

# CANADIAN Contract Record

*A Weekly Journal of Public Works, Tenders,  
Advance Information and Municipal Progress*

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. 15.

TORONTO, MONTREAL AND WINNIPEG, NOVEMBER 16, 1904

No. 40

## THE CANADIAN CONTRACT RECORD

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Architect and Builder.  
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in advance.

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## Debentures for Sale

The undersigned will receive tenders for purchase of Debentures of the Corporation of the Town of Waterloo for \$20,000 for purchase of Gas Plant, etc. Debentures bear interest at 4 1/2 per cent, and the amount is payable in thirty annual instalments.

Tenders will be received up to FRIDAY, THE 18TH INST., at noon.  
Dated at Waterloo this Ninth day of November, 1904.

A. B. McBRIDE, Clerk.

## TENDERS WANTED

Tenders will be received up till NOON, THE 20TH INSTANT, for all the trades required in the erection of a bank building for the Canadian Bank of Commerce, Strathroy.

Plans and specifications may be seen on and after the 11th instant, and all information obtained at the branch offices of the Canadian Bank of Commerce in London, Hamilton, Sarnia, Strathroy, or at the office of the architects, Darling & Pearson, Toronto.  
The lowest or any tender not necessarily accepted.

## TO CONTRACTORS

The C. P. R. Hotel at Victoria, B. C.

## TENDERS

Are invited by the Canadian Pacific Railway Company for the erection of a seven-storey Stone and Brick Hotel at Victoria, B. C.

Plans and specifications may be seen at the offices of the Chief Engineer of the Company at Montreal and at Vancouver, also at the offices of F. M. Battenbury, Architect, Victoria, B. C.  
Tenders must be accompanied by a marked cheque equal to 5 per cent. of the amount of the tender; this cheque to be forfeited in case any contractor fails to enter into a contract and furnish bonds in accordance with the plans and specifications if called upon to do so; but will be returned to all contractors as soon as the contract is signed.

Tenders to be made out in duplicate upon the printed forms provided by the Company and addressed on or before DECEMBER 27TH, 1904, to George H. Webster, Division Engineer, Vancouver.

The Company reserves the right to reject any or all of the tenders.

An Architectural Draftsman, three years' experience, desires position. Box 179, CONTRACT RECORD, Toronto.

An \$18,000 week Architectural Draftsman of best experience will be open for engagement at the end of this month. Apply Box 178, CONTRACT RECORD, Toronto.

## DEBENTURES FOR SALE

Tenders are invited by the undersigned until DECEMBER 31ST NEXT, for the purchase of fifteen thousand dollars worth of water works debentures of the Town of Red Deer, N.W.T.

L. C. PULMER,  
Secretary-Treasurer.

## TENDERS

will be received until noon of SATURDAY, DECEMBER 18TH, for a residence on Crescent Road. Plans and specifications can be seen at the office of the undersigned. The lowest or any tender not necessarily accepted.

HENRY SIMPSON, Architect,  
17 Toronto St., Toronto.

## Notice to Contractors

Sealed bulk and separate tenders will be received at the office of James Yates, Esq., Goderich, County of Huron, Ontario, for the several branches of works required in the erection and completion of a brick Methodist Church to be erected at Goderich. Plans and specifications to be seen at the office of James Yates, Goderich, and at the offices of James L. Wilson & Son, Architects, Chatham, Ontario.

Tenders received up to and inclusive of 27TH NOVEMBER, 1904, at 8 o'clock p.m.

Lowest or any tender not necessarily accepted. Materials may be shipped to Goderich by boat.

REV. G. N. HAZEN, Chairman,  
JAMES YATES, Secretary.

JAMES L. WILSON & SON,  
Architects, Chatham, Ont.

Goderich, Ont., Nov. 10th, 1904.

## CONTRACTS OPEN

PONOKA, N.W.T. — The Bank of Commerce will erect a building here next spring.

NORWOOD, ONT. — The citizens will vote on a by-law to raise \$6,000 for cement walks.

BRIDGEWATER, N. S. — The Davison Lumber Co. are about to build a large saw mill.

FORT WILLIAM, ONT. — W. Symes & Co. are building a large addition to their warehouse.

GALT, ONT. — The question of establishing a garbage disposal system is under consideration.

COURTLAND, ONT. — The Township of Middleton proposes to borrow \$6,191 for drainage work.

FARRELTON, ONT. — Moses & Son, of Carp, will erect a mill here for the manufacture of veneer.

PILOT MOUND, MAN. — The by-law to provide funds to build a new school was defeated last week.

CRESTON, B. C. — Faas & Crawford, merchants, have purchased a lot on which to erect a store building.

MANITOU, MAN. — The electors have voted in favor of purchasing a gasoline fire engine and equipment.

TILSONBURG, ONT. — Robert Sharp has purchased property on Tilson ave. on which he will build a residence.

KINCARDINE, ONT. — Extensions and improvements to the High school building are proposed, cost about \$8,500.

GRAND FALLS, N.B. — The Dominion Government will again be petitioned to build a post office and custom house here.

BRANDON, MAN. — The council have given electric lighting privileges to the Western Electric Light & Power Company.

