

# CANADIAN Contract Record

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

This Paper Reaches Every Week the Town and City Clerks, Town and City Engineers, County Clerks and County Engineers, Purchasers of Municipal Debentures and Leading Contractors in All Lines Throughout Canada

VOL. 17.

TORONTO, MONTREAL — OCTOBER 3, 1906 — WINNIPEG, VANCOUVER

No. 30

## THE CANADIAN CONTRACT RECORD PUBLISHED EVERY WEDNESDAY

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

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in advance.

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As assistant in Surveyor's or Civil Engineer's  
office. 5 years experience in municipal work,  
sewerage and waterworks. Good draughtsman.  
Excellent testimonials

H. GALE LREGG,  
797 King St., London, Ont.

## POSITION

vacant for a reliable clerk of works experienced  
in modern conditions of building operations  
and has no objection to leave city temporarily.  
Apply giving reference and stating salary, to  
BOX 87, CANADIAN CONTRACT RECORD,  
Toronto.

## Proposals For Concrete Bridge Piers

Sealed proposals addressed to Alderman J. G.  
Latimer, Chairman, Committee on Works, for  
erection of Concrete Piers and abutments for  
the support of a steel bridge over the Red River  
at the foot of Redwood avenue, Winnipeg, will  
be received at the office of the undersigned up  
to 2.30 p. m. on

**TUESDAY, OCTOBER 16, 1906.**

Plans, specifications and forms of proposal  
may be obtained at the office of H. N. Rut-  
tan, City Engineer, Winnipeg, Canada.

Each bid must be accompanied by an accepted  
cheque or draft payable to the order of the City  
Treasurer, or cash deposit for a sum equal to 5  
per cent of the total amount of the bid, which  
will be subject to forfeiture in case of failure on  
the part of the contractor to enter into a written  
contract with approved sureties if called upon  
to do so.

The City reserves the right to reject any or all  
tenders or to accept any bid which appears ad-  
vantageous to the City of Winnipeg.

C. J. BROWN,  
City Clerk.

City Clerk's Office, Winnipeg, September 13th,  
1906.

## Proposals For Bridge Superstructure

Sealed proposals addressed to Alderman J. G.  
Latimer, Chairman, Committee on Works, for  
erection of steel superstructure for Highway  
Bridge over the Red River at Redwood avenue,  
Winnipeg, will be received at the office of the  
undersigned up to 2.30 p. m. on

**TUESDAY, NOVEMBER 20, 1906.**

Plans, specifications and forms of proposal  
may be obtained at the office of Col. H. N. Rut-  
tan, City Engineer, Winnipeg, Canada.

Each bid must be accompanied by an accepted  
cheque or draft payable to the order of the City  
Treasurer, or cash deposit for a sum equal to 5  
per cent of the total amount of the bid, which  
will be subject to forfeiture in case of failure on  
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The City reserves the right to reject any or all  
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vantageous to the City of Winnipeg.

C. J. BROWN,  
City Clerk.

City Clerk's Office, Winnipeg, September 13th,  
1906.



## NOTICE TO CONTRACTORS LANSDOWNE AVENUE SUB- WAY SUBSTRUCTURE.

Tenders will be received by registered post  
only addressed to the Chairman of the Board  
of Control, City Hall, Toronto, Ontario, up to  
noon on

**TUESDAY, NOVEMBER 6TH, 1906.**

for the Lansdowne avenue subway substructure.  
Envelopes containing tenders must be plainly  
marked on the outside as to contents.

Drawings may be seen and specifications and  
forms of tender obtained at the office of the  
City Engineer, Toronto, Ontario, upon applica-  
tion.

The usual conditions relating to tendering as  
prescribed by city by-law must be strictly  
complied with.

The lowest or any tender not necessarily  
accepted.

E. COATSWORTH, (Mayor),  
Chairman Board of Control,  
City Hall, Toronto, September 17th, 1906.

Parker & Blender, painters,  
Hamilton, Ont., have assigned to  
C. S. Scott.

The Labatt Manufacturing Com-  
pany, London, Ont., dealers in  
plumbers' supplies, have opened a  
branch in Winnipeg, Man.



## Notice to Contractors

### Wallace Avenue Bridge-Super- structure and Stairways

Tenders will be received by registered post  
only, addressed to the Chairman of the Board  
of Control, City Hall, Toronto, Ontario, up to  
noon on **TUESDAY, OCTOBER 16TH, 1906,**  
for the superstructure and stairways of Wallace  
avenue bridge erected in place.

Envelopes containing tenders must be plainly  
marked on the outside as to contents.

Drawings may be seen and specifications and  
forms of tender obtained at the office of the  
City Engineer, Toronto, upon application.

The usual conditions relating to tendering as  
prescribed by city by-law must be strictly com-  
plied with.

The lowest or any tender not necessarily  
accepted.

EMERSON COATSWORTH, Mayor,  
Chairman Board of Control,  
City Hall, Toronto, September 28th, 1906.

## CONTRACTS OPEN.

**EGLINTON, ONT.**—The Public  
school building is to have an addition  
made to it this fall.

**PARIS, ONT.**—The Board of Edu-  
cation are discussing the proposed new  
North ward school.

**PORT COLBORNE, ONT.**—B.  
Parker is considering the erection of a  
new factory building.

**CARILLON, QUE.**—The Ottawa  
River Navigation Co., intend building a  
large hotel at this place.

**PORT ARTHUR, ONT.**—The C. N.  
R. have decided to make extensive im-  
provements to their docks.

**LEAMINGTON, ONT.**—By-law to  
loan \$30,000 to an automobile factory to  
locate here has been defeated.

**MOOSE JAW, SASK.**—P. A. Carle-  
ton, of Lowell, Mass., is considering the  
establishment of a tannery here.

**WESTVILLE, N. S.**—The Suther-  
land Rifle Sight Co., Ltd., intend erect-  
ing a new factory, cost \$20,000.

**CARON, SASK.**—W. Lowry, of  
Westboro, Ont., has purchased a site on  
Main street for a store building.

**LASHBURN, SASK.**—W. L. Barrie  
has taken tenders for the erection of a  
schoolhouse Tp. 45, Rge. 26, W 3 M.

**SARNIA, ONT.**—The Empire Salt  
Co. have decided to erect a new salt mill  
in connection with their present plant.

**SYDNEY MINES, N. S.**—Estimates have been submitted to the Town Council for a sewerage system, cost \$9,697.

**THAMESVILLE, ONT.**—A by-law to raise \$4,000 to build a new town hall for Orford township has been defeated.

**SUDBURY, ONT.**—A petition from the ratepayers will be presented to the Government for a new post office building.

**BELLINGHAM, ONT.**—H. R. Fullerton has taken tenders for erection of a schoolhouse in Parkinson township.

**STURGEON FALLS, ONT.**—The Salvation Army have purchased a lot on Front street on which to erect a barracks.

**QUAPPELLE, SASK.**—The members of the Roman Catholic congregation are considering the erection of a new church here.

**WESTMOUNT, QUE.**—The Royal Bank will erect a branch bank building, corner of Sherbrooke street and Victoria ave., cost \$25,000.

**BURNABY, ONT.**—John Hill, Reeve, will receive tenders up to October 6th for excavating on sections 1, 2, 3, 4, 6 and 7 of Braun ditch extension.

**BATTLEFORD, SASK.**—R. C. Laurie will receive tenders up to October 15th for the purchase of \$3,000 town debentures.

**HIGH RIVER, ALTA.**—W. E. G. Holmes is this week receiving tenders for the purchase of \$5,000, 5 per cent. debentures.

**MOOSOMIN, SASK.**—By-laws have been carried to raise \$32,000 for waterworks and drainage and \$5,000 for the town hall.

**MONTMORENCY, QUE.**—The Dominion Textile Co. have decided to erect a large building in connection with their mills here.

**SHERBROOKE, QUE.**—The plans for the new Sacred Heart Hospital have been accepted and the work of construction will soon begin.

**BRANDON, MAN.**—W. Walker has taken tenders for the erection of the new building for the Collegiate Institute. W. A. Elliott, architect.

**BOUCK'S HILL, ONT.**—Geo. Lane, township clerk, will receive tenders up to October 10th for purchase of \$4,651.89 4½ per cent. debentures.

**OKAVILLE, ONT.**—Preparations for the installation of the waterworks and sewer system here are being carried forward by the Town Council.

