

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, AUGUST 31, 1904

No. 29.

THE CANADIAN CONTRACT RECORD

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in advance.

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should give prompt notice of same. In doing so
give both old and new address. Notify the publishers
of any irregularity in delivery of papers.

TENDERS

Tenders will be received by the undersigned
up to NOVEMBER 10th, 1904, for the construction
of a System of Waterworks and Sewerage for the
Town of Summerside, P.E.I., according to plans
and specifications made by Mr. B. C. Lee, C.E., of
Montreal. Plans and specifications may be seen
at the Town Clerk's office, Summerside. The
lowest or any tender not necessarily accepted.

H. J. MASSY, Town Clerk,
Town of Summerside, P.E.I., Aug. 10, 1904.

TO CONTRACTORS

Separate or lump tenders will be received
until MONDAY, THE 13th OF SEPTEMBER,
for the erection of a Large Fireproof Sub-station
Building, to be erected on the premises of the
Toronto and Niagara Power Co., at Niagara
Falls, Ont., and situated near the junction of
the Stone Road and the Michigan Central Rail-
road, for the Toronto and Niagara Power Co.

Plans and specifications can be seen and all
other information obtained at the office of the
architect, Toronto, and also at the offices of the
company, Queen Victoria Park, Niagara Falls,
Ont.

R. J. LENNOX, Architect, Toronto.



DEPARTMENT OF RAILWAYS AND CANALS, CANADA

ST. LAWRENCE CANALS

Sealed tenders addressed to the undersigned
and endorsed, "Tender for Concreting Outfit,"
will be received at this office until 16 o'clock on
TUESDAY, THE 6th DAY OF SEPTEMBER,
1904, for supplying and erecting a complete
Steam Power Stone Crushing and Concrete Mixing
Plant for the St. Lawrence Canals, at Corn-
wall, Ont.

Specifications can be seen and forms of tender
obtained after this date at the office of the
Superintendent of Operation, Morrisburg, Ont.
The Department does not bind itself to accept
the lowest or any tender.

By order,

L. K. JONES,

Secretary,
Department of Railways and Canals,
Ottawa, August 26th, 1904.

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

TO BRIDGE CONTRACTORS

The time for receiving tenders for super-
structure of North Dumfries bridge has been
extended to SEPTEMBER 9th. Specifications
may be obtained from W. M. Davis, Engineer,
Economic Block, Berlin.

JOHN PHILLS, Reeve, North Dumfries,
Galt, Ont.

Bridge Tenders

Sealed tenders are requested by the Corpora-
tion of the County of Hastings, addressed to
me, up to MONDAY NOON, 12th SEPTEMBER,
1904, with plan, strain sheets and speci-
fications for a steel overhead truss highway
bridge, to be erected upon abutments and piers
at the site of O'Brien bridge, about eight miles
north of Belleville.

Four Span Bridge:
South Span, 104 1/2 feet long from pin to pin.
Next " 70 3/4 " " " "
Next " 70 3/4 " " " "
North " 107 feet " " "

Roadway 16 feet wide in the clear; steel joists
and cement and expansion metal floor; bridge
to carry moving load of 120 pounds to each
square foot of floor.
The plans and dimensions will be up by 5th
October.

The steel structure and floor to be finished by
15th November, 1904.
Conditions of payment to be stated in tender.
The lowest or any tender not necessarily ac-
cepted.

WM. R. AYLSWORTH, County Clerk,
Belleville, Ont.
August 19th, 1904.

Notice To Contractors Concrete Piers

Sealed tenders will be received up to twelve
o'clock, noon, of WEDNESDAY, SEPTEMBER
7th, 1904, for the construction of two cement
concrete bridge piers consisting of about 114
cubic yards, and for grading approaches consist-
ing of about 1,400 cubic yards. The grading may
be let in two contracts, one for the north ap-
proach and one for the south approach.

Tenders for piers must be accompanied by a
certified check for \$50.00. Tenders for grading
must be accompanied by a certified check for
\$25.00 for each approach.

Tenders to be marked "Tenders for substructure
for Nation River Bridge" and addressed to
Robert Fraser, Reeve of Winchester Tp., More-
wood, Ont.

Plans and specifications may be seen at the
office of the undersigned.
The lowest or any tender not necessarily ac-
cepted.

DUNN & FULLERTON, Engineers,
GEORGE QUART, Tp. Clerk,
Winchester, Aug. 26th., 1904.

CONTRACTS OPEN.

HEADINGLY, MAN.—A new school
will be built here.

BLYTH, ONT.—Luxton Hill will
erect a new residence.

ELMIRA, ONT.—Hedrick & Jeaner-
ette intend building a new block.

SANDON, B.C.—Twogood & Bruder
have decided to enlarge their brewery.

METCALFE, ONT.—The Union

Bank intend erecting a new building
here.

SKIFF LAKE, N.B.—Fox, Allen &
Co. will rebuild their saw mill burned last
week.

TILBURY, ONT.—Mrs. Campbell
will build a brick residence on Prospect
street.

NIAGARA FALLS, ONT.—The founda-
tion for the new Clifton House is about
to be commenced.

CARTWRIGHT, MAN.—It is stated
that the Massey-Harris Co. will build a
warehouse here.

FERNIE, B.C.—H. J. Johnson has
taken tenders on the erection of a busi-
ness block 60 x 50 feet.

FENWICK, ONT.—Rev. C. D. Dra-
per will receive tenders up to September
9th for erection of a parsonage.

LETHBRIDGE, N. W. T.—A pro-
position is before the Town Council look-
ing to the erection of an opera house.

NANAIMO, B. C.—It is stated that
the E. K. Wood Co., of Pellingham Bay,
will build a large saw mill here.

PARRY SOUND, ONT.—The rate-
payers will be asked to vote \$16,000 for
macadam roads and granolithic walks.

GAINSBORO, N.W.T.—J. Fyfe,
M.D., is prepared to receive offers for
\$4,000 6 per cent. school debentures.