ARTHUR, ONT. — Bids will be received by J. Driscoll up to 26th inst. for purchase of \$3,032.14 local improvement debentures.

TORONTO JUNCTION, ONT. — It is reported that the Union Stock Yards Co. will next spring erect large sales stables for horses.

ATLIN, B. C. — R. D. Fetherstonhaugh purposes purchasing one or two steam shovels for mining operations on Spruce Creek.

HANOVER, ONT. — The Town Council are considering the extension of the waterworks system and the construction of a reservoir.

NEWMARKET, ONT. — Thomas J. Robertson will receive bids up to 19th inst. for purchase of \$14,000 4 per cent. town debentures.

AMHERSTBURG, ONT. — Estimates are being made for installing a metallic line for the Bell Telephone service in this town.

BROCKVILLE, ONT. — B. Dillon, architect, will receive tenders up to 19th inst. for alterations and improvements to the Harding block.

NIAGARA FALLS, ONT. — The Governor-in-Council has approved of the by-law to raise \$15,000 for the extension of the electric light plant.

NEW HAMBURG, ONT. — The Council still have \$7,000 debentures for sale, not having accepted the highest tender recently submitted.

GUELPH, ONT. — Robert Stewart, Limited, contemplate enlarging their planing mill and installing additional machinery and a dry kiln.

WETASKIWIN, N. W. T. — It is reported that the C. P. R. will build a round house on the spur line between this place and Lacombe.

TEESWATER, ONT. — J. Farquharson, Village Clerk, will receive tenders

up to Monday, 21st inst., for purchase of \$5,419.64 per cent. debentures.

**PRINCE ALBERT, N. W. T.**—The time for receiving tenders for the erection of a public building here has been extended to Monday, November 21.

**AMHERST, N. S.**—It is reported that a three-storey brick hotel is to be built here in the near future, but the names of the promoters have not been learned.

**OWEN SOUND, ONT.**—The Imperial Cement Company, Limited, contemplate considerably increasing their producing capacity during the ensuing winter.

**MALDEN, ONT.**—The contract will be awarded this week for the construction and improvement of the Long Marsh drain and for the construction of highway bridges over said drain.

**GODERICH, ONT.**—Tenders are invited by James Yates up to 29th inst. for erection of a brick Methodist church in this town. Plans by James L. Wilson & Son, architects, Chatham.

**FREDERICTON, N. B.**—It is understood that the committee will report favorably on the proposition to install an electric plant for lighting the municipal buildings in this city.

**RIDGEWAY, ONT.**—Mr. Ireland, of Ingersoll, is about to build a creamery here, to consist of a brick building 30x46 feet, with cold storage house. He will also erect a two-storey brick residence.

**NELSON, B. C.**—A. Carrie, architect, has prepared plans for alterations to the second storey of the Hudson's Bay block, to cost about \$1,700.—The City Engineer has asked that additional water meters be purchased.

**ST. JOHN, N. B.**—Ald. McGoldrick has given notice of a motion to be introduced in Council to build a city hall.—Debentures to the amount of \$25,000 will be issued for the purchase of the Carleton electric light plant.

**WESTMOUNT, QUE.**—The Council have decided to borrow \$100,000 for laying permanent sidewalks, to be expended at the rate of \$20,000 a year.—The proposal to install a municipal lighting plant will be submitted to a vote of the ratepayers.

**CHATHAM, ONT.**—The Property Committee have commissioned William Wilson, architect, to visit a number of Canadian cities with the object of acquiring information regarding market buildings. The new building to be built in this city will probably cost \$30,000.

**PETERBORO, ONT.**—The Water Commissioners have in prospect the erection at an early date of a new waterworks dam. C. H. Keefer, C.E., of Ottawa, has been engaged to report on the project. The town may also build a power house for municipal lighting.

**PORT ARTHUR, ONT.**—M. B. Aylesworth, architect, has been instructed to prepare plans for skating and curling rinks, to consist of two separate buildings, at an approximate cost of \$11,000. The building committee is composed of Wm. Scott, Wm. Cooper and H. Wickham.

**BRANFORD, ONT.**—Brantford Township Council have introduced a by-law in the Council granting certain privileges to the Brantford & Hamilton Electric Railway Co. for the construction of an electric railway.—Sanitary Inspector Glover has recommended that a city garbage system be installed.

**STRATFORD, ONT.**—A by-law authorizing the expenditure of \$50,000 on the waterworks system has received its first reading in Council and will be submitted to the ratepayers at the January elections.—The laying of several brick crossings was decided upon at the last Council meeting.

**VICTORIA, B. C.**—F.M. Rattenbury, architect, has prepared plans and taken tenders for a residence for Dr. Cobbett on corner of Pemberton road and Cadboro Bay road.—Dr. Ernest Hall, of Vancouver, has purchased a large lot on Yates street, this city, on which he will build a modern dwelling.

**STRATHROY, ONT.**—Tenders are invited up to 26th inst. for the erection of a bank building in this town for the Canadian Bank of Commerce. Plans at the branch offices of the bank in London, Hamilton, Sarnia and Strathroy and at the office of Darling & Pearson, architects, Toronto.