**WESTBOROUGH, ONT.**—A. G. Dawson will receive tenders up to October 17th for the purchase of \$8,022.20 public school debentures.

**NORTH TORONTO, ONT.**—It is reported that the Stark Telephone Light & Power Co., are considering the establishment of a sub-station here.

**PAISLEY, ONT.**—The Town Council gives notice of its intention to construct granolithic sidewalks on Alma, George, Queen, Mill and Victoria streets.

**FERGUS, ONT.**—A by-law will be voted on October 11th to loan \$7,164.90 to G. T. R., to aid in constructing a branch to James Gow's stone quarry.

**SELKIRK, MAN.**—The Town Council gives notice of its intention to construct sewer on Superior avenue from Sophia to Eveline street, cost \$4,174.

**OAK RIVER, MAN.**—E. G. Brassey will receive tenders up to October 5th for installing a heating and ventilating system in the new public school building.

**NORTH BAY, ONT.**—Tenders will be received at the Department of Public Works, Toronto, up to October 13th for erection of the new Normal school building.

**ST. GEORGE, N. B.**—The Public Works Department are considering the erection of a new bridge to replace the one which spans the Magaguadavic river.

**ST. CATHARINES, ONT.**—D. O'Conner and W. A. Maus, of Peterboro, have been looking for a site here on which to locate a roller steel plate factory.

**CHATHAM, ONT.**—A. M. Piper, architect, will receive tenders up to October 4th for various trades required for erection of an addition to the General Hospital.

**SUMAS, B. C.**—The ratepayers have decided in favor of the construction of the dyke from Sumas mountain to Chilliwack mountain for reclamation of the lake bottom.

**HASTINGS, ONT.**—A by-law has been carried to give a bonus of \$5,000 and ten years exemption from taxation to the Peterboro Boiler & Radiator Co. to locate here.

**LONDON, ONT.**—The following building permits were issued: E. Fairbairn addition to residence on Picadilly street; L. J. O'Dell, brick residence, Elias street.

**HEADINGLY, MAN.**—Thomas Buchanan will receive tenders up to October 5th for erection of a four-roomed frame school house. Plans with F. R. Evans, architect, Winnipeg.

**WATERLOO, QUE.**—R. F. Shaw will receive tenders up to October 31st for construction and supply of material for a new Academy building. Plans with Hutchison & Wood, architects, Montreal.

**HAMILTON, ONT.**—The Sewers Committee recommend the expenditure of \$13,000 on grading the mountain drain and putting in cement walls.—The Canadian Bearings Limited intend building a large factory here.

**WELLAND, ONT.**—H. A. Rose is preparing to erect a large residence building on North Main street. T. L. Nichols, architect.—The same architect is preparing plans for additions to the store building of Goodwin & Ross.

**CALGARY, ALTA.**—Gordon McKay & Co., Toronto, have been looking for a site on which to establish a branch of their wholesale drygoods business.—The Alberta Biscuit Co. intend establishing a plant here, cost \$35,000.

**HOPEWELL CAPE, N. B.**—C. H. LaBillois, Department of Public Works, Fredericton, will receive tenders up to October 22nd for building Mill Creek Mouth bridge. Plans at the Department, with Postmaster here, with James Ryan, Moncton, and Leonard Martin, Alma.

**ARCOLA, SASK.**—J. S. Bush will receive tenders up to December 1st for the purchase of \$30,000 waterworks debentures and \$5,000 town hall debentures, interest at 5½ per cent.—J. McEwen has purchased a site, corner Prairie avenue and Manor street for a residence.

**VICTORIA, B. C.**—W. J. Dowler will receive tenders up to October 22nd for the purchase of \$10,726.32 local improvement debentures.—A by-law will be voted on October 4th to raise \$200,000 for water works.—A. M. Muir, architect, has taken tenders for erection of a brick business building.

**OWEN SOUND, ONT.**—F. Gelinas, Department of Public Works, Ottawa, will receive tenders up to October 27th for construction of a pile and concrete reversion wall here. Plans at the Department, with Postmaster here, and at office of J. G. Sing, Resident Engineer, Confederation Life Building, Toronto.

**GODERICH, ONT.**—F. Gelinas, Department of Public Works, Ottawa, will receive tenders up to October 20th

for the completion of breakwater here. Plans with J. G. Sing, resident engineer, Confederation Life Building, Toronto; H. J. Lamb, London; at the Department and with the Postmaster of this place.

**PETERBORO, ONT.**—A new set of plans for the Collegiate Institute building have been prepared by John Belcher, architect, cost \$61,000.—The plans for the new Normal school building have been completed and tenders for its construction will be received up to October 13th at the Department of Public Works, Toronto.

**STRATFORD, ONT.**—William Lawrence, City Treasurer, will receive tenders up to October 4th for the purchase of the following debentures: \$64,588, 15 year; \$48,976, 20 year and \$18,000, 30 year.—H. F. McNaughten, Department of Public Works, Toronto, will receive tenders up to October 13th for the erection of the new Normal school building here.

**EDMONTON, ALTA.**—K. A. McLeod is preparing for the erection of an opera house, corner McDougall and Rice streets.—The plans of H. Magoon, architect, for the new Y. M. C. A. building have been accepted and tenders for its construction will soon be called.—J. A. O'Connor is considering the erection of a new theatre, corner Jasper and Third streets.—T. H. Watson will erect a residence on River street, cost \$1,800.

**OTTAWA, ONT.**—Plans for the new wing of the Parliament buildings are nearing completion, and tenders for its construction will soon be called.—The owners of the Gilmour Hotel, which was recently destroyed by fire, are planning to rebuild it on a larger scale.—N. J. Ker, City Engineer, will receive tenders up to October 10th for supply of sleighs for the scavenger carts.—The new Bank of Ottawa building, corner Bank and Gloucester streets, will soon be begun, three-story building, 35 x 72 feet, classic style. Northwood & Noffke, architects.

**MONTREAL, QUE.**—The First Baptist church have decided to purchase property corner of Sherbrooke street and Union avenue for the location of their new church, on which work will soon begin.—The Bank of Montreal are planning to build a new branch up town for the use of ladies.—The Drainage Canal Co. will seek incorporation to construct a canal or system of canals from the Richelieu river to the Montreal river.—The Water Committee have been given permission to appoint a commission to report on a pure water supply for the city.—L. O. David, City Clerk, will receive tenders up to October 9th for a centrifugal electric sewage pump.—The new jail will probably be located at Black river, for which plans will soon be prepared.

**WINNIPEG, MAN.**—D. R. Dingwall has purchased a site, corner Portage avenue and Carlton streets on which he will erect a block.—John McKae has sold property on Stanley street on which it is expected a large warehouse will be erected.—The School Board are considering the erection of a new Collegiate Institute building.—The congregation of St. John's Methodist church intend enlarging their building.—J. H. G. Russell, architect, has taken tenders for the erection of a brick addition to the Children's Home on River avenue, also for a brick addition to the Children's Aid Shelter on Mayfair avenue.—The Canada Flour Exporting Co., is being formed and intend erecting a warehouse in this city.—The City Council gives notice of its intention to construct asphalt pavements with sewer connections on Selkirk avenue from Andrews to Sinclair street, cost \$55,155 and on Sargent avenue from

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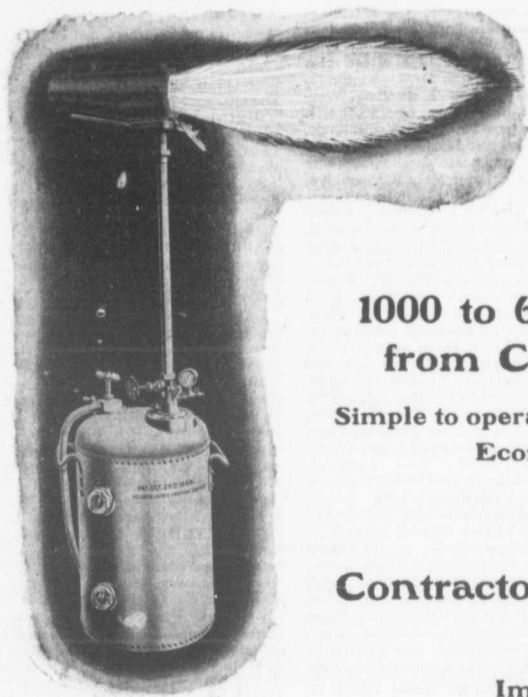
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# "BUCKEYE"

# LIGHTS

**1000 to 6000 Candle Power  
from Common Kerosene**

**Simple to operate**

**Economical in use**

**Unaffected by wind or cold**

**Contractors' Acetylene Lights  
100 c. p.**

**Immediate Shipment**

**Blacksmiths' and Rivet Forges  
Belted or Direct Connected**



**Write for Prices**

# **W.H.C. MUSSEN & CO.**

**Railway, Mining and Contractors' Supplies  
MONTREAL**

Maryland to Arlington street, cost \$38,551.45.