LANARK, ONT.—A by-law was car-
ried here last week for construction of a
second iron bridge over the Clyde river.

EMO, ONT.—B. L. Phillips, Treasur-
er, invites bids up to September 15th for
purchase of \$500 5 per cent. debentures.

BAYFIELD, ONT.—Mr. Mustard
purposes installing an electric plant in
his saw mill and will light the village
also.

LISTOWEL, ONT.—Tenders will be
invited immediately for a library building,
from plans by R. B. Barber, architect,
Stratford.

AYLMER, QUE.—Rev. A. A. La-
belle, of Aylmer East, has just taken ten-
ders to rebuild the Roman Catholic
church here.

NORTH BAY, ONT.—The Council
will submit a by-law to the ratepayers to
raise \$34,000 for waterworks extension
and improvements.

WATERLOO, ONT.—A by-law will
be submitted to the ratepayers September
20th to raise \$20,000 to acquire, extend
and improve the gas plant.

MIDLAND, ONT.—Tenders are in-
vited by T. I. Trueman up to September
2nd for erection of a High School build-
ing on Dufferin street.

NEW HAMBURG, ONT.—A by-law
to issue debentures for \$7,000 for build-

ing an addition to the public school was carried here on Monday last.

PRINCE ALBERT, N.W.T.—Ittner & Spore have acquired two lots on King street on which they propose erecting a 3-storey brick store building.

DIGBY, N. S.—The Dominion Atlantic Railway Co. will, according to report, erect a large hotel on Battery Point, the work to be commenced this fall.

TILSONBURG, ONT.—Mr. Burkholder has commenced his new automobile works building on corner of Brock and Harvey streets, of cement, 2 stories.

OTTAWA EAST, ONT.—Tenders for construction of sewers on Craig and Main streets will be received by W. N. Barry, Village Clerk, up to September 6.

LEAMINGTON, ONT.—J. A. Maycock, architect, has just completed plans for a carriage shop on corner of Talbot and Wellington streets for W. F. McKenzie.

CALGARY, N.W.T.—The Calgary and Edmonton Railway Co. have filed in the Lands Titles office at Edmonton plans for a branch railway to be constructed from Wetaskiwin eastward.

GODERICH, ONT.—M. O. Johnston desires tenders by September 8 for construction of 3,338 square feet of granolithic sidewalk on Albert street and 1,876 square feet on Church street.

SHERBROOKE, QUE.—Bishop Laroque has issued a statement that it is the intention to erect a new cathedral in this city costing about \$150,000, for which plans have been prepared.

KINGSTON, ONT.—On the recommendation of J. M. Campbell, the Fire & Light Committee have decided to spend \$7,700 on temporary repairs to the lighting plant just acquired by the city.

QUEBEC, QUE.—The G.N.W. Telegraph Co. are about to commence the erection of a new building in this city.—F. Kirouac is about to erect a building on St. Valier street, at a cost of \$3,000.

LADYSMITH, B.C.—The Ladysmith Iron Works, of which Freel & Davidson are the proprietors, propose commencing the manufacture of stoves. Extensive additions to the present plant are proposed.

MONCTON, N.B.—D. Pottinger, manager Intercolonial Railway, will receive tenders up to Friday, September 2nd, for construction of a cribwork projection to the bridge at Grand Narrows.

FERGUS, ONT.—The ratepayers will vote on a by-law on September 15th to give a loan of \$2,500 to James Gow to assist him in erecting a new lime kiln and in making improvements to his manufacturing facilities.

SHELBURNE, ONT.—The shareholders of the proposed telephone line from Shelburne to Black's Corners are desirous of having the line built as an extension of the Central Dufferin Telephone Company's system.

ST. JOHN, N. B.—The City Clerk is this week taking tenders on a fire-proof warehouse, 70 x 100 feet, on the Pettigill wharf.—New tenders are being invited for the mason work of remodelling No. 6 fire engine house.

BURFORD, ONT.—The Dominion Government is asking for tenders up to September 3 for construction of an armory here. Plans on application to the Postmaster and at the Department of Public Works, Ottawa.

SANDWICH, ONT.—Bids will be received by George A. Wintemute, County Treasurer, up to September 16th for purchase of \$12,000 debentures for the purpose of rebuilding highway bridges within the county.—A new Methodist church will be built in this town.

SARNIA, ONT.—The directors of

the Hotel Sanita have invited tenders for a 2 storey annex, 84 x 36 feet.—Mayor Cook has given notice that at the next meeting he will introduce a by-law to raise \$75,000 for the removal of the waterworks plant to Point Edward.

BRANTFORD, ONT.—G. W. Hall, architect, has taken tenders for erection of two houses on Park ave.—A. B. Smith, a representative of the Strombing, Carlson Co., manufacturers of telephone supplies, Chicago and Rochester, states that his company will likely erect a factory in this city.

VICTORIA, B.C.—It is stated that the Dominion Government contemplates building a new light-house on Starlight Point, on the northern coast of the island.—The Lands and Works Department will receive tenders up to September 5 for erection of a frame school house at Trout Lake.

CHILLIWACK, B. C.—On the 16th inst. the ratepayers voted in favor of granting certain concessions to the Chilliwack Light & Power Co., represented by B. Morgan. This company will install an electric plant, utilizing the water power of Vedder Creek. An electric railway may also be built to connect with New Westminster.

FORT WILLIAM, ONT.—Russell Bros. have decided to build two dwelling houses on Ogden street.—A. A. Vickers has petitioned the Council for a new bridge across the river. He states that upon the erection of a bridge a large coal dock will be constructed.—E. S. Rutledge is this week taking tenders on erection of four brick houses for J. E. Dean.

MEAFORD, ONT.—A by-law to grant a loan of \$20,000 to the Meaford Wheelbarrow Co. to assist them in extending their plant here was carried on the 23rd inst., also a by-law to raise money for extending the water mains and improving the pumping plant. The by-law to raise money to purchase waterworks pumping machinery was carried by the ratepayers.