**SALMON RIVER, N. B.**—Tenders are invited by the Department of Public Works, Ottawa, until Friday, 18th inst., for the construction of a breakwater at the Great Salmon River. Plans on application to E. T. P. Shewen, resident engineer, St. John, N.B., Jeffrey Stead, resident engineer, Chatham, N. B., and on application to the postmaster here.

**KAMLOOPS, B. C.**—Michigan lumbermen, including E. F. Ferris, of Traverse City, are considering the building of a modern saw mill here.—The Kamloops Lumber Co. have commenced the rebuilding of their saw mill, which will be up-to-date in every respect. The main building will be 136x30 feet, with a planer shed 60x50 feet.

**CALGARY, N. W. T.**—The new building to be built by T. J. S. Skinner will be of local grey sandstone and pressed brick. The ground floor will be divided into stores and the four upper floors will be reached by electric elevators. There will be 150 bedrooms and the dining room will provide accommodation for 100 guests. The estimated cost is \$150,000.—F. J. Lawson is the architect.

**HAMILTON, ONT.**—The following building permits were granted last week: W. A. Noble & Co., two brick houses on Caroline street, between Hannah and Herkimer streets; Gleason & Disher, two brick houses on Wilson street, between Sanford and Sherman avenues.—The Hospital Governors have accepted the plans of A. W. Peene, architect, for the proposed wing and improvements, which will cost about \$52,000.

**LONDON, ONT.**—The Southwestern Traction Co. have definitely decided to build their power house on the farm adjoining Chelsea Green, in Westminster Township, and will also build car barns just beyond the city limits. Both power house and car barns will be of cement and brick. Another car barn will be erected in the vicinity of St. Thomas.—The McClary Manufacturing Co. will build a frame warehouse with stone foundation on corner of Adelaide and Trafalgar streets.—The Board of Health have recommended that the City Council submit a by-law to the ratepayers in January next to raise about \$15,000 for a garbage system.

**VANCOUVER, B. C.**—An eastern capitalist has purchased through C. S. Douglas, real estate broker, two lots on the south side of Hastings street, near Howe street, on which he will build an apartment house.—Tenders are being taken this week by Wm. Skene for the installation of electric elevators and dumb waiters in the Fairview hospital.—Dalton & Eveleigh, architects, have prepared plans for a building for the Young Women's Christian Association, to be built on the corner of Burrard and Dunsmuir streets.—The Quatsino Power & Pulp Co. intend starting the construction of a pulp mill and a saw-mill at Quatsino Narrows about January 1st next.—A special meeting of the City Council will be held this week to consider what money will be required for new schools in 1905.—The First Swedish

Lutheran church congregation have purchased a site at corner of Princess street and Dunlevy ave. on which a new church will be built.

**MONTREAL, QUE.**—The American Axe & Tool Co. are looking for a suitable site in Montreal or vicinity on which to build a Canadian factory.—The Protestant Board of School Commissioners have adopted plans for the extension of three schools.—The Canadian Pacific Railway Co. have made application to the Railway Commission for permission to build a line along the north bank of the Lachine canal to the sugar refinery.—Waterworks Superintendent Janin has been commissioned to ask for tenders for a 12,000,000 gallon steam pump, a 12,000,000 gallon electric pump and a 5,000,000 gallon turbine pump. It is probable that only one pump will be purchased.—The City Clerk will receive tenders up to Monday, November 21, for the construction of sewers in the following streets: Boucher street, from Rivard to St. Denis; Davidson street, from north of Ontario street to Forsyth street.—Building permits have been granted as follows: L. Daignault, St. Elizabeth street, two-storey dwelling, cost \$3,000; H. Deloraine, Rachel street, two-storey dwelling, cost \$1,500; Henry Creisser, Christopher Columbus street, two-storey dwelling, cost \$1,500; Meise Leveille, Demontigny st., two-storey dwelling, cost \$2,000; J. S. Bourasa, Moreau st., three-storey dwelling, cost \$2,800; St. Lawrence Curling Club, St. James st., two-storey house, cost \$4,000; O. Morin, Visitation st., one-storey dwelling, cost \$2,600; S. Carsley & Co., Notre Dame st., one-storey warehouse, cost \$2,600; M. A. Garipey, St. Christopher st., two-storey dwelling, cost \$1,700; Jos. Gagne, Fulum st., two-storey dwelling, cost \$1,800.

**WINNIPEG, MAN.**—The School Board have authorized the preparation of plans for a ten-room school building, with an assembly hall, to be built on the site recently acquired on Elice, Agnes and McGee streets.—St. Andrew's Society have favorably considered a recommendation from the Board of Management that the question of building a hall for permanent quarters be immediately taken up. J. D. Conklin is recording secretary of the society.—It is rumored that the Railway Commissioners will recommend the erection of a union passenger depot in this city.—It is expected that the work of double tracking the C.P.R. line between Winnipeg and Fort William will be awarded this week.—Sproat, Rolph & Chrysler, architects, have prepared plans for important alterations and additions to the department store of Nash, Taylor & Carson at corner of Main and Alexander streets. The new portion will be 75x135 feet and 3 stories high, while the present building will be thoroughly remodelled. Work will be commenced immediately.—A plan for the construction of high pressure water mains in this city for fire purposes has been prepared by Ald. Gibson and will be submitted to the Fire, Water & Light Committee. He proposes to utilize the water of the Red river by a system of large mains supplied by pumps but having no connection with the city water system.—It is proposed to construct an asphalt pavement 24 feet wide on Sunderland ave., from Aikens street to King street.—A by-law to raise \$100,000 for a new police station and certain other improvements will be submitted to the ratepayers in December.—The Canadian Northern Railway Co. have decided to erect a double-track steel bridge over the Assiniboine river in connection with their projected terminal improvements. Soundings have been taken.—A site has been purchased in Fort Rouge by the Northern Elevator Co. on which a large elevator

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will be built next year.—It is announced that the Canadian Pacific Telegraphs will place all their wires in this city underground.

