summer hotel to be built by Hamilton capitalists at Beaumauris, Lake Muskoka, hope to have the work well under way at an early date. The directors are: Samuel Barker, B. E. Charlton, P. E. Crerar, Herbert P. Heming and William Marshall.—It is rumored that the Cataract Power Co. have acquired the rights and privileges held by E. A. C. Pew in connection with the Welland canal power scheme.—A deputation has requested that the Birch avenue sewer be completed to Barton street, estimated cost \$4,800.

WINNIPEG, MAN.—New tenders will likely be invited for addition to the Deaf and Dumb Institute.—W. T. Jennings, C. E., of Toronto, has been engaged as consulting engineer to visit this city and report on the condition of the new water-works building.—Plans of improvements in connection with the C. P. R. yards and repair shops in this city have been sent to the head office in Montreal for approval. The improvements will include not only the laying out of the yards, but the erection of new repairing shops and other buildings. The cost will be about \$150,000.—J. H. G. Russell, architect, has invited tenders for a brick veneer residence for Fred. J. C. Cox.—The Fire and Light Committee have decided to purchase seven new fire ladders, two hose waggon, and 2,000 feet of 2½ inch rubber hose and 3,000 feet of chemical hose. Tenders for the latter will be invited.—Plans are being prepared for a new rink to be built on Princess street, between Pacific and Alexander avenues, to be 99 x 170 feet, cost \$8,000.

MONTREAL, QUE.—It is understood that plans will be prepared immediately for the elevation of the railway crossings from the Bonaventure station to the city limits.—It is said that a new yacht club may be organized in the vicinity of Lakeside, and that a new building may be erected.—Tenders for repairs to No. 14 fire station have been invited by the city clerk.—Necessary repairs to the general hospital will be made.—Ald. Gagnon has a scheme for the formation of two artificial lakes on the mountain, at a cost of \$4,700.—A building permit has been issued to H. R. Ives & Co., Prince street, for alteration to a brick building, cost \$1,500.—Joseph Venne, architect, is calling for tenders for the steel work of the Bethlehem Asylum, Richmond square.—The city has given notice of its intention to construct the following sewers: Barclay street, from Commissioners street to Notre Dame street; St. Denis street, from Belanger street to Beaubien street; Huntley street, from DeFleurimont street to Belanger street; Phillip's square, east side; St. James street, from Victoria square to Fulford street.

OTTAWA, ONT.—It is expected that the question of purchasing another new fire engine will be considered at next council meeting.—A meeting is to be held this week to decide upon a site for the new Erskine Presbyterian church.—A meeting was held here last week in connection with the proposed establishment of a brick-making industry at L'Original. P. R. Chubbuck, of Chicago, addressed the meeting, and stated that he represented a syndicate ready to establish a \$75,000 brick plant, providing a bonus of \$10,000 was granted.—The Nepean township council proposes taking up again the question of an overhead crossing on the Richmond road for both the Canada Atlantic and Canadian Pacific railways.—It has been suggested that the electric

railway should be extended to Besserer's Grove.—The old wooden house on the north side of St. Patrick street, at junction with Barret street, has been torn down, and a substantial stone residence will be built on the site.—The city engineer hopes to have the new set of water-works pumps installed and in operation by May next.—Building permits have been granted as follows: Ald. Hopewell, brick veneer dwelling, Primrose avenue, cost \$2,000; J. B. Dumaine, four brick veneer dwellings, Murray street, cost \$4,000; A. Caron, frame dwelling on Eccles street south, cost \$900; S. J. Davis, two brick veneered cottages, cost \$3,000; Wm. Powers, frame dwelling on Jane street south, cost \$1,000; Roman Catholic Episcopal Corporation of Ottawa, two brick veneered dwellings, 6 St. Patrick street north, cost \$1,500; Wm. Strachan, three shops and three dwellings, 1 Queen street north, cost \$6,000; S. J. Davis, frame dwelling, 35 Jane street south, cost \$1,000; Mrs. M. Cummings, brick dwelling, 107 Preston street west, cost \$1,500.—The Capital Power Co. has been organized here to take over and extend the Conroy electric plant at Deschenes.