WINDSOR, ONT.—The Water Commissioners are asking for tenders for the laying of 2,000 feet of water mains.—George Leadly has purchased four lots at corner of Cataract and Wyandotte streets and will erect six cottages on the property.—The Windsor Truck & Storage Co. will build a large storage warehouse on corner of Chatham and Pelissier streets.

HALIFAX, N. S.—D. Pottinger, manager Intercolonial Railway, Moncton, N. B., is asking for tenders up to September 3rd for construction of a freight shed on pier No. 8, this city.—A deputation of the Granville Street Improvement Association have recommended the construction of a bitulithic pavement on that street.—Herbert E. Gates, architect, has prepared plans for an addition to the Home for the Aged and to the premises of Caldwell Bros., this city.

RAINY RIVER, ONT.—The Town Council have decided to erect a town hall and fire hose station, at a cost of \$3,500, and to purchase a steam fire engine and 2,000 feet of hose.—The Rainy River International Telephone Co. has secured a local franchise and will at once install a plant, with long distance connections.—A local company will also install an electric light plant.—The Township Council of Atwood have decided to construct five miles of macadamized road.—It is rumored that the Canadian Northern Railway will build car shops here.—The town is offering for sale \$25,000 of school debentures.

STRATFORD, ONT.—Orr & Russell, architects, have prepared plans and are inviting tenders up to September 3 for erection of a carriage factory for the

Stratford Carriage Co., of brick, 3 stories, main building 125 x 65 feet, with wing 62 x 55 feet, blacksmith shop 58 x 52 feet, engine and boiler room 32 x 47 feet, and dry kiln 24 x 30 feet. There will be a brick chimney 86 feet high.—A joint meeting of representatives of the Stratford Board of Health, Perth County Council and Waterloo County Council was held here on Saturday last to consider the advisability of erecting a joint sanitarium for consumptives. It was decided to ask the counties of Huron, Oxford, and Wellington to co-operate before proceeding further.

BRANDON, MAN.—W. A. Elliott, architect, has prepared plans for a \$45,000 hotel at Neepawa for D. Hamilton. Plans have also been prepared for residences for A. Leech and D. A. Hooper.—Nicholson Lailey is preparing plans for the new immigration hall to be built here, which will be 60 x 31 feet, 2 stories, improved heating and plumbing, cost \$7,000. Same architect has prepared plans for a stone mission church for the Indian Reserve at Griswold.—C. R. Banting is about to erect a brick building on corner of First street and Rosser ave.

LONDON, ONT.—The installation of a garbage crematory plant is being considered by the City Council.—The Canadian Pacific Railway will likely build new freight sheds here.—The following building permits have recently been granted: Edward Shea, double brick dwelling, Hyman street; George H. Davis, 2-storey brick veneer residence, Quebec street, between Dundas street and Queen's ave.; Lyman Cross, brick veneer dwelling, Regent street; J. E. Tait, brick veneer dwelling, Van street; S. P. Taylor, 2-storey brick veneer dwelling, 670 King street; P. B. Caldwell, 1½-storey residence, Oxford street.

VANCOUVER, B.C.—Grant & Henderson, architects, have taken tenders for erection of a residence on Homer street for D. O. Donovan.—The City Solicitor has been instructed to draw up a by-law for submission to the citizens to raise \$100,000 for waterworks extensions and improvements. The Engineer recommends the following work: New cast iron mains throughout the city, \$25,000; 12,000 feet of 12-inch pipe around head of False Creek to Mount Pleasant, \$21,000; specials, valves and hydrants, \$5,000; main for Narrows, \$8,000; reservoir, \$30,000; new services, \$10,000; small pipe for temporary extensions, \$5,000.—A new building will be built at the corner of Dupont street and Columbia ave. by Loo Gee Wing. The building will be two stories and basement, of brick and stone.—It is believed that the erection of the new post-office will be commenced this month. The location is at corner of Granville and Hastings streets.

WINNIPEG, MAN.—James Kepes, architect, 548 Henry ave., is this week taking tenders for all trades for erection of stone and brick building, 50 x 65 feet, for H. Laffreuzen, corner of Flora and Andrew street.—In consequence of the lateness of the building season, the Coffee House Association have decided to defer the erection of a new building until next year.—A. & W. Melville, architects, have just taken tenders for additions and alterations to St. Paul's Presbyterian church, Notre Dame ave.—The brick stable for the Manitoba Cartage Co., for which Architect James Chisholm has just taken tenders, will be 300 x 103 feet, containing 188 single stalls, with cement floors, cast and wrought iron stall posts, mangers, gates, etc., felt and gravel roof, electric wiring, patent ventilators and modern stable drainage.—The City Council will ask the municipality of St. Boniface to co-operate in the erection of a traffic bridge

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is the only bucket that concentrates its load when placing concrete in forms. By its peculiar funnel shape the load is deposited without jarring the concrete already laid and without injury to the forms.

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Railway, Mining and Contractors' Supplies

MONTREAL, P. Q.

over the Red river between Pacific and Bannatyne avenues.

HAMILTON, ONT.—The Dominion Government have secured options on property required for the extension of the armories, and it is expected that work will be commenced early next spring.—The Eastern Building Co., acting in conjunction with Mr. Fowler, of New York, are said to have decided to build ten 3-storey apartment houses near the corner of Barton street and Sherman ave., in addition to 58 medium-sized dwellings.—Sewers are to be constructed on Mountain ave. and Hunter street, between Richmond and Poulette streets.—Building permits have been granted as follows: Mrs. A. Michel, residence on Cline ave., cost \$1,800; W. W. Williamson, residence on Princess street, between Earl street and Sherman ave., cost \$2,200; George Moore, alterations and additions to residence, 271 John street north, cost \$1,500; Laidlaw Bale & Tie Co., factory, Madison street, between Wilson and Canon streets, cost \$3,400; Dr. Olmstead, addition to residence, 215 James street south, cost \$1,500.—The Silicate Brick Co. will commence the installation of their plant in two weeks.—The Board of Cemetery Governors will receive tenders up to September 8 for mason and carpenter work for rebuilding tower of chapel at Hamilton cemetery.

