

CANADIAN CONTRACT RECORD

*A Weekly Journal of Engineering, 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, Leading Civil Engineers and Contractors throughout Canada, and Purchasers of Municipal Debentures.

VOL. 17.

TORONTO, MONTREAL — NOVEMBER 21, 1906 — WINNIPEG, VANCOUVER

No. 38

THE CANADIAN CONTRACT RECORD

PUBLISHED EVERY WEDNESDAY

As an intermediate Edition of the Canadian Architect and Builder.

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

Subscription Price, \$6 per annum, payable in advance.

CONFEDERATION LIFE BUILDING, TORONTO
Telephone Main 2365.

Branch Offices:
Room B34, Board of Trade Building, Montreal,
Telephone Main 2999.

790-791 Union Bank Building, Winnipeg.
Telephone 1274.

Davis Chambers, 615 Hastings St., Vancouver,
B. C. Telephone 2246

Subscribers who may change their address 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.

DRAUGHTSMAN

First class architectural man desires position as head draughtsman. For particulars apply to Box 100 CANADIAN CONTRACT RECORD, Board of Trade Building, Montreal.

TENDERS

Tenders will be received by the Fort Steele Brewing Company, Limited, up to the 18TH DAY OF DECEMBER, 1906, for all branches of work required in the erection of an up-to-date fireproof brewery, with a capacity of about 30,000 barrels per year. Building to be composed of brick and iron with cement foundation and stone trimmings.

The lowest or any tender not necessarily accepted. Plans and specifications can be seen on application at the company's office. All tenders must be accompanied by a marked cheque for 5 per cent. of the amount of the bid. Dated at Fernie, British Columbia, this 27th day of October, 1906.

ALBERT MUTZ, President,
JOHN B. SMITH, Secy. Treas.

TOWN OF PICTON

**\$15,000.00 High
School Debentures
FOR SALE BY TENDER**

Sealed tenders, addressed to Mayor, G. M. Farrington, and marked

"Tenders for High School Debentures," will be received up to SATURDAY, DECEMBER 16TH, 1906, for the purchase of \$15,000.00 High School Debentures of the Town of Picton. Full particulars furnished on application to

R. A. NORMAN, Town Clerk,
Town of Picton, Ont.

N. B.—The highest or any tender not necessarily accepted.

DRAUGHTSMAN WANTED—FIRST-CLASS

Draughtsman for outside also inside work man capable of taking charge. Apply stating experience and salary expected to Box 101, CONTRACT RECORD, Room B 34 Board of Trade Building, Montreal.

TOWN OF LISTOWEL

TENDERS FOR

REINFORCED CONCRETE ARCH BRIDGES

Separate or bulk tenders, addressed to the undersigned and marked "Tender," will be received until 7 o'clock p. m. on TUESDAY, NOVEMBER 27TH, 1906, for the construction of Reinforced Concrete Arch Bridges on Main, Wallace and Elma streets, in the Town of Listowel. The aggregate length will be about 310 feet of Conduit, 36 feet span.

Plans and specifications can be seen and all information obtained at the office of W. E. Binning, Architect, Listowel.

The lowest or any tender not necessarily accepted.

A. ST. GEO. HAWKINS,
Chairman Board of Works.
Listowel, November 10th, 1906.



TENDERS

For Roofing Work at the St. Lawrence Market, Toronto.

Tenders will be received by registered post only, addressed to the undersigned, up to noon on TUESDAY, DECEMBER 4TH, 1906, for the galvanized iron work and other work required to be done on the re-covering of the roof of what is known as the South Building, St. Lawrence Market, according to specifications, which may be seen, and forms of tender and all information obtained, at the office of the City Architect City Hall, Toronto.

Envelopes containing tenders must be plainly marked on the outside as to contents. The usual conditions relating to tendering, as prescribed by city by-law, must be strictly complied with, or tenders may not be entertained. The lowest or any tender not necessarily accepted.

EMERSON COATS WORTH, (Mayor),
Chairman Board of Control.
City Hall, November 16th, 1906.

In keeping with their policy of expansion, the Canada Paint Company, in addition to their factories in Montreal, Toronto, Winnipeg and St. Malo, have acquired by purchase the lead and putty mills of the Ontario Lead & Wire Company of Toronto. The latter concern will in future devote their attention to their other specialties.

EXPERIENCED ARCHITECTURAL DRAUGHTSMAN

wanted at once, one who is a good designer and colourist preferred. Box 89 CONTRACT RECORD, Toronto.

CONTRACTS OPEN.

DORCHESTER, N. B.—An electric light plant will be installed here.

ROSTERN, SASK.—A hospital is to be erected here to cost \$25,000.

ELGIN, MAN.—It is reported that a drainage system will be installed here.

FERGUS, ONT.—A drain is to be constructed in West Luther, cost \$10,000.

PORTAGE LA PRAIRIE, MAN.—The Masons will erect a large hall here.

CALGARY, ALTA.—Steps are being taken to enlarge the electric light plant here.

BRANDON, MAN.—The School Board will erect buildings to cost \$80,000.

COLDWATER, ONT.—It is reported that a waterworks system will be installed here.

WIARTON, ONT.—Siemon Bros. propose to build a new flooring factory here.

TABER, ALTA.—Work will be commenced at once on the new meeting house here.

PORT CREDIT, ONT.—The Port Credit Brick Co. will construct a new dock here.

RICHMOND, QUE.—Repairs will shortly be made to the Town Hall, to cost \$3,600.

CHILLIWACK, B. C.—A system of fire alarm signal boxes will be installed in this town.

PORT HOPE, ONT.—A new church will be erected here in place of the Mill street church.

RAYMOND, ALTA.—It is probable that the town will have an electric light plant installed.

GLACE BAY, N.S.—It is reported that a hotel will be erected here, at a cost of \$25,000.

FREDERICTON, N.B.—Plans are being prepared for a new Normal school to be erected here.

GOLDEN, B. C.—The Columbia River Lumber Company will erect a large saw mill here.

WETASKIWIN, ALTA.—Plans will be submitted to the Medical Health Officer for the proposed hospital.

MERRITON, ONT.—A bridge will be erected here by the Niagara, St. Catharines & Toronto Railway.

BILLING'S BRIDGE, ONT.—The officials of the Methodist church are con-

templating the erection of a new church here.

PEMBROKE, ONT.—Debentures will be issued for the sum of \$47,000 for the extension of the intake pipe.

WALKERTON, ONT.—The Town Council are considering the advisability of installing a waterworks system.

HAMILTON, ONT.—A by-law will be introduced to raise \$120,000 for the carrying out of the east end sewerage scheme.

SUDBURY, ONT.—The Board of Railway Commissioners have approved of the location for the new C. P. R. station here.

PILOT MOUND, MAN.—R. A. McKellar intends erecting a building on the site of his old structure, which was recently burned.

GANANOQUE, ONT.—The Ontario Wheel Company have increased their capital and will erect additions to their present premises.

UXBRIDGE, ONT.—The Fire and Water Committee have been instructed to prepare a by-law for domestic water and fire protection.

ARCOLA, SASK.—The Town Secretary will shortly ask for tenders for pumping engines recommended by the town engineer.

BLYTH, ONT.—A. Elder, Town Clerk, will receive bids up to November 29th for the purchase of \$10,000 4½ per cent. debentures.

PICTOU, N. S.—The Nova Scotia Telephone Company have purchased a site on which they intend to erect a stone and brick building.

BRIDGEBURG, ONT.—The plans for the extension to the sewerage system here are being considered by the Provincial Board of Health.

ROTHWELL, MAN.—Proposed changes in the waterworks system here will cost \$10,000 and debentures for this amount will be issued.

BEAMSVILLE, ONT.—H. V. Robins, Town Clerk, will receive tenders up to December 1st, for purchase of \$12,000 5 per cent. debentures.

ESTEVAN, SASK.—Willis Chipman, C. E., Toronto, will report on the feasibility of establishing a waterworks and drainage system here.

SELKIRK, MAN.—A site for the new hospital has been purchased on Eveline street south and building operations will be commenced shortly.

LINDSAY, ONT.—A by-law will be submitted to the ratepayers for permission to issue debentures for \$20,000 to install a filtration system here.

ST. OCTAVE, QUE.—Ouellet & Levesque, architects, Quebec, are calling for tenders up to November 22nd for erection of a stone R. C. church here.

WOLFVILLE, N. S.—The Town Council will seek permission from the provincial government to borrow \$20,000 to install an electric light system.

THOROLD, ONT.—The Town Council have made application to the Provincial Board of Health for approval of their plans for a waterworks system.—A by-law will be submitted to the ratepayers to authorize the raising of \$80,000 by debentures for carrying out the work.

WATERLOO, ONT.—The Council have made application to the Provincial Board of Health for approval of their plans for extension of sewerage system.

DUNNVILLE, ONT.—The Provincial Board of Health are considering the application made by the Town Council for the approval of plans for a sewerage system.

COLLINGWOOD, ONT.—A new fire hall will be erected here to cost \$18,000.—The Board of Education have asked for \$18,000 for the erection of a school.

ST. JOHN, N. B.—Tenders will be received up to November 20th for the erection of car stable for the St. John Railway Company. F. Neil Brodie architect.

HUNTSVILLE, ONT.—The Town Council have made application to the Provincial Board of Health for approval of their plans to continue the trunk sewer.

SARNIA, ONT.—The Grand Trunk Railway have purchased a site on Confederation street, which they intend to use for an enlargement of the tunnel yards.

DUNDAS, ONT.—The Jones Bros. Company, of Toronto, have purchased the premises of the Hardware Fittings & Door Co., and intend to install new machinery.

LISTOWEL, ONT.—Tenders will be received up to November 27th for the construction of three reinforced arch bridges. A. St. George Hawkins, Chairman of Works.

VICTORIA, B. C.—A. E. Ormond has purchased the Northern Bank building and intends to remodel same.—It is probable that the Y.M.C.A. will erect a new building here.

MOOSE JAW, ALTA.—George Perry is the head of a joint stock company which will erect a large hotel here. Jones & Bunyard, architects, have prepared the plans.

STRATHCONA, ALTA.—It is probable that the City authorities will enter into an agreement with the City of Edmonton to extend their telephone system to this city.

SOUTHAMPTON, ONT.—A meeting of the municipal representatives was held here recently to consider the question of utilizing the Saugeen river for the transmission of power.

SASKATOON, SASK.—The City Council have decided to issue debentures to the amount of \$75,000 for local improvements.—A hospital will be erected here to cost \$25,000.

FORT ERIE, ONT.—The Board of Railway Commissioners have approved of the location of the Niagara, St. Catharines and Toronto Railway line from this place to Lundy's Lane.

ARTHABASCA, QUE.—The Eastern Townships Railway Company will seek incorporation at the next session of the Dominion Parliament to construct a railway in the county of Nicolet.

OAKVILLE, ONT.—The Town Council have made application to the Provincial Board of Health to approve of their plans for the installation of a sewerage and waterworks system.

MAGOG, QUE.—The Town Council in conjunction with a private corporation, will install a waterworks system and tenders will shortly be taken for the erection of an electric pumping station.

BELLEVILLE, ONT.—Tenders will be received by C. N. Sutman (Mayor) up to the 26th inst., for all trades required for the remodelling of the Merchants' Bank building for a Public Library.

WELLAND, ONT.—The Niagara, St. Catharines and Toronto Railway Company are seeking permission from the Council to construct a branch line from their main road into the town.

BERLIN, ONT.—A new hotel will be erected here to cost \$200,000. F. S. Baker, architect, Toronto, has prepared the plans.—A new telephone exchange will be erected here in the near future.

MORRIS, MAN.—The Board of Trade have recommended the erection of a courthouse and other public buildings here, and a delegation will wait on the Government in reference to the matter.

WEYBURN, SASK.—The Canadian Bank of Commerce will erect a building here.—The Town Engineer has recommended the purchase of a drill with which to secure water supply for the town.

INGERSOLL, ONT.—The John Morrow Machine Screw Company, have purchased the business of the Standard Bolt & Screw Company, Toronto, and will make additions to their present building.

BROCKVILLE, ONT.—Buell & Botsford will apply to the Dominion Parliament on behalf of the Brockville, Westport & North Western Railway Co. for an extension of time for the construction of their road.

NELSON, B. C.—The Great West Railway Co. will apply to the Dominion Parliament, through their solicitors, Gallaher & Hannington, for permission to extend and alter several of their routes in British Columbia.

MONCTON, N. B.—Tenders will be received up to December 10th for the erection of locomotive shops here for the Intercolonial Railway. L. K. Jones, Secretary Department of Railways and Canals, Ottawa, Ont.

CARLETON PLACE, ONT.—It is probable that a waterworks system will be installed here in the near future.—A by-law will be submitted to the ratepayers for authority to issue debentures for the sum of \$1,600.

STRATFORD, ONT.—The North Midland Electric Railway will enlarge their power house at cost of \$100,000.—The City Council will submit a by-law to the ratepayers to raise \$5,000 to install additional plant at the waterworks.

FORT WILLIAM, ONT.—The advisability of building a bridge across the Kaministiquia river to island No. 2 is being considered by the Board of Trade and members of the proposed Fort William Terminal Railway Company.

LETHBRIDGE, ALTA.—The McLaughlin Manufacturing Company of Toronto will in all probability establish their plant here.—The Massey Harris Company are considering the advisability of erecting a warehouse here.

GUELPH, ONT.—The Guelph Carpet Mills, Limited, have purchased the factory of the old Petrie-Taylor Company and intend making additions to same.—The Victoria Biscuit Company, will erect a new factory, cost \$20,000.

WOODSTOCK, ONT.—The City Engineer has prepared plans for extension of sewerage system, estimated to cost \$4,000.—A site has been purchased on which a Carnegie library will be built.—The Y.M.C.A. will erect a new building here.