TORONTO, ONT.—Peter Meegan has purchased the Red Lion Hotel on King street in this city, and will make extensive improvements to the interior.—The Consolidated Pulp & Paper Co., of which John Poole is president, will engage in the manufacture of paper on a large scale at Newburg, Ont.—Tenders are invited in this issue for construction of asphalt, macadam, cedar block, and scoria pavements.—An asphalt pavement has been recommended for Simcoe street, from Queen to Front, but the work is not yet commenced owing to the Ontario government not having notified the city that it will assume its share of the cost of the pavement in front of the government property.—H. F. Strickland, consulting engineer for the corporation of East Toronto, writes that there is no probability that new tenders will be invited for an electric lighting plant for that corporation, as the Canadian General Electric Co. have been awarded the whole contract, and everything so far has been entirely satisfactory to all parties concerned. The contract has also been awarded for engine and boiler, and tenders will shortly be invited for building a power house.—Since last issue the following building permits have been issued: J. J. Walsh, detached and pair semi-detached brick and stone dwellings on Tyndall avenue, near King street, cost \$12,000; James H. Dowers, three attached brick and rough-cast dwellings, east side Golden avenue, near Dundas street, cost \$3,300; William Clark, pair semi-detached brick dwellings, east side Shaw street, near Bloor street, cost \$2,300; city of Toronto, alterations to Athletic club building, cost \$10,000.—The Property Committee of the Public School Board opened tenders on Monday last for the new Bathurst street school. It was decided that the tenders for carpenter work were to high, and new bids will likely be invited.

FIRES.

Doolittle's saw mill near Centreville, Ont., heavy loss.—Storage warehouse of Frost & Wood at Winnipeg, Man., damaged to extent of \$6,000.—R. T. Wright's cheese box factory at Thorndale, Ont.; loss \$7,000. Mr. Wright will re-build.—Hager & Hall's warehouse at Beamsville, Ont.; loss, \$3,000.—Livingston's saw mill, hoop and handle factory and electric light plant at Blyth, Ont., total loss.—Grist mill at Priceville, Ont., owned by Robt. McGowan.—Morin & Freres' tannery at Quebec, Que.; loss \$30,000.—Saw mill of R. B. Miller, near Rossland, B. C.; loss \$22,000, no insurance.—Buildings at Quebec, Que., occupied by Mis

M. Browning & Co., milliners, and the Slide Electric Co., damaged to the extent of \$10,000.

CONTRACTS AWARDED.

WINNIPEG, MAN.—German Baptist church: Mr. Ritchie, contractor.

ST. JOHN, N. B.—Rifle range. John Flood, successful tenderer, at \$7,700.

BRANTFORD, ONT.—The corporation has accepted the tender of E. Hopkins for stone for the dyke.

NILESTOWN, ONT.—Residence for Ansley Barton: E. A. McCann & Sons, of Dorchester Station, contractors.

CAVENDISH, P. E. I.—New Presbyterian church: Robt. Johnston, of Indian River, successful tenderer, at \$2,150.

WOLFVILLE, N. S.—Residence of I. B. Oakes: Wallace Whitman, of Bridgetown, contractor. Plans by Prof. Hain.

CHARLOTTETOWN, P. E. I.—A stone crusher and road roller have been purchased from the Waterous Engine Works, Brantford.

HOPEWELL HILL, N. B.—Building breakwater and wharf at Hopewell Cape. E. W. Lynds and Warren Downey, successful tenderers.

DARTMOUTH, N. S.—J. Ritchie & Co. have been awarded the contract for plumbing and refitting work at Mount Hope asylum; price \$4,000.

GUELPH, ONT.—The Royal Artificial Stone Paving Co., this city, have secured the contract to construct about 30,000 feet of granolithic pavement in Preston.

HALIFAX, N. S.—Addition to Halifax breweries at Turtle Grove: Mosher, Shortt & Conrod, contractors; Thos. Leahy, sub-contractor for masonry.

ST. MARY'S ONT.—Elliott & Clyde have been awarded the contract for the construction of the stone abutments for the Cuthbert bridge between East and West Oxford.

LONDON, ONT.—Harding & Leathorn having made an error in their tender for tar macadam pavement on Queens avenue, the contract has been let to P. L. Marden & Co., at \$5,418.

OTTAWA, ONT.—The tenders of O. Beaudry have been accepted by the Separate School Board for reconstruction of St. Roch's and St. Famille schools, at \$4,319 and \$4,331 respectively.

QUEBEC, QUE.—John D. Cameron, of this city, has taken the contract for a portion of the Quebec & Lake Huron line from Quebec west about 440 miles, via St. Albans and Mattawa, to the mouth of the French river, on the Georgian Bay.