MONTREAL, QUE.—It is rumored that P. Lyall & Sons, contractors, are considering the establishment of their own cement works.—L. O. David, City Clerk, will receive tenders up to September 7th for various works at the eastern cattle market. Plans at office of L. R. Montbriant, architect, 230 St. Andre street.—It is again rumored that a large hotel will be built in the neighborhood of Peel and St. Catherine streets, but the names of the promoters have not been disclosed.—The Simplex Railway Appliance Co. have purchased 48 acres of land at Montreal West and will immediately erect buildings and install a plant for the manufacture of steel springs, railway cars, etc.—The Canada Car Co. will also establish a large plant on the outskirts of the city.—Among the permits granted recently were the following: Patterson Manufacturing Co., one storey factory, St. Hubert street, cost \$16,000; N. Deslauriers, three storey residence, St. Denis street, \$8,000; Louis Sutherland, four storey store and factory, 171 and 173 St. James street, cost \$25,000; D.E. Robert, two dwellings, Montmorency street, cost \$4,000.

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A. G. C. DINNICK, Managing Director
A. M. WICKENS, Chief Engineer

OTTAWA, ONT.—A by-law was carried last week to raise \$5,300 for constructing drains in Ottawa east.—F. Gelinas, Secretary Department of Public Works, will receive tenders up to Monday, September 12, for the erection of an archives building in this city. Plans at the Department and at the office of Band, Burritt & Meredith, architects, Sparks street.—The Department of Railways and Canals is asking for tenders for a wall adjoining Nos. 1 and 2 locks and No. 1 basin of the Lachine canal. The work will cost about \$49,000.—Tenders are about to be invited for the foundation of a 2,000,000 bushel grain elevator to be constructed by the Dominion Government at Port Colborne, Ont. Plans for the elevator have been prepared by J. A. Jamieson, of Montreal.—A large summer hotel will likely be built next year on Blue Sea Lake, between Gracefield and Maniwaki.—The Dominion Government will accept the offer of the Ontario Legislature of a free training ground for artillery and infantry at Petawawa. A considerable sum will be expended in preparing the ground and in erecting buildings.—N. J. Kerr, City Engineer, will receive tenders up to September 6 for construction of an asphalt pavement with stone setts on track allowance on Laurier ave. east, between Chapel and Charlotte streets.

TORONTO, ONT.—E. J. Lennox, architect, is asking for tenders by Monday, September 12th, for erection of a large fireproof sub-station at Niagara Falls, Ont., for the Toronto and Niagara Power Co. Plans on application to Mr. Lennox and at the office of the company, Queen Victoria Niagara Falls Park, Niagara Falls, Ont.—Thomas Urquhart, Chairman Board of Control, will receive

tenders up to September 6 for construction of 11½ pipe sewers on the following streets: Kintyre ave., from Grant street to 218 feet 10 inches west; Chesley ave., from Brock ave. to east end; Burnfield ave., from Ossington ave. to Shaw street.

—Colonel Paul Weatherbee, architect for the Dominion Government, was in the city last week for the purpose of selecting the location for the proposed military barracks.—Plans have been prepared and tenders will shortly be invited for a 15-room school building on Broadview ave., to cost \$50,000; an addition of 3 rooms to the Cottingham street school, cost \$9,000; and an addition of 5 rooms to the Huron street school, cost \$22,000.—It is understood that the new fire hall for the wholesale district of the city will be built in the vicinity of York and Wellington streets.—The time for receiving tenders for the construction of a 6-foot steel conduit on Toronto Island has been extended to Monday, September 5th. The specifications have been amended so as to provide for the laying of Sections A to B by January 1st, 1915, and for the laying of Section B to C by June 1st, 1905.—C. L. Fellowes, waterworks engineer, will recommend the construction of a 20-inch main running west from Bahurst street along Arthur and Argyle streets to the city limits.—Tenders are invited by the Board of Control up to Tuesday, September 20, for supply of fire engines and hose wagons—Building permits have been granted as follows: Charles Plowman, pair semi-detached 2-storey and attic brick and stone dwellings, 60 and 62 Roxborough street west, \$6,000; Priscilla Barton, 2-storey stone and brick detached dwelling, east side Robert street, near Sussex, \$5,000; Wesley Bulmer, pair semi-detached 1-2 storey

brick dwellings, concrete foundations, north side Lurie ave., \$2,000; Parmenas Morris, pair semi-detached 2-storey and attic brick-clad dwellings, 42 and 44 Florence street, \$2,200; James A. Aberdeen, 2 pair semi-detached 2-storey and attic brick dwellings, corner Markham and Herrick streets, \$16,000; H. E. Jarman, 2-storey and attic stone and brick dwelling, Lin-downe ave., near College street, \$2,200; George Pepper, pair semi-detached 2-2 storey brick dwellings, 264 and 266 Huron street, \$2,000; Charles Dennis, 2-storey brick dwelling, stone foundation, 117 Macdonell ave., \$2,300; G. Berner, 2-2 storey brick dwelling, Shaw street, near Harrison, \$2,500; M. Laidy, 2-storey roughcast dwelling, concrete foundation, Pape ave., \$1,250; George Goulding & Sons, 4-storey warehouse, brick and concrete, Wellington street, near Bay, \$35,000; Clarkson Jones, 3 attached 5-storey brick warehouses, Front street west, near Bay, \$72,000; Firstbrook Brick Co., 3-storey addition to factory, brick and concrete, corner King and Ontario streets, \$13,000; Alex. B. Elder, 3-storey frame and roughcast factory, corner Logan and Eastern ave., \$1,200.

FIRES.