**VANCOUVER, B.C.**—The Salvation Army have purchased the old Windsor Hotel property, corner Gore avenue and Hastings street which will be enlarged and remodelled for their use. They have also purchased a lot, corner Eighth avenue and Birch street and the building thereon will be remodelled for a Rescue Home.—The Trustee Board of Wesley Methodist church have purchased a site, corner Haro and Bute streets for a parsonage.—The Bank of Montreal contemplate enlarging their present premises at an early date.—The Hall Elevator & Grain Co., will begin the erection of a flour mill this fall.—Plans have been prepared for a three-story block on Cordova street for the Thompson Stationery Co., cost \$15,000.—Building permits have been granted as follows: Addition to Kings Hotel, Carrall street cost \$5,000; J. C. Hawkins, residence on Victoria drive, cost \$2,000; new Isolation hospital and other buildings for General hospital; Twelfth avenue, cost \$30,000; A. M. Sharpe, residence, Thurlow street, cost \$1,500; C. F. Perry, three residences, Columbia street, cost \$6,000; T. Bayley, residence Eaton street, cost \$1,000; G. R. Carson, residence, Eighth avenue, cost \$1,700.

**TORONTO, ONT.**—The Board of Control will receive tenders up to November 6th for building the Lansdowne avenue subway substructure. Specifications at office of City Engineer.—Tenders are invited at 233 McCaul street for all trades and material for four solid brick houses.—Tenders are wanted for brick and stone work on a pair of houses, apply corner of Albany and Baiton avenue.—The W. C. T. U. intend replacing the Girls' Home on Elm street by a larger building.—H. L. Hime & Co., real estate dealers, have sold property on Spadina crescent where four houses will be erected.—The Board of Directors of Toronto University, have decided on a site, corner Hoskin avenue and Devonshire place for the men's residence.—The Polish Iron Works are contemplating building an extension to their works at foot of Frederic street.—Plans have been prepared for a new Horticultural building at the Exhibition grounds, cost \$70,000.—F. W. Stair, Manager of the Star theatre, has purchased property on Temperance street adjoining that building on which an addition will be built. Building corner of Queen and Bond will not be proceeded with.—The Kindel Bed & Mattress Co. have secured property on Sherbourne street below King on which they will erect a large factory.—The Board of Control favor changing South Parkdale station from its present site to Sunnyside and will confer with the G. T. R. on the matter.—A four story brick building for women of the Belmont Home will be erected on Belmont street, cost \$45,000.—City Engineer Rust has recommended the following asphalt pavements:—Wellington street, from Bay to York, \$6,005; Halton street, from Dundas to Shaw, \$3,754; St. Vincent, from Grenville to St. Joseph, \$9,292; Ontario street, from Carlton to Howard, \$13,470; St. George street from College to Bloor, \$18,136; Jordan street, from King to Wellington, \$2,158.—H. F. McNaughton, Department of Public Works, Parliament Buildings, will receive tenders up to October 13th for the erection of Normal school buildings at Peterboro, Stratford and North Bay.—The Board of control will receive tenders up to October 16th for construction of superstructure and stairways of Wallace avenue bridge. Plans with City Engineer.—Tenders will be received at the same office up to October 16th for laying and jointing of pipes, valves, hydrants and special castings for

high pressure fire service.—An application will be made to the Government for permission to issue debentures for the new Yonge street bridge.—Clarke & Clark are preparing to erect a new tannery on Carlaw avenue, cost \$75,000.—Building permits have been issued as follows: B. H. Morehouse, 2-story brick veneer dwelling, Hamilton street, near Gerrard, cost \$1,500; Dr. D. K. Smith, 2-story and attic brick dwelling, Well-lesley street, near Yonge, cost \$8,000; J. J. Downey, pair 2-story brick dwellings, Lynd avenue, cost \$4,000; E. M. Crocker, 2-story roughcast dwelling, Munro street, cost \$1,500; Mrs. E. Tamblin, 2-story frame dwelling, Kenilworth avenue, cost \$2,500; E. Broome, 2-story brick dwelling, Prince Arthur avenue, cost \$6,500, A. S. Ault, 2-story brick dwelling, corner Bedford road and Prince Arthur avenue, cost \$8,500; J. J. Walsh, pair 2½-story brick dwellings, 89-91 Beatty avenue, cost \$7,000; S. Prest, four 2-story brick dwellings Sinclair avenue, cost \$8,400; H. S. Mara, five 2-story brick dwellings, Marlborough avenue, cost \$10,000; Andrew Hamilton, 1-story and attic brick dwelling, 488 St. Clarens avenue, cost \$1,800; E. Taylor, 2-story and attic brick dwelling, Leuty avenue, near Lee, cost \$3,000; W. H. Marks, pair 2-story brick dwellings, Margueretta street, near Wallace avenue, cost \$4,000; Edward Wheler, 2-story and attic brick dwelling, 277 Crawford street, cost \$3,500; Samuel Trees Co., 4-story brick warehouse, 42 Wellington street east, cost \$6,000; King Bros., three 2-story roughcast dwellings, brick fronts, Hamburg avenue, near Bloor street, cost \$5,000; Gray & Son, three 2-story brick dwellings, College street, near Sorauren avenue, cost \$5,500; G. Skeefington, 2-story roughcast dwelling, 550 Clinton street, \$1,500; Wilton C. Eddis, 5-story and attic brick dwelling, Binscarth road, cost \$7,500; Evangelia Settlement, 2-story brick club, corner Queen and River streets, cost \$13,000; W. J. Adare, three 2-story brick and roughcast dwellings, Thorne street, cost \$3,500; Gray & Son, three 2-story brick dwellings, Geoffrey street, cost \$5,500; A. Blackwell, pair 2-story and attic brick and roughcast stores and dwellings, corner St. Clarens avenue and Lappin street, cost \$2,800; Miller Cartage Co., nine 2½-story dwellings, Dupont street, cost \$14,000; J. Turner, 2-story brick veneer store and dwelling, Danforth avenue, near Logan, cost \$2,000; Aged Women's Home, 3½-story brick building, Belmont street, cost \$50,000; H. J. & E. R. Reynolds, four 2½-story brick dwellings, Dundonald street, cost \$18,000; W. D. Hutson, 2-story brick and roughcast dwelling, corner Symmington avenue and Paton road, cost \$2,000; G. G. Pearce, pair 2½-story brick dwellings, Geoffrey street, cost \$5,000.

#### CONTRACTS AWARDED.

**NELSON, B. C.**—Erection of foundry building: Mr. Burns, contractor.

**STRATHCONA, ALTA.**—\$15,000 debentures: National Trust Co., purchasers.

**MAIDSTONE, SASK.**—Erection of new school building: U. Payne, contractor.

**MIDALE, ONT.**—New residence for W. J. McKay: Mackenzie & Provost, contractors.

**REGINA, SASK.**—\$180,000 4½ per cent. debentures: Nay, Anderson & Co., purchasers.

**ALMONTE, ONT.**—New building for the Bank of Montreal: Mr. Byers, Montreal, contractor.

**PETERBORO, ONT.**—\$14,000 4 per cent. debentures: Wood, Gundy & Co., purchasers, Toronto.

**ORANGEVILLE, ONT.**—Construc-

ting new Carnegie Library building: Jas. Jerrett & Son, Alliston, contractors.

**PORT ARTHUR, ONT.**—Heating system in Presbyterian church: James Smart Manufacturing Co., contractors.

**MERRICKVILLE, ONT.**—Heating system in public school building: James Smart Manufacturing Co., contractors.

**PHOENIX, B. C.**—Erection of new Post Office and Custom House: James Thompson, contractor, cost about \$3,500.

**BIRCH HILLS, SASK.**—Erection of Presbyterian church: A. E. Wilson.—Erection of Methodist church: James Walch, contractor.