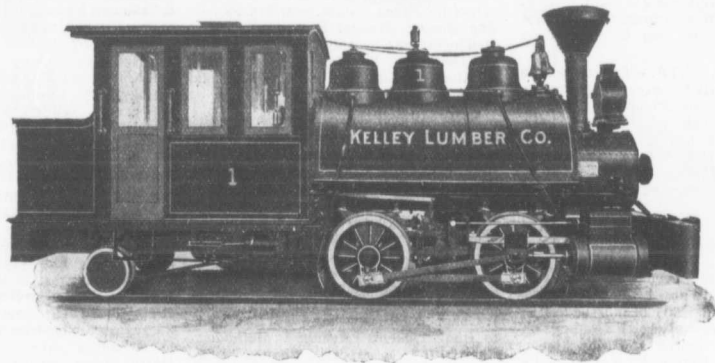
NIAGARA FALLS, ONT.—The Canadian Art Iron Works intend locating here. They will erect buildings which will cost \$15,000.—The Carriage Mountain Company are asking the city for a loan of \$10,000 for erection of new buildings and installing new plant.

MORRISBURG, ONT.—The Town Council are making application for the approval of a by-law to raise money with which to extend their water works and electric light systems.—The Molson's Bank have purchased a lot adjoining the Bradfield block, and intend erecting a building thereon.

PETERBORO, ONT.—The City Council have refused to grant a franchise to the Dominion District Steam Heating Company, as the intention is to install a municipal plant.—The City Council will ask the ratepayers to authorize the ex-

**IF YOU WANT A
GOOD HONEST ENGINE
BUY A "VULCAN"**

**They are guaranteed in every respect and
will stand up under hard usage.**



**CONTRACTORS' DINKEYS
LUMBERING LOCOMOTIVES
MINE LOCOMOTIVES**

ALL SIZES AND GAUGES

- | | | |
|------------------------------------|-----------------------------|-------------------------------|
| Dump Cars | Steam Shovels | Hoisting Engines |
| Light Rails | Wrecking Cranes | Derricks |
| Track Tools | Railway Pile Drivers | Wire Rope and Fittings |
| Concrete Mixers | Rock Crushers | Wheelbarrows |
| Concrete Block
Machines | Elevators | Picks and Shovels |

W.H.C. MUSSEN & CO.

**Railway, Mining and Contractors Supplies
MONTREAL**

penditure of \$38,000 for a new steel bridge across the river at Smith street, \$23,000 to assist in the erection of the Collegiate Institute, also to issue debentures for \$8,000 to divert the course of the Ashburnham creek.

PRINCE ALBERT, SASK.—The City Council will have a report made as to the feasibility of developing power in the Shell or North Saskatchewan rivers.—The City Council refused a franchise to W. S. Weeks for a street railway.—The School Board have decided to erect a High school here.

BELLEVILLE, ONT.—The Lehigh Portland Cement Company, with head office at Allentown, Pa., are receiving bids on all kinds of material, such as iron buildings, rotary kilns, rolls, tube mills, boilers, engines, stacks, dryers, etc. Canadian manufacturers should make inquiries at the Allentown office.

ST. THOMAS, ONT.—The City Engineer has estimated the cost of piping from the gas works to the Collegiate Institute at \$6,000.—The Public Library Board are considering the advisability of installing an acetylene gas plant.—N. R. Darrach, architect, is preparing plans for a new laundry building for the Amasa Wood Hospital.

LACOMBE, ALTA.—Tenders will be called for shortly for excavating for the erection of a new school building.—A large brick block will be erected on Barnett avenue by A. Urquhart & Co. Ltd.—A three-story hotel will be erected here by A. T. Inskip.—J. W. Lundy is having plans prepared for three-story building.

LONDON, ONT.—It is reported that Brener Bros. will erect a hotel here, cost \$250,000.—McGaw & Winnett will add a story to the Tecumseh House, for which plans are now being prepared.—Building permits have been issued to C. A. Pratt, for two-story brick dwellings on the corner of George and John streets, and to W. E. Cotton for a story and a half brick veneer dwelling on Riverview avenue.

CORNWALL, ONT.—At a meeting of the shareholders of the Modern Bedstead Company, it was decided not to proceed with the erection of their new building until spring. Albert Fairwell, Secretary-Treasurer, Sherbrooke, Que.—Debentures will be issued for \$4,000 to pay balance due on enlargement of the High School.—It is probable that the Town will purchase a stone crusher.

TORONTO JUNCTION, ONT.—An estimate of the brick paving at Dundas street places the cost at \$56,400.—The following building permits have been issued: Canada Cycle & Motor Co., addition to factory, \$4,000; Dr. Chas. Gilmore, two brick dwellings, corner of Keele and Annette streets, cost \$7,000; John Marr, three brick dwellings on Keele street, \$9,000; James Penrice, pair semi-detached houses on Loughton avenue, \$6,000.

HALIFAX, N. S.—Herben & Gates, architects, have prepared plans for the following: New head office building in this city for the Nova Scotia Telephone Co.; for a building at North Sydney, C. B., for the Eastern Telephone Co.; six cottages at Woodside, N. S., for the Acadia Sugar Refining Co.; house for T. B. Spencer, and business premises for Colin McNab & Co. at Dartmouth, N. S.; house for H. W. Sangster at Windsor, N. S., and house for Rev. Walsh at Chester N. S.

EDMONTON, ALTA.—A large hotel is about to be erected here, cost \$100,000.—Building permits have been issued to G. Cass, dwelling on Heiminek street, \$2,000, and Reginald Smith, two-story building on Rice street, cost \$3,500.—The Gorman-Clancy-Grimsly Co. will

erect a warehouse on Fourth street to cost \$6,000.—A residence will be built on Sixth street for Mrs. J. Henderson, to cost \$5,000.—A residence is to be erected on Twelfth street for Mrs. Chenwick, to cost \$8,000. H. A. Lagoon, architect, has prepared plans for the three structures mentioned above.—The date for receiving plans for the proposed City Hospital has been extended to December 15th.—A. O. Dwyer will erect a large plant to carry on a pork packing industry at estimated cost of \$500,000.

MONTREAL, QUE.—L. O. David, City Clerk, is this week taking tenders for the building of steel shelters at Bonsecours Market.—A proposition has been made to build a new wing at the jail.—The City Council have formally approved of plans submitted by the engineers of the Grand Trunk Railway to construct a tunnel under McGill street to connect the company's offices.—It is probable that a new Separate school will be erected here.—The new Hervey Institute which will be erected on Claremont avenue will be a four story brick structure.—R. M. Rodden has prepared plans for the erection of the Arena stables, cost \$15,000.—The Quebec Oriental Railway Co. will seek incorporation at the next session of the Dominion Parliament, through its solicitors, McGibbon, Casgrain, Mitchell & Surveyer.

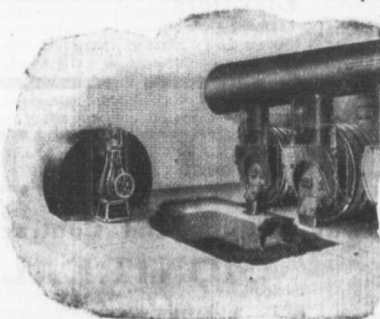
NEW WESTMINSTER, B. C.—A. L. Lavery has had plans prepared for several two-story houses on Carnarvon street.—J. McMartin is building a large residence on Fifth avenue and A. Wastell is having a dwelling erected on Dufrin street.—A large three-story residence is being built on Columbia street for Dr. Holmes.—A Swanson, proprietor of the Fraser Hotel, will add two new wings to his building.—Another story will be added to the Occidental Hotel, owned by J. Chappel.—A new wing will be added to the Queen's Avenue Methodist Church.—It is reported that a brick block will be erected on the corner Begbie and Columbia streets. Alderman Halse is the promoter of the scheme.—Plans have been prepared, for the Board of Hospital Commissioners, for a new hospital to cost \$60,000.

VANCOUVER, B. C.—Building permits have been issued as follows: Mr. Louis, two houses on Comox street, cost \$6,000; E. G. McLennan, three house on Eighth avenue, cost \$6,000, and J. S. Stevens, residence on Davie street, cost \$5,000.—The Fire and Police Committee have made the following recommendations: The purchase of two fire engines to cost \$13,000; the installation of thirty new fire alarm boxes and building of three new fire-halls.—Henry Birks & Sons, Limited, have purchased the business of G. E. Torey, and intend to enlarge both salesroom and factory.—A large mill will be erected on Graham island by Martin & Shannon, of this city.—The Westminster & Chilliwack Railway Co. will

seek incorporation from the Dominion Government. They purpose constructing a road between New Westminster and Chilliwack. McPhillips, Tiffen & Laursen, solicitors.

OTTAWA, ONT.—The James Bay Railway Company have been authorized by the Board of Railway Commissioners to construct four bridges over the outlet to Lake Couchiching.—Building permits have been issued as follows: G. J. Bayson, brick dwelling, cost \$8,000; P. J. Nolan, brick dwelling on Elm street, cost \$5,500, St. Germain and Black, brick dwelling on Argyle street, cost \$5,500.—Lewis & Smellie, solicitors, will apply to the Dominion Government for incorporation of the Alsek & Yukon Railway Co. to construct a road from a point in British Columbia northward.—The Ungava Railway Co. will make application at the next session of the Dominion Parliament for incorporation. They intend operating a road from Cambrian Lake to a point opposite Fort Chimo. Chrysler, Bethune & Larmonth, solicitors.—Andrew D. Thompson is making application to the Dominion Parliament on behalf of the Georgian Bay & Seaboard Railway Co. for an extension of time in which to construct their road.—The Crawford Bay & St. Mary's Railway Co. are also making application for authority to extend their lines into Manitoba. J. B. T. Caron is solicitor for the applicants.—Tenders will be called for shortly for the construction of the section of the G. T. P. railway between Superior Junction and La Tuque, Que.

WINNIPEG, MAN.—A new school house will be erected at St. James, Man., at a cost of \$6,000.—Asphalt pavements will be constructed as follows: Isabel street, from Logan avenue to Henry avenue, cost \$2,219; Higgins avenue from Maine street to Maple street, cost \$14,823; Selkirk avenue from Andrew street to Sinclair street, cost \$42,758; Sargeant avenue, from Maryland street to Arlington street, cost \$30,643.40; Notre Dame avenue, from Maryland street westward, cost \$191,780; Corydon avenue, from Pembina street to Stafford street, cost \$64,596.40; macadam road, from Wellington Crescent to Harrow street, cost \$26,927; a cedar block pavement will be laid on Sargeant avenue from Arlington street to Erin street, cost \$16,600.—A sewer will be laid in Jasper street from Stadacona street to the end, cost \$10,150.—Three suburban fire stations will be erected here and one of the city stations will be extensively remodelled. Debentures for \$75,000 will be issued to cover the cost of these works.—An Anglican cathedral will be erected here to cost \$150,000.—The National Transcontinental Railway have selected a site at St. Boniface for their terminal.—Authorities are considering the erection of a bridge over the Red River to St. Boniface.—The Canadian Northern Railway have made application for a permit to build a round house at Fort Rouge.—A bridge is to be constructed over the G.



MECHANICAL DRAFT

Short Stacks
Positive Draft
Saves Fuel
Burns Cheap Coal
Constant Steam
Pressure
Independent of Weather

Catalogue ?

CANADIAN BUFFALO
FORGE COMPANY, LTD.
MONTREAL, QUE.

P. R. tracks to cost in the neighborhood of \$200,000.—The Dominion Government will be asked to incorporate the Manitoba Radial Railway Co., to build a railway from Winnipeg westward. Arthur Wagner is making the application.

TORONTO, ONT.—The Board of Control have decided not to purchase the \$60,000 hydraulic dredge recommended by the City Engineer this year, but an appropriation will likely be included in next year's estimates.—F. H. Herbert, architect, has prepared plans for the new Public Library building at Belleville, Ont., for which tenders are now being taken.—F. S. Baker, architect, has prepared plans for a large hotel to be erected at Berlin, Ont.—The City Engineer has recommended that an asphalt pave-

ment be laid on Macdonnell avenue, at a cost of \$15,112.—The plans for the trunk sewer have been approved of by the Provincial Board of Health.—A new steel and reinforced concrete grand-stand is to be erected in the Exhibition grounds, in place of the one recently burned. Geo. W. Gouinlock, architect, has prepared the plans.—The City Council have given notice of their intention to construct the following works: Asphalt pavement on Roncesvalles avenue, from Queen to Dundas street, cost \$48,956; vitrified block pavement on Peter street, from Front to Wellington streets, cost \$3,436; macadam roadway on Winchester street, from Sumach street to Danforth avenue, cost \$22,939; brick sewer on Dupont street, from Christie

street west, to cost \$2,900; tile pipe sewer on Hampton avenue, from Sparkhall avenue to Hogarth avenue, cost \$2,770.—Tenders will shortly be invited for piling across Princess street slip.—Plans for the proposed ambulance station will be submitted to the City Council next week.—The estimated cost of the

CORRUGATED
WRITE FOR PRICES
METALLIC ROOFING CO.
LIMITED
TORONTO, CANADA.
IRON



"BULL DOG" SHOVELS

forged from one piece of High Carbon Bar Steel without weld or rivet, solid neck and blade, tempered in oil, straight chucked handle can be replaced when broken.

CANADIAN SHOVEL & TOOL CO. LIMITED
 HAMILTON, CANADA

WRITE FOR CATALOGUE



Sectional View of finished One-piece Shovel, showing gauge or thickness of steel at different points

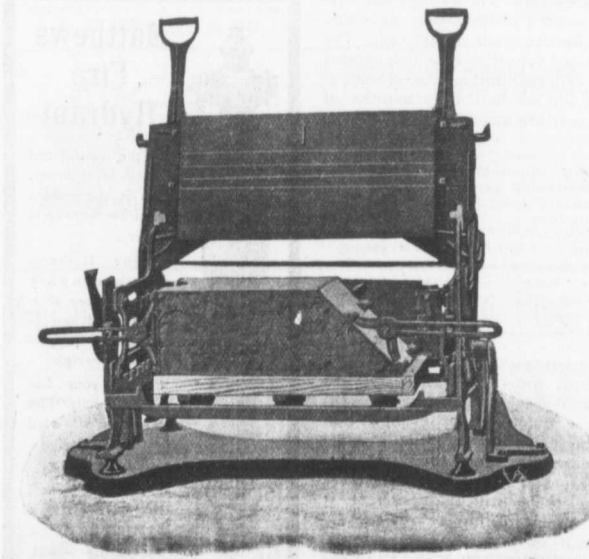
Note Solid Shank

... Speaks For Itself ...