Dry kiln of the Rat Portage Lumber Co. at Normin, Ont.: loss \$6,000.—Pork packing buildings of Fox Bros. near Brantford, Ont.—Grand Union Hotel and general store of E. McCrea at Alexandria, Ont., partially destroyed; insured.—Hotel at Staples, Ont., occupied by D. Chouvin, totally destroyed; loss \$4,000.—Saw and planing mill of William Mustard at Byfield, Ont.; totally destroyed—no insurance.—Flour and saw mills at Rigaud, Que., owned by Delery Mac

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donald.—Large 4 storey brick furniture factory of the Canada Furniture Co. at Waterloo, Ont., totally destroyed; loss \$100,000.

CONTRACTS AWARDED.

FERNIE, B. C.—Residence for H.W. Herchmer: N. E. Broley, contractor.

COBOURG, ONT.—Construction of rifle ranges: M. Jex & Co., contractors.

KAMLOOPS, B.C.—Two-storey building for Bank of Commerce: R. McKay, contractor.

ST. THOMAS, ONT.—Stone work of public library: Fred Doggett & Co., contractors.

DUNDALK, ONT.—Construction of 60 foot steel bridge: A. Dick & Son, of Alton, contractors.

BURNS, ONT.—\$1,756 Mornington Township debentures: W. C. Brent, Toronto, purchaser.

CHARLOTTETOWN, P.E.I.—Heating new market house: Bruce, Stewart & Co., contractors.

FORT WILLIAM, ONT.—Brick sewer on Marks and Argyle streets: M. H. Bradon, contractors.

LISTOWEL, ONT.—\$10,000 waterworks debentures: Bank of Hamilton, purchasers, at 95 cents on the dollar.

LANARK, ONT.—Brick addition to woolen mills of Boyd, Caldwell Co.: George Bradford, of Almonte, contractor.

DIPPER HARBOR, N. B.—Construction of breakwater: Lyons & white, of Ottawa, successful tenderers, \$45,480.

PORT ARTHUR, ONT.—The Central Canada Loan Co. have purchased \$227,000 corporation debentures.

WHITBY, ONT.—Furnishing and laying pipe for the waterworks: Donnelly Wrecking & Salvage Co., of Kingston, successful tenderers.

LONDON, ONT.—Construction of Byron bridge: Concrete work, Patterson, Ellis & Wheelban, of St. Mary's, \$8,140; superstructure, Hamilton Bridge Co., \$7,880.

ST. JOHN, N.B.—Remodelling No. 6 fire engine house: Carpenter work, Brown & Coles, \$879; painting, E. K. Strange, \$135; plumbing, Charles Emmerston, \$104.

NIAGARA FALLS, ONT.—Tenders for sewer construction have been accepted as follows: Section 12, Barry & McMorde; Sections 13 and 14, Stewart & Longley.

GALT, ONT.—Ner. h Duunfries Council have let the contract for piers and abutments of new bridge over the Grand river to Rowan & Elliott, of St. Catharines, at \$4,533.

HALIFAX, N. S.—Harris & Horton, architect, have awarded the contract for the new E-piscopal church at Sydney

Mines, C. B., to Rhodes, Curry & Co., Co., of Amherst, and the contract for new residence for J.B. Douglas to Freeman Bros., of this city.

BROCKVILLE, ONT.—Three-storey warehouse for James Smart Manufacturing Co.: White & Chapman, contractors. — The James Smart Co. have secured contracts for heating and ventilating the R. C. church at Formosa and St. Paul's church rectory at Clinton.

VANCOUVER, B. C.—Ferryhouse for the North Vancouver Ferry & Power Co.: Parr & Pearson, contractors.—Tenders for erection of East End fire hall were received as follows: Purdy & Lonergan, \$2,150 (accepted); Thorpe & Sykes, \$2,189; D. G. Gray, \$2,282; Perkins & Chase, \$2,179.

KINGSTON, ONT.—The Property Committee of the City Council have accepted the following tenders for the new vault in the Bank of British North America building: Masonry, W. McCartney, \$735; carpentry, W. J. Chapman, \$90; plumbing, Joseph Jameson, \$49; painting, Thomas Milo, \$50.

HULL, QUE.—Erection of power house: E. Bisson, of Hull, successful tenderer, \$13,670.42; laying water pipe, Leon Bertrand, successful tenderer, \$2,671; completion of present pump house, J. C. Clouthier, \$2,395. The Ottawa Fireproof Co. will supply Star brand Portland cement at \$2 per barrel, and the Montreal Pipe Foundry Co. will supply pipe at \$33 and 34 per ton.—The Banque Provinciale of Canada have purchased \$54,000 corporation bonds at par.

VICTORIA, B.C.—Three storey brick block on Cormorant street for Wah Yuen & Co.: Hooper & Watkins, architects; George Snider, contractor, cost \$9,000.—Office building on Langley street for J. H. McGregor: F. M. Rattenbury, architect; W. J. Smith, contractor; three storeys, pressed brick, plate glass windows, cost \$13,000.—The contract for building snag boat for use on the Fraser river has been awarded by the Dominion Government to William Turpel, of this city.

MONTREAL, QUE.—Levelling and cementing the McTavish street reservoir: Amoit & Strubbe, successful tenderers, \$15,500.—Sewers to drain creek at intake on Lachine road: John Parker, successful tenderer, \$3,571.—Cementing of basin on St. Lewis Square: Bertrand & Chagnon, successful tenderers, \$3,300.—J. B. Resther & Son, architects, have given a contract to R.E. Edwards & Son, for the

erection of a new building on the Sutherland property immediately west of the Star office; 30 x 108 feet, 4 stories and basement, cut stone front, passenger elevator, modern lighting facilities, etc.—The Dominion Bridge Co. have secured the contract for four steel bridges for the New Brunswick Southern railroad, to be built at New River, Lepreaux, Meadow Brook and Lily Brook.—Bids were received as follows for purchase of \$700,000 4 per cent. city bonds: Vermilye and Co., New York, whole amount at 101.637 (accepted); Merchants Bank, whole amount, at 101.625; E. H. Gay and Co., whole amount, at 101.510; R. Wilson-Smith, whole amount, at 101.387; City and District Savings Bank, \$400,000 at 101.; National Trust Company, whole amount at 98.25; Dominion Securities Corporation, whole amount at 99.500; Emile Joseph, \$5,000 at 90.