TORONTO, ONT.—J. D. Farquhar, 12 King street east, wants tenders for the different trades, except brick work, for houses in east end of the city.—Plans of bank building to be built at Strathroy, Ont., for the Canadian Bank of Commerce, may be seen at the office of Darling & Pearson, architects, this city. Tenders close 26th inst.—Greenwood & Co., wholesale millinery, London, Ont., have purchased 40 feet of land on the north side of Wellington street, between the Suckling and Ivey buildings, on which they purpose building a large warehouse.—Goulding & Sons, whose Bay street warehouse was destroyed by fire, have bought a building site 45x200 feet on Wellington street, adjoining Brown Bros.—The North of Scotland Chambers, King street west, occupied by Osler & Hammond, have been purchased by the Star Printing Co. and the site will be utilized for part of their new office building. It is stated that Osler & Hammond will erect a large office building on the east corner of Jordan and King streets, extending through to Melinda street.—The Property Committee of the Public School Board have recommended the remodeling of rooms in the Harbord street Collegiate Institute.—A project is on foot to build a new gymnasium at the Upper Canada College. Mr. W. H. Beatty, president of the Old Boys' Association, having offered to contribute a substantial sum for the purpose.—The authorities of the University of Toronto have purchased the Howland residence in Queen's Park and will convert it into a

women's residence.—A considerable sum has been subscribed for the erection of a Masonic temple in this city, and it is likely that the project will assume definite shape in the near future.—The Board of Control are asking for tenders until Tuesday, 22nd inst., for the construction of the following works: Stone block pavement on Esplanade street, from Scott to Berkeley street; asphalt pavement on Yorkville ave., from Yonge street to Avenue road; macadam roadway on Wellesley street, from Yonge to Church street.—The Board of Control have approved of the extension of Ulster street to make a through street between Bloor and College, the approximate cost being \$30,000. The proposal to submit a by-law to the ratepayers to raise \$300,000 for the erection of new Exhibition buildings has also been concurred in by the Board.—Chief Thompson, of the Fire Department, has recommended the construction of several water mains in new districts in the north part of the city.—Dr. Goldwin Smith has purchased a block of land on Gerrard street, east of the Don river, for the purpose of erecting thereon a number of workmen's dwellings.—The Board of Control and the Fire and Light Committee have decided upon the improvements for which a money by-law will be submitted to the electors on January 1st. The items include \$261,000 for mains, valves, hydrants, etc.; \$145,000 for engines and pumps; \$100,000 for station on Wellington street; \$25,000 for station in neighborhood of Bathurst and Bloor streets; \$16,500 for three steam fire engines; and \$35,000 for central office fire alarm telegraph system.—C. J. Gibson, architect, is preparing plans for the new hotel to be built at

Sturgeon Point by the Sturgeon Point Improvement Co.—The congregation of Wesley Methodist church, of which Rev. C. O. Johnston is pastor, have decided to build a new Sunday School building, at a cost of \$7,000.—It is understood that Darling & Pearson, E. J. Lennox and Alfred Chapman, architects, have each been asked to prepare plans for a new Union station in this city, the cost of which will probably reach \$3,000,000.—The following building permits have been granted: Saunders, Lorie & Co., three-storey brick and stone factory, north-west corner of Adelaide and Simcoe streets, cost \$22,000; R. S. Williams, jr., 2½-storey brick residence, west side Cluny ave., near Crescent road, cost \$8,000; Ellen Read, two-storey brick store and dwelling, 802 Yonge street, cost \$1,700; Edward Taylor, pair 2½-storey brick and stone dwellings, 196 and 198 Delaware ave., cost \$3,000; Mrs. A. Neate, pair two-storey and attic cement, brick and roughcast dwellings, Albany ave., near Van Horne street, cost \$2,500; J. T. May, pair 2½-storey brick and stone dwellings, east side Delaware ave., near College street, cost \$3,500; John Fiskien, alterations to brick office building, corner Scott and Wellington streets, cost \$9,000; Warwick Bros. & Rutter, six-storey stone, brick, concrete and steel warehouse and factory, King street west, near Spadina ave., cost \$45,000; H. Tomlin, two-storey brick and concrete stable, Bathurst street, near College, cost \$5,000; A. Ansley & Co., six-storey stone, brick, steel and cement warehouse, Wellington street, near Mincing lane, cost \$30,000; C. S. McInnes, two-storey and attic brick residence, Admiral road, near Lowther ave., cost \$7,000; The Lamb Estate, two pair