THE MILES CONCRETE BUILDING BLOCK MACHINE

Makes 40 Different Sizes of Stone in Any Design, as well as the Specials, viz.:
 Water Table, Gable, Circle, Angle, Chimney, Cornice, Pier Blocks, etc.

Catalogues and Information Cheerfully Furnished.



This Machine makes all blocks face down—"the only practical way"—allowing of a richer and finer facing, producing blocks that are perfect in appearance and impervious to moisture.

Let us tell you how the "Miles" will pay for itself over any other machine in three month's operation.

Manufactured and Sold by

VINING BROS. M'f'g. Co.

Niagara Falls, - Can.

1906

ominion
 tructing
 ster and
 en &

es Bay
 thORIZED
 ssioners
 ne outlet
 permits
 Bayson,
 Nolan,
 \$5,500,
 k dwell-
 —Lewis
 the Do-
 ration of
 s. to con-
 h Colum-
 lway Co.
 session
 corpora-
 ad from
 ite Fort
 armonth,
 pson is
 ominion
 gian Bay
 extension
 ir road.—
 Railway
 tion for
 to Mani-
 r for the
 alled for
 ne section
 Superior

w school
 es, Man.,
 avements
 : Isabel
 o Henry
 s avenue
 reet, cost
 Andrew
 \$42,758;
 nd street
 0,643.40;
 Maryland
 Corydon
 o Stafford
 lam road,
 Harrow
 lock pave-
 at avenue
 street, cost
 in Jasper
 the end,
 rban fire
 and one of
 nsively re-
 75,000 will
 ese works.
 be erected
 : National
 ve selected
 terminal.—
 e erection
 ver to St.
 then Rail-
 a permit
 Rouge.—
 ver the C.

DRAFT

acks
 Draft
 'uel
 p Coal
 am
 Pressure
 f Weather

BUFFALO
 ANY, LTD.
 , QUE.

morgue to be erected on Lombard street is \$30,000.—Tenders will be received by the Board of Control up to December 4th for roofing the St. Lawrence market, Plans at city architect's office.—The Nipissing Central Railway Co. are seeking incorporation, through their solicitors, Denton, Dunn & Bulbee. They intend constructing several lines in Eastern Ontario.—The following building permits have been issued: Wm. Ingleby, two story and attic brick dwelling on Givens street, cost \$2,500; G. E. & S. J. Case, pair of semi-detached two-story brick dwellings on Margueretta street, cost \$4,000; W. H. Thompson, pair of semi-detached brick store and dwellings on west side of Yonge street, near Roxborough avenue, cost \$4,000; Kidney & McElvigh, two and half story brick dwelling on east side of Walmer road, cost \$5,000; B. H. Moorehouse, two story and attic brick dwelling on Langley avenue, cost \$4,000; J. Polesky and J. Hutchin, two detached brick veneer and rough cast dwellings, cost \$3,000; Ross Gooderham, two story brick stable, corner Lowther avenue and St. George street, cost \$4,000; J. S. & I. J. Sharo, pair two story brick stores and dwellings, College street, near Clinton, cost \$6,500.—Chadwick & Becket, architects, will receive tenders up to 23rd inst. for mason work, carpenter work and galvanized iron work for a house on Palmerston avenue.—Tenders are wanted by S. B. Coon, architect, 58 Roxborough street west, for brick and stone work on two detached houses.—Mr. R. J. Score has purchased land on Kendall Ave. on which to build a residence.

FIRES.

Mormon Church at Taber, Alta., loss \$3,000.—H. Clark's tailor store and other buildings at Waterdown, Ont., loss \$2,000.—Muirhead and Black's elevator at Fort William, Ont., totally destroyed, loss \$20,000.—Factory of Canadian Rubber Co., Limited, Montreal, loss \$10,000.—Exhibition grand-stand at Halifax, N. S., loss \$5,000.—Strathcona Hotel, Strathcona, Alta., loss \$5,000.—Flour mill of the Harding Co., Harding, Man., loss \$25,000.—Saxon's Block, Hotel Pearsall and other buildings, Port Rawan, Ont. loss \$80,000.

AWARDED.

CAMROSE, ALTA.—Building of a water tank and firehall; Bonnyman & Scott, \$1,350.

ST. LOUIS QUE.—Fire engine: Canadian Steam Fire Engine Company, London, Ont., successful tenderers.

WALKERVILLE, ONT.—Brick factory for Dominion Dash Co.: Victor Williamson, successful tenderer.

WELLAND, ONT.—Supply of electric light: Stark Electric Systems, Limited, Toronto, successful tenderers.

ERSKINE, ALTA.—\$1,800 Erskine school debentures, awarded to Nay, Anderson & Co., Regina, Sask.

PRESCOTT, ONT.—Heating the Presbyterian church: James Smart Mfg. Co., Brockville, Ont., contractors.

MAIDSTONE, SASK.—\$1,500 Maidstone school district debentures, awarded to Nay, Anderson & Co., Regina Sask.

WINNIPEG, MAN.—Dobson & Jackson have been awarded the contract for sewer construction in St. John's avenue, \$848.50; Anderson avenue, \$3,991.60; Dominion street, \$1,895.40. Two 250 horse power water tube boilers, Babcock & Wilcox, Montreal, Que., successful tenderers, \$14,750.

The Osaka Cement Company, a Japanese concern, has already supplied 400,000 barrels to San Francisco since the earthquake.

MANUFACTURE OF CEMENT IN JAPAN.

Japanese cement, as an article for export, has not yet, says the Japan Weekly Chronicle, reached the status of the principal staple articles, its export being only half a million yen or thereabouts a year; but the Chugai Shogyo thinks the trade is on the eve of expansion, as the demand for Japanese cement will increase with the development of Korea, Manchuria, Russian territory, and other Eastern countries. Nine years ago its export only amounted to 16,000 yen in value, but in 1903 it had increased to 590,000 yen. The war has put a temporary check to the growth of the industry, but with the restoration of peace a revival has taken place. Not only is the demand for Japanese cement springing up in Korea and Manchuria, but large orders received from San Francisco brought about since the earthquake and conflagration have given a great impetus to the industry. All the stock in the market has been cleared, and the cement companies are now busily engaged in manufacturing to meet requirements. The amount of cement exported during the last ten years was as follows:—

	Quantity Kin.	Value Yen.
1896.....	2,322,644	25,372
1897.....	938,188	16,257
1898.....	2,108,686	36,055
1899.....	4,648,722	62,632
1900.....	15,088,419	104,469
1901.....	17,815,512	245,081
1902.....	22,840,563	308,349
1903.....	41,740,234	596,204
1904.....	39,085,471	548,497
1905.....	31,614,437	395,392

Up to the end of May this year the value of cement exported had reached over 423,000 yen, while the figures for the corresponding period of the two preceding years were 198,000 yen and 217,000 yen respectively. That is to say, the quantity exported during the first five months of this year exceeded that for the whole of last year. The principal countries to which cement was exported during the whole of 1905 and the first four months of this year are as under:—

	1905. Kin.	1906. Kin.
Korea.....	13,455,653	4,823,382
America.....	298,140	7,428,338
China.....	4,790,812	2,291,925
Manchuria.....	—	1,731,859
Dutch India.....	3,326	487,500
Russia.....	500	302,405
Philippines.....	4,133,287	300,060
Hong Kong.....	988,440	90,000
Straits.....	60,000	56,000
Australia.....	28,728	28,728
Canada.....	7,755,711	—
Others.....	99,780	66,173

The remarkable increase in export to America that has taken place this year is doubtless owing to the unlooked for event at San Francisco, while as to the gradual increase of export to Manchuria, Korea, and Asiatic Russia there seems to be little doubt. Next, it will be interesting to review the amount of capital invested by the various cement companies and their annual producing capacity.

WATERWORKS MATERIALS.

The materials used for water service pipes in Massachusetts are given in detail in the report of the Massachusetts State Board of Health for 1904-05, which has just been issued. The inquiry was prompted, it seems, by a number of cases of lead poisoning through the use of lead service pipes in different cities, which have occurred in different parts of the state. A summary given in the report named shows that in 3 cities in Massachusetts all the service pipes are of lead, and in 23 other cities and towns they are chiefly of that material. In addition, lead or lead-lined pipes are used to a considerable extent in about a dozen other places. In 83 cities and towns no lead whatever is used. Plain wrought-iron pipe is used in 12 cities and towns, while in 53 the services are chiefly of galvanized iron and in 49 they are principally of cement-wrought iron. In Fairhaven tin-lined services are in general use, and they are also largely used in Kingston, Milford and Hopedale, where lead poisoning has occurred due to the use of lead service pipes; tin-lined services are also used to some extent elsewhere. For new services and for renewals, lead or lead-lined pipe is now used almost exclusively in 28 cities and towns cement-lined pipe in 34, and galvanized pipe in 65 cities and towns. As would be expected, plain wrought-iron pipe has invariably given rise to "more or less trouble" from rusting and "considerable trouble from this cause has been experienced in 44 places using galvanized-iron pipe." As many as 8 places report that cement-lined pipes have also given trouble from rusting.



**Matthews
Fire
Hydrant**

Is the recognized Standard Hydrant, and is the easiest Hydrant to keep in order.

Our Hydrants are thoroughly tested before shipment, and are of substantial proportions and weight.

Have your Engineer specify "The Matthews'" and get our tender.

**THE KERR
ENGINE CO.,
LIMITED**
Walkerville - Ont.

JOHN GALT
C. E. and M. E.
CONSULTING ENGINEER
and **EXPERT**

SPECIALTIES:
WATERWORKS, SEWERAGE
AND ELECTRIC LIGHT

Chief Assistant Engineers:
O. W. SMITH, C. E. W. J. BOWERS, C. E.
25 Jordan Street TORONTO

JOHN S. FIELDING
Mem. Soc. C. E. West Penn. '87.
Mem. Engineer's Club, Toronto
CONSULTING ENGINEER.

Water Power Development
Room 2, 15 Toronto Street, TORONTO, ONT.

McDOUGALL & McRAE
ENGINEERS

Electric Light and Power Plants.
Electric Railroads.
General Consulting Work.
Citizen Building **OTTAWA**

The Electric Blue Print Co.
40 Hospital Street, MONTREAL

BLUE PRINTS
POSITIVE BLUE PRINTS
BLACK PRINTS
MULTI-COLOR PRINTS

Best Finished Work on the Market at the Lowest Prices.

WHY PURCHASE STRUCTURAL STEEL

We offer 300 tons second hand **TEE AND GIRDER RAILS**, for bridges, &c., cut in lengths to suit purchasers.

SESSENWEIN BROS., MONTREAL

Men for Contractors

EMPLOYMENT OFFICE
Phone 4855 **WINNIPEG, MAN.** Main St.
Men of all descriptions furnished on short notice for railroad and building contracts.
Special Attention Given to Furnishing Gangs
E. E. BRYANS & CO.

THE BITULITHIC PAVEMENT
The Most Progressive Cities are Paved with Bitulithic
Some Recent Contracts—
Toronto 31,441 sq. yds. Chatham 15,633 sq. yds.
Halifax 30,000 sq. yds. Amherst 8,000 sq. yds.
Regina 21,215 sq. yds. St. Catharines 4,500 sq. yds.
St. Boniface 18,272 sq. yds. Total . . . 129,161 sq. yds.
— A Well Paved City Bears the Stamp of Progress —
WARREN BITUMINOUS PAVING COMPANY, LIMITED
Head Office: 164 Bay Street, TORONTO
Branches: Chatham, St. Catharines, Ottawa, Regina, Halifax, Amherst.

Portland Cement...
HIGH GRADE GERMAN BRANDS FOR GRANOLITHIC AND ARTIFICIAL STONE SIDEWALKS.
Sewer Pipes, Best English Cements. Best Belgian Cements
Culvert Pipes, &c. W. McNALLY & CO., Montreal

JOSSON CEMENT
Is the Highest Grade Artificial Portland Cement and the Best for High Class Work. Has been used largely for Government and Municipal Works.
TO BE HAD FROM ALL CANADIAN DEALERS OR FROM
C. I. DE SOLA, 180 St. James Street, MONTREAL

Ambursen Hydraulic Construction Company
of Canada, Limited
519-520 Coristine Building — Montreal
CONCRETE-STEEL DAMS
POWER HOUSES AND GENERAL HYDRAULIC CONSTRUCTION

A. & E. LOIGNON, C. E.
17 Place D'Armes Hill, MONTREAL
REINFORCED CONCRETE CONSTRUCTIONS
FOR
Fireproof Buildings, Hydraulic and Public Works
Steel Structures for Bridges and Buildings
Warehouses, Factories, Water Power Developmen

ROBINSON'S PATENT MOULD
for Cement Culvert Pipe
With or without Cone Top Filler. These Moulds are standard both in sizes and thickness of wall. Furnished with plain or telescopic joints. Write for Catalogue.
CLIMAX ROAD MACHINE CO.
HAMILTON, ONT.



The Toronto Pressed Steel Co., Limited
Toronto and Winnipeg
Manufacturers
Drag Scrapers (Solid pressed bowl)
Wheel Scrapers (pressed or square bowls)
Dump Cars, from 1 to 3 yards
Wheelbarrows, Wood or Steel Trays
Waggons, Carts, Cement Mixers, Etc.
Prompt delivery from stock at Toronto and Winnipeg.
Send for complete catalogue. Write nearest office.




