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TENDERS

Will be received until 12 o'clock on THURSDAY, MAY 31ST, for the whole contract and for the various trades required in

Rebuilding of the Davenport Methodist Church.

No tender necessarily accepted.

JAMES A. ELLIS, Architect,
9 1/2 Adelaide St. East, Toronto.

TOWN OF BERLIN

SEWAGE DISPOSAL WORKS

Sealed Tenders, addressed to G. H. Bowlby, M.D., Chairman Sewerage Committee, will be received up to noon on TUESDAY, JUNE 5TH, for the construction of a

SEPTIC TANK

The lowest or any tender not necessarily accepted

GEO. H. BOWLBY, M.D.,

Chairman Sewerage Committee.

WM. MAHLON DAVIS, Town Engineer.

Berlin, Ont., May 22nd, 1900.

CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF THE PUBLIC WORKS 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.

MAY 23, 1900

No. 16.

THE CANADIAN CONTRACT RECORD, PUBLISHED EVERY WEDNESDAY

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

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WANTED

Correspondence with Town Engineers or Surveyors—object, co-operation in design and construction of Sewerage and Waterworks Systems. Address, "SPECIALIST," CONTRACT RECORD.

Tenders Wanted

The Council of the County of Oxford invite tenders for a New Brick Building to be erected on the Court House Square in Woodstock. And also for the complete installation of a New Plant for Heating all the County Buildings by the "Webster System of Steam Heating."

Sealed tenders, addressed to the County Clerk, will be received up to noon on

TUESDAY, THE 29th INST.

Plans and specifications may be seen and all information obtained from the Architect, Mr. Alex. White, No. 45 Wellington Street, Woodstock.

The lowest or any tender not necessarily accepted.

JAMES WHITE,
County Clerk.

Woodstock, Ont., May 8, 1900.

NOTICE TO BRIDGE BUILDERS

Sealed tenders, marked "Tender for Kemptville Bridge," for the Superstructure of a

STEEL SWING BRIDGE

over the south branch of the Rideau River, in the Village of Kemptville, Ont., will be received by the undersigned, until the arrival of the last mail on SATURDAY, JUNE 2ND, 1900.

Plans, specifications, etc., may be seen and all other information obtained at the office of the undersigned, in Carleton Place, Ont., and at the drug store of Angus Buchanan, Chairman of Bridge Committee, Kemptville, Ont.

Also sealed tenders, marked "Tender for Piers, Kemptville Bridge," for the building of a Concrete Pivot Pier and Two Abutments, for the above bridge, will be received at the same time, apply same places for information.

The lowest or any tender, in either case, not necessarily accepted.

E. T. WILKIE, C.E.,
Carleton Place, Ont.
Engineer for Village of Kemptville, Ont.

TENDERS

Tenders will be received by the undersigned up to MAY 23rd for Cement Sidewalks at 50 much per square foot. Specifications on application to

F. S. SCOTT,
Clerk Village Brussels.

TENDERS

Will be received up to FRIDAY, MAY 25TH, 1900, for the construction of the following works:

1. About 7000 square feet of granolithic walk on the north side of Kent street, with granolithic kerb.
2. 7480 lineal feet of 9 inch tile sewer with 6 inch cellar drain and 45 side drains, on Lindsay and Melbourne streets.

Plans and specifications may be seen and forms of tender obtained at the town clerk's office, also at the office of the engineer, W. T. Ashbridge, C. E., Temple Building, Toronto.

The lowest or any tender not necessarily accepted.

ALEX. JACKSON,
Chairman Board of Works,
Lindsay, Ont.

TENDERS FOR BRIDGE

Sealed tenders, addressed to George Stewart, Esq., County Clerk Peterborough, will be received up to MONDAY, JUNE 18TH, 1900, at four o'clock p.m., for the erection of a

Floating Bridge and Approaches

over Chemong Lake, Peterborough County.

Tenders received either for entire work or for separate parts thereof.

Plans, etc., may be seen at the office of J. E. Belcher, Esq., County Engineer Peterborough.

An accepted cheque for five per cent. on amount of tender up to \$10,000.00 must accompany each tender. Where tender exceeds \$2,000.00 two and one-half per cent. on the excess must also accompany the tender.

The lowest or any tender not necessarily accepted.

JOSEPH FORSTER,
Warden.

Sealed Tenders

Will be received by the undersigned up till noon on the 25TH MAY, INSTANT, for the construction of

80,000 Square Feet, more or less,
of Concrete Sidewalk

in the City of Windsor, the work to be begun on June 15th next and prosecuted with all reasonable dispatch. The work to be done in such places, on such levels, and of such widths as the Council of the City may determine. Tenders to state a fixed price per square foot of walk. A form of tender and general specifications will be furnished on application to the Clerk. Each tender to be accompanied by a certified Canadian bank cheque for a sum equal to 20 per cent. of the gross amount of the tender as a guarantee of good faith, and to cover the cost of re-advertising in case the tenderer should for any reason decline to proceed with the work at the time appointed, or to meet the difference between such tenderer's tender and the next lowest tender, and the successful tenderer will be required to furnish the City with an approved guarantee bond in the sum of \$5,000 for the good condition of the walks for a period of five years. Tender to be marked on the outside of envelope "Tender for Concrete Sidewalk."

STEPHEN LUSTED,
Clerk.

Windsor, May 15th, 1900.

TENDERS

Sealed Tenders will be received until FRIDAY, JUNE 15TH, 1900, for all the trades necessary in the erection of a Four Roomed Public School at Sturgeon Falls, Ont.