WINGHAM, ONT.—The County Council have accepted the tenders of the Hunter Bridge Co., of Kincardine, for construction of superstructure of three bridges, as follows: Zetland bridge, \$4,500; Stanlake bridge, \$1,175; Black Creek bridge, \$756. The Walkerville Bridge Co., Hamilton Bridge Co., and Mitchell Bridge Co. also tendered. Tenders for concrete work were received from A. Young, Wingham; Nagle & Tooley, Dublin; F. Neagle, Benmiller; F. Gutteridge, Seaforth; Ger. Thompson, Kincardine, and C. Barber, Wingham. C. Barber was given the work at Zetland bridge and Nagle & Tooley the work at Stanlake and Black Creek bridges.

WINNIPEG, MAN.—The Fire & Water & Light Committee have awarded the following contracts: Ruselau Manufacturing Co., 80 six-inch hydrants, \$37.05 each; Fairbanks Co., 20 8 inch hydrants, \$48.62 each, f.o.b. Winnipeg. J. McDougall, Caledonian Iron Works, 100 5-8 inch Worthington disc Model A, straight reading deals, \$8.46 each; Neptune Metre Company, 100 1/2 inch Trident, \$11.25 each, f.o.b. Winnipeg; National Metre Company, 800 1/2 inch Empire, \$12.50 each, f.o.b. Winnipeg.—Electrical work on C.P.R. hotel and depot: Philip Lahee, of Montreal, successful tenderers.

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NEW COMPANIES.

Tiger Metal Company, Limited, Montreal, incorporated, capital \$20,000, to manufacture metals, chemicals, paints and oils, etc. Promoters, Watson Jack, merchant, W. F. B. Henry, traveller, W. R. Allen, chemist, and others.

Canada Rolling Stock Company, Limited, Amherst, N. S., incorporated, capital \$250,000, to manufacture rolling stock. Promoters, M. Curry, N. A. Rhodes, C. T. Hillson, lumbermen, of Amherst, and others.

Canada Car Company, Limited, Montreal, incorporated, capital \$3,000,000, to manufacture railway cars, steel trucks, and other equipment. Promoters, Peers Davidson, advocate, P. M. Robertson, agent, Arnold Wainwright, advocate, T. Davidson, manager, all of Montreal, and A. H. Larkin, attorney-at-law, of New York City.

Hillcoat Bearing Company, Limited, Amherst, N. S., incorporated, capital \$20,000, to manufacture ball and roller bearings. H. V. Hillcoat, veterinary surgeon, F. L. Blair, accountant, A. J. Crease, druggist, H. A. Hillcoat, trader, and John W. Taylor, manufacturer, all of Amherst.

Drummond Cotton & Bleaching Company, Limited, Montreal, incorporated, capital \$150,000, to manufacture cotton goods. Hon. William Mitchell, senator, of Drummondville, Que., William Woods, manufacturer, of Ottawa, and others.

Cie d'Aqueduc et d'Éclairage de Beloeil, Limited, Beloeil, Que., incorporated, capital \$20,000, to construct a system of waterworks, to produce and distribute electricity, and to undertake the macadamizing and paving of streets. I. Prefontaine, of Montreal, C. Guertin, merchant, of Beloeil, and others.

Northern Gold Mines Company, Limited, incorporated at Victoria, B. C., capital \$1,500,000.

Schooner Rothesay Company, Limited, Rothesay, N. B., incorporated, capital \$16,000, to build a schooner. E. B. Ketchum, D. W. Puddington, of St. John, F. R. Taylor, of Rothesay, and others.

Shawinigan Construction Company, Shawinigan Falls, Que., incorporated, capital \$20,000, to manufacture building materials, etc. Directors, V. Burrill, J. B. B. Leman, A. Heon, Shawinigan Falls.

Whaley Automatic Smoke Preventer & Fuel Saver, Limited, Toronto, incorporated, capital \$125,000. Directors, J. T. Eastwood, Norman W. Torvell, Elmer E. Wallace, James H. Hallett, Frank Hodgson.

Peterboro Cement Roofing Company, Limited, Peterboro, Ont., incorporated, capital \$40,000, to manufacture fireproof cement roofing and other roofing material. Directors, James Thompson, Andrew Cunningham, of Peterboro, and others.

Breckon Fire Escape Company, Limited, Toronto, incorporated, capital \$40,000, to manufacture fire escapes, elevators, etc. Directors, Joseph A. Breckon, George Crompton, James F. Hayes.

Hamilton Silicate Brick Company, Limited, Hamilton, Ont., incorporated,

capital \$40,000. Directors, William F. Robertson, F. L. Hooper, Henry D. Petrie, all of Hamilton.

BUSINESS NOTES.

T. D. Osborne, plumber, Brandon, Man., is announced to have assigned to C. H. Newton.

J. Miranda has registered proprietor of the business of Alfred Brodrique, roofer, Quebec, Que.

Charles J. W. Neale & Company, builders' supplies, etc., Toronto, have sold out to the Toronto Pattery Company.

The Smith Bros. Manufacturing Company, Yorkton, N. W. T., have been succeeded by the Western Builders' Supply Company, Limited.

A. Rigby and J. Rowe, civil engineers, who were engaged for five years on the Nile dam in Egypt, arrived recently in Vancouver, B. C., and are said to have decided to locate there.

Alexander E. Kirkpatrick, C. E., has been appointed professor of civil engineering in Queen's School of Mining, Kingston, Ont., and has tendered his resignation as city engineer of that city.

Building permits issued in Montreal during the first seven months of this year show a decrease of \$439,071 as compared with the same period last year, the figures being \$1,981,638 and \$2,421,709 respectively.