Spigot and Faucet Pipe Flanged Pipe Turned and Bored Pipe
MADE IN 12' 0" LENGTHS **CAST IRON WATER & GAS PIPE** MADE IN SEVERAL WEIGHTS
3 TO 48 INCHES DIAM. PROVED FROM 100 TO 700 LBS.
—AND SPECIAL CASTINGS—
"THE WORLD'S STANDARD FOR ACCURACY, QUALITY AND FINISH."

WE ARE PREPARED TO QUOTE DELIVERED PRICES, AND MAKE PROMPT DELIVERIES IN ANY PART OF CANADA
L. H. GAUDRY & CO., Canadian Agents for **Quebec and Montreal**
Rebt. MacLaren & Co., Glasgow.

NEW COMPANIES.

A. R. Rogers Lumber Company, Limited, Winnipeg, Man., incorporated, capital \$500,000. Incorporators, A. R. Rogers, G. H. Rogers, J. J. Rogers, E. Brown and F. M. Prince, all of Minneapolis, Minn.

R. & W. Kerr, Limited, Montreal, Que., incorporated, to manufacture hardware, furniture, sporting goods, etc., capital \$90,000. Incorporators, R. Kerr, E. F. Kerr, J. L. Kerr and others, all of Montreal.

O. Martineau & Fils, Limited, Montreal, Que., incorporated, to operate quarries, capital \$100,000. Incorporators, O. Martineau, J. O. Martineau, A. Martineau, and others, all of Montreal.

Montreal Sand and Gravel Company, Limited, Montreal, Que., incorporated, capital \$100,000. Incorporators, W. Mann, C. Percy, L. M. Terrill, M. B. Turner and W. R. Staveley, all of Montreal.

French Pasteurized Fluid Beef Company, Limited, Montreal, Que., incorporated, capital \$49,875. Incorporators, L. Perron, N. U. Lacasse, A. Dudemaine, N. H. Asselin, E. Lacasse, J. E. Costin and S. Jeanotte, all of Montreal.

Upper Ontario Steam Boat Company, Limited, New Liskeard, Ont., incorporated, capital \$99,000. Incorporators, F. S. Brickenden, F. W. Hendry, M. R. Jennings, G. C. Banks and F. L. Smiley, all of New Liskeard.

Leitch Collieries, Limited, Ottawa, Ont., incorporated, capital \$1,000,000. Incorporators, D. H. MacMahon, A. A. Baylie, E. Seybold and others, all of Ottawa.

Jas. S. Dunn Company, Limited, Montreal, Que., incorporated, to manufacture office supplies, capital \$20,000. Incorporators, J. S. Dunn, J. I. Brady, E. Seager and others, all of Montreal.

New York Silk Waist Manufacturing Company, Limited, Montreal, Que., incorporated, capital \$20,000. Incorporators, J. S. Leo, Emma Gohen and I. S. Goldstein, all of Westmount, Que., and H. S. Arnold and Lillian Meighen, both of Montreal.

Gravel & Duhamel, Limited, Montreal, Que., incorporated, capital \$99,000, to manufacture hard-

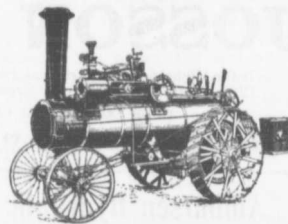
ware, etc. Incorporators, P. Gravel, J. G. Duhamel, J. A. Barrette, all of Montreal, and others.

E. C. Joyal, Limited, Montreal, Que., incorporated, capital \$20,000, to deal in chemist's and druggist's supplies. Incorporators, Lena G. Marsh and H. E. Joyal, of St. Louis, Que., and others.

NOTES.

Building permits were issued in New Westminster, B.C., in October to the value of \$292,845, being an increase of nearly \$80,000 over the same month last year.

Despite the general prosperity in England the Portland cement trade is in a gloomy state. Sales are larger this year than last and the demand from the United States is particularly active, but prices are persistently low, and profits are only possible by carefully trimming all running expenses. The British trade is mainly in the hands of a combine, the Associated Portland Cement Manufacturers, which is staggering under a heavy load of mortgage and debenture stock, due to buying at high prices out-of-date plants that had to be modernized at heavy expense.



New, Re-built and Second-hand
TRACTION and PORTABLE ENGINES
(Simple and Compound)

For drawing and driving Rock Crushers, Road Graders, Cement Mixers, Grinders, Thrashers, Plows, Saw Mills and miscellaneous uses.

All Powers Quality the Best
Correspondence Solicited

Sawyer & Massey Co., Ltd.

Road Machinery Department

Hamilton

Canada

MCGREGOR & MCINTYRE, LIMITED

67 to 91 Pearl Street, Toronto, Ont.

STRUCTURAL IRON WORKS

Beams, Channels, Tees, Angles, Chequered Plates, etc., in stock.
Fire Escapes. Sidewalk Doors, Iron Stairs, etc., etc.

Sole Agents for Duplex Hangers and Goetz Post Caps, Wall Boxes, etc.

PHONES: 7248
7249

ESTIMATES FURNISHED

Aerial Gableways (Blondins)

Derricks Hand, Steam and Electric

Concrete Mixers 14 Distinct Types

E. F. DARTNELL - Montreal

Canadian White Company, Limited

SOVEREIGN BANK BUILDING, MONTREAL, CANADA

WINNIPEG OFFICE: BANK OF BRITISH NORTH AMERICA BUILDING

ENGINEERS AND CONTRACTORS

FOR

Steam and Electric Railroads: Electric Light and Power Plants: Building Construction: Water and Gas Works: Docks, Harbor Works, etc., etc.

J. G. WHITE & COMPANY, INC.,
New York City

CORRESPONDENTS
J. G. WHITE & COMPANY, LIMITED,
London, England

WARING-WHITE BUILDING CO.
London, England

Judge a Cement by Its Works."

AMERICAN



GERMAN

is sold under a guarantee other portlands cannot make in good faith. That guarantee is backed by the oldest and most responsible manufacturers in the world. Selected for PANAMA CANAL in Preference at Equal Prices and is exceeding those severe requirements.

90,000 bbls. Key West this year. The best color and most durable for cement blocks and sidewalks.

90,000 bbls. City of Rochester Reservoir. Write for list of other important works in all sections.

FIRE ESCAPES

Wire Screens for Road Making

Wrought Iron and Wire Guards and Enclosures for Jails, Asylums, Etc.

The Geo. B. Meadows, Toronto Wire, Iron & Brass Works Company Limited
67 Wellington Place, TORONTO



GALVANIZED WIRE WOUND WOODEN PIPE

No frost breaks, no corrosion. No electrolysis. It is easily and cheaply laid.

Its carrying capacity is never decreased by rust.

JAMES THOMSON, President. J. G. ALLAN, Vice-President. JAMES A. THOMSON, Secretary. ALEX. L. GARTSHORE, Treasurer.

THE GARTSHORE-THOMSON PIPE & FOUNDRY CO. LIMITED.

Manufacturers of

Flexible and Flange Pipe, Special Castings and all kinds of Waterworks Supplies.



3 inches to 60 inches diameter.

for Water, Gas, Culvert and Sewer



HAMILTON, ONT.



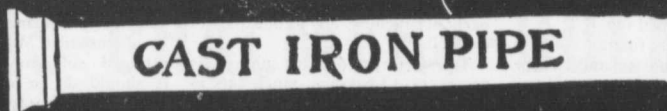
THOS. J. DRUMMOND, President.

JAMES T. McCALL, Secretary-Treasurer.

C. ED. GUDEWILL, Vice-President.

Montreal Pipe Foundry Co., Limited

Special Castings
Flange Pipe
Branches
Hydrants
Valves



Valve Boxes and general Water Works Supplies

Works at : LACHINE, QUE.
THREE RIVERS, QUE.
LONDONDERRY, N. S.

Combined daily capacity :
175 Tons Pipes and Castings.

HEAD OFFICE CANADA LIFE BUILDING.

MONTREAL

CONCRETE TILE CULVERTS IN ONTARIO

The use of concrete tile for small highway culverts in Ontario is steadily increasing, and where they have been properly made there is rarely any complaint against them, according to a special report of Mr. A. W. Campbell, Commissioner of Highways of the Province. In some municipalities they have been in use fifteen to eighteen years without renewal, and still appear to be as good as when first laid.

Among the chief points to observe in making them, Mr. Campbell states, are that they shall be made of good materials, the concrete carefully mixed, and that they are not too small. The size is controlled to some extent by the depth of the side drains below the graded roadway, as it is necessary that there should be a foot of earth over the pipe. It is not desirable to use pipe less than 18 in. in diameter if the situation will permit; but two smaller lines of pipe may, as an alternative, be laid side by side. The objection to small pipe is that they are liable to be stopped up. In striving to keep down expense, there is a tendency to use concrete tile where a large waterway is needed. This is the reverse of economy, for by contracting the water area, drainage is impeded, the road-bed is injured, and washouts frequently result. Concrete tile are excellent in their place, where they give sufficient waterway, but provisions should always be made for the maximum rushes of water, not the average flow. Where concrete tile are too small for this, concrete arches, or square top culverts should be considered.

The construction and repair of wooden culverts has become, in numerous townships, a serious drain upon the yearly appropriation available for road purposes. In some cases Mr. Campbell finds that as much as half or two-thirds of the grant from the general funds is absorbed in this way, a matter of from \$1,000 to \$2,000 annually. The number of these culverts on country roads varies greatly. Ordinarily half a dozen are needed for each mile of road if proper drainage is provided. By replacing these, as required, with permanent concrete culverts, this annual expenditure can be almost wholly wiped out.

Making concrete tile for culverts is not a difficult matter, and can be undertaken by the municipalities themselves, although in numerous cases they are now manufactured as a private enterprise. Just such a number of pipe as are actually required for the season's work need be manufactured; the implements required are inexpensive, and the pipe may be made by the municipal-

ity for actual cost, which, after a little experience, can be reduced to a very small amount. The outfit required consists of two cylinders; the larger hinged, the smaller a spring cylinder; bottom and top rings; and a tramping iron. The one cylinder forming a core, sets inside the other, leaving a space between the two equal to the thickness of the finished concrete pipe. These can be procured from the manufacturers of roadmaking machinery. By a "spring cylinder" is meant one formed by rolling a steel plate into a tube without sealing the joint. With the smaller of these cylinders the edges overlap or coil slightly, but are so manufactured that they may be forced back and set into a perfect cylinder. In the case of the larger cylinder, the shell is cut into two parts with hinges on one edge, and latches on the other. Bottom and top rings shape the bell and spigot ends of the pipe.

The two cylinders, with joints flush, are set on end, the one centrally inside the other and on the bottom ring, which in turn rests on a firm board bottom. The concrete, made of first-class cement, and clean, screened gravel, is then tamped firmly into the space or mold between the two cylinders. The tamping-iron used to press the concrete into place is so shaped as to fit closely to the cylinder.

The concrete is allowed to stand in the mold for a short time, when the cylinders are removed; the outer and larger cylinder by unfastening the clamps, and swinging the shell open on its hinges; the inner cylinder by removing the fastenings, so as to allow the edges to again overlap, returning to the shape of a coil. The outer cylinder having thus been opened and the inner one made smaller, they can be readily taken away, and the concrete pipe is then left until thoroughly hardened.

The concrete adheres closely to the metal, and to overcome this it is necessary to keep the molds well oiled. This should be done after each tile is made, and when the molds are by this means kept perfectly clean, a smooth and uniform pipe of good appearance will be obtained. A good mixture for oiling the molds is composed of two parts of machine oil to one part of coal oil.

To secure a durable pipe it is necessary to exercise much care in mixing the concrete, and Mr. Campbell particularly advises the use of Portland cement. If gravel is used, it should first of all be clean. Any earthy material, clay, or vegetable mold will create a flaw in the pipe, which will lead to its early destruction, and durability is the quality

most to be desired. The gravel should be of a size that will pass through a one-half inch screen, and should be of varying sized grain, in such proportion as to make a compact mixture. The gravel forms the greater part of the mass of concrete, and it is evident that the results will depend very largely on the quality of the gravel.

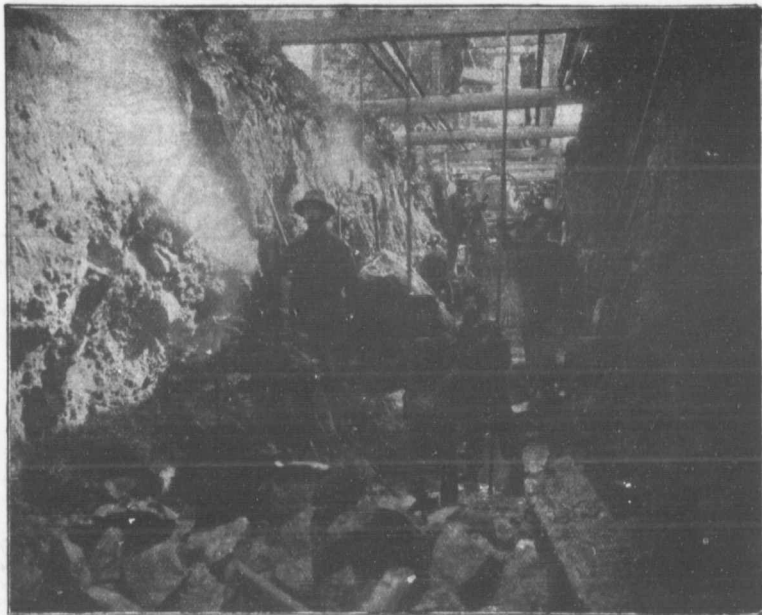
The materials should be mixed in the proportion of one part of Portland cement to two parts of gravel. They should first be turned over in a dry state until thoroughly intermixed and of uniform color. Water should then be added. This, like the gravel, should be clean, and there should be just enough to moisten the mass of concrete, making it of the consistency of a stiff mortar. An excess of water tends to injure concrete in various ways, and is especially to be avoided in the manufacture of tile, as the tamping cannot be properly performed when too much water is used. When the water has been added, the mixture should be made uniformly moist, by turning it over several times with a shovel. The concrete is then ready to be placed in the molds, in which it should be firmly and vigorously tamped.