Plans and specifications may be seen either at the Architect's office or at the Secretary's office, Sturgeon Falls.

A marked cheque for 5 per cent. of the amount to accompany each tender, which will be returned to the unsuccessful tenderers as soon as tenders are opened, and to the successful contractor as soon as contract is finished.

No tender necessarily accepted.

JAMES HOLDITCH,
Secretary School Board,
Sturgeon Falls, Ont.

HENRY SIMPSON, Architect,
9½ Adelaide Street East, Toronto, Ont.

CONTRACTS OPEN.

STANSTEAD, QUE.—The Lay Whip Co. is about to erect a factory

LOVAT, ONT.—Residences will be built by Mrs. Mooney and D. Campbell.

LEWISTON, N. S.—Lewis Bros. will rebuild their wood-working factory, burned last week.

COOKSTOWN, ONT.—J. Coulter will erect new stores adjoining the Queen's Hotel.

ASHCROFT, B. C.—The Presbyterian congregation contemplate building a manse.

AMHERSTBURG, ONT.—A three storey building will be erected by William McGreggor.

RENFREW, ONT.—A number of granolithic pavements will likely be put down this year.

PARIS, ONT.—The council will likely issue debentures for \$20,000 for permanent works.

TIVERTON, ONT.—The contract for building Presbyterian church will be let this week.

EAST TORONTO, ONT.—The council has decided to invite tenders for a system of electric lighting.

NANAIMO, B. C.—George L. Scheiky has taken tenders for erection of stone and frame residence.

TRURO, N. S.—A. D. Wetmore has purchased a site on Queen street, and intends building a residence.

PERTH, ONT.—It has been decided to proceed with the alterations and additions to St. John's R. C. church.

SANDWICH, ONT.—A movement is on foot to induce several Michigan lumbermen to erect saw mills here.

SARNIA, ONT.—R. W. Fawcett, architect, invites tenders up to June 2nd for erection of Methodist church.

HAWKESBURY, ONT.—The sum of \$20,000 is to be spent in West Hawkesbury for making better roads.

NEW WESTMINSTER, B. C.—The British Columbia Electric Railway Co. will extend their line to Sapperton.

DESERONTO, ONT.—Plans are under way for the extension of the Bay of Quinte railway in the vicinity of Tweed.

CHAPLEAU, ONT.—Tenders are being taken this week by J. McN. Austin for erection of Methodist parsonage.

PORT HOPE, ONT.—The town is advertising a by-law to raise by debentures \$20,000 for waterworks extension.

TAMWORTH, ONT.—Bids for \$8,500 of debentures will be received by James Aylesworth, this place, up to June 4th.

PORT MAITLAND, ONT.—Negotiations are said to be in progress with a view of installing an electric light plant here.

VICTORIA, B. C.—John Teague, architect, has taken tenders for erection of brick building facing Fisguard street.

MILTON, ONT.—The town offers for sale \$10,000 of debentures. Tenders close June 1st. R. Cortes, town clerk.

ST CATHARINES, ONT.—A by-law will be submitted to the ratepayers to raise \$25,000 for a Collegiate Institute building.

COLDWATER, ONT.—G. A. Abbott has had plans prepared for new block, to contain two stores, barber shop, dwelling and hall.

NEWCASTLE, N. B.—The school trustees will likely ask the Government for power to issue debentures to pay off indebtedness.

INGERSOLL, ONT.—Richard Seldon, clerk of North Oxford, asks bids up to 28th inst. for purchase of \$1,500 of debentures.

WATERLOO, ONT.—A by-law to raise \$10,000 by debentures for water works extension was carried on Tuesday of last week.

AYLMER, QUE.—The Methodist congregation will likely make improvements to church, including new roof, ceiling, and tower.

SPRINGBANK, ONT.—Tenders are invited by W. A. Gibson, up to 23rd inst., for excavation of Springbank irrigation ditch.

NEW GLASGOW, N. S.—The Maritime Milling Co. have decided to have plans prepared at once for rebuilding their works.

ORILLIA, ONT.—The Collegiate Institute Board have asked the town council for a grant of \$1,500 to build a gymnasium.

PORT ELMSLEY, ONT.—Tenders are wanted by June 4th for building new Anglican church. Address Alfred Moore, this place.

OAK LAKE, MAN.—Tenders have been taken by A. Cameron for building a brick veneered Presbyterian church, with stone basement.

INDIAN HEAD, N. W. T.—A. J. Osment, secretary school board, invites tenders up to 25th inst. for purchase of \$12,000 of debentures.

MIDLAND, ONT.—The construction of a water works system is talked of.—Mr. Nelson, of Barrie, may build a brick house here.

WALLACEBURG, ONT.—The town offers for sale \$30,000 4 per cent. debentures. Tenders received by H. A. Stonehouse up to June 9th.

VANCOUVER, B. C.—The board of school trustees have inspected available sites for school buildings at Mount Pleasant and Fairview.

LISTOWEL, ONT.—N. McD Fleming, secretary Listowel Furniture Co., will receive tenders up to 29th inst. for erection of furniture factory.

BEAUMONT, MAN.—C. Drummond Hay has had plans prepared for a two storey implement warehouse, 50 x 30 feet, with hall above, cost \$2,500.

HULL, QUE.—The public school commissioners have decided to build two colleges to replace some of the schools destroyed by the recent fire.

HINTONBURG, ONT.—Voting on the by-laws to raise \$3,500 for fire appliances and \$25,000 for water works construction will take place on June 12th.