The aggregate cost of buildings represented by the permits issued by the building inspector of Winnipeg up to August 24 of this year is \$7,000,000. Last year the total at the end of the year was \$5,800,000.

The Vancouver Portland Cement Company, of Vancouver, B. C., have given a contract to the Rossendale Belting Company, 59-63 Front street east, Toronto, for 5,000 feet of "M. A. Y." Rossendale belting, ranging in width from 4 inches to 60 inches. The belting will be shipped direct from the factory in Manchester, England, to Vancouver, and is required

for the new cement plant at Saanich Arm, B. C.

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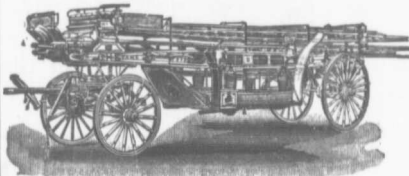
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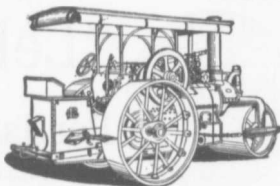
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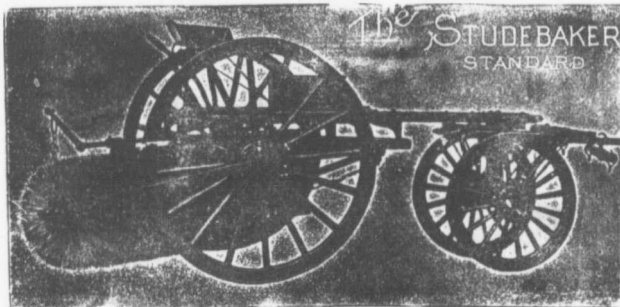
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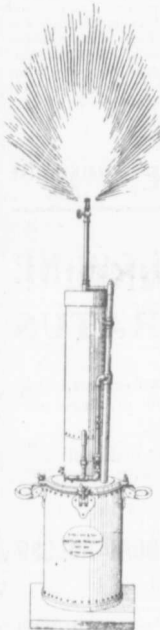
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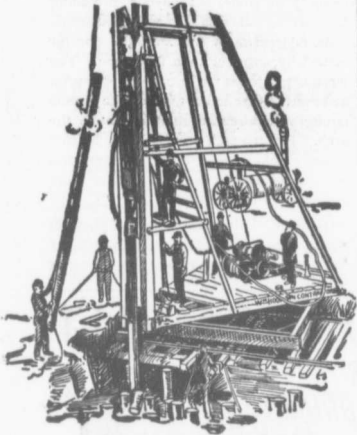
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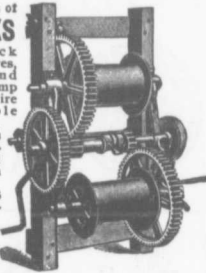
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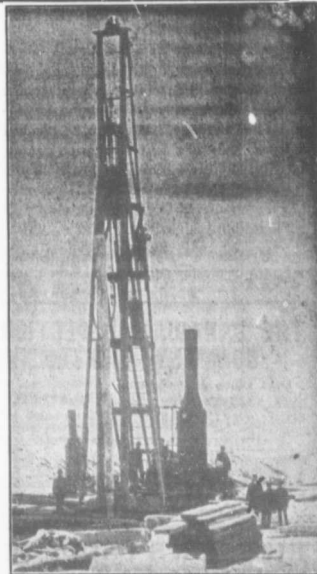
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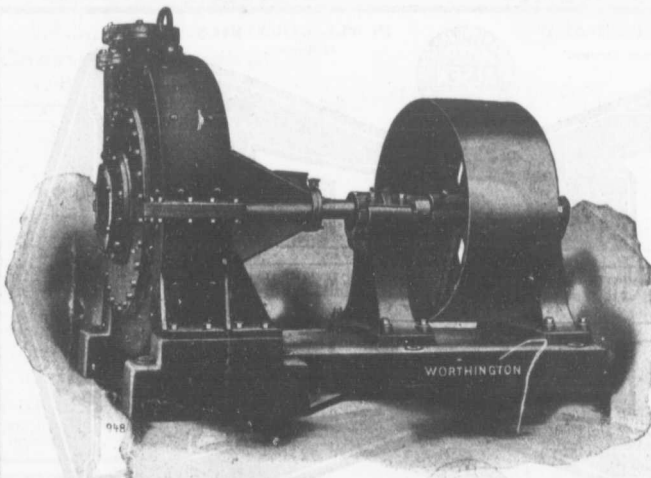
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(Continued from last issue.)

The stone arch is designed on the principle that it will remain in place without the use of mortar. The concrete arch, on the other hand, is a monolith, dependent upon cohesive strength points to the necessity, in construction, of a generous proportion of cement, very great care in mixing the concrete, and a good quality of all materials employed.

A concrete can best be regarded as a mixture of mortar and broken stone, the

mortar being formed from a mixture of sand and cement. Given a sample of broken stone in a vessel, the requisite quantity of mortar 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 way would provide, with perfect mixing, a mortar in which the voids in the sand are filled with cement and each particle of sand is 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 formed from cement and broken stone, in the proportions of one, three and six. It is recognized that the greatest strength in concrete can be obtained by making the mortar rich in cement, rather than by lessening the quantity of stone, but beyond providing for a strong adhesion of mortar and stone, little is gained by making the mortar materially stronger than the stone. The foregoing applies to crushing strength, however, rather more than to the tensile strength required to some extent in the arch. For the arch proper, it will be well to use a richer concrete, in, say, the proportions of one of cement, two of sand and three of broken stone.