Such a quantity of concrete should be mixed as can be put in the molds before the process of setting has commenced, and it is therefore of importance to know how long the brand of cement used can be worked before setting begins. A moderately slow-setting Portland cement is necessary for this work. Ordinarily it is best to mix enough to fill one mold at a time. Remnants of concrete which have commenced to set should be thrown away, in Mr. Campbell's opinion, and under no circumstances should they be worked up again and used, as, he believes, they are certain to cause a defective pipe. Defects which do not appear until after the tile have been placed in a culvert and covered with earth cause not merely the loss of the pipe, but a considerable outlay for labor is wasted as well. The concrete should be handled quickly. Two men are needed, one to shovel it into the molds, and the other to tamp it.

Until the concrete has hardened sufficiently the molds should not be disturbed. When the pipe has attained sufficient strength (which it should do in from five to seven hours, according to the temperature of the atmosphere, and the kind of cement used), it can be taken off the bottom rings. To enable the pipe to set satisfactorily they should be dampened every day for several days, if the weather is dry, and

(Continued on Page 14.)

"INGERSOLL" ROCK DRILLS



Three out of the ten of our "Ingersoll" steam drills used by Messrs. Laurin and Leitch in excavating rock at St. Louis de Mile End, Quebec. These rock drills are fully described in Catalogue No 81

CONTRACTORS' PLANT

"Ingersoll" Air Compressors and Rock Drills; "Lidgerwood" Hoisting Engines and Ballast Unloaders;
"Gates" Rock Breakers; Allis-Chalmers Steam Shovels; "Bullock" Electric Motors and Generators.

ALLIS-CHALMERS-BULLOCK LIMITED

Head Office and Works : MONTREAL

District
Offices :

MONTREAL : Sovereign Bank Bldg.
NEW GLASGOW: N.S. Telephone Bldg.
WINNIPEG : 251 Notre Dame Ave.

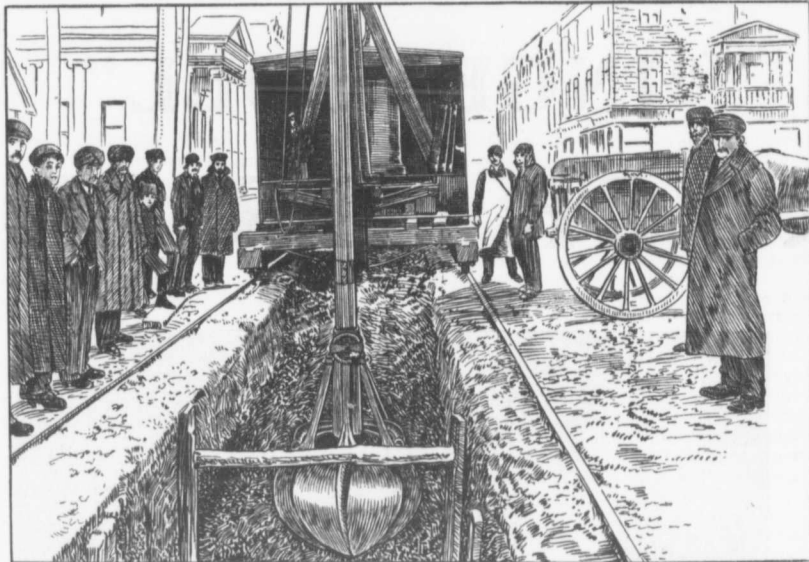
TORONTO : Traders Bank Bldg.
NELSON : Josephine St.
VANCOUVER : 416 Seymour St.

rel
ss
nd
in
m-
he
te,
lts
the

in
ort-
rel-
ver
in-
lor.
his,
and
to
ak-
stiff
nds
ys,
d in
mp-
ned
sed.
ded,
uni-
over
The
iced
l be

rete
t in
set-
ere-
how
can
s. A
land
ork.
ough
Rem-
com-
rown
nion,
ould
used,
in to
ffects
r the
lvert
ie not
but a
or is
crete
Two
vel it
her to

dened
d not
e has
which
seven
rature
ind of
ten off
le the
should
several
, and



The Town of Maisonneuve is Saving \$189.75 per day by using "The J. W. Harris Excavator"



BUREAU DE
L'INSPECTEUR
DE LA VOIRIE.

TELEPHONE BELL EST 1299

Maisonneuve, Sept 2nd. 1906

The J. W. Harris Co Dear Sir
 your machine has done such good work that I thought that it would be interesting to you to let you know the amount of work and the saving that the town of Maisonneuve has done by operating your machine.
 your machine has taken out 400 yds. in one day at the cost of \$70.25 per day which makes it a cost of 18¢ per yd. and there were no contractor in Montreal that would touch it less than 65¢ per yd. on account of the soft digging so 400 yds at 65¢ per yd. it would make a total \$260.00 By operating your machine the town saves \$189.75 per day.

J. Scanlan Sup
of Road Dept

For further particulars apply to

The J. W. HARRIS COMPANY, Limited · 7 St. Elizabeth St., MONTREAL

No ve

JOL

Room 2,

Please m

Ontario

Electric

Buffalo

Steel C.

Canada
Canada
Domini
Jenks &
Phoenix

Alsen F
Bremne
Currie i
DeSola
Gray &
Hyde &
Hanove
Lakefie
McNall
Morris
Nation
Owen S
Ontario
Raven i
Stinson
Toronto
Thorn (

CONC
Dartne
Hopkin
Ideal C
Mussen
Morris
Toronto
Vining

Beatty
Harris
Hopkin
Locom
Mussen
Peat &
Toronto

Amburs
Loigne
Steel C

CONTR
Bryans
Zarossi

Metalli
Pedlar

CR
Allis-CI
Beatty
Dartne
Hopkin
Mussen
Morris

Nay, A
Stinson

JOHN S. FIELDING

Mem. Soc. C. E. West Penn. '87
Mem. Engineer's Club, Toronto
CONSULTING ENGINEER

DAMS

Room 2, 15 Toronto Street, TORONTO, ONT.

Please mention this paper when corresponding with advertisers.

SAMSON CEMENT

MANUFACTURED BY

THE OWEN SOUND PORTLAND CEMENT COMPANY, LIMITED
Owen Sound, Ont.

Works at SHALLOW LAKE, ONT.

Write us for prices.

CLASSIFIED INDEX OF ADVERTISERS

ACCIDENT INSURANCE	Page	DRILLING CONTRACTORS	Page	PIPE (CONCRETE)	Page
Ontario Accident Insurance Co.	19	Harvey, J.	20	Dominion Concrete Co.	16
BLUE PRINTS		Peat & Sons, James.	14	PUMPS AND PUMPING MACHINERY	
Electric Blue Print Co.	7	ENGINEERS AND CONTRACTORS		Allis-Chalmers-Bullock	11
BLOWERS		British Columbia General Contract Co.	23	Canadian Buffalo Forge Co.	4
Buffalo Forge Co.	4	Canadian White Co.	8	Canadian Fairbanks Co.	20
BRIDGES (CONCRETE)		ENGINEERS (CIVIL)		Canada Foundry Co.	23
Steel Concrete Co.	15	Archibald, George H.	15	Drummond, McCall & Co.	14
BRIDGES (STEEL)		Chipman, Willis	17	Mussen & Co., W. H. C.	3
Canadian Bridge Co.	19	Connor, Clarke & Monds	17	McDougall Caledonian Iron Works Co., John	19
Canada Foundry Co.	23	Davidson, Shirley	21	PIPE (CAST IRON)	
Dominion Bridge Co.	15	Davis, Johnston	15	Canada Foundry Co.	23
Jenks & Dresser	16	Ferguson, C. J.	16	Gartshore-Thomson Pipe and Foundry Co.	9
Phoenix Bridge and Iron Works	15	Fielding, John S.	7, 13, 17	Gaudry & Co., L. H.	7
CEMENT		Galt, John	7	Montreal Pipe Foundry Co.	9
Alsen Portland Cement Co.	9	Jackson, John H.	17	ROAD MACHINERY	
Bremner, Alex.	15	Lea & Coffin	17	Cameron & Co., Hugh	16
Currie & Co., W. & F. P.	20	Leofred, A.	21	Climax Road Machine Co.	7
DeSola, C. I.	7	McConnell, Brian D.	13	Heaman, George	23
Gray & Bruce Portland Cement Co.	21	McDougall & McRae	7	Morrison & Co., T. A.	13
Hyde & Co., F.	22	Parke, Roderick J.	17	Sawyer & Massey Co.	8
Hanover Portland Cement Co.	19	Scott, Wm. Fry	21	ROPE	
Lakefield Portland Cement Co.	14	Simpson, T. T.	21	Allan, Whyte & Co.	21
McNally & Co., W.	7	ENGINEERS (MECHANICAL)		Dominion Wire Rope Co.	24
Morrison & Co., T. A.	20	Farmer, John T.	21	Greening Wire Co., B.	21
National Portland Cement Co.	18	Galt, John	7	SECURITY BONDS	
Owen Sound Portland Cement Co.	8	ENGINES		United States Fidelity & Guaranty Co.	21
Ontario Portland Cement Co.	16	Cameron & Co., Hugh	16	STEEL BARS (CORRUGATED)	
Raven Lake Portland Cement Co.	20	Sawyer & Massey Co.	6	Corrugated Steel Bar Co. of Canada	16
Stinson-Reeb Builders' Supply Co.	17	ELECTRICAL APPARATUS AND SUPPLIES		STRUCTURAL IRON AND STEEL	
Toronto Pottery Co.	22	Allis-Chalmers-Bullock	11	Canada Foundry Co.	23
Thorn Cement Co.	14	Drummond, McCall & Co.	14	Dominion Bridge Co.	15
CONCRETE MIXERS AND MACHINERY		Northern Electric & Mfg. Co.	14	Jenks & Dresser	16
Dartnell, E. F.	8	FIRE APPARATUS		Locomotive & Machine Co.	15
Hopkins & Co., F. H.	24	Cameron & Co., Hugh	16	McGregor & McIntyre	16
Ideal Concrete Machinery Co.	18	Meadows, George B., Toronto Wire, Iron & Brass Works Co.	9	Phoenix Bridge & Iron Works	15
Mussen & Co., W. H. C.	3	McGregor & McIntyre	8	STONE	
Morrison & Co., T. A.	20	Seagrave, W. E., Walkerville, Ont.	16	Crushed Stone, Limited	16
Toronto Pressed Steel Co.	7	HOISTING MACHINERY		Doolittle & Wilcox	21
Vining Bros. Mfg. Co.	5	Allis-Chalmers-Bullock	11	SHOVELS (STEAM)	
CONTRACTORS' PLANT		Beatty & Sons, M.	22	Allis-Chalmers-Bullock	11
Beatty & Sons, M.	22	Hood & Sons, Wm.	19	Beatty & Sons, M.	22
Harris Co., J. W.	12	Hopkins & Co., F. H.	24	Hopkins & Co., F. H.	24
Hopkins & Co., F. H.	24	Mussen & Co., W. H. C.	3	Locomotive & Machine Co.	15
Locomotive & Machine Co.	15	HYDRANTS		SEWER PIPE	
Mussen & Co., W. H. C.	3	Canada Foundry Co.	22	Bremner, Alex.	15
Peat & Sons, James	14	Canadian Fairbanks Co.	20	Canadian Sewer Pipe Co.	17
Toronto Pressed Steel Co.	7	Gartshore-Thomson Pipe & Foundry Co.	9	Dominion Concrete Co.	16
CONCRETE CONSTRUCTION		Kerr Engine Co.	8	Dominion Sewer Pipe Co.	14
Ambursen Hydraulic Construction Co.	7	Montreal Pipe Foundry Co.	9	Toronto Pottery Co.	22
Lognen, A. & E.	7	McDougall Co., R.	21	SHOVELS	
Steel Concrete Co.	15	LOCOMOTIVES AND RAILS		Canadian Shovel & Tool Co.	5
CONTRACTORS' EMPLOYMENT BUREAUS		Gartshore, John J.	19	Hopkins & Co., F. H.	24
Bryans & Co., E. E.	7	Locomotive & Machine Co.	15	TELEPHONE SUPPLIES	
Zarossi, Banco	15	Mussen & Co., W. H. C.	3	Northern Electric & Mfg. Co.	
CORRUGATED IRON		Sessenwein Bros.	7	TANKS AND STAND PIPES	
Metallic Roofing Co.	5	PILE DRIVING		Canada Foundry Co.	23
Pedlar People	22	Hood & Sons, Wm.	19	Ontario Wind Engine & Pump Co.	17
CRUSHERS (STONE AND ROCK)		Russell, John E.	19	VALVES	
Allis-Chalmers-Bullock	11	PAYING AND PAVING MATERIALS		Canada Foundry Co.	23
Beatty & Sons, M.	22	Brunet, Joseph	17	Canadian Fairbanks Co.	20
Dartnell, E. F.	8	Forest City Paving Co.	17	Gartshore-Thomson Pipe & Foundry Co.	9
Hopkins & Co., F. H.	8	Nash Road	20	Kerr Engine Co.	8
Mussen & Co., W. H. C.	3	Ontario Asphalt Block Co.	17	Montreal Pipe Foundry Co.	9
Morrison & Co., T. A.	20	Silica Barytic Stone Co. of Ontario	15	McDougall Co., R.	21
DEBENTURES		Warren Bituminous Paving Co.	7	PIPE (WOODEN)	
Nay, Anderson & Co.	22	PIPE (WOODEN)		Canadian Pipe Co.	9
Stimson & Co., G. A.	21	Canadian Pipe Co.	9	Pacific Coast Pipe Co.	20

should be protected from the direct rays of the sun in hot weather. They should not be used for some time after being made, but should be allowed to season for from four to six weeks.

The molds for manufacturing these tile may be obtained in various sizes, the more common being for tile ranging from 10 to 30 in. in diameter. The molds are such as will manufacture pipe 2½ ft. long. One set of bottom rings—those for forming the bell of the pipe—go with each set of molds, but it is advisable to have about three sets of bottom rings for each pair of cylinders, to permit the maximum number of pipe to be made in a day.