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two-storey brick and stone dwellings, south side Lamb ave., near Amelia street, cost \$6,000; Roman Stone Co., Limited, one-storey wood and galvanized iron factory, 90 and 100 Marlborough ave., cost \$1,000; Sisters of St. Joseph, one-storey brick lavatory at Sunnyside Orphanage, cost \$2,300; H. W. Love, pair two-storey brick and rough-cast dwellings, First ave., near Bolton, cost \$2,800; J. A. Ellis, two-storey and attic brick dwelling, Chestnut Park ave., near Roxborough street, cost \$7,500; Pike & Elliott, three pair two-storey brick dwellings, west side Markham street, near Harbord, cost \$12,600; W. B. Chailton, pair two-storey and attic brick dwellings, south side Withrow ave., near Broadview, cost \$4,000; A. S. Stewart, pair two-storey rough-cast dwellings, Symington ave., near Royce, cost \$1,600; A. E. Peglar, two-storey brick, concrete and rough-cast dwelling, north side Gerrard street, near Logan ave., cost \$1,300; International Varnish Co., one-storey brick, stone and cement factory and office, corner Gerrard street and Carlaw ave., cost \$32,000; Stephen Smith, two-storey roughcast, brick veneered front dwelling, Brooklyn ave., near Brighton, cost \$1,600; Ausman & Marshall, two-storey brick residence, west side Albany ave., near Wells street, cost \$2,806; F. H. Squires, two pair two storey and attic brick dwellings, Euclid ave., near Harbord street, cost \$9,000; Thomas McIlwain, pair two-storey stone and brick dwellings, 77 and 79 Sorauren ave., cost \$5,500; C. M. Essery, two-storey brick and stone brass foundry, 114 Jarvis street, cost \$2,500; W. G. Robinson, two-storey brick and stone store and dwelling, east side Broadview ave., near First ave., cost \$3,200; W. J. Hewitt, pair two-storey brick and roughcast dwellings, Langley ave., near Howland road, cost \$3,000; L. J. Bland, pair 2½-storey brick dwellings, 144 and 144½ Howland ave., cost \$4,500; Thos. W. Woods, two-storey roughcast dwelling, cement foundations, west side Crawford street, near Bloor, cost \$1,000; Eastmure & Lightburn, two-storey brick cottage, 65 Adelaide street east, cost \$1,000; W. R. Payne, pair two-storey and attic concrete and brick dwellings, 8 and 10 Givens street, cost \$5,000; Pittet & Pittet, two-storey brick dwelling, Queen street, east of Brooklyn ave., cost \$1,800; Chas. Joffe, pair 2½-storey brick and stone dwellings, west side

Grace street, near College, cost \$5,000; A. Elliott, pair two-storey and attic brick and stone dwellings, 163 and 165 Cottingham street, cost \$6,000; Dr. D. McPherson, pair two-storey and attic brick dwellings, west side Bathurst street, near Ulster, cost \$6,000; Thomas Ratcliffe, two-storey brick and roughcast dwelling, west side Pape ave., near Dagmar, cost \$1,400; W. J. Clark, 2½-storey stone and brick dwelling, south side College street, near Concord ave., cost \$4,500; W. Pinnock, pair two-storey brick dwellings, east side Gore Vale ave., near Arthur street, cost \$3,500; L. Cosgrave, alterations to brick dwelling, 565 Jarvis street, cost \$2,500; E. Hooper, pair two-storey roughcast dwellings, south side Abbs street, near Brock ave., cost \$2,400; James I. Scott, pair two-storey and attic brick and stone dwellings, Dupont street, near Davenport road, cost \$4,500; J. J. Walsh, two one-storey brick stores, concrete foundations, 174 and 176 Victoria street, cost \$2,000.

CONTRACTS AWARDED.

STOKE'S BAY, ONT.—Wharf at this place: Kasmer & Porter, successful tenderers, about \$9,000.

TRURO, N.S.—Round house for Intercolonial Railway: Rhodes, Curry & Co., of Amherst, successful tenderers.

STONEYPPOINT, ONT.—New Roman Catholic church: Blonde Co., of Chatham, contractors, cost about \$25,000.

CHATHAM, ONT.—Erection of drill hall for Dominion Government: George A. Proctor, of Sarnia, successful tenderer, about \$60,000.

SHELBURNE, ONT.—The Council have disposed of \$3,709.39 local improvement debentures to G. A. Stimson & Co., Toronto.

VANCOUVER, B. C.—The Pacific Coast Pipe Co., of this city, have secured the contract for over two miles of wire-bound wooden stave pipe for the water-

works system being installed at the Trail smelter.

LONDON, ONT.—The Hamilton Bridge Co. have the contract for several bridges to be built along the route of the Southwestern Traction Co.'s railway between this city and St. Thomas.

KILSYTH, ONT.—Purchase of \$2,701.73 drainage debentures: W. C. Brent, Toronto, successful tenderer, \$2,743. Other tenders: Miss Jennie Fleming, Owen Sound, \$2,711; Dominion Securities Corporation, Toronto, \$2,731; Brouse, Mitchell & Co., Toronto, \$2,705.

TORONTO, ONT.—The Bertram Engine Works Co. have received the contract for 4-foot steel pipe for extension of Jarvis street sewer, at \$9.74 a foot.—The City Engineer has been awarded the following contracts for sewers: Don Esplanade, 19 feet, \$497; Princess street, Front to Bay, \$1,300; Duffern street, Fairmount to Bloor, \$2,850.