NEWMARKET, ONT.—W. E. Richardson intends erecting two residences.—Improvements will be made to the building occupied by the Ontario Bank.

SUSSEX, N. B.—The corporation has taken tenders for boring an artesian well to provide a water supply. If successful a number of wells will be sunk.

OWEN SOUND, ONT.—W. H. Merritt, of Strathroy, has been negotiating with the town council with a view to establishing a furniture and table factory here.

PENETANGUISHENE, ONT.—Alphonse Tessier purposes building several residences.—Napoleon Payette is also considering the erection of new dwellings.

ALMONTE, ONT.—The corporation will this season lay granolithic walks on both sides of the principal business streets. The work will likely be done by contract.

DURHAM, ONT.—New stores are to be built by Mr. McIntyre.—A company is being formed to establish cement works here. The promoter is Neil McKechnie.

WELLAND, ONT.—R. White, architect, of Niagara Falls, N. Y., has prepared plans for remodeling John Bright & Company's wine factory in Stamford township.

BERLIN, ONT.—Tuerk Bros. will shortly commence the building of their proposed factory.—Tenders have been asked for improvements to the Walper House.

WEBBWOOD, ONT.—The Spanish River Pulp and Paper Co. have decided to erect their pulp mill at the falls on the Spanish river, about four miles from this place.

BURK'S FALLS, ONT.—Tenders are wanted by 25th inst. for erection of brick block. Plans by J. F. Brown, architect, of Toronto, may be seen at office of James Sharpe.

MONCTON, N. B.—P. S. Archibald and George McArthur, of this place, are surveying for a branch railway and shipping pier for the Port Hood Coal Co., of Port Hood, C. B.

PORT ARTHUR, ONT.—It is likely that the Winnipeg Southeastern Railway Co. will commence the construction of the proposed bridge across Rainy river within the next year.

LINDSAY, ONT.—The corporation invites tenders in this issue up to Friday of this week for construction of 7,000 square feet of granolithic walk and 1,480 lineal feet of 9 inch tile sewer.

GRAND FORKS, B. C.—Alex. Miller, local manager of the Merchants' Bank of Halifax, has been authorized to erect a \$20,000 bank building here, to be of brick, three storeys high.

BARRIE, ONT.—The Barrie Tanning Co. have selected a site for proposed factory, and plans for the building will be prepared immediately.—The proposed hospital building will cost \$12,000.

STEVENSON, ONT.—Tenders closed this week for erection of brick veneered church at Sycamore Siding. Particulars from W. N. Thompson. Plans by J. L. Wilson & Son, architects, Chatham.

HOLBROOK, ONT.—Tenders have been taken for erection of brick Methodist church in North Norwich. Particulars from W. G. Pearson, of this place. Plans by M. L. Buffy, architect, London.

BATHURST, N. B.—The tenders received for construction of court house and gaol have been found considerably above the estimated cost, and it is probable that building will be deferred for the present.

HAMILTON, ONT.—S. G. Curry, architect, of Toronto, is understood to be preparing plans for the factory for the National Cycle and Automobile Co., to be built in this city; estimated cost, \$40,000.

—Geo. E. Mills has taken out permit for brick addition to Sawyer Massey works, cost \$7,000.

ST. CATHARINES, ONT.—The Niagara, St. Catharines and Toronto Railway Co. received tenders up to 22nd inst. for grading, masonry, bridge work, piling and fencing. F. A. Cheney is general manager.

PARRY SOUND, ONT.—The town will probably issue debentures for the purpose of building a new steel bridge over the Seguin river, macadamizing James street, constructing permanent sidewalks and laying a drain.

HALIFAX, N. S.—The Acadia Sugar Refining Co. has purchased property on which to erect a new building.—C. E. W. Dodwell, Dominion government engineer, has been laying out the site for proposed custom house.

VALLEYFIELD, QUE.—The Montreal Cotton Co. has asked the town for a bonus of \$50,000 to assist them in extending their works. In return they agree to employ 400 men and to supply the town with electric light and power.

SHERBROOKE, QUE.—F. M. Clements, of Berlin, N. H., will build a \$25,000 opera house here if the city will provide a site.—Cox & Amos, architects, of Montreal, have prepared plans for the new St. Peter's church to be built here.

ST. MARY'S, ONT.—The by-law to take over the electric light plant will be voted on by the ratepayers on July 21st.—E. M. Cubbon has purchased property and intends erecting a two-storey brick structure to be used as a dwelling and store.

PEMBROKE, ONT.—James H. Burritt wants tenders by June 7th for plumbing in the high and public schools.—The Allumette Oil Co. has been incorporated, to bore for oil and natural gas, and refine petroleum. J. W. Munro is interested.

CORNWALL, ONT.—The township of Cornwall desires tenders by June 11th for construction of Beaver Creek drain, estimated cost \$5,655.20. Plans at office of F. D. McNaughton, C. E., and tenders to be addressed to John Mullin, township clerk.

LITTLE CURRENT, ONT.—The Railway Committee of the House of Commons has passed a bill to incorporate the Manitoulin & North Shore Railway Co., to build a line of railway connecting Manitoulin with the mainland. The road will necessitate the construction of three bridges, the longest of which will be 300 feet.

GUELPH, ONT.—W. Fry Colwell, architect, wants tenders by Saturday of this week for interior alterations, painting and reseating of St. Andrew's church.—Tenders are invited for improvements to Knox church, including reseating, building an approach, alterations to basement and gallery, and new pipe organ, cost \$8,000. Plans by Langley & Langley, architects, Toronto.