The cost of abutments may be lessened, where they are of sufficient thickness, by the use of rubble concrete. The casing or

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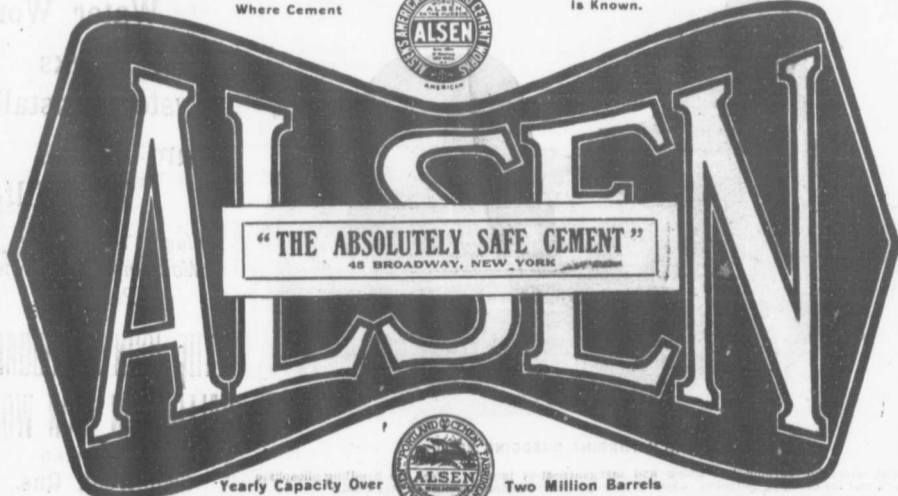
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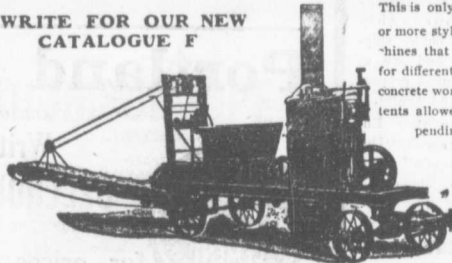
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curbing must be built up as the laying of the concrete proceeds. Within the casing and firmly tamped against it, there should be placed fine concrete to a thickness of about six inches. This will form a shell for the abutment, inside of which large stones may be placed in rack-and-pinion order, ends up. There should be a space of at least two inches between the stone, filled with fine concrete, and all firmly rammed. The outer shell of fine concrete should always be kept built up six inches or so in advance of the rubble work. The rubble should be placed in three layers, each layer well flushed with a layer of fine concrete.

The lumber used in making the curbing or casing should be dressed, tightly fitted and firmly braced, so that the concrete may be well rammed into place. The framework should be closely boarded up against the work as it proceeds. The centering for the arch should be well formed. The ribs should not be further than three feet apart. The lagging should be three inches thick and dressed to the intrados of the arch. All the framework, centering and supports should be substantial and well constructed. This framework is a considerable item of expense in the building of a culvert, but it can be used as often as it may be required for arches of similar span. The exterior of the culvert when finished should have a smooth face, free from holes, and a surface coating, which is of little use, should not be necessary.

There is some difference of opinion as to the relative strengths of gravel and broken stone in concrete. The natural in-

ference is to suppose that a rough, irregular surface will secure greater adhesion than one that is smooth. However that may be, there is little reason to doubt that gravel will make a good concrete, but there is a right and a wrong way of using gravel. It is not uncommon to find cement and gravel just as it is taken from the pit, mixed to form a concrete. Remembering the proper composition of a concrete, and placing beside this the fact that gravel usually contains sand, but not in any definite proportions, and that some pockets of "gravel" may be almost completely sand, while in the layers adjoining there may be little if any sand, and that many gravel beds contain much clay or earthy material, it will be readily understood why it is that, in some cases, concrete mixed in this way may be successful, yet it will always be uncertain and hazardous. The only safe method is to separate the stone and sand composing the gravel by screening, then to mix cement, sand and clean stone uniformly and in their right proportions.

A cause of poor concrete is the excessive amount of water used when mixing. The tendency very often is to bring concrete to the same consistency as common mortar. Concrete when ready to be placed in the work should have the appearance of freshly dug earth. Where an excessive amount of water is used, the hardened concrete will have an open, spongy texture.

The concrete should be mixed at a point convenient to the work in a box which is sometimes specified as water-tight, but the concrete will quickly make it so. I

should be mixed in just such quantity as required, and a constant stream kept passing to the work. It should be laid in layers, each layer thoroughly rammed until moisture appears on the surface.

It is very necessary to see that the sand and stone used in making concrete are clean, that it is free from clay, loam, vegetable or other matter which will act as an adulterant, and result in a weak and friable concrete. If such matter is intermixed with the stone it is well to flush it away with a good stream of water. Large stone used in rubble concrete should be also treated in this way. It is well, particularly in hot weather, to dampen the stone before mixing it with the mortar. The heat of the stone in hot weather causes the moisture of the mortar to evaporate, causes it to set too quickly, and at all times there is more or less absorption from the mortar in immediate contact with the stone, unless the stone, as intimated, has been dampened.

When the work ceases for the day, or is for other reasons interrupted, the surface of the concrete should be kept damp until work is resumed. When work is in progress in hot weather, any exposed surfaces should be kept damp and protected from the rays of the sun, otherwise the surface will, in setting too rapidly, be interlaced with hair-like cracks which, filling with water in the winter, and freezing, will cause the surface to scale off. The same scaling sometimes results from laying concrete in frosty weather.

Arch culverts of masonry or concrete fail frequently from settlement caused by an insecure foundation. The foundation should always be of at least sufficient depth to be free from any danger of undermining by the action of the water, and of sufficient depth to be safe from settlement,

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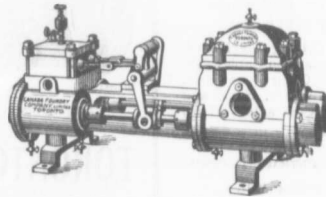
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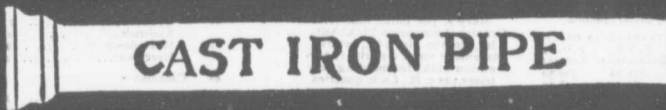
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