FREDERICTON, N.B.—The Commissioner of Public Works has awarded the following contracts: Lucy bridge, York county, to W. R. Fawcett, Temperance Vale; New River Mills bridge, Charlotte county, to James Cunningham; Stinson bridge, St. John county, to Thos. McLaughlin, Queen's county; Robert's wharf, King's County, to George A. Appleby, Nauwigewani, King's county.

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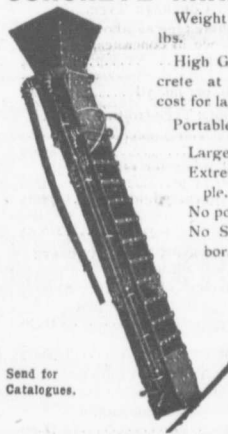
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### NOTES ON EARTH DAM CONSTRUCTION.

Most of the published data regarding reservoir construction has been supplied by engineers, and it is accordingly interesting to consider some views on the subject in a paper recently read before the Association of Municipal and County Engineers by Mr. George Mitchell, who has been connected with contractors for such work. To American readers the remarks concerning the cores of earth dams will prove particularly instructive on account of his estimates of the cost of different types as carried out in Great Britain.

When formed of concrete (the concrete stopping some distance before the surface is reached) the core of British dams is, in the majority of cases, about 6 feet wide till it widens out upward, either by battering or stepping, to receive the superposed puddle core, and consists of either 5 to 1 cement concrete or 4 to 1 lime concrete, with the matrix richer at wet spots. When formed of clay puddle the core has a surface width equal to one-fourth to one-third of the depth of water impounded, and reduces downward rapidly till a minimum width of from 10 to 12 feet is reached, after which it is parallel. In many cases the puddle rests on a concrete shoe. Another type of puddle core is protected on the sides and bottom by means of concrete.

In considering the costs of the various types, it will be assumed that concrete materials and puddle can be obtained at reasonable prices. Assuming a depth of water in reservoir of 70 feet and a depth of trench of 60 feet, the cost per lineal yard of the various types of construction would be approximately as under:

#### CEMENT, CONCRETE TYPE.

Excavation, including pumping, 55 cu. yd. at 6s.....	\$ 79.20
Timbering, allowing for reselling, 160 cu. ft. at 18 3d.....	48.00
Cement concrete (5:1), 38 cu. yd. at 16s.....	145.92
Clay puddle to surface, 17 cu. yd. at 48 6d.....	18.36

Total per lin. yd..... \$291.48

#### LIME, CONCRETE TYPE.

Cement, concrete type as above.....	\$291.48
Deduct difference in concretes, 38 cu. yd. at 48 6d.....	41.04

Total, per lin. yd..... \$250.44

#### CLAY PUDDLE TYPE (10 ft. Trench).

Excavation, including pumping, 73 cu. yd. at 5s.....	\$ 87.60
Timbering, allowing for reselling, 180 cu. ft. at 18 3d.....	54.00
Clay puddle, 73 cu. yd. at 48 6d.....	78.84

Total, per lin. yd..... \$220.44

#### CLAY PUDDLE TYPE, WITH CONCRETE SHOE.

Clay puddle type as above.....	\$220.44
Extra value of concrete over puddle, 5½ cu. yd. at 12s 6d.....	16.50

Total, per lin. yd..... \$236.94

#### COMBINATION TYPE OR PUDDLE SANDWICHED BETWEEN CONCRETE.

Excavation, including pumping, 65 cu. yd. at 5s.....	78.00
Timbering, allowing for reselling, 168 cu. ft. at 18 3d.....	50.40
Concrete (5:1), 39 cu. yd. at 7s 6d.....	163.80
Clay puddle, 26 cu. yd. at 48 6d.....	28.08

Total, per lin. ft..... \$320.28

From the above it will be seen that under

no ordinary circumstances can the concrete type be cheaper than the puddle type. There can be little doubt, in Mr. Mitchell's opinion, as to the superiority of the concrete type, but numerous failures emphasize the absolute necessity for the employment of the highest qualities of materials, workmanship and supervision in its construction, and in the case of direct labor the supervision should be more efficient than if the work were contracted for.

Unless the above conditions can be absolutely guaranteed, clay puddle forms by far the safest filling for the trench, in his opinion.

The great variation in the top width of puddle walls calls for comment. The top width in many of the older reservoirs was only 4 feet, while during the last ten years in deep reservoirs, where first-class puddle and backing have been used, the top width has varied from 6 feet to 14 feet, the latter being considered by Mr. Mitchell very extravagant.

The amount of cover given to the puddle wall is also most important. In many large reservoirs it is as small as 14 in.,

which is far too small considering the great danger of the puddle wall cracking, and the comparatively trifling expense of adding a foot or two to the height of the embankment. So great is the danger should a drought be succeeded by a very heavy flood, as happened in the north of England a few years ago, that the author believes it would be worth while to have a pipe laid across every important embankment, so that the roadway might be kept moist in dry weather, and so keep the top of the puddle wall in good condition. The cost of this in most cases would be infinitesimal, as springs can be caught on the higher ground near most embankments.—Engineering Record.