ST. JOHN, N. B.—The city council has decided to invite tenders up to June 30th for lighting the city for a term of five years. A committee will also report on the advisability of installing a municipal plant.—The school trustees have appointed a committee to select a site for a new school in Carleton, to be frame, two storeys, four rooms.—Tenders are invited for erection of addition to No. 3 hook and ladder station, as per plans prepared by H. H. Mott, architect.

WINNIPEG, MAN.—Geo. Browne, architect, has prepared plans for brick residence on Donald street or Dr. Prowse.—J. Greenfield, architect, is taking tenders for large tenement building, three storeys, stone basement, to be of brick and stone, steam heated throughout.—S. Hooper, architect, is taking tenders this week for erection of stone residence at Stonewall for John Gunn.—James Chisholm, archi-

tect, has invited tenders for erection of brick residence on Edmonton street, this city.

KINGSTON, ONT.—The movement to erect a smelter is progressing favorably, and a site will shortly be purchased.—The plans of Arthur Ellis, architect, have been accepted for alterations and additions to the school of mining and agriculture, and tenders will be invited shortly. The construction will be frame on stone foundation.—H. P. Smith, architect, is about to invite tenders for improvements to the Church of Assumption, Erinsville.—Power & Son, architects, are this week taking tenders for erection of stable on Ontario street.

SMITH'S FALLS, ONT.—The Smith's Falls Electric Light Co. will build an addition to their power house and install new apparatus.—Work has commenced on the new C. P. R. offices, which will be heated by steam and will cost about \$5,000.—Tenders are about to be invited for construction of granolithic walks.—The Board of Education, at a meeting last week, resolved to take some steps to secure, if possible, additional school accommodation. The by-law to provide funds for this purpose was recently defeated by the ratepayers.

LONDON, ONT.—Committees of the Middlesex and Elgin county councils went to Muncey last week to select a site for a new bridge over the Thames river.—The county engineer has been asked to prepare plans and invite tenders for two concrete abutments and iron superstructure of 190 foot bridge to replace Brough's bridge.—McBride & Farncombe, architects, are preparing plans for a residence to be built by Andrew Durand, to be entirely of field stone.—A. O. Graydon, city engineer, invites tenders up to 5 p. m. today (Wednesday) for construction of tile sewer on Waterloo street and on St. James street.

OTTAWA, ONT.—Davidson & Thackray have announced their intention of erecting a saw mill on their timber limits.—The Methodists of the Glebe may erect a church in that district.—The Hull Lumber Co. are not expected to rebuild their saw mill this season.—The Ottawa Canoe Club is considering the question of building an addition to their club house at Rockcliffe.—The plans for the proposed changes in the eastern section of the main sewer have been completed.—The trustees of Erskine Presbyterian church have decided to rebuild their church, but have selected a new site on Ashburnham hill.—E. B. Eddy Co. have decided to rebuild all their buildings which were burned down in the recent fire. Orders for the necessary machinery are now being placed and a staff of architects is now at work preparing plans.—The Dominion Government invites tenders up to 28th inst. for reconstruction of public building at Hull. Plans at Department of Public Works.

MONTREAL, ONT.—The Montreal Amateur Athletic Association have decided to build a new club house, to be up to date in every respect, and to cost probably \$150,000.—The road committee has decided to invite tenders for paving of Craig street, from Alexander to Bleury.—The plans for the building to be erected by the Connors' Syndicate have been submitted to the Harbor Board.—The Presbytery has approved of the steps taken by Melville congregation to secure a site for new church. Rev. Mr. Winfield is pastor.—The Chambly Water & Power Co. purpose developing additional power at Ste. Therese Rapids, about three miles up the river from their present plant. It is also proposed to erect an additional power house there and to build an addition to the existing plant at Chambly. The proposed changes will increase the power from 7,500 to 30,000 horse power.—A proposition has been made by Alder-

man Gagnon to establish an artificial lake at the foot of the mountain and to build a mountain railroad in close proximity to the present one.—The city invites tenders for a loan of \$300,000.—Building permits have been granted as follows: Theatre building, corner Beaudry and St. Catharines streets, cost \$4,000, Daoust & Racette, architects; two dwellings for Mrs. Matthews, cost \$3,000; residence on Plessis street for A. Peltier, cost \$3,000, C. Chausse, architect; residence on Shaw street for Mr. Lablonde, cost \$2,800; three houses and two shops, corner Ontario and Beudry streets, for Mr. Bouchiere, cost \$5,000.