NIAGARA FALLS, ONT.—For purchase of \$33,730 improvement bonds tenders were received by the corporation as follows: Bank of Hamilton, \$13,730 at 100.53 and accrued interest; \$20,000 at 100.63 and accrued interest (accepted). G. W. Wood & Son, Toronto, \$32,806 and accrued interest for \$33,730. Central Canada Loan & Savings Company, Toronto, \$32,851 and accrued interest for \$33,730.

ST. CATHARINES, ONT.—For the new buildings for the Welland-Vale Manufacturing Co., contracts have been let as follows: Machine shop, 100x40 feet, E. C. Nicholson; forge shop, 186x40 feet, and grinding room, 150x34 feet, Geo. Wilson & Son; polishing building, 160x25 feet, and forge building, 160x45 feet, John W. Carl. The buildings will be frame, lined with steel and concrete, with fire proof roofs and cement floors.

MONTREAL, QUE.—Mr. Laine, architect, has awarded contracts for alterations and additions to the presbytery at Caughnawaga, P. Q., as follows: Masonry, Martineau & Prenoveau; heating, Blouin, Desforges & Latourelle. He has let the contract for pews at St. Denis church

to M. Lacroix, and that for pews for St. Infant Jesus church to Jos. Lesperance.—Hutchison & Wood, architects, have let the contract for the French Theatre Francais as follows: Masonry, Mr. Barbeau; brick work, Mr. Beland.

TORONTO, ONT.—Contracts have recently been awarded the Forbes Roofing Co. as follows: National Automobile Works, Hamilton; Welland Vale factory, St. Catharines; T. Eaton Co.'s new buildings; Woodgate & Co.'s factory, Guelph; R. Forbes & Co.'s woollen mills, Hespeler.—The city council last week accepted the following tenders for concrete sidewalks: A. Gardner & Company—St. Vincent street, east side, Grenville to Grosvenor, 1.25 per lineal foot; Huntley street, east side, Selby to Bloor, 74 cents; Elgin avenue, north side, Avenue road to Bedford road, 62 cents; Winchester street, north side, Parliament to Sumach, 65 cents; Cecil street, north side, Henry to Beverley, 54 cents; Borden street, east side, College to Ulster, 52 cents; Maple avenue, both sides, Sherbourne to Glen road, 68 cents. W. R. Payne & Company—Euclid avenue, both sides, College to Ulster, 73 cents; Carlton street, south side, Parliament to Sackville, 72 cents. J. H. McKnight—King street, north side, St. Paul to Sackville, at \$1.04. City Engineer—Gloucester street, south side, Church to Jarvis, at \$1.30, and South Drive, north side, from north to east limit of lot 1, at 60 cents.

BIDS.

LINDSAY, ONT.—Following were the tenders received by the corporation for construction of sewers: F. J. Beharriell, Toronto, \$5,463; Jas. McKnight, Toronto, \$5,089; John Hartnett, Toronto, \$5,400; P. J. Pilkie, Lindsay, \$2,981. W. T. Ashbridge, of Toronto, is consulting engineer.

TORONTO, ONT.—Following are the lowest tenders submitted for alterations required in the Athletic club building to fit it for a technical school: Brick work, Wickett Bros., \$631; carpenter work, John C. Lyon, \$5,519; plumbing and heating, Purdy, Mansell & Co., \$1,880; ventilation, Geo. M. Bryan, \$1,170; painting and glazing, F. E. Phillips, \$400; plastering, John Boyce, \$775; electrical work, H. F. Stickland, \$750; fire escapes, McGregor & McIntyre, \$318; total \$9,943.

PROTECTING IRONWORK.

In a paper recently read before the Newcastle section of the Society of Chemical Industry, Mr. Harry Smith, F. I. C., describes a series of very interesting experiments upon the comparative protective powers of different paints as applied to ironwork. Three series of experiments were made, and are described in Engineering. In the first series a method originating with Mr. Max Toltze was employed. A number of iron dishes, 5 in. across and about ½ in. deep, were cleaned and carefully painted with two coats of the paint to be tested. These dishes were then filled with water, which was allowed to completely evaporate at the ordinary temperature of the laboratory, after which the dish was again filled up, this operation being repeated six times in the course of the six months over which the experiments extended. The paints used were prepared by grinding the pigments with linseed oil on granite rollers to a stiff paste, which was then thinned with best quality boiled linseed oil—its-