**ST. MARTINE, QUE.**—The James Smart Manufacturing Co., Brockville, Ont., have secured the contract for heating system of the new town hall.

**APPLEBY, ONT.**—Installation of Kelsey system of warming and ventilating of Methodist church: James Smart Manufacturing Co., Brockville, contractors.

**BARRIE, ONT.**—Construction of steel bridge with concrete abutments between Simcoe and Dufferin counties: Jenks & Dresser, Sarnia, contractors, cost \$2,525.

**MONTREAL, QUE.**—New building on Alexander street for the Southam Co.: Hennibique Construction Co., of New York, contractors. D.K. Brown, architect.

**WINNIPEG, MAN.**—Clearing right-of-way for G.N.R. into the city: Neil & Moody, contractors.—Building of septic tank at new quarantine hospital: Dobson & Jackson, contractors, cost \$1,325.

**GRAVENHURST, ONT.**—New public works construction: Electrical apparatus, Allis-Chalmers-Bullock, \$8,850; water wheels, Jencks Machine Co., \$3,204; steel flume, Canada Foundry Co., \$6,600.

**VANCOUVER, B. C.**—Moore & Whittington, contractors have been awarded contracts to build a 10-roomed house for Mrs. Hartnell, Yates street; a residence for Mr. Mathieson, Oak Bay avenue, and a country residence for Mr. G. McGregor, on Quadra street.

**TORONTO, ONT.**—The Board of Control has awarded the following contracts for the new freight warehouse to be located on the west side of block "D," Harbour square: Piling, John E. Russell, \$3,003.10; concrete piers, Peter Arnot, \$525; carpenter work, George Henry, \$17,984; slating and galvanized iron, G. M. Bryan, \$3,408; plumbing, Fred Armstrong, \$251; painting and glazing, F. E. Phillips, \$775; total, \$25,946.10.

#### FIRES.

Timms Bros., Bolton Bros., business places and other building, Almonte, Ont., loss \$125,000.—Warehouse, etc. of the Canadian Oil Co., Strachan avenue, Toronto, damaged to extent of \$100,000.—City Photo Studio, Peterboro, loss \$30,000.—W. J. Burleigh's livery stable, S. Yoeran's livery stable and other property, Port Colborne, Ont., loss \$12,000.—D. Beauvais, bakery and other buildings, at St. Cesaire, Que., loss \$5,000.—Cornwall House, Bank of Ottawa and other buildings, Carp, Ont., loss \$6,000.—Presbyterian manse, Omeme, Ont., damage \$1,500.—Wood-working factory and ware rooms of E. J. Silliker & Co., Amherst, N.S., totally destroyed, loss \$40,000.—Seyvern Hotel, W. H. Miller and J. H. Jackson's stores and other buildings at Severn, Ont., loss \$22,500.—Eclipse Cheese factory near Foxborough, Ont., totally destroyed.—J. B. Tardiff's foundry, Plessisville, loss \$15,000.—Eight houses at St. Louis de Mile End, Que., loss \$100,000.—Centenary Methodist church Sunday school building St. John, N. B., damage \$20,000.—Strathcona Hotel, Emerson, Man., loss \$30,000.—Boyce's carriage warehouse, Rose avenue, Winnipeg, damage \$28,000.—Residence of Mrs. F. Simpson, Edrans, Man., completely destroyed.—Residence of Joseph Tern, Water street, St. Mary's, loss \$3,000.

**SPLINTERED TIMBER PILES.**

During the formation of the foundations for the Naval Engineering Building at the Massachusetts Institute of Technology, some three hundred timber piles were driven. The piles were of spruce, and measured 28 ft. long by 6 in. diameter at the point and from 9 in. to 12 in. at the top, and were driven to refusal by a 2,500-lb. monkey falling from the height of 15 ft. No difficulty was experienced in driving the piles, and no evidence was presented suggesting injury until after the building had been erected. Then excavations revealed the fact that several of the piles were seriously splintered and crippled, some of them being literally split up into matchwood. Although the case here mentioned is probably of unusual character, it may easily recur in soil containing boulders a short distance below the surface. The fact that no indication of injury is likely to be given is one that does not tend to increase confidence in timber piling, and distinctly suggests the advisability of adopting reinforced concrete piles sunk in such manner as to avoid any risk of damage.

**LIFE OF WATER PIPES PROLONGED.**

A paper insulation for cold water pipes has been found to greatly prolong the life of the pipes in many instances. Where the temperature of the water flowing through the

pipes is comparatively low, a condensation is caused by the warm air coming in contact with the metal.

In some instances water collecting constantly at the same point is the cause of a weakening at this spot, and the pipe is found to be useless after a rather short career of use.

This collection of moisture has been frequently laid to leakage, but the remedy is found in a newly devised water pipe which has a covering of some material, either paper or asbestos. Paper answers all purposes, but asbestos is more durable.

some distance and made investigations.

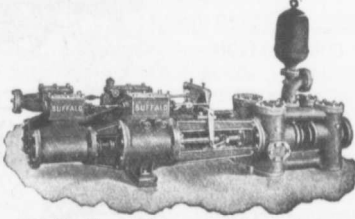
A Reinforced-Concrete Conduit, with an interior diameter of 12.5 ft. and operating under a water pressure of 92 ft., has been placed in service in an irrigation system in the Province of Huesca, Spain. The conduit is 3,330 ft. long and is in duplicate. The two pipes are estimated to supply nearly 10,000 gallons of water a second to a canal that will furnish water to irrigate 261,820 acres. They are built as inverted syphons across two valleys in lieu of an elevated aqueduct.

Mr. Willis Chipman C.E., Toronto, has been engaged by the town of Portage la Prairie, Man., to make investigation as to the water possibilities of the Assiniboine river, and for some days he has been at work in it. Mr. Chipman a short time ago went up the river

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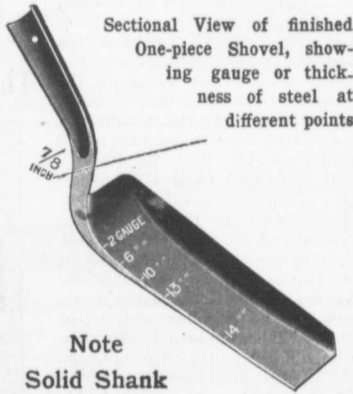


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 \$28,000.—  
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 —Residence  
 , St. Mary's,

**TEST OF CONCRETE.**

A large warehouse for a hardware concern in the city of St. Paul, Minn., is being erected of reinforced concrete, and with a view to determining the merits of the work a test on a floor section about 6½ feet wide by 16 feet long was recently made. The initial test was of 43 tons of pig iron after the section had been in about 90 days, says Construction News. Four days later the load was increased to 78 tons, amounting to a dead weight of 1,500 pounds pressure to the square foot. The building is to carry a stock of hardware, and is designed to carry a weight of 500 pounds per square foot on the lower floors and 300 pounds on the upper floors. This test is on one of the lower floors and is therefore a load of three times the weight which it is designed to carry.

The deflection under the heaviest weight was practically imperceptible. Two stakes, nailed securely and set firmly in the centre of the loaded section, were marked squarely across with a pencil. The deflection was not the width of a black pencil mark.

**ARCHITECTS' COMPETITION.**

All Canadian architects, according to the decision of the government, will be permitted to compete with plans for the new departmental block to be erected on Sussex street and Mackenzie avenue, Ottawa. Fifteen thousand dollars will be given in four prizes of eight, four, two and one thousand dollars. The competition will close on February 15, 1907, when the plans must be in the hands of the Minister of Public Works.

The board of assessors to decide upon the merits of the various sets of plans will be composed of Edmund Burke, president of the Architects' Association of Ontario; Mr. Chausse, president of the Quebec Architects' Association, and David Ewart, chief architect of the Department of Public Works.

The arrangements are that each competitor submits his name and design to the minister in a sealed envelope, the department providing him with a copy of the conditions and details as to the site. The board of assessors will know the competitors only by numbers, which are to be placed upon the designs before they leave the custody of the minister.

It is intended to have two buildings of five stories each, to be fire-proof, with an interior construction of steel and cement. One of these buildings will house the Department of Justice, Railway Commission, Supreme and Exchequer Courts, and will be provided with a free library. It has not been decided as to who will occupy the other building.