TORONTO, ONT.—F. H. Herbert, architect, wants tenders by 5 p. m. to-day (Wednesday) for excavating, underpinning, brickwork, and carpenter work required in remodelling and enlarging residence at 79 St. George street, also for removing existing buildings, blasting, and excavating for erection of buildings, 265 x 107 feet, for the Imperial Starch Co. at Prescott, Ont.—J. F. Brown, architect, has prepared plans for brick block at Burks Falls. Tenders close 25th inst.—The city has given notice of its intention to construct a brick pavement on Manning avenue, Harbord to Bloor, cost \$8,960, and on King street, Spadina to Bathurst, cost \$23,400, also brick sidewalks on portions of Sherbourne, Harbord, and Lowther avenue, cost about \$1,700.—The Property Committee of the city council is considering a proposal to convert St. Andrew's market into a barracks for the boy's brigade.—The project for the erection of a palace hotel in this city is assuming more definite shape. Negotiations are in progress with Boston capitalists who will probably take \$250,000 of the bonds.—The Heating and Ventilating Committee will recommend an experiment with steam heating and fan ventilation in the Bathurst street school. They will also recommend that additional furnaces be installed in Perth avenue, Dovercourt, Bolton avenue and Essex street schools. The Winchester street school, which will be entirely rebuilt, will be heated by steam.—J. D. Graves, representative of H. J. Heinz & Co., of Pittsburg, states that plans will be prepared immediately for a factory to be built in this city.—The Ontario Department of Agriculture is preparing specifications for cold storage stations, for the benefit of municipalities desiring to establish such enterprises.—The city engineer will likely recommend the paving of the approaches to the York street bridge.—Mark Hall, architect, has submitted to the Industrial Exhibition Association the following estimates for necessary buildings: Main building, \$105,000; dairy building, \$12,500; art gallery, \$11,500; stove building, \$9,500; horticultural building, \$15,500; agricultural building, \$8,000; police, fire department and hospital, \$6,500; administration building, \$6,000; repairs to implement building, \$1,500; lavatories, \$3,000; addition to poultry building, \$1,500; fittings for new buildings, \$2,500; natural history building, \$7,000.—Robert McCallum, engineer of the Ontario Public Works Department, is preparing plans for the reclamation of about 114,000 acres of swamp lands in the townships of Portland and Camden. The works contemplated are increasing the height of the dams already in existence about Pepworth and building new ones, excavating a channel through the shoals above Pepworth, and enlarging the channel through the rocky shores upon which the Pepworth dam is situated.—The city engineer has recommended the construction of the following works: Bathurst street, brick pavement, cost \$5,300; Coolnine road, cedar block pavement, Dundas street to St. Anne's road, cost \$1,470; Cowan avenue, asphalt pavement, King to Huxley street, cost \$11,375; Cummings street, macadam roadway, Boulton

to De Grassi streets, cost \$350; Custom House lane, granite sett pavement, with scoria blocks in front of the property of the Dominion government, cost \$7,030; Dowling avenue, asphalt pavement, Queen street to the Grand Trunk tracks, cost \$14,440; Farley avenue, cedar block pavement, Bathurst to Tecumseh street, cost \$1,530; Harbord street, 24-foot cedar pavement, Bathurst to Markham, cost \$740; Markham street, asphalt pavement, College street to 759 feet north, cost \$6,890; Queen street, cedar block pavement, Grand Trunk tracks to Pape avenue, cost \$6,580; also from Pape to Greenwoods avenue, cost \$9,600; Shaw street, cedar block pavement, Arthur to College, cost \$3,680. Cement-concrete sidewalks—Bathurst street, Adelaide street to Farley avenue, cost \$458; Spadina road, Lowther to Bernard avenues, cost \$2,382; Winchester street, Parliament to Sumach, cost \$2,239; Beverley street, Queen to Cecil street, cost \$2,700; Beverley street, Cecil to College street, cost \$670; Borden street, College to Esther street, cost \$1,227; Cecil street Henry to Beverley, cost \$208; Church street, brick sidewalk, Front to Esplanade, cost \$815. The city engineer has also recommended an asphalt pavement on Huron street, from Lowther to Bernard, cost \$10,910, and a brick pavement on William street, from Queen to Caer Howell, cost \$14,880.—Building permits have been granted as follows: Hugh Ryan estate, restoring warehouses at 44-48 Richmond street west, cost \$7,500; W. G. Gooderham, brick dwelling on Bedford road, near Bloor street, cost \$12,000; Alexander Norris, three detached houses, two storey brick and stone, on Augusta avenue, cost \$6,000; New York Real Painless Dentists, alterations to offices, corner Yonge and Adelaide streets, cost \$2,000; B. E. Bull, dwelling on St. George street, south of Bernard, cost \$7,500.

FIRES.

Pumping station at Charlottetown, P. E. I., partially destroyed, engines and pumps being badly damaged.—Wood-working factory of John Lewis & Sons, at Lewiston, N.S., totally destroyed; insurance \$5,500.—Store and dwelling of M. Darke, at Regina, N.W.T.—Kippen & Shaff's saw mill at Sycamore siding, Ont., totally destroyed; loss \$2,500.—Bicycle factory of the Welland Valve Mfg. Co. at St. Catharines, Ont., completely burned; loss about \$300,000.—Residence of Mrs. Wm. Varty, near Brougham, Ont.; loss \$2,500.

CONTRACTS AWARDED.

MIDLAND, ONT.—New post-office: D. A. Patchell, successful tenderer.
TRURO, N.S.—New science building: Mr. Reid, of Windsor, general contractor.
TIVERTON, ONT.—Methodist church: D. Stevens, of Chesley, contractor, price \$1,497.
APPLETON, ONT.—School house for S.S. No. 7, Huntley: A. Wilson, jr., contractor.
WINGHAM, ONT.—Granolithic pave-



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F. W. BAILLIE, Secretary. E. R. WOOD, Managing-Director.

ments: A. Graham, London, successful tenderer.

SHERBROOKE, QUE.—Warehouse for Canadian Rand Drill Co.: G. G. Bryant, contractor.

RAT PORTAGE, ONT.—Brick residence for F. J. Ap'John: Stephens & McKinnon, contractors.

GEORGETOWN, ONT.—Cement walks - Guelph Pavement Co., contractors, 12 cents per square foot.

SUSSEX, N.B.—Bridge at Upper Corner: C. J. B. Simmons, contractor for substructure and approaches, price \$3,329.

OTTAWA, ONT.—Thomas Tompkins, of Brockville, is understood to have secured the contract for building the new C.P.R. depot.