If the best results are to be obtained from the use of concrete tile culverts, the tile must be put in place with reasonable care, and Mr. Campbell's suggestions on this head read as follows: It is, in the first place, necessary that they shall be laid with a good fall on a regular grade to a free outlet, in such a way that water will not stand in them. Lay the tile with the spigot end down grade, and make the joints tight with cement mortar. If the joints are open, water will work along the outside of the culvert, and finally make a considerable channel, which will allow the culvert to get out of line and finally result in a cave-in. To prevent the water finding its way along the outside of the pipe, it is advisable to protect the ends with concrete, stone or brick head-walls.

Excavate a concave bed for the pipe, with depressions for the bell of the pipe to rest in, thus securing an even bearing, without which a heavy load passing over before the culvert has properly settled into place may burst the tile. Tile cannot be used in very shallow culverts, but must have a sufficient depth of earth over them to protect them from the direct pressure of heavy loads. The depth of covering necessarily increases with the size of the pipe. At least a foot of earth over the top is advisable in every case; but for culverts of 2 ft. in diameter or over, this should be increased at least 18 in. The earth should be well packed and rammed around the tile to secure a firm bearing, and light soils should not be used immediately over or around the culvert. A heavy clay, a firm gravel, or a compact sand will answer, but vegetable mould, water, sand and light loams are subject to washouts.

As to the outlet, the culvert should be set nearly flush with the surface of the ground. If set higher than the surface, the fall of water will wash out a depression, and in time will undermine the end of the culvert. A too rapid grade will have the same effect, and it is well to cobblepave an outlet where this undermining action is likely to occur.

Phone No.: PARKDALE 1809. Post Office and Telegraph Address: SWANS

THE DOMINION SEWER PIPE CO., LIMITED
SWANSEA, TORONTO, ONT.



MANUFACTURERS OF

- VITRIFIED SALT GLAZED - SEWER PIPES

Price Lists and Discounts on Application — In Sizes from 4 inches to 24 inches

Turbine Pumps and Electric Motors

For use in connection therewith; all of highest efficiency and best workmanship.

MADE BY

MATHER & PLATT, Ltd., Manchester, England.

Drummond, McCall & Co.,

CANADIAN AGENTS

MONTREAL



DRILLING CONTRACTORS

WATER, SALT, OIL AND GAS WELLS

to any depth from 100 to 3000 feet. Contracts taken in any part of Canada. Excellent references. Estimates, Geological Reports. Expert Drillers and Complete Drilling Rigs Furnished.

JAMES PEAT & SONS

Established 1865. PETROLEA, ONT.

Portland Cement

Monarch Brand



Highest quality—guaranteed to fulfill the requirements of specifications for Portland Cement approved of by the Canadian and American Societies of Civil Engineers.

Prompt shipments from mill or stock at Fort William and Port Arthur.

THE LAKEFIELD PORTLAND CEMENT CO., LIMITED
LAKEFIELD, ONT.



"Lehigh" Portland Cement

Capacity 20,000 Barrels Per Day.

The "Lehigh Portland Cement Company, Limited," are also now building a plant at Belleville, Ont., of 750,000 barrels annual capacity. Until this plant is completed all orders can be shipped from the United States. For prices, etc., address—

THORN CEMENT CO. - Buffalo, N. Y.

SALES AGENTS FOR CANADA

GEO. CONS

Municipal Reinforced

BAN
Italian
460 S

All kinds

DAVI

WATER WI

Wm. Mahlo
M. Can. Soc
Offi

ARTIFICI

SIDE
CORPORATI

The SING
0

WALTER M
General Manu

T

BRI

REI

Th
All parts
same. T
painting
bridges, :

ST

GEO. H. ARCHIBALD
CONSULTING CIVIL ENGINEER

820 Union Bank Bldg.
WINNIPEG, CAN.

Municipal Improvements.
Reinforced Concrete and Steel Construction

BANCO ZAROSSI

Italian Licensed Labor Contractor
460 St. James St., MONTREAL

All kinds of Italian Laborers furnished on short notice.

DAVIS & JOHNSTON
CIVIL ENGINEERS

WATER WORKS, SEWERAGE
AND SEWAGE DISPOSAL

Wm. Mahlon Davis, Herbert Johnston, C. E.
M. Can. Soc. C. E.
Offices: BERLIN and GALT

ARTIFICIAL STONE PAVEMENTS

SIDEWALKS A SPECIALTY

CORPORATIONS Will do well to consider our work and prices before letting contract.
The Silica Barytic Stone Company of Ontario, Limited.

WALTER MILLS General Manager. Head Office: INGERSOLL, ONT.

THE PHOENIX BRIDGE & IRON WORKS, LIMITED
MONTREAL
GENERAL STEEL CONTRACTORS

Large Stock I BEAMS, CHANNELS, ANGLES, TEES, ZEES and PLATES always on hand.

Dominion Bridge Co., Ltd.

P. O. Address, MONTREAL, P.Q.
Works at LACHINE LOCKS, P.Q.

STEEL BRIDGES

For Railways and Highways
Piers, Trestles, Water Towers
Tanks, Buildings, Roofs, Girders,
Beams and Columns . . .

Toronto Agent: GEO. E. EVANS,
38 Canada Life Bldg., TORONTO, ONT

PORTLAND CEMENT.



SEWER PIPES

FIRE BRICKS

FIRE CLAY

ALEX. BREMNER

50 Bleury Street, MONTREAL



The Locomotive and Machine Company
OF MONTREAL, LIMITED

NEW YORK OFFICE:
111 BROADWAY
N.Y.

Structural Steel

FOR ALL PURPOSES

WORKS:
LONG POINT
MONTREAL

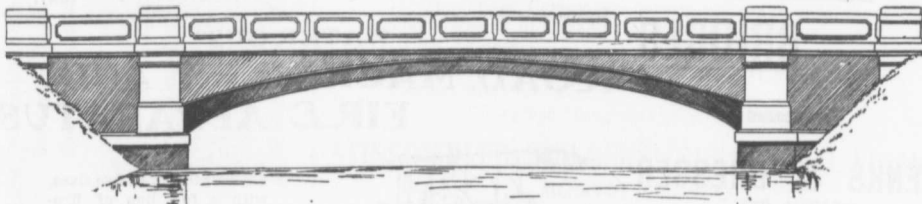
BRIDGES

NEW AND SECOND HAND CONTRACTORS' LOCOMOTIVES

STEAM SHOVELS

Principal Office: Imperial Bank Building, MONTREAL

REINFORCED CONCRETE BRIDGES



This cut shows ONE of SEVEN arch bridge spans which we are now completing at Ottawa, Ont. All parts including arches and railings are in concrete thoroughly reinforced with steel bars imbedded in same. This construction is very rigid under heaviest loads, and will resist any flood or ice flow. No painting or maintenance; they are there to stay as long as the native rock. Cost about same as for steel bridges, and superior beyond comparison. Plans and tenders promptly submitted.

STEEL CONCRETE CO., Limited
Merchants' Bank Building, MONTREAL

CEMENT ACTION.

In a paper recently read before the Society of Chemical Industry, Mr. Bertram Blount stated that much progress had been made towards ascertaining what took place when Portland cement was mixed with water, and that the chief results had been obtained synthetically and by means of the microscope. It was tolerably certain that three silicates of calcium existed and four aluminates, and recent research tended to prove that certain solid solutions of these compounds were rearranged during the act of setting. For the sake of clearness, the term "alites" had been employed for the solution of tricalcic aluminate in tri-calcic silicate, and "celites" were solid solutions of di-calcic aluminates in di-calcic silicates. These were the chief compounds involved in cement reaction, and much the most important matter was the hydration of the alites, which was now believed to follow somewhat on the lines of the setting of plaster of Paris.

On account of the heavy duty imposed upon asphalt exported from Veneuela, the industry has been practically driven out of business. Mines have been closed and valuable works and miles of railroads have been abandoned because of the small profits derived since the law went into effect. Perhaps that was intended by the lawmakers, but they will appreciate their mistake in time.

C. J. FENSOM, B. A. Sc.
CONSULTING ENGINEER
 Aberdeen Chambers - Toronto
 Machinery designed, supervised, inspected and contracted for.
 TESTS - REPORTS
 Electric Light Plants, Power Plants, Pumping Plants.

STEEL

HIGHWAY BRIDGES

JENKS & DRESSER
 SARNIA, ONT.

BUILDERS OF
STEEL HIGHWAY BRIDGES
STRUCTURAL STEEL WORK
CONCRETE ABUTMENTS

Crushed Stone, Limited
STONE of any Size and in any Quantity on hand for Sidewalks, Roadwork or Concrete Work

Works: **KIRKFIELD, ONT.** Head Office: **47 Yonge St. Arcade, TORONTO**
 Phone Main 4316
G. W. Essery, Manager.

Blue Lake Cement

MADE BY
THE ONTARIO PORTLAND CEMENT CO. LIMITED
 HEAD OFFICE: **BRANTFORD, ONT.** LONG DISTANCE 'PHONE 194

THE JOHNSON CORRUGATED STEEL BAR



FOR **REINFORCED CONCRETE**

Manufactured by

THE CORRUGATED STEEL BAR CO. OF CANADA, LIMITED
 Operating under Johnson Patent No. 91630 and by license of Sir Wm. Mather.
 Office: **Coristine Building, MONTREAL**

NOTICE TO CONTRACTORS

We carry in stock large quantities of well matured

Reinforced Concrete Pipe

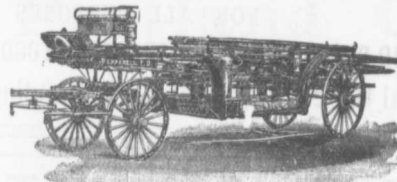
In 6, 8, 10, 12, 15, 18, 21, 24, 27, 30 and 36 inch; also an Egg shape Sewer Pipe 2 ft. x 3 ft.

This pipe is Frost Proof and practically indestructible.

THE DOMINION CONCRETE CO., LIMITED, KEMPTVILLE, ONT.

LIGHTNESS, STRENGTH AND ECONOMY

Seagrave Patent Trussed Ladders, Trussed Aerial, City Service and Village Hook and Ladder Trucks, Combination Hook and Ladder Trucks and Chemical Engines, Trussed Trucks and Hand Pumps, Combination Hose Wagons and Chemical Engines, Hose Wagons, Combination Hook and Ladder Trucks and Hose Wagons, Chemical Engines, Fire Extinguishers, Hose Reels, Patrol Wagons, Ambulances, Specialty Wagons, Patent Sleigh Runners, and other Modern Fire Fighting Tools.

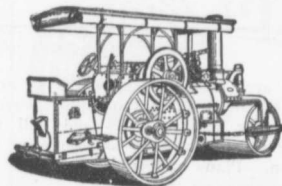


Prompt attention given all inquiries. All goods built to order.

Long Distance Phones 685 and 684 **W. E. SEAGRAVE, WALKERVILLE ONT.**

"WATEROUS"

ROAD MACHINERY AND FIRE APPARATUS



FIRE ENGINES in five sizes, with a full line of fire-fighting goods

We Rebuild other makes of Fire Engines with our patent Boiler.

BRANTFORD PITTS DOUBLE ENGINE STEAM ROAD ROLLER

IN THREE SIZES—10, 12 and 16 ton.
 CORRESPONDENCE SOLICITED.

HUGH CAMERON & CO., Selling Agents 75 Queen St. West, Manning Chambers, **TORONTO**

Nov
WI
 M. C
WATER
 Report
10
LE
 E
Waterw
Reinfor
Coris
ROD
 A. M. C
CONSI
 Elect
 Steas
 For
 Test.
 82-83 J
 Long Di
 Cable
 A. W. Cor
CONN
 Hydraul
 Lista
 Pum
 proof
 Mill I
 CE
 36 TORO
Pe
 Granite &
 to any
 Bul
 Quar
JOS. E
WATER
 For Corporations, Municipalities, Villages,
 Residences, Etc.
Wood
 Windm
ONTARIO
WINE

MUNICIPAL ENGINEERS, CONTRACTORS AND MATERIALS

WILLIS CHIPMAN

Hon. Grad. McGill University.
M. Can. Soc. C.E. M. Am. Soc. C.E.
Mem. Am. W.W. Ass'n.
**WATERWORKS, SEWERAGE WORKS, GAS
WORKS, ELECTRIC LIGHT AND
POWER PLANTS**
Reports, Surveys, Construction, Valuations
103 BAY STREET - TORONTO

**LEA & COFFIN
and H. S. FERGUSON
ENGINEERS**

Waterworks, Sewerage, Water Powers
Pulp and Paper Mills
Reinforced Concrete Structures of Every
Description.
Corlatine Building - MONTREAL

RODERICK J. PARKE

A.M. Can. Soc. C.E. A.M. Amer. Inst. E.E.
CONSULTING ELECTRICAL ENGINEER.

Electrical Light and Power.
Steam Plants, Gas Power Plants, Water
Power Plants.
Estimates, Tests, Reports, Valuations.

22-23 James Building - TORONTO, CAN.
Long Distance Telephones-Office and Residence
Cable Address "Rodparke" (W. U. Code.)

A. W. Connor, B.A., C.E. E. R. Clarke, B.A., Sc.
W. Mondy, B.A., Sc.

**CONNOR, CLARKE & MONDY
CONSULTING ENGINEERS**

Hydraulic, Municipal and Railway Work; Long
Distance Power Transmission; Machinery;
Pumps; Complete Industrial Plants; Fire-
proof Steel or Reinforced Concrete Office and
Mill Buildings; Bridges, Towers, etc.

CEMENT TESTING LABORATORY
36 TORONTO ST. TORONTO, ONT

Paving Granite

Granite Sets for Street Paving.—CURBING cut
to any shape ordered.—Fine Rich Colors for
Building and Monumental Purposes.
Quarries, St. Philippe d'Argenteuil, P.Q.