The plans must contain details in relation to the position of the buildings upon the sites, the laying out of the roads and avenues and the

connecting of Parliament Hill with Major's Hill Park by an ornamental bridge over the Rideau canal. The buildings are to have a floor space of 225,000 feet, which is 12,000 feet more than is contained in the eastern, western and Langevin blocks. The space provided at present in buildings rented by the government is 186,131 superficial feet.

The new structures are to be fire-proof in character, the materials composing the interior to be of steel and cement. The competitive designs will be limited to sketches in ink, and no brush work will be allowed except for finishing the windows in sections. The number of square feet in each room, the lineal dimensions and other particulars must be shown. The drawings are to be without shade or

color and contain plans of separate floors and elevations.

**CONCRETE MACHINERY.**

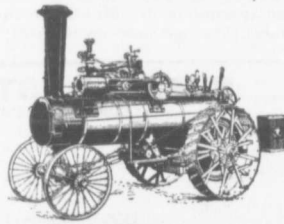
The Ideal Concrete Machinery Company, of South Bend, Ind., are now manufacturing their "Ideal" cement block machines in Canada, the factory and office being situated at 124 York street, London, Ont. This company had an exhibit at the recent Toronto Exhibition, as a result of which a large number of orders were booked. The Canadian office is in charge of Mr. F. M. Leach.

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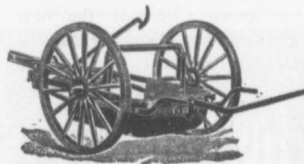
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St. Boniface 18,572 sq. yds.  
Chatham 15,633 sq. yds.  
Amherst 8,000 sq. yds.  
St. Catharines 4,000 sq. yds.  
Total . . . 129,161 sq. yds.

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PROVED FROM 100 TO 700 LBS.

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Robt. MacIaren & Co., Glasgow.

**THE WEIGHT OF ASHES, GARBAGE, ETC., WITH OTHER DATA.**

In the transactions of the American Society of Civil Engineers for April there is a valuable paper by Mr. H. de B. Parsons, entitled "Disposal of Municipal Refuse, and Rubbish Incineration." From that paper we have abstracted data that may be of use to our readers.

Mr. Parsons gives the following as average weights per cubic yard.

	Lbs. per cu. yd.
Rubbish (paper, rags, old furniture, etc.) .....	200
Street sweepings .....	850
Garbage .....	1,130
Ashes .....	1,350

The weight of ashes varies from 1,200 lbs. to 1,500 lbs. per cubic yard. Ordinary household ashes contain about 15 per cent. of unburned coal; but steam-ash averages about 24 per cent. to 30 per cent. coal, the lower figure being for bituminous, and the higher figure for anthracite coal.

Mr. Parsons states that the mixed ash collections from New York City contain 30 per cent. to 35 per cent. combustible matter.

Rubbish, as ordinarily piled in carts, or without extra packing, weighs 130 lbs. to 225 lbs. per cubic yard. In Boston it average 202 lbs.

per cubic yard; in New York it averages about 140 lbs.

The weight of street sweepings from 800 lbs. to 1,400 lbs. per cu. yd. depending upon the dryness of the weather and the time of collection.

A large table is given by Mr. Parsons showing the average per capita weight of city refuse collected in different cities. From that table the following was deduced, showing the average collection of refuse per capita per day:

	Lbs. per day
Garbage .....	0.53
Street sweepings .....	0.50
Ashes .....	2.23
Rubbish .....	0.21

Total per capita .....

Mr. Parsons gives diagrams showing the variations in the amount of refuse collected during different months of the year, and data showing the fuel value of city refuse.

He describes and illustrates the rubbish incinerator designed by him for the city of New York, and gives data showing the economy that it effected. To those interested in city refuse incineration, this paper by Mr. H. de B. Parsons is the most valuable that has ever been printed in this country.

Mr. C. H. Clark, contractor, Gananoque, Ont., died at his home

last week, after a prolonged illness.

Mr. Francois Desrochers has been appointed engineer of the new waterworks, at Levis, Que.

**THE  
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.

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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.

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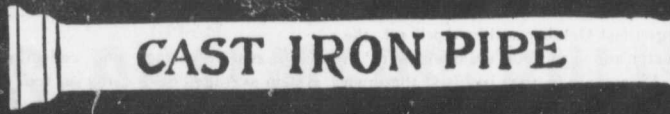
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Combined daily capacity :  
175 Tons Pipes and Castings.

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## Westmount Refuse Destructor and Lighting Plant

The town of Westmount, just outside of Montreal, has been furnishing lately some valuable data on the results obtained from its combined refuse destructor and electric lighting plant. The problem of burning garbage to advantage in Canada has long been regarded as impossible, owing to the wet nature of the material.

The Westmount destructor has proved in actual practise that it is possible not only to burn the garbage, winter and summer, but to use the heat generated by such burning for the partial running of electric light generating units.

An official test made early in May on a run of 8 hrs. 32 mins. resulted in the burning of 37,550 pounds of mixed garbage, with an evaporation of 41,991 pounds of water, giving a rate of 1.12 pounds of water to 1 pound of refuse under working conditions, or 1.36 pounds of refuse to 1 pound of water from and at 212 degrees Fahr. The idea of building a destructor for its present combined purpose originated with Mr. F. L. Fellowes, town engineer of Westmount. Messrs. Ross & Holgate, consulting engineers, of Montreal,

of concrete, a refuse tipping platform, house of wood encased with sheet iron and a twenty long-ton garbage hopper. In arriving at the capital cost and charges the electric lighting plant was charged with one-half the cost of the destructor, house and boiler. It was calculated that in one year the destructor would consume refuse equal to 1,042 long tons of coal and therefore 1,000 tons of coal at \$4.00 a ton were credited to

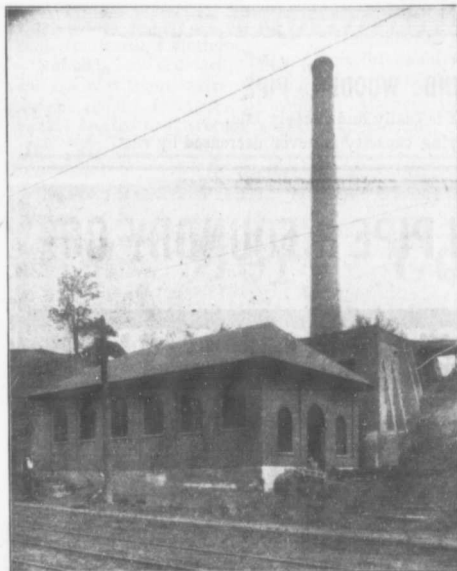


FIG. 1.—VIEW OF WESTMOUNT DESTROYER AND ELECTRIC LIGHT PLANT.

The lighting plant is seen in the foreground and the refuse destructor house in the rear with the 120 foot chimney. The refuse is hauled to the top of the destructor house on the upper level. This picture shows how the engineers took advantage of the deep gully to use the forced gravity in the process of garbage destruction.

supervised the erection of the plant on the Cost-Plus-a Fixed-Sum-Basis and worked out its details. Construction was begun last October and by April 1st the buildings, destructor and 150 foot chimney were in working order. From 1900 to 1903 inclusive the town of Westmount employed for refuse collecting, five horses and carts, five drivers and two stable men. During 1904 they collected about 6,500 loads. The annual cost was \$4,035.39.

In making his estimates for the present plant Mr. Fellowes provided for a brick and steel building, with charging platform of concrete and steel, stoking floor

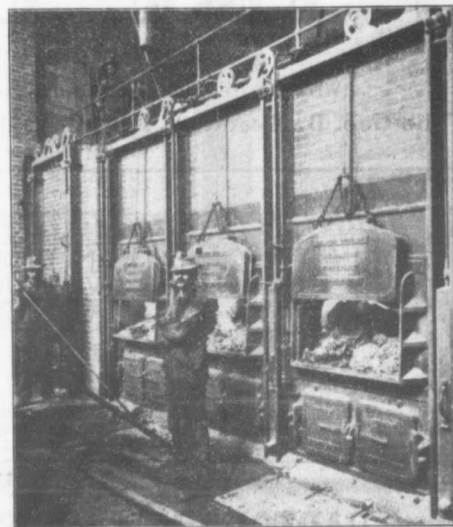


FIG. 2.—FRONT VIEW OF WESTMOUNT REFUSE DESTROYER.

This picture shows the three destructor grates with the doors lifted to give a view of the fire within. The refuse is dropped into the grates from the hopper which discharges in top of the destructor.