BREWERTON, ONT.—Methodist church - Brickwork, Mr. Rundell; carpentry, H. Hyman, Guelph; painting, William Forrester, Oskville.

MOUNT FOREST, ONT.—Granolithic sidewalks: Royal Artificial Stone Pavement Co., of Guelph, successful tenderers, 11 cents per square foot.

HUBREY, ONT.—Brick residence for John Goenlock: Hyatt Bros., of London, general contractors; D. D. McCollum, of Darwent, masonry and concrete work.

BROCKVILLE, ONT.—George Ross, this place, is installing several hot water heating plants in Prescott, using the series D Perfection boilers supplied by the James Smart Mfg. Co.

FERGUS, ONT.—Committee of Management of Methodist church have arranged with the James Smart Mfg. Co., of Brockville, to install two Kelsey warm air generators for them.

KINGSTON, ONT.—Vestry for Church of the Holy Name, Cushendall: H. P. Smith, this city, architect; J. W. Oldfin, contractor.—Residence for Robert Wadell:

Masonry, A. McCartney; carpentering, A. Williamson; gas fitting, plumbing, tinsmithing, etc., Elliott Bros.; painting, T. Milo.

RIDGETOWN, ONT.—Thos. Craig, this place, has given the James Smart Mfg. Co. a contract to install one of their largest Kelsey warm air generators for warming his new block.

PAISLEY, ONT.—Factory for Paisley Pork Packing Co.: Masonry, George Schuler, of Tiverton; carpentry, iron work and painting, Scott & Grant; excavating, William Rowand.

GUELPH, ONT.—Pressed brick residence for Joseph Pequegnat: W. Fry Colwill, architect; masonry, Taylor Bros.; carpenter work, John Hughes; plastering, J. J. Mahoney; plumbing and gas fitting, Mahoney Bros.; painting, E. H. Pass; tinsmithing, A. Rumford.

ST. JOHN, N.B.—For supply of steam road roller of 15 tons weight tenders were submitted as follows: Waterous Engine Works Co., Brantford, Ont., Buffalo Pitts roller, \$3,450; Julian Scholl & Co., New York, Russell roller, \$3,800; the Sawyer

Massey Co., Hamilton, Russell roller, \$3,850. The tender of the Waterous Company has been accepted.

LONDON, ONT.—The following tenders have been accepted in connection with rebuilding of Masonic Temple, from plans by Moore & Henry, architects: Brick and cut stone, Burnett & Son; carpenter work, John Purdom; painting and glazing, R. Lewis; plastering, Murray Bros.; plumbing, Smith Bros. & Co.; galvanized ironwork, Stevely & Son; felt roofing, George Roughley. The steam heating, electric wiring and elevator contracts not let.

WINNIPEG, MAN.—Warehouse for the Vulcan Iron Co.: A. C. Sutherland, contractor. Building will be 60x100 feet, cost \$10,000.—J. Stewart Tupper has purchased the Bannatyne House at Armstrong's Point, and has let contracts for improvements, including hot water system, as follows: Plumbing and heating, Manitoba Plumbing Co.; masonry, R. Watson; plastering, D. Cameron; carpenter work, F. Landon; painting, Mr. Leckie. Walter Chesterton is architect.

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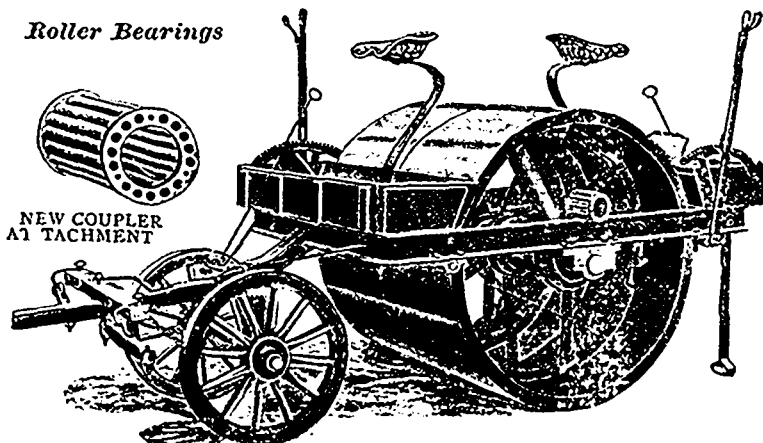
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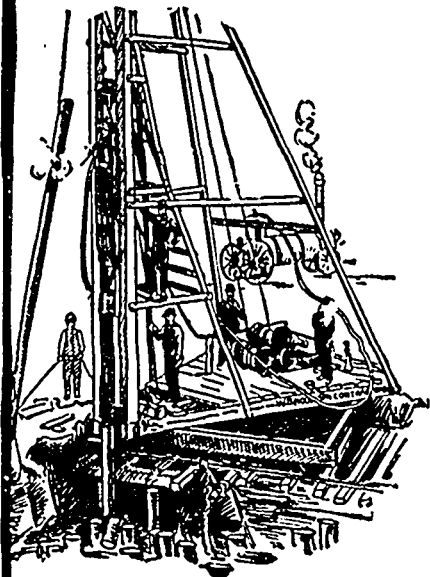
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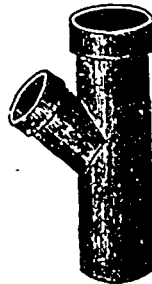
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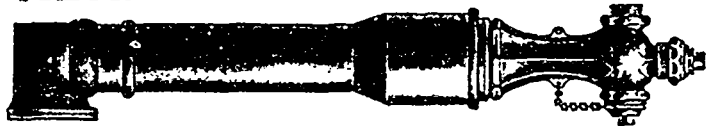
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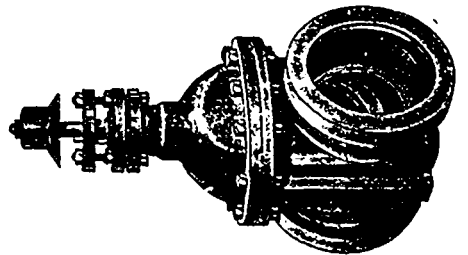