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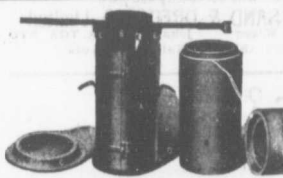
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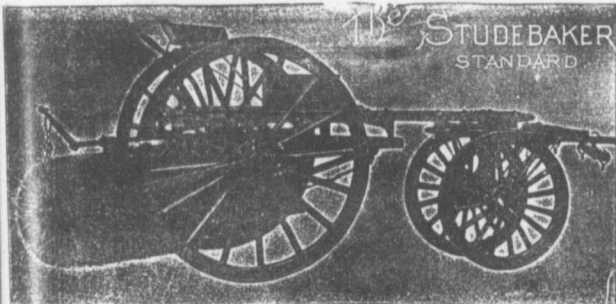
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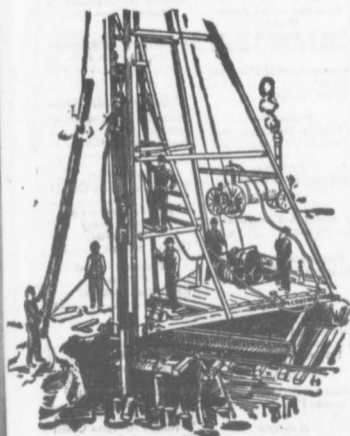


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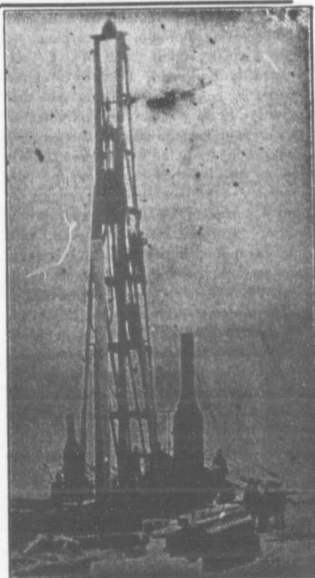
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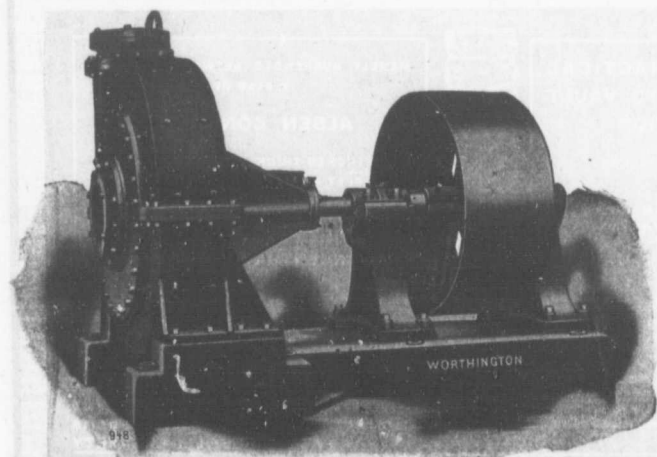
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The work was in charge of Mr. C. W. Dill, assistant engineer, who states in his report for 1903 that perhaps it is a mistake to place this class of pavement on streets with street car tracks, as they are usually those which have a moderate degree of heavy traffic, even in the residence section of the city. The one failure in Toronto in the construction of this pavement was, in his opinion, due to structural defects rather than traffic, as the surface coat did not bind and pack as it should, the result being a large number of holes and pockets in which the tar and paving pitch mixture showed no adhesiveness. The stone used in this case was the very best for the purpose, and the binding materials passed very good tests. Two explanations of this failure are suggested: The contractor had not previously constructed a tar macadam pavement, had inexperienced laborers and no mechanical

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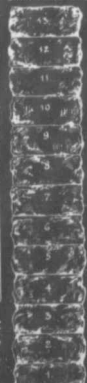
THE OFFICIAL PRACTICAL TEST OF CONCRETE VAULT LIGHT CONSTRUCTION

UNDER THE PERSONAL DIRECTION OF  
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CHIEF ENGINEER R. T. COMMISSION

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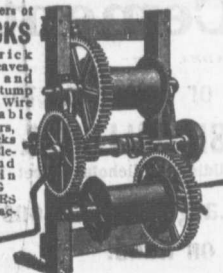
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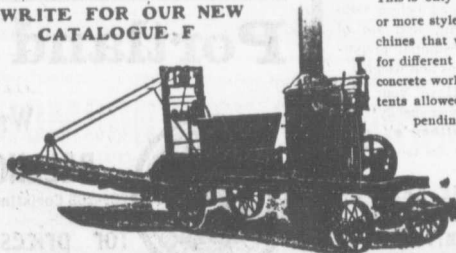
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mixing machinery, and may have produced poor results through lack of attention to details. The stone, being heated around flue heaters, caused some parts of a batch to be hotter than other parts. The tar and paving pitch were heated in a large kettle. The mixing was done on sheet-iron mixing boards by shoveling the materials into heaps and turning them.