capable of drying in seven hours to a hard film when painted on to a glass plate. Thus tested, the only paints which remained practically unaffected were red-lead or orange-lead paints, some of which, however, such as the "vermillionette" and the scarlet-red paints, contained also a certain proportion of aniline colours; while two of the red-lead paints contained, in the one case forty-five per cent., and in the other sixty-six per cent. of barytes. All the other dishes were more or less rusted, the order of merit of the better paints being as follows: 1. Zinc-white. 2. Equal parts zinc-white and barytes. 3. Zinc-white, three parts; barytes, seven parts. 4. Lithopone (a mixture of zinc-sulphide, zinc-oxide, and barium-sulphate). 5. Pure white lead. 6. White lead, 5'37 parts; barytes, 4'03 parts. 7. White lead 5'05 parts; barytes 4'21 parts. All the other paints, thirty-six in number, proved very inefficient, the first dish to show signs of rust being that painted simply with linseed oil. In the second series of experiments a number of painted iron plates were exposed to the weather for a twelvemonth, and with the single exception of the plate painted simply with linseed oil, all withstood the test remarkably well. In the third series of tests, strips of iron were painted, and when the second coat was quite dry these strips were placed in wide-mouthed glass bottles, which were then nearly filled with water, and allowed to stand. The bottles were not closed, but the contents were protected from dirt by standing them under a shelf, there being about ½ in. of space between the top of the bottles and the underside of this shelf. The bottles were left untouched for three months. Some of the plates were sensibly affected within seven days; but those which successfully withstood the shallow-dish test also resisted this one most successfully. The fact that paints containing such large proportions of barytes as some of the lead paints noted above gave such excellent results is of much interest, as it goes to show that this material can hardly be considered as a mere adulterant. In fact, one paint made up only of barytes and linseed oil gave better results than an oxide of iron paint. Mr. Smith refers with approval to the methods adopted in painting the Forth Bridge. All plates and bars for that structure were cleaned with steel scrapers and wire brushes, and then coated with hot linseed oil. As soon as possible after erection they received two coats of red-lead paint, which were subsequently followed by two coats of iron-oxide. The life of the paint on the upper portions exposed to the weather is found to be about three years; but it must be added that the paint is then still in good condition, and on less important bridges would by many engineers be allowed to pass for several years longer. Experience shows, however, that in such

cases the metal is liable to be deeply pitted. The paint inside the tubes of the Forth Bridge is as perfect as when first applied, twelve years ago. The parts of the bridge most subject to rust are near the water, where the underside of the girders get sprayed with salt. The rusting commences on the rivet-heads and the edges of the plates. These portions of the bridge are cleaned and repainted every year.—Illustrated Carpenter and Builder.

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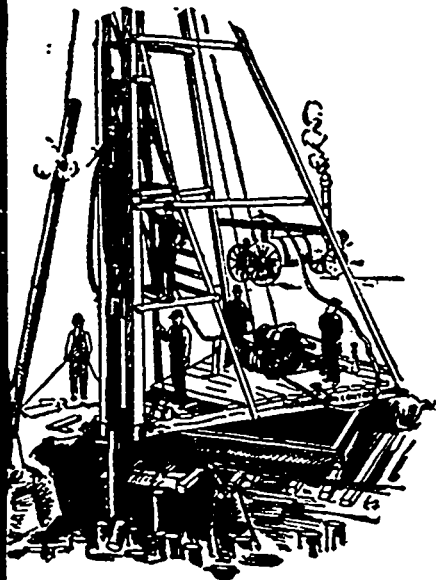
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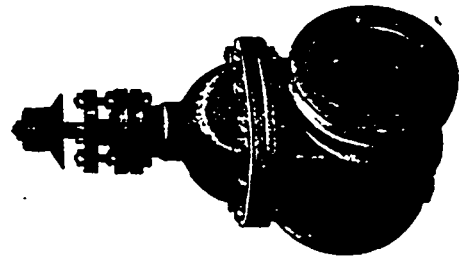


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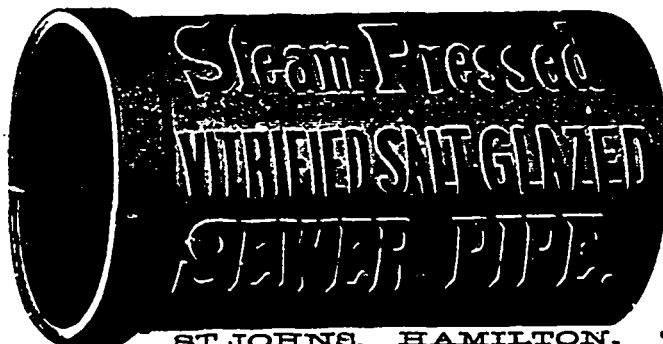
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MUNICIPAL DEPARTMENT

CAUSES OF DEFECTIVE SIDEWALKS.