Address all communications to

JOS. BRUNET - COTE DES NEIGES, MONTREAL

WATER SUPPLY APPLIANCES

For Corporations, Municipalities, Villages,
Residences, Etc.
Sprinkler Systems a Speciality.



**Wood and Steel Tanks,
Steel Substructures**

Windmills, Pumps, Gasoline Engines,
Hydraulic Engines, Etc.

ONTARIO WIND ENGINE AND PUMP CO., LTD.

WINNIPEG TORONTO MONTREAL

John H. Jackson

CIVIL ENGINEER

WATER POWER, ELECTRIC RAIL-
WAYS, STRUCTURAL STEEL.
Niagara Falls, Canada

Associated with Charles H. Mitchell,
C. E., Hydraulic Engineer.

JOHN S. FIELDING

Mem. Soc. C. E., West Penn '87
Mem. Engineer's Club, Toronto
CONSULTING ENGINEER

Expert on Bridges and Machinery
Room 2, 15 Toronto Street, TORONTO, ONT

When corresponding with advertisers please
mention the CANADIAN CONTRACT RECORD

CEMENT WALKS

Built in 40 Towns and Cities with entire satis-
faction. Write us for information and price.

FOREST CITY PAVING COMPANY,
B. V. HOLE, MANAGER LONDON, ONT

THE ONTARIO ASPHALT BLOCK CO., L'T'D.

MANUFACTURERS OF
ASPHALT BLOCK PAVING

Information and samples furnished municipalities on application.

Main Office: WINDSOR, ONT. Works: WALKERVILLE, ONT.

THE CANADIAN SEWER PIPE CO.

MANUFACTURERS OF



FOR

Sewers, Culverts and Water Pipes

Inverts for Brick Sewers

WRITE FOR DISCOUNTS

ST. JOHNS, P.Q. HAMILTON, ONT. TORONTO, ONT

**"GIANT" AND "NORTHAMPTON"
PORTLAND CEMENT**

For Immediate Delivery

The above Cement we fully guarantee to fulfil the
requirements of Canadian and American Societies of
Civil Engineers.

Large stock always carried at Fort William, Port
Arthur and Duluth.

Telegraph, Telephone or write for prices.

STINSON-REEB BUILDERS' SUPPLY CO. Limited
MONTREAL, P. Q.

REGINALD LAWSON

WESTERN REPRESENTATIVE, UNION BANK BUILDING

Phone 3397 WINNIPEG, MAN.

For the Province of Saskatchewan:

REGINA STORAGE AND FORWARDING CO. — REGINA


Fifteen years ago Portland cement was almost entirely imported from Great Britain and the continent, but during that period the development of the manufacture in

Canada has been such that fears of over-production have arisen. This week an inquiry was received at the Ontario Bureau of Mines from Glasgow, Scotland, as to whether Port-

land cement can be obtained here. The price mentioned, however, of 30 shillings a ton, or about \$1.25 per barrel, is only about half the ruling price here.

One Grade "The Cement of Quality" The Highest

Tests of




NATIONAL Portland Cement

BY

The City Engineer of Toronto for 1903-4

Note the High Grade of National. Compare it with others.



Year.	No Samples Tested.	Soundness Fajji Test.	Specific Gravity	Residue in No. 100 Sieve	Setting Time in Minutes		Tensile Strength in pounds per square inch.									
					Initial	Final	Neat.					3 (Sand) to 1 (Cement)				
							1 dy.	7 d. s.	28 d. s.	3 mos.	1 yr.	1 dy.	7 d. s.	28 d. s.	3 mos.	1 yr.
1903	20	O.K.	3.135	2.1	162	345	307	701	783	827	*	74	214	299	367	*
1904	44	O.K.	3.150	2.0	132	342	300	744	848	914	938	86	262	354	401	427

* Tests for 1 year were not completed when records closed. 1905 report not yet issued.

THE BEST IS THE CHEAPEST

The National Portland Cement Company

Limited
Head Office and Mills: DURHAM, ONTARIO

Defy Competition

The Ideal Concrete Machine for the manufacture of Concrete Building Blocks makes it possible to profitably undersell all other building materials in all localities.

Ideal Blocks can be sold far below the cost of brick, lumber or natural stone. Excell them all in durability and fire and weather proof qualities. Adaptable to any possible architectural design.

IDEAL CONCRETE MACHINERY

Wonderfully simple in construction. No chains, springs or gears. Embody the only principle (face down) permitting the practical use of rich facing material with less expensive material in back of blocks. Adaptable to any size block within capacity.



The same machine makes blocks in countless ornamental designs and natural stone effects.

Write and learn how easily, rapidly and profitable **one man** can turn out Concrete Building Blocks with an Ideal Machine.

IDEAL CONCRETE MACHINERY CO.,

Joseph Street,
LONDON — CANADA

Novem

Th

Locomoti
Roofs, Ste
Structural

PI

On le
Pile d
Damm
trestle
ing.
Subst
of subn

We f
let of:
Div
ers
Ma
V
10 Rich

The Han

M
"SAUGI
Pric

PI

Two
Water
Work

The

The Canadian Bridge Co., Limited

WALKERVILLE, ONT.

MANUFACTURERS OF RAILWAY AND HIGHWAY BRIDGES

Locomotive Turn Tables,
Roofs, Steel Buildings and
Structural Iron Work of all descriptions

PILE . . . DRIVING

On land and water by steam.
Pile drivers or drop hammers.
Dams, wharves, bridge building,
trestle work and general contract-
ing.
Submarine diving and all kinds
of submarine work.



We have always a stock in hand to
let of:

Diving Outfits, Portable Boil-
ers, Hoisting and Pumping
Machinery, Etc.

WM. HOOD & SON
10 Richmond Sq. - MONTREAL

Established 1868
The Hanover Portland Cement Co., Ltd.
Hanover, Ontario
Manufacturers of the Celebrated
"SAUGEEN" Brand of PORTLAND CEMENT
Prices on application. Prompt shipments.

The Ontario Accident Insurance Co.

ACCIDENT, EMPLOYERS, ELEVATOR
AND GENERAL LIABILITY

104 St. Francois Xavier St. Montreal

RAILS For Contractors, Switches, Str- ders, &c. New and Second Hand. LOCOMOTIVES AND CARS

John J. Gartshore

83 Front St. West,
(Opposite Queen's Hotel.) TORONTO

ELECTRICITY

If you desire to keep posted on
the wonderful progress that is
taking place in the use of elec-
tricity for an almost endless var-
iety of purposes, you should sub-
scribe to the

Canadian Electrical News

and Engineering Journal

A 44 PAGE MONTHLY.
PRICE \$1 PER YEAR

Write for free sample copy to

The G. H. Mortimer Publishing Co.

LIMITED

Toronto Montreal Winnipeg Vancouver



PILE DRIVING

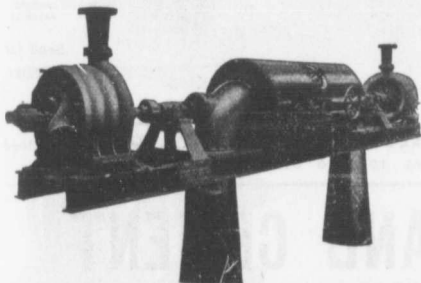
and Foundation Work.

By 5-ton Automatic Steam Pile Hammer,
Water Jet or Drop Hammers, Dock Build-
ing, Submarine Work and Dredging.

BUILDING MOVER AND WRECKER
General Contracting.

JNO. E. RUSSELL, - Toronto
Residence, 1010 Queen St. E. - Phone M 4656
Office and yard 107 Logan Ave - Phone M 2007

PUMPS FOR WATER WORKS



Two Worthington 3-Stage Turbine and McCormack
Water Wheels, built for Port Arthur, Ont., Water
Works, 1440 gal. per minute against 350 ft. head.

WATER WORKS SYSTEMS INSTALLED

Boilers, (Return Tube and Water
Tube,) Tanks, Penstocks,
Mill Machinery.

Builders in Canada of

"WORTHINGTON" TURBINE PUMPS

The John McDougall Caledonian Iron Works Co.,
Montreal, Limited.

FOUNDATION OF ROADS is the subject now under most earnest investigation by Engineers throughout the World poor foundations and good surfaces are found everywhere—equal, exact lived roads. **THERE IS NOT ONE FOUNDATION ON THE MARKET TODAY THAT PROPERLY SUPPORTS THE SURFACE.** The steel rail and the wooden cross tie is always the same, but the high way is a different thing; different surfaces and different foundations are required for different services. We have these different foundations; they DO properly support the surface, and, IN OTHER WAYS, they give a life to the surface that was never before even contemplated. **The Nash Road, Borough of Brooklyn, N. Y. City, U.S.A.**

Brian D. McConnell
CIVIL ENGINEER

*Water Works, Water Powers
Sewerage Systems, Railways*
Temple Building, MONTREAL
Phone Main 1473

T. A. MORRISON & CO.
204 St. James Street
MONTREAL

*Stone Crushers and Grinders
Steam Road Rollers
Fire Engines, Steam and Gasoline
Concrete and Macadam Stone*

J. HARVEY
CONTRACTOR
PETROLEA, ONT.

Driller of Oil, Gas, Salt or Artesian Wells. Deep Wells a Specialty.



Contracts taken in any part of Canada. Several years experience in Artesian Wells for Municipal Water Works. Estimates or geological information cheerfully furnished.

REFERENCES GIVEN

--- MACHINE BANDED WOOD STAVE WATER PIPE ---



High pressure pipe for Water Works Systems, irrigation power plants, etc. Sizes 2" to 24", half the cost of cast iron. Write for Catalogue.

PACIFIC COAST PIPE CO., LTD. Box 563, Vancouver, B. C.

W. & F. P. CURRIE & CO.
345 St. James St., Montreal
Importers of

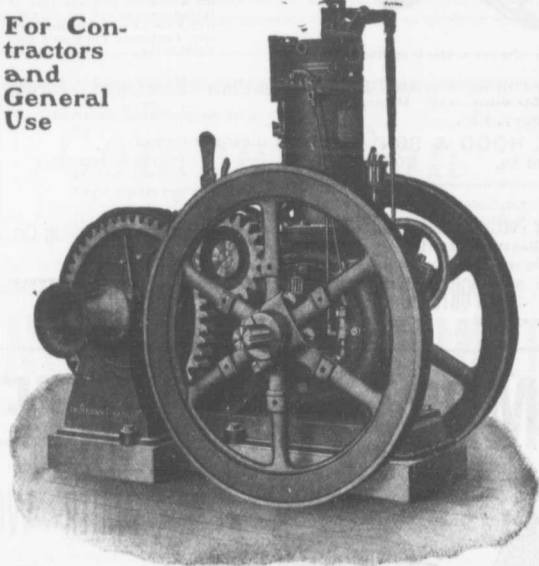
SEWER PIPES,
CULVERT PIPES, ETC.
VENT LININGS,
FLUE COVERS,
FIRE BRICKS,
FIRE CLAY,
WHITING.



PORTLAND CEMENTS,
HIGH GRADE ENGLISH
" " GERMAN
" " BELGIAN
PLASTER OF PARIS
BORAX,
CHINA CLAY.

GASOLENE HOISTS

For Contractors and General Use



Equipped with Variable Speed Device. Can be started or stopped in a moment.

Clean Safe Economical

Send for Circular

The Canadian Fairbanks Co., Limited
MONTREAL TORONTO WINNIPEG VANCOUVER

"RAVEN" PORTLAND CEMENT
— Unexcelled for Strength and Uniformity —
RAVEN LAKE PORTLAND CEMENT CO.
Limited

Long Distance Telephone: RAVENLAKE, ONT. Telegraph and Post Office Address: VICTORIA ROAD, ONT.

Nov
Shir
Contra
224
JOE
ME
HY
418 Cor
A.
Con.
WA
39 St.
Metropol
WIL
Consult
Construct
Bridges,
crete, Re
cations, E
for Inves
22
Main 132
T. T
CIVIL
Ele
Water
33 Ban
Municip
G.
24 and 26
THE GI
"HER"
Very s
walks, I
Highest c
address,
Th

Telephone: Main 5127.
Shirley Davidson, B. A. Sc.
 (McGill University)
 Contracting and Consulting Engineer
 Bank of Ottawa Building,
 224 St. James Street, MONTREAL

JOHN T. FARMER
 MECHANICAL and
 HYDRAULIC ENGINEER

418 Coristine Bldg. - MONTREAL

A. LEOPRED
 (Graduate of McGill)
 Consulting Engineer
WATERWORKS A SPECIALTY.
 39 St. John Street
 Metropolitan Ins. Bldg. **QUEBEC**
 Phone 545.

WILLIAM FRY SCOTT
 STRUCTURAL ENGINEER
 Consultation or Design: Buildings, Building
 Construction, Foundations, Walls, Roofs,
 Bridges, Masonry, Fireproof, Reinforced Con-
 crete, Reinforced Brick, Steel, Timber, Specifi-
 cations, Examinations, Valuations, and Reports
 for Investment.
 22 Toronto St., TORONTO, ONT.
 Main 1324 North 4206

T. T. SIMPSON
 CIVIL AND CONSULTING ENGINEER
 Electric, Hydraulic Plants,
 Waterworks, Sewerage, Bridges.
 33 Bank St. Chambers, OTTAWA.

Municipal and Other Bonds
 and Debentures Bought
 Highest Prices Paid.

G. A. STIMSON & CO.
 54 and 56 King Street West - TORONTO

**THE GREY AND BRUCE PORTLAND
 CEMENT COMPANY**
 of Shallow Lake, Limited.

Manufacturers of
 BRAND OF
"HERCULES" PORTLAND CEMENT
 Very finely ground. Unsurpassed for Side-
 walks, Floors and all work requiring the
 Highest Grade of Portland Cement. For prices
 address,
 A. D. CREABOR, Sec'y-Treas.
 Head Office, Owen Sound, Ont.