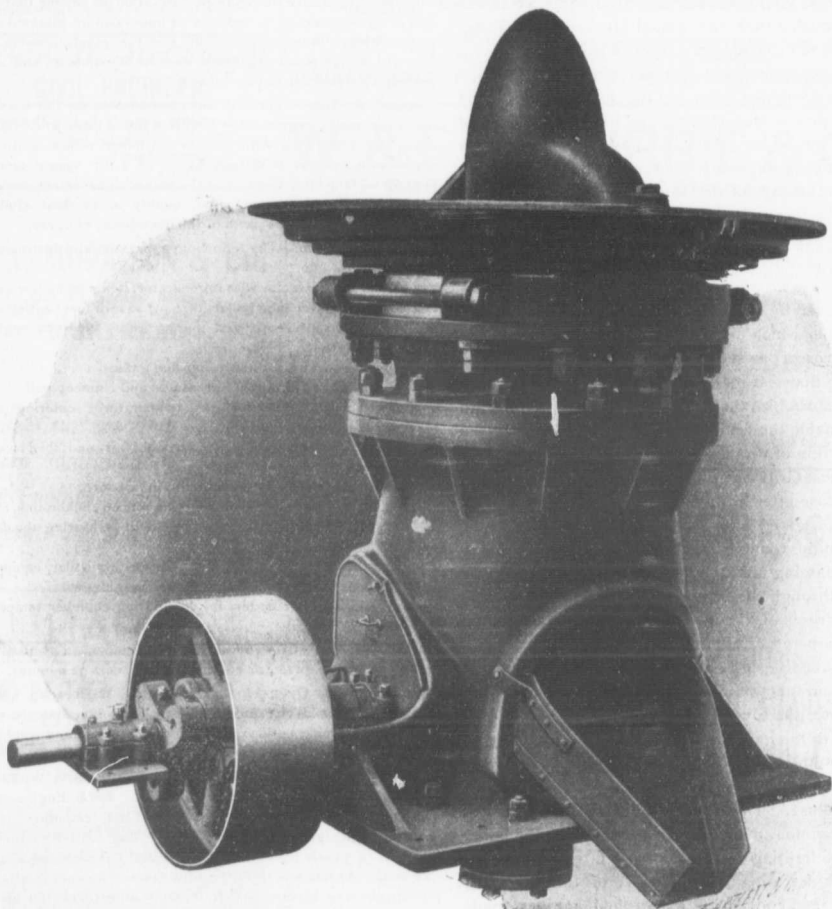
the operation of the destructor. Mr. Fellowes' second preliminary estimate follows:—

	Interest	Depreciation	Repairs
Land .....	\$13,660	\$ 546.40	\$ 950.00
Incinerator .....	19,000	760.00	285.00
Foundations .....	3,000	120.00	
Buildings .....	3,500	140.00	52.50
Ry. switch, scales, bldgs, etc. ....	16,408	656.32	246.12
	\$55,568	\$2,222.72	\$1,945.40
Operating Expenses. Credit 1,000 tons of coal.			\$583.62
Interest .....	\$2,222.72	By sale of H. P. energy to lighting at \$4.00 per ton .....	\$4,000.00
Depreciation .....	1,945.40	Two laborers .....	250.00
Repairs .....	583.62	One stoker .....	
Two laborers .....	939.00	One cart and horse .....	637.00
One stoker .....	730.00		
One cart and horse .....	637.00		
	\$7,057.74	Tons destroyed per year ..	6,476
Credit .....	4,250.00	Total operating expenses ..	\$2,807.74
	\$2,807.74	Cost per ton .....	43.3 cts.

The cost of cartage and collection under the old system averaged 62.3 cents a ton, while under the new system the cost is reduced to 52.4 cents a ton, by the elimination of one horse and cart; the cost of destruction, 43.3 cents a ton added to cost of garbage collection gives 95.7 cents as the total cost per ton.

Messrs. Ross & Holgate in giving estimates for the electric lighting plant submitted the following fig-

# GATES "K" BREAKER



Gates Style "K" Gyratory Breaker has greater capacity and consumes less power per ton of rock broken than any other breaker ever built. See Bulletin 1916.

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TORONTO : McKinnon Bldg.  
NELSON : Josephine St.  
VANCOUVER : 416 Seymour St.

3, 1906

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ures:—Population of town, 11,000; number of houses, 2,000; arc lamps for streets, 150; plant to accommodate 2,000 houses. They estimated the capital outlay including 10% for contingencies at \$129,884 for the electric lighting plant, and \$67,175 for the re-use and power plants, giving a total of \$197,058. It is extremely probable that the actual amount finally expended will fall considerably short of this figure.

The accompanying illustrations show the exterior view of the combined plant and the front view of the destructor proper with stoking and ash pit doors and trap doors for clinker. The buildings are situated in a hollow and great ingenuity was shown by the engineers in taking advantage of the lay of the land in order to utilize the force of gravity throughout the process of garbage destruction. The carts haul the refuse to the tipping platform far above the level of the grates into which it is dropped from the hoppers. The clinker is removed by wagons from the lower level. The refuse hopper which discharges into openings on top of the destructor, as seen in figure 2, is made of steel with lifting doors at its base close to the feed holes in the destructor. In the rear of the destructors are doors to enable the feeders to push the refuse in to the hottest portion of the fire without keeping the front doors unnecessarily open. The waste gasses from the burning refuse after firing the boiler pass through a series of staggered cast iron pipes about which air drawn from the room is kept circulating; after being heated by passing about these tubes the incoming air is carried through brick ducts to steam-jet blowers under the grates of the incinerator where the heated air (of a temperature of between 300 and 400 degrees Fahr.) is forced through the grate bars by the blowers.

The second function of the plant, that of supplying electricity to the town, is cleverly worked out in conjunction with the incinerating. In addition to the gas-fired boiler there are two others fired by hand with coal, this being necessary because of the insufficient supply of refuse. The steam from all these boilers feeds a common main which passes from the boiler house to the lighting station across a fifteen foot roadway. The generating units consist of three vertical cross-compound condensing high speed engines made by the Robb Engineering Company, of Amherst, Nova Scotia, directly coupled to 2,300-volt, 60-cycle three-phase alternators of Crocker-Wheeler make. Two of these units have a full load capacity of 200 kilowatts with an overload rating of fifty per cent. the third being a 50 kilowatt unit of similar characteristics. Provision has been made for the installation in the same building of a fourth unit which will double the capacity of the plant, the present equipment of boilers being sufficient to handle the additional unit.

The station is now furnishing electric light to private citizens of Westmount. When it is in full running order the plant will furnish all the light required for both municipal and private use in the town. The price will be lowered as the number of customers increases and it is expected that the rate per kilowatt hour will eventually be eight cents.

The following is the report made by Messrs. Ross & Holgate on the test referred to earlier in this article:

REPORT OF TEST OF MUNICIPAL REFUSE DESTRUCTOR, WEST MOUNT, P. Q., MAY 3RD, 1906.

W. L. Lee, Esq., Chairman Light Committee, Westmount:

DEAR SIR:—Since April 12th, 1906, the refuse destructor built by Messrs. Meldrum Bros., in connection with your municipal

lighting plant, has been successfully destroying all refuse brought to it, in quantities averaging about 30 loads per day, the average weight of a load being about 1,500 pounds. This has usually been burned in 10 to 12 hours, giving an average burning capacity to the destructor of about 4,500 lbs. per hour, or a little over two tons. During several days this amount has been exceeded, and we have therefore no hesitation in saying that the maker's guarantees of 50 tons per 24 hours can be attained with proper firing. In order to officially test the plant, however, on May 3rd, a staff of our engineers went to Westmount, and conducted a special test run as follows:—

**OBJECT OF TEST:**—The test was conducted to try the burning and evaporative powers of the Meldrum Bros., three-grate refuse destructor when fired with unscreened mixed refuse, and connected to a Babcock & Wilcox boiler of 2,197 square feet of heating surface, and also to test the maker's guarantees regarding completeness of combustion, quality of residual clinker, temperatures in various parts of the destructor, etc., etc.