By. A. W. CAMPBELL, C. E.

In using gravel only, the difficulty arises from the fact that the cement, sand and stone are not and cannot be expected to be mixed uniformly in these proportions. Gravel usually contains sand, but not in uniform quantities nor in any definite proportions. Some pockets of so-called gravel will be almost completely sand, while adjoining it there is scarcely any sand, perhaps almost clean stone. To mix such material with cement to produce concrete, while in many cases it may be successful, is always hazardous. The only safe way, where gravel is the material to be used, is to separate by screening the sand and stone which compose the gravel, then to mix the sand and cement in proper proportions to form the mortar, to which is then added the stone, uniformly, and in its proper proportion.

A cause of an inferior sidewalk is that the materials composing it have been carelessly mixed. The cement and sand should be first mixed dry. This should be turned over and mixed with shovels not less than ten times before the water is added. Water is then added in just sufficient quantity to slightly dampen the mixture, and the paste should be again turned over and mixed not less than six times. If this work is properly done each grain will be surrounded by a sufficient coating of cement. This mortar having been spread out, the stone should be added and the whole turned over and mixed not less than ten times before being used, the last mixing ensuring that each stone is completely surrounded by a coating of mortar.

The use of too much water in mixing will produce, when set, a concrete of spongy texture. Concrete when ready to be put in the work should have the consistency of freshly dug loam, and should be rammed into place until moisture appears on the surface.

Neglect to keep a newly laid walk damp, and protected from the rays of sun, will permit the surface to set too rapidly. Minute, hair-like cracks will appear on the surface. These fill with water, which freezes in cold weather, and the expansion destroys the surface of the walk, causing a thin layer to shale off in patches. The same shaling will result from laying concrete in frosty weather; nor should it be mixed or laid in wet weather.

Another cause of the failure of sidewalks is that the concrete has not been properly

From the fourth annual report of the Provincial Inspector in Road-Making for Ontario.

and completely separated into flags to allow for expansion, with the result that in hot weather, when expansion takes place, the sidewalk is thrown up at points of least resistance. The expansion of concrete is about the same as that of steel, and no railway company would contemplate for an instant the laying of a continuous steel track in which there are not joints at proper intervals to allow for this expansion. This is true to the same extent with a concrete sidewalk, and every care must be taken to first cut through the foundation layer of concrete, then through the surface layer directly in line with the joint underneath. The entire joint should then be filled with sand to ensure complete separation.

The surface layer of the sidewalk must be laid upon the foundation layer while the latter layer is still damp and before it is set, otherwise there is not a proper union of the two and shaling will result.

The effect of frost on a wet sub-soil must also be guarded against by the use of under-drains, otherwise the upheaval of the ground, under the expanding influence of frost, is very apt to crack the walk. The separation of the sidewalk into flag divisions, however, is also of service in this respect by giving the separate divisions an opportunity to rise and subside

with the soil underneath. No dependence however, should be placed on this, as a saturated sub-soil will eventually cause a very uneven surface, since the separate flags when once upheaved seldom return exactly to their original position.

Walks are very commonly laid by contractors who furnish their own specifications and agreement. Where such is the case, the agreement should contain a clause specifying in the most stringent terms that the walk is to be kept in perfect condition, order and repair, so that at the end of the term of guarantee, usually five years, the walks shall have given satisfactory evidence of their proper construction and durability. The guarantee is generally so worded that it can be interpreted to mean that the contractor is simply to keep the walk in repair for five years, and entailing no responsibility upon the contractor even if the walk at the end of that period is ready to crumble to pieces, demanding almost immediate reconstruction. A town, however, should not depend upon the contractor's guarantee, but should employ an experienced and reliable inspector to see that the specifications are faithfully carried out.

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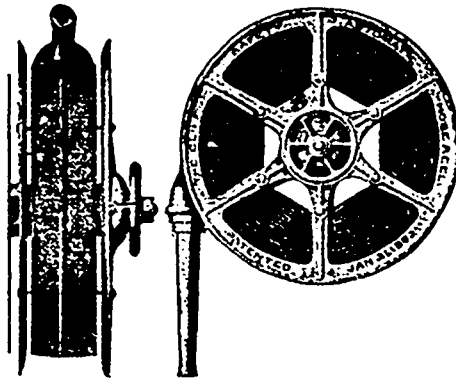
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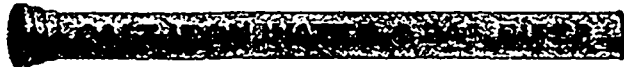
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