The result was that some stones, being cooler than others, would have more of the binding mixture adhere to them and would consequently pack together, while the rest would not have sufficient mixture to form a bond and when cool would crumble under traffic. It is also a question whether the heated state of the stone in some cases did not entirely burn the "life" out of the mixture and destroy its value altogether.

The stone should be dried only, so as to permit as much of the mixture as possible to adhere to it, Mr. Dill's report states, for when it is heated it permits only a thin coating to adhere. Other pavements constructed where this method has been followed gave good results.

One tar macadam pavement was constructed in Toronto in 1900, one in 1901, six in 1902 and eleven in 1903. The total length constructed in 1903 was 2,148 miles. Brick gutters with stone curbing are now used exclusively in their construction.

Two pieces of concrete pavement were also constructed during the year, one on a street on which the report says there is considerable heavy traffic, and the other on a less traveled street. As constructed in Toronto it consists of a 4-in. concrete foundation similar to that used in con-

structing asphalt or brick pavements, with a wearing surface of 2 1/2 in. of concrete composed of one part cement, one part sand and three parts of fairly coarse crushed granite. These two courses are carried on together so as to secure a perfect bond between them. The surface is finished with wooden floats. The surface is cut by deep grooves into 5x10-in. blocks to give a better foothold for horses, about 15 in. along the curbs being left smooth to provide free drainage for surface water. The pavement is cut into sections of about 20 ft. in length by 1/4-in. joints of paving pitch to provide for expansion and contraction and also to prevent cracking or heaving. The pitch joint is used along each curb as well.

This pavement seems to be satisfactory, and its use could safely be extended on short streets, according to the report. Besides being durable it is said to be easily cleaned and very satisfactory from a sanitary standpoint. It was found to be cheaper than brick or asphalt as these pavements have been laid in Toronto.

NOTES.

Clement, Leal & Company have constructed 40,000 square feet of granolithic walks in Aurora, Ont., this season.

The expenditure for street improvements in the city of Ottawa this year has been as follows: Permanent paving, \$100,000; sidewalks, \$60,000; sewers, \$15,000; waterworks, \$35,000.

Lieut.-Col. H. N. Ruttan, city engineer of Winnipeg, Man., returned recently from a visit to several cities in the United

States, including Minneapolis, St. Paul, Chicago and Philadelphia. He states that the question in which he was specially interested was the water supply for fire protection, the purchase of high pressure engines, and the installation of new high pressure water mains. He will make a report to the City Council on the subject at once.

The corporation of Peterboro, Ont., have just completed five miles of cement sidewalk averaging five feet wide. Early in the season they obtained quotations for this work at from 12 to 15 cents per square foot. The Board considered the quotations too high and decided to do it themselves on time work, with the result, it is claimed, that the cost worked out at less than 10 cents per square foot. This price makes the cement sidewalk compare favorably with the wooden sidewalk. New drainage works have also been constructed.

The Montreal Water & Power Company is being sued for damages to the amount of \$75,000 by the town of St. Henri. The plaintiff claims that the water furnished by the company to the citizens is not fit for drinking purposes, judging by the epidemics of fever to which it has given rise, and that the pressure is not sufficiently strong in cases of fire. It is further alleged that the defendants, contrary to an agreement passed in 1891 with the Montreal Island Water & Electric Company, which formerly supplied the citizens, and which was taken over by the Montreal Water & Power Company, have been taking their water from a contaminated spot in the St. Lawrence, near Verdun, instead of water from the Ottawa river at Sault au Recollet.

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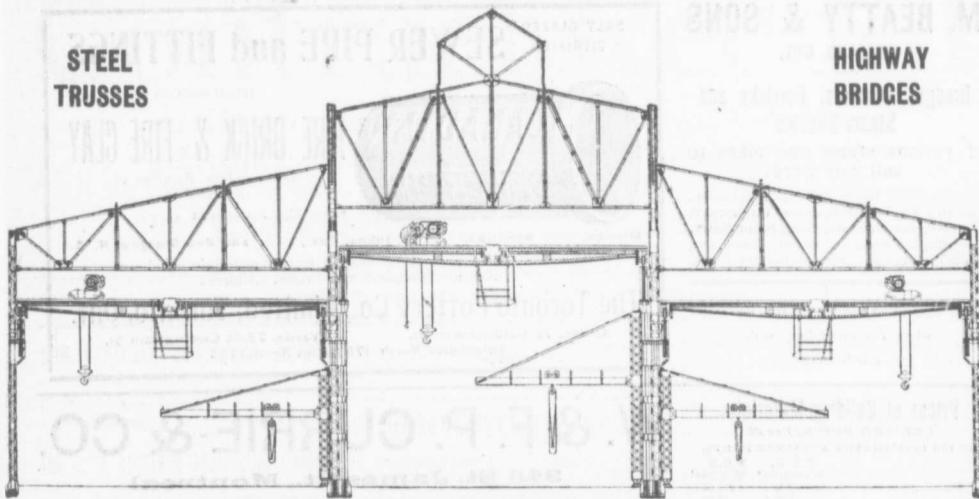
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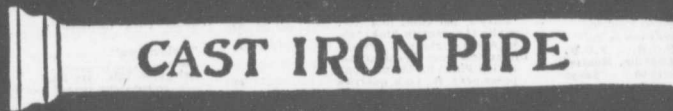
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