**APPARATUS USED:**—The following apparatus and instruments were made use of:

1. Meldrum destructor with regenerator, steam jet blowers, etc.
2. B. & W. water tube boiler, of 2,197 square feet heating surface, and with superheater and the necessary pipes to engine, atmosphere, etc.
3. Orsat apparatus for analyzing flue gasses.
4. U-tube gages for ash-pit pressures and chimney pull.
5. Dial thermometers for gas temperatures entering and leaving regenerator.
6. Stem thermometers for hot air, cold air, and feed water temperatures, etc.
7. Aneroid barometer for atmospheric pressure.
8. Public standard scales for weighing refuse, clinker, tins, etc., and also for calibrating the barrels used for measuring the feed water.
9. Knowles 6 x 4 x 6 duplex pump for feeding boiler, equipped with Williams Gage Co.'s automatic feed regulator.
10. Watkins heat recorders for combustion chamber temperatures.

**DURATION OF TEST:**—The test proper commenced at 10 a. m. and ended at 6.32 p. m., or continued for 8 hours 32 minutes.

**CONDITIONS OF OPERATIONS:**—Weather: Wednesday, May 2nd, was raining all day and all night. Thursday, May 3rd was raining in morning until 11.30, when rain stopped and wind got up. Afternoon was warm and sunny.

**APPARATUS:**—The destructor gases fired the B. & W. boiler and the steam was used to drive a 130 h. p. Robb Engineering Co.'s simple non-condensing engine belted to a temporary 75 k. w. monocyclic generator carrying the day load of the town, which is a purely residential district, and therefore has a light day load. As this was light the whole power was not used, and the steam was blowing off to the atmosphere from the boiler almost continually.

**MEN:**—The following staff comprised the personnel of the test Four men operating the destructor, one man attending to feed water, one man reading pressures and temperatures, one man checking weights and measures and taking gas analysis, one superintendent of test.

**METHOD OF MAKING TRIAL:**—The corporation (municipal) carts dumped the garbage into the large storage bin which had been cleaned out over night, and gave the checker the weight ticket as the cart was emptied. All large tins and unburnable refuse were picked out and put to one side and weighed separately afterwards. Fires were started at 7.55 a. m. with a light supply of old wood and a little coal, on clean grates, and kept in until 9.50, when the first weighed loads were dumped into the hopper. Firing with garbage commenced at 10 o'clock with the destructor warmed up, two men raking the refuse from the bin into the charging holes, and two men at the same time levelling the charge from the rear. Each fire was charged in turn, its steam blast being shut off during this process. After burning for about two hours (during which period fresh garbage was added to each fire every 20 minutes), the mass was thoroughly clinkered and it was then withdrawn from the front and dropped through the floor into the clinker pit below, whence it was removed to be weighed. Tins, etc., were also deposited in this bin for weighing. Fires were each clinkered three times. When the fires were well burned down and ready to clinker for the third time the test was ended, the burnt clinker being left on the grate bars over night to keep the destructor warm for the next

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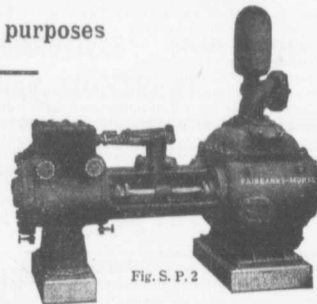


Fig. S. P. 2

**The Canadian Fairbanks Co., Limited**  
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day's operation. This clinker was drawn and weighed the first thing Friday morning.

The boiler was fed through the Knowles pump and Williams regulator, and the level of the water in the drums was maintained practically constant through the test. The water for the test was pumped from a barrel submerged in the hot well and fed from two barrels arranged so as to be filled and emptied alternately. The quantity was very carefully watched, and the barrels gaged very closely. Readings of pressures and temperatures were taken every twenty minutes, gas analyses were taken several times during the run, and combustion chamber temperatures were read about six or seven times under different conditions. At the end of the trial the conditions were as nearly as possible the same as at the beginning, the water level in the boiler being the same, as well as in the hotwell, and all other conditions were carefully watched and attended to.

RESULTS OBTAINED:—The following table shows in condensed form the averages of the results obtained:

Duration of test.....	8 hours 32 minutes
Number of cells.....	3
Total grate area.....	75 square feet
B. & W. Boiler, heating surface.....	2,197 "
Refuse consumed, (composition of waste material).....	
Garbage manure and leaves.....	15%
Ashes and unburnt (anthracite) coal, cinders, etc.....	65%
Iron, wood, bottles, tins, leather, etc.....	5%
Refuse, including paper, branches, old furniture, etc.....	15%
Total.....	100%

#### WEIGHTS.

Unscreened refuse, rubbish, garbage, manure, etc.....	38,090 pounds
Tins, etc., not burned.....	540 "
Net amount consumed.....	37,550 "
Refuse consumed per hour.....	4,402 "
Refuse consumed per hour per square foot of grate.....	58.7 "
Weight of clinker remaining after combustion.....	15,880 "
Percentage of clinker and ashes to refuse consumed.....	42.1%

#### WATER EVAPORATION.

Total water evaporated.....	41,991 lbs.
Water evaporated per hour, actual.....	4,920 "
" " " " from and at 212° Fahr.....	5,970 "
" " " " lb. of refuse from and at 212° F., and per sq. ft. of total heating surface per hour.....	2.72 "
Water evaporated per lb. of refuse, actual.....	1.12 "
" " " " " " from and at 212° F.....	1.36 "

#### PRESSURES AND TEMPERATURES.

Temperature of outside air, average.....	55° F.
Barometric pressure average.....	29.5 ins.
Average steam pressure.....	123.5 lbs. sq. ins.
Average pressure in ashpits.....	1.74 ins.
Average vacuum at chimney base.....	9.16 in.
Average temperature of combustion chamber over 2 3/8 ft. (Copper melted in 1 1/2 minutes—wrought iron was also fused.)	
Lowest temperature in combustion chamber.....	1,742° F.
Average temperature of air entering regenerator.....	75° F.
Average temperature of air leaving regenerator.....	209° F.
Average temperature of gases entering regenerator.....	427.5° F.
Average temperature of gases leaving regenerator.....	333.7° F.
Average temperature of feed water.....	47° F.

#### GAS ANALYSIS.

Percentage of CO <sub>2</sub> average of six readings.....	10.9%
Percentage of CO <sub>2</sub> highest reading.....	13.6%
Percentage of CO <sub>2</sub> lowest reading (clinkering fires).....	4.5%

#### TIMES.

Time taken to clinker one grate.....	10 1/2 min.
Time between clinkering.....	2 hrs. 48 min.
Time each fire was clinkered.....	Three

REMARKS:—A delay of about three-quarters of an hour was caused by non-delivery of garbage in the early part of the afternoon, during which time no fresh charge was added to the fire. Had this not been the case the total quantity of refuse could easily have been destroyed within eight hours, as the fires had to be held back somewhat on this account, and a somewhat better showing could have been made in the burning powers of the destructor had sufficient garbage been delivered to force it to its utmost capacity.

An interesting feature of the trial was the good feed water regulation; neither pumps nor valves being touched during the whole test.

Some idea of the great heat generated when the fires are in full blast may be obtained from the fact that at one time a piece of copper tubing 1 1/2 ins. long by 1 in. in diameter by 3/32 in. thick was completely volatilized in 1 1/4 min., upon being placed

in the combustion chamber, and a wrought iron horseshoe was picked out from the clinker heap which was fused in several places (wrought iron fuses at 2,912 F.). The same thing happened to an earthenware pot made of refractory material.

The clinker produced was hard and vitreous, and was fused into large masses of great density. Almost no smoke was visible from the chimney top, and all noxious gases were conspicuous by their absence. The analysis of the flue gases shows how complete the combustion was, except during the process of clinkering, when the large doors of the furnaces being open let in a large amount of air.

In consideration of the foregoing we are very pleased to state that in our opinion the destructor has fulfilled all the requirements of our specifications, and has also demonstrated the maker's guarantee satisfactorily, and we have much pleasure in recommending its acceptance.

Trusting that the above will meet with your approval, we are,

Yours faithfully,

ROSS & HOLGATE,

Consulting and Supervising Engineers.

80 St. Francois Xavier St., Montreal, May 4th, 1906.

In response to a request for a statement of capital cost and conditions and cost of operation of the destructor Messrs. Ross & Holgate have sent to us the following information:

CAPITAL COST OF DESTROYER.—It is almost impossible to say at this date what the cost of the buildings, land, bin, etc., fairly chargeable to the destructor itself, will be, as the whole equipment of the boilers and destructors together with coal and garbage storage and the necessary accessories, is contained in one building which is at yet unfinished and whose cost has not yet been separated, but the following items are approximately correct:

Meldrum three-grate destructor, about.....	\$14,000.00
B. & W. water-tube boiler connected to destructor, about.....	4,500.00
Custodis chimney, total cost, about.....	6,000.00
(Only partly chargeable to the destructor, as it is common to all three boilers.)	