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Cement-concrete can hardly be called a new material, for there are viaducts and pavements still in existence which were built by the Romans 2,000 years ago. Its manufacture, however, had until about thirty years ago been numbered among the lost arts. It is of a still more recent period that it has been commonly employed, particularly in Canada.

There is a very general impression among municipal councillors with whom you have to deal that it is too expensive. Councils, nevertheless, are outgrowing that idea, and in one part of the province and another I find waterways of six to eight foot span, built of stone, brick and concrete, at a cost of from \$500 to \$1,000. The old wooden structures which they replaced may have cost in the first instance only \$50, but they were perishable, constantly in need of repairs, an impediment to travel, at times dangerous, and the trend of feeling is towards more permanent and serviceable work.

The limit of span in which concrete can be used is probably quite equal to that of stone arches. This will remain, for the most part, a question of economy in highway work, and its use will show where the steel bridge with concrete abutments steps in. The line is not definitely drawn for all cases, but up to 40 feet the least expensive kind of cement-concrete can be used in arches, and certainly up to that point its use is quite feasible. For the longer spans, arches of the Melan type are being used in the United States and Europe—that is, concrete re-enforced by a skeleton of steel.

Arches of concrete may be designed by the formulæ used proportioning arches of stone masonry. But the determination of the line of resistance and theory of the arch, as applied to stone, cannot be applied to concrete arches. The stone arch is designed on the principle that it will remain in place without the use of mortar; while the concrete arch, on the other hand, is a monolith dependent on its cohesive strength points, it appears to me to the necessity of a generous proportion of cement, very great care in mixing the concrete, and the best quality of all materials employed.

My meaning with regard to the proportion of cement can be better understood by glancing over the composition of concrete. A concrete can best be regarded as a mixture of mortar and broken stone, the mortar being formed from a mixture

*From a paper read by A. W. Campbell, C. E., Ontario Good Roads Commissioner, before the Association of Ontario Land Surveyors.

of sand and cement. Given a sample of broken stone in a vessel, the requisite quantity of water can be gauged by pouring water into the vessel until the stone is submerged. The quantity of water used will indicate the amount of mortar required to completely fill the voids in the stone. The proportionate amount of cement needed to fill the voids in the sand can be gauged in the same way. The proportions of cement, sand and broken stone obtained in this manner would provide, with perfect mixing, a mortar of which the voids in the sand are filled with cement, and each particle of sand coated with cement; it would provide a concrete in which the interstices of the stone are filled with this mortar, and each stone coated with mortar. This would be the case with perfect mixing, and would provide a theoretically perfect concrete. Perfect mixing is not possible, however, and it is necessary to provide an amount of cement

in excess of the voids in the sand, and an amount of mortar in excess of the voids in the stone. With proper mixing and good materials, a satisfactory concrete for bridge abutments can be framed from cement and broken stone in the proportion of one, three and four. But it is recognized that the greatest strength in concrete can be obtained by making the mortar rich in cement, rather than lessening the quantity of stone. This applies to crushing strength, however, rather than to the tensile strength required to some extent in the arch. For the arch proper it will be well to use a rich concrete, in say the proportions of one of cement, two of sand, and three of broken stone. With small arches there will be little economy in changing the proportions of the abutments.

The cost of the abutments may be lessened, where they are of sufficient thick-

(Continued on page 8.)

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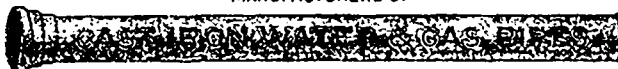
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(Continued in next issue.)

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|                                                                            | Toronto. | Montreal. |
|----------------------------------------------------------------------------|----------|-----------|
| "Scoria" Paving Blocks, 8"x3 1/2"x5".....                                  | 55       |           |
| "Scoria" Paving Blocks, 8"x3 1/2"x4".....                                  | 45 00    |           |
| Masilon.....                                                               | 30 00    |           |
| Quebec and Vermont rough granite for building purposes, per cu. ft. quarry | 40       | 1 00      |
| For ornamental work, cu. ft.                                               | 40       |           |
| Granite paving blocks, 8 in. x 12 in. x 2 1/2 in., per M.                  |          | 50 00     |
| Granite curbing stone, 6 in. x 20 in., per lineal foot.....                |          | 70        |

#### CREDIT VALLEY STONE. F.O.B. QUARRIES.

|                                                  |              |
|--------------------------------------------------|--------------|
| Rubble, per car of 35 tons...                    | 7 50         |
| Brown Coarsing, up to 10 in., per sup. yard..... | 1 50 to 1 75 |
| Brown Dimension, per cu. ft.                     | 60           |
| Grey Coarsing, per sup. yard                     | 1 00         |
| Grey Dimension, per cu. ft.                      | 45           |

#### LONGFORD STONE.

|                             |      |
|-----------------------------|------|
| Rubble, per 30 M. car.....  | 5 00 |
| Ashlar, per cub. yd.....    | 2 00 |
| Dimension, per cub. ft..... | 18   |