Contractors to H. M. Governments

ALLAN, WHYTE & CO.
 Clyde Patent Wire Rope Works, Rutherglen, Glasgow, Scotland
WIRE ROPES for Cableways, Aerial Ropeways, Elevators,
 Cranes, Derricks, Pile Driving, Drilling, etc.
 Large stocks carried by **DRUMMOND, McCALL & CO.,**
 MONTREAL AND TORONTO

Crushed Stone and Slag
 Best for Concrete. Any quantity shipped promptly.
 Get our prices. Long distance phone 286.
Doolittle & Wilcox, Limited, Dundas, Ont.

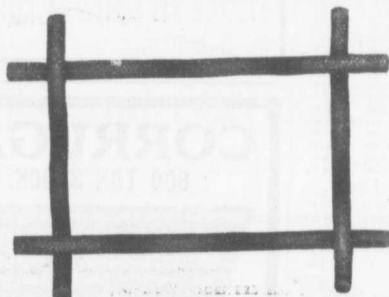
Advertise-
 ments
 in the
 CONTRACT
 RECORD
 bring
 results

**THE UNITED STATES FIDELITY
 AND
 GUARANTY
 Co.**



Acts as Sureties on
 Contractors' Bids or Tenders
 and on Final Bonds
 Rates Reasonable. See our Agent
 in your town or write direct to us
 Head Office for Canada:
 6 Colborne Street, Toronto
 A. E. KIRKPATRICK, MANAGER

WE WILL BOND YOU



**CONCRETE BONDING
 OF
 CRIMPED STEEL WIRE**
**THE STRONGEST,
 BEST AND CHEAPEST**
 If interested write for pamph-
 let and full particulars
**THE
 B. GREENING WIRE CO.
 LIMITED**
 HAMILTON, ONT.
 MONTREAL, QUE.

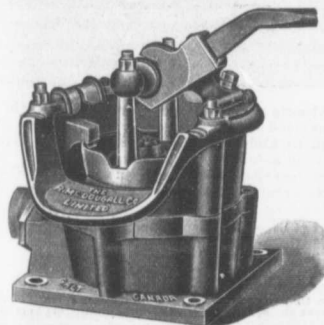
DIAPHRAGM PUMPS

For Contractors' Use.—This class of pump will handle about anything than is wet and their usefulness has been shown in thousands of cases. We try always to have a few on hand for Emergency orders, also extra Diaphragms and 3" Suct'o Hose and Fittings.

Try us once if in a hurry or even if you have lots of time.

We also Supply

Manhole Covers and Frames,
 Catch Basins, Pavement Plates, Etc.



The R. McDOUGALL COMPANY, Limited,
 GALT, CANADA.

Prices of Building Material

PRESSED BRICK, Per M.

TORONTO PRESSED BRICK AND TERRA COTTA WORK
F. O. B. Milton, Ont.

Red No. 1	\$13 00
" 2	11 50
" 3	10 00
Buff No. 1	17 00
" 2	13 00
" 3	15 00
Brown	30 00
Roman Red	35 00
" Buff	40 00
" Brown	8 00
Hard Building	8 00
" Sewer	7 00
" Backing	7 00

Moulded Ornamental from \$2.00 to \$5.00 per 100.
Terra Cotta string Courses and Frieze, from 50c. to \$2.00 per ft. run.
Roofing Tiles, \$20.00 per 1,000.

DON VALLEY BRICK WORKS.

Nos. 1, and 2, Red Pressed Bricks	.....
No. 1 Brown Pressed Brick	.....
Pompeian Red, Buff and Brown Pressed Bricks	.....
Ornamental Bricks of all kinds for Mantel purposes	.....
Enamelled Bricks of all Colors	.....
Porous Terra Cotta Fireproofing of all Descriptions	.....
Vitrified Street-Paving Bricks	.....
Semi-Vitrified Foundation Bricks	.....
Common Stock Red and Grey Bricks	.....
Sewer Bricks	.....
Stone or Macadamized Roadways	.....

Please write to head office, 34 Toronto St., Toronto, for catalogue and prices.

BEAMSVILLE BRICK AND TERRA COTTA CO.

F. O. B. Beamsville.

Red Peerless Facing	.....	\$16 00
" No. 1	.....	14 00
" No. 2	.....	12 00
" No. 3	.....	10 00
Brown Peerless Facing	.....	18 00
" No. 1	.....	20 00
Buff Peerless	.....	18 00
" No. 1	.....	15 00
" No. 2	.....	12 00
Moulded and Ornamental Brick from \$3 to \$10 per C	.....	30 c
Roman Red (Size 12 x 4 x 1 1/2 in.)	.....	30 c
" Buff	.....	35 00
" Brown	.....	18 00
Vitrified Paving Brick No. 1	.....	15 00
" No. 2	.....	8 00
Sewer	.....	22 00
Roofing Tile	.....	22 00

LUMBER

CAR OR CARGO LOTS, F. O. B. TORONTO.

Per M. Ft.

1 inch No. 1 Pine cuts and better	\$49.00 to \$51.00
1 1/2 to 2 inch No. 1 cuts and better	54.00 56.00
1 inch No. 3, pine cuts and better	38.00 40.00
1 1/2 to 2 inch No. 3 cuts and better	40.00 42.00
1 inch Pine Dressing and better shorts	24.00 26.00
1 x 4, 6 and 8 Common	20.00 21.00
1 x 10 and 12 Common	21.00 24.00
1 inch mill run sidings	21.00 22.00
1 inch mill run	21.00 22.00
1 x 10 and 12 mill culls	17.00 18.00
1 inch dead cull sidings	12.00 13.00
1 1/2 inch Flooring	27.00 28.00
Hemlock, 1 x 4 to 8 inch	17.00 18.00
2 x 4 to 8 inch, 2 to 16 feet	18.00 22.00
2 x 4 to 10 inch, 18 feet	20.00 19.00
1 1/2 inch No. 1 4 ft. Pine Lath	4.75 5.00
1 1/2 inch No. 2 4 ft. Lath	4.00 4.25
1 1/2 inch No. 1 4 ft. Hemlock Lath	3.50
XXXX Pine Shingles	30.0 3.25
XX Cedar Shingles	2.25 2.30
B.C. Shingles:	
XXX 6 butts to 2 inch	3.25
XXXX 6 to 2 1/2 inch	3.47
XXXXX 5 to 2 inch	3.60

HARDWOODS—PER M. FEET CAR LOTS.

Ash, white, 1sts and 2nds, 1 to 2 inch	\$13.00 to \$15.00
Ash, black, 1sts and 2nds, 1 to 1 1/2 inch	28.00 30.00
Birch, M. R. 1 1/2 inch to 2	23.00 25.00
Basswood, Common and better, 1 to 1 1/2 inch	21.00 24.00
Basswood, 1 1/2 to 2 inch	24.00 26.00
Elm, soft, mill run, 1 to 1 1/2 in.	23.00 24.00
Elm, rock, mill run, 1 to 1 1/2 in.	23.00 25.00
Maple, common and better, 1 to 1 1/2 inch	22.00 23.00
Oak, red plain, 1sts and 2nds, 2 to 4 inch	44.00 46.00
Oak, white, 1sts and 2nds, 1 to 1 1/2 inch	42.00 44.00
Oak, quartered, 1sts and 2nds	70.00 80.00

WESTERN DEBENTURES

We are always open to buy all classes of Manitoba, Saskatchewan and Alberta Debentures. We are the largest buyers of Western School Debentures in the Dominion of Canada.

NAY, ANDERSON & CO.

Successors to Rodina, Sask.
J. W. NAY

Lafarge (NON-STAINING) Cement

PORTLAND CEMENT
DRAIN PIPES
CULVERT PIPES
SEWER BOTTOMS

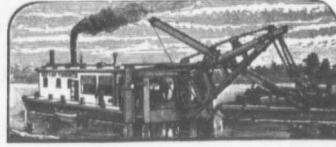
FIRE BRICKS
FIRE CLAY
SEWER BRICK

F. HYDE & CO.,

King, Queen and Wellington Sts. - MONTREAL

M. BEATTY & SONS, LIMITED

WELLAND, ONTARIO, CAN.



Dredges, Ditchers, Derricks, Steam Shovels,

Submarine Rock Drilling Machinery, Mine Hoists, Hoisting Engines, Centrifugal Pumps for Water and Sand, Stone Derricks, Clam Shell Buckets, Steel Skips, Coal and Concrete Tubs, and other Contractors' Machinery.

The Toronto Pottery Company, Ltd.

Toronto, Ontario

Manufacturers and Jobbers of

Contractors' Supplies

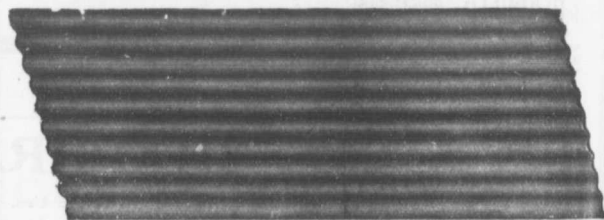
Fire Brick, Paving Brick,

Portland Cement, Sewer Pipe

Write for prices

CORRUGATED IRON

600 TON STOCK. PROMPT DELIVERY.



Pedlar's Corrugated Steel Sheets are manufactured on a 38,000 lb. Oh Press—one corrugation at a time—and are guaranteed straight and true to size Six Hundred Tons in Stock in Oshawa, Montreal, Toronto, Ottawa and London, in gauges varying from 28 to 18, both painted and galvanized. Made in 1", 2" or 2 1/2" corrugation—corrugation lengthwise or across the sheet. Sheets 3, 4, 5, 6, 8 or 10 feet long at no extra charge. Ask for Catalogue No. 14 R and give specifications for prices.

We are the largest makers of Sheet Metal under the British Flag.

ESTABLISHED 1861 — CAPITAL INVESTED, \$250,000.

THE PEDLAR PEOPLE

Montreal, Que. Ottawa, Ont. Toronto, Ont. Lond. n. Ont. Winnipeg, Man. Vancouver, B.C. 321-3 Craig St. W. 423 Sussex St. 11 Colborne St. 64 Dundas St. 76 Lombard St. 615 Fender St.

Write your nearest office. Head office and Works, OSHAWA, ONT.

"Keeping Everlastingly at it Brings Success."

District

The

Mul Br

tackpole Patent Imj Because no su It Sweeps Cle cision. It We less gearing reasonable ca



Head Office and Works,
Toronto, Ont.

CAST IRON PIPE FOR WATER OR GAS

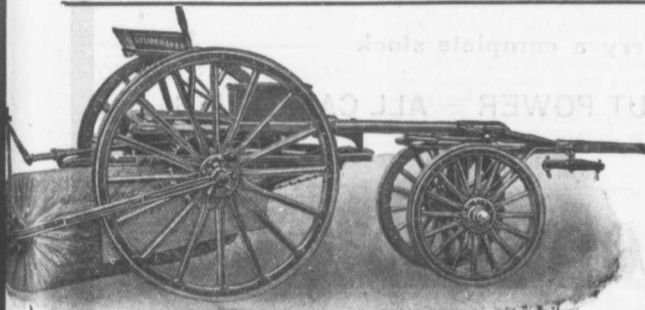
Special Castings,
Tees, Crosses, Flanges Pipe, Valves, Hydrants,
Stand Pipes, Valve Boxes, Drinking and Ornamental Fountains.

District Offices: MONTREAL, HALIFAX, OTTAWA, WINNIPEG, VANCOUVER, ROSSLAND

The **British Columbia General Contract Company, Limited**
Telegraphic Address: "Dredging" Fairfield Building, VANCOUVER, B. C.

ENGINEERS and CONTRACTORS

Municipal Works and Buildings Concrete Construction Railways
Bridges Harbor Works Dredging and Reclamation



Studebaker Sprinkler
(PATENT IMPROVED.)

Does not clog or get out of order. Greatest width of spray
Can be graded from driver's seat to any volume.

We also make an . . .
IMPROVED VERTICAL SPRAY
for Pavements

Geo. Herman, Mnfr., London, Ont.

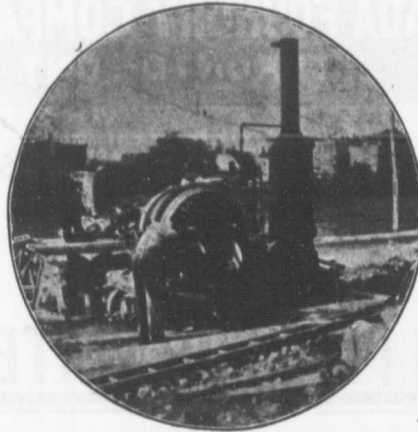
tackpole Patent Improved **Street Sweeping Machine** Is the Standard of Perfection

Because no sweeper so effectually does the work for which it is designed as "The Studebaker." It Sweeps Clean. No sweeper is constructed with the same degree of care and mechanical precision. It Wears Well. "The Studebaker" has the smallest number of working parts, and has less gearing than any other sweeper made. It is free from all unnecessary complications. With reasonable care, it does not get out of order. Send for complete descriptive catalogue.

1,000 lb. Oh
nd true to size
nto, Ottawa
vanized. Made
et. Sheets 2
ue No. 14 R

Flag.
do.

Vancouver, B.C.
615 Bender St.
WA, ONT.



Mr. Contractor:

A concern owning and operating Eighteen Concrete Mixers made a comparative test of a **Ransome** and a well-known mixer of the tilting type. Both machines were of the same batch capacity and were operating under precisely the same conditions for a period of two and one-half months. The following results were obtained:

The tilting mixer averaged 44 yards per day of 10 hours and required 16 men to operate, or a record of 2.7 yards per man. The **Ransome** mixer averaged 70 yards per day of 10 hours and required 13 men to operate, or a record of 5.3 yards per man. The **Ransome** mixer at the same time required 50 per cent. less power than the tilting mixer.

Does This Not Appeal to You?

THE RANSOME MIXER WILL MAKE THE SAME SAVING FOR YOU

We carry a complete stock

WITH OR WITHOUT POWER — ALL CAPACITIES

F. H. Hopkins & Co.

Successors to the Late James Cooper

MONTREAL

Dunn Bros., Winnipeg, Agents

Gorman & Clancy, Alberta Agents.