#### SLATE.

|                                     | Toronto. | Montreal. |
|-------------------------------------|----------|-----------|
| Roofing (8 square).....             |          |           |
| " red.....                          | 17 50    | 20 00     |
| " purple.....                       | 3 50     | 10 00     |
| " adding green.....                 | 3 50     | 7 00 8 00 |
| " black.....                        | 7 50     | 6 50      |
| Terra Cotta Tile, per sq.....       | 20 00    | 25 00     |
| Ornamental Black Slate Roofing..... | 4 80     | 6 80      |

#### CEMENT, LIMB, etc.

|                                            |       |       |
|--------------------------------------------|-------|-------|
| Portland Cements -                         |       |       |
| German per bl.....                         | 2 50  | 2 65  |
| London.....                                | 2 95  | 3 05  |
| Newcastle.....                             | 2 70  | 2 80  |
| "Jossin" Brand Portland<br>Dyckerhoff..... | 3 05  | 3 25  |
| North's "Condor".....                      | 2 95  | 3 05  |
| English, artificial, per bbl.....          | 2 85  | 3 05  |
| Belgian, natural, per bbl.....             | 2 50  | 2 75  |
| Canadian, artificial, .....                | 2 85  | 3 00  |
| Roman.....                                 | 2 70  | 2 75  |
| Parisian.....                              | 5 25  | 5 25  |
| Keene Superfine "Whites".....              | 21 00 | 22 00 |
| Keene's Coarse "Whites".....               | 8 00  | 8 50  |
| "Karlstadt" (German).....                  | 3 05  | 3 25  |
| "Germania" (German).....                   | 3 05  | 3 25  |
| "Rooster" (Belgian).....                   | 2 45  | 2 50  |
| "Keystone" (Belgian).....                  | 2 45  | 2 50  |
| "Anvil" (Belgian).....                     | 1 95  | 2 05  |
| "Barham" (English).....                    | 2 95  | 3 00  |
| Hydraulic Cements -                        |       |       |
| Thorold, per bbl.....                      | 1 50  | 1 60  |
| Queensdown.....                            | 1 50  | 1 50  |
| Napaeoc, .....                             | 1 50  | 1 50  |
| Hull, .....                                | 1 50  | 1 50  |
| Ontario, .....                             | 1 25  |       |

|                                  | Toronto. | Montreal. |
|----------------------------------|----------|-----------|
| Fire Bricks, Newcastle, per M    | 30 00    | 35 00     |
| " Scotch " "                     | 30 00    | 35 00     |
| Lime, 100 lbs., Grey.....        | 20       | 20        |
| " " White.....                   | 35       | 35        |
| Plaster, Calcined, N. B.....     | 2 00     | 1 50      |
| " " N. S.....                    | 2 00     | 1 50      |
| Hair, Plasterers', per bag... 80 | 1 00     | 0 60      |

#### HARDWARE.

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

|                               |      |      |
|-------------------------------|------|------|
| Cut nails, 50d & 60d, per keg | 2 85 | 2 85 |
| Steel " " "                   | 2 95 | 2 95 |

#### CUT NAILS, FENCE AND CUT SPIKES.

|                                      |      |      |
|--------------------------------------|------|------|
| 4 1/2 in., hot cut, per 100 lbs..... | 2 85 | 2 85 |
| 10 to 12d, hot cut.....              | 2 95 | 2 65 |
| 8d, 9d, " ".....                     | 3 00 | 3 00 |
| 6d, 7d, " ".....                     | 3 15 | 3 15 |
| 4d to 5d, " ".....                   | 3 25 | 3 25 |
| 3d, " ".....                         | 3 50 | 3 50 |
| 2d, " ".....                         | 3 85 | 3 85 |

Cut spikes, 10 cents per keg advance.  
Steel Nails, 1cc, per keg extra.  
Wire nails, 3-35 base price.

#### Iron Pipe:

|                                        |       |
|----------------------------------------|-------|
| iron pipe, 1/2 inch, per 100 feet..... | \$ 64 |
| " " 3/4 " " ".....                     | 5 75  |
| " " 1 " " ".....                       | 4 75  |
| " " 1 1/2 " " ".....                   | 4 75  |
| " " 2 " " ".....                       | 5 50  |
| " " 2 1/2 " " ".....                   | 6 50  |
| " " 3 " " ".....                       | 12 00 |

#### Lead Pipe:

|                         |                    |
|-------------------------|--------------------|
| Lead pipe, per lb.....  | 7c                 |
| Waste pipe, per lb..... | 7 1/2 cts. per lb. |

#### Galvanized Iron:

|                                                 |                   |
|-------------------------------------------------|-------------------|
| Adam's—Mar's Nest and Queen's Head and Opello:  |                   |
| 16 to 24 gauge, per lb.....                     | 4 1/2 c. 4 1/2 c. |
| 26 gauge, " ".....                              | 4 1/2 c. 4 1/2 c. |
| 28 " ".....                                     | 5 5 1/2 c.        |
| 30 " ".....                                     | 5 1/2 c.          |
| Gordon Crown—                                   |                   |
| 16 to 24 gauge, per lb.....                     | 4 1/2 c. 4 1/2 c. |
| 26 gauge, " ".....                              | 4 1/2 c. 4 1/2 c. |
| 28 " ".....                                     | 4 1/2 c. 4 1/2 c. |
| Note.—Cheaper grades about 1/2 c. 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 60 |
| Sheared steel bridge plate..... | 3 15 |      |