OPERATING EXPENSES:—There are four men employed in the operation of the destructor for feeding, leveling and clinkering, as well as looking after the boiler. The wages paid are:—One man at 25 cts. an hour and three men at 20 cts. an hour. The 20 long tons of garbage per day are disposed of in about ten hours, so that at present only one shift is required and the labor charge for destruction amounts to about 42 1/2 cts. per long ton. Of course, there will be quite a considerable amount of steam sold to the electric plant which must be credited to the destructor and some clinker and other by-products will also be sold.

NET UNIT COST:—To obtain the net cost of destruction the capital charges and labor costs must be added, and the sum of the amounts obtained from the sale of steam and by-products subtracted from the total. The net costs so found, divided by the tons consumed per year, will give the average cost per ton.

Sova & Barbour, plumbers, Winnipeg, have dissolved partnership.

The partnership of M. P. and J. T. Davis, contractors, Quebec, Que., has been registered.

Joseph Avard and Cesire Souriol, contractors, Montreal, have registered their business under the firm name of Avard & Souriol & Company.

Joseph W. Guimond and Mrs. Ernest Lemieux, Montreal, have registered their contracting business under the name of Lemieux & Company.

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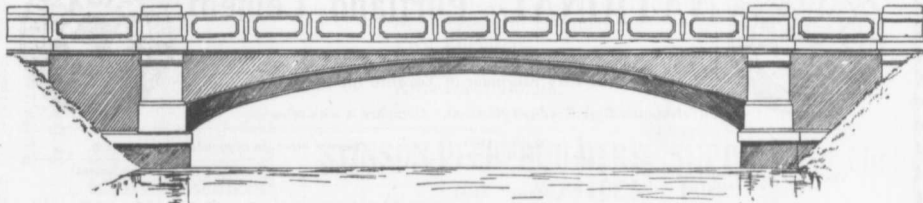
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Penmans Limited, Montreal, incorporated, capital \$4,000,000. Promoters, T. C. Casgrain, V. E. Mitchell, E. F. Surveyor, A. C. Casgrain, and E. M. McDougall.

Snyder Health Vibrator Company, Limited, Montreal, incorporated, capital \$20,000. Promoters, G. DeClercq, A. Cote, S. Mondou, D. E. LeCavalier, and A. P. Simar.

Stuart Turbine Company, Limited, Montreal, incorporated, capital \$20,000. Promoters, H. A. Allen, G. Hannah, T. M. Todd, P. Davidson, and A. J. Collins.

Megadyre, Limited, Montreal, incorporated, capital \$250,000 to manufacture and deal in explosives, powders, etc. Promoters, C. A. Barnard, C. Dessaulles, R. Roy, C. A. Sara and W. F. Sharswood.

Ground Anchor Company, Limited, Montreal, incorporated, capital \$25,000. Promoters, F. E. Lovell, Coaticook, Que.; R. A. Stinson, F. J. Bell and E. Sissons, Montreal, and F. W. Hibbard, Westmount.

John Morrow Screw Limited, Ingersoll, Ont., incorporated, capital \$100,000 to manufacture and deal in iron, steel, lead, copper, etc. and products thereof. Directors, J. A. Coulter, Ingersoll; W. H. Shapley and F. H. Deacon, Toronto; O. E. Robinson, Ingersoll, and W. H. Wortman, London.

Beaver Lumber Company, Limited, Toronto, incorporated, capital \$150,000. Directors, F. H. Potts, H. Hunter, and A. Wellesley.

**PERSONAL.**

Mr. A. McEvoy, city clerk of Vancouver, B.C., has resigned that position.

Mr. John F. Armour, engineer of the town of Dundas, Ont., has tendered his resignation to the town council.

Mr. J. G. Macklin, Guelph, Ont., who has been divisional engineer of construction for the eastern forty miles of the Guelph and Goderich Railway from Guelph west, has received the appointment of chief engineer of construction of the St. Mary's and Western railway, from Woodstock to St. Mary's.

Mr. A. J. Stewart, for over thirty

years town clerk of Harrison, Ont., and Mrs. Stewart, are taking a holiday in Winnipeg. This is Mr. Stewart's first trip to western Canada. His son, Fred M. Stewart, is also in Winnipeg being the secretary of the Manufacturers' association.

Mr. William Stubbs, of Winnipeg, formerly manager of the Independent Lumber Company's yard at Regina, Sask., was a recent visitor in that city. It is the intention of the firm with which Mr. Stubbs is now connected to open up a branch in Regina next year for the supply of Tyndall stone and other building materials.

Mr. John E. Botterell, manager of Vancouver branch of the Canadian Fairbanks Company, Limited, has been appointed manager of the Winnipeg branch succeeding Mr. F. R. Newman, who will become the head of Caverhill & Learmonts western branch. Mr. Newman on leaving was presented with a diamond ring from the staff, and was given a dinner by Mr. H. J. Fuller, the president, at which a large number of the staff were present. Mr. W. A. Akhurst succeeds Mr. Newman as manager at Vancouver.

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					Initial	Final	Neat.					3 (Sand) to 1 (Cement)				
							1 dy.	7 ds.	28 ds.	3 mos.	1 yr.	1 dy.	7 ds.	28 ds.	3 mos.	1 yr.
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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.

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Some notes on the cost of 9-in. lateral sewers, built (except No. 1, in table) in 1904 as a part of a separate system of sewers at Guelph, Ont., are given in the Proceedings of the Ontario Land Surveyors for 1905, and are republished here in slightly condensed form. The author of the notes was Mr. James Hutchinson, of Guelph. It is to be noted that the sewers were built by day labor, with a single gang of men, mostly Italians, all under one foreman. Ordinary laborers were paid 16½ cts. per hour, but 17½ cts. were given to a few better class men, who handled pipe and sheeting when required. Bricklayers were paid 35 cts. an hour, and the foreman was paid \$3.50 a day.

The accompanying table, with its foot notes shows the, character, length and cost of each of 12 laterals:

Cost of 9-in. Lateral Sewers Built in 1904 at Guelph, Ont.

No.	Length ft.	Depth, ft.			Excavat- ing pipe per	Labor	Cost of
		Maxi- mum.	Mini- mum.	Aver- age			
1	972	12.9	10.4	12.0	5974	\$1.00	
2	550	12.0	9.3	10.9	421	.75	.75%
3	1,208	12.4	9.5	10.8	911	.70	
4	658	12.5	8.9	10.7	478	.75	.75%
5	900	12.7	8.6	10.2	531	.70	
6	1,750	13.5	7.0	10.0	1,304	.75	
7	1,150	12.2	8.0	9.3	585	.51	
8	1,696	12.2	6.5	9.0	930	.55	
9	810	10.8	7.6	8.9	465	.55	
10	340	9.7	8.0	8.5	474	.56	
11	800	9.7	8.0	8.4	351	.44	
12	600	9.8	5.2	7.0	235	.39	

No. 1.—Begun in 1904; cost increased by difficulties of work after winter set in, and by wet condition of partially dug trenches in spring.

No. 2.—Very bad ground.

No. 3.—Trench yielded many limestone boulders; there was some 100 ft. of quicksand bottom, requiring close sheeting. Otherwise the ground was good, little bracing was required.

No. 4.—Mostly dry gravel; required sheeting.

No. 5.—Chiefly sand, with clay at deepest part. Sheeted for about half its length. Wet bottom; 6-in. subsoil drain beside and a little below sewer.

No. 6.—Middle third of this was most difficult work of 1904. Soil gravel, with water 4 ft. from surface. Diaphragm pumps used ahead, and in the bottom water allowed to flow away in the sewer and subsoil drain.

No. 7 and 8—In adjacent, parallel streets, but there was water-bearing gravel one-third length of No. 8.

Nos. 9 and 10.—In different drainage areas, but both had gravel in deeper portions, sand at upper ends, and subsoil drains; also two manholes in each.

No. 11.—Soil gravel and for the most part dry. Close sheeting not required; occasional braces used. Work was rushed, thus reducing cost.

No. 12.—Ground similar to No. 11.

For further description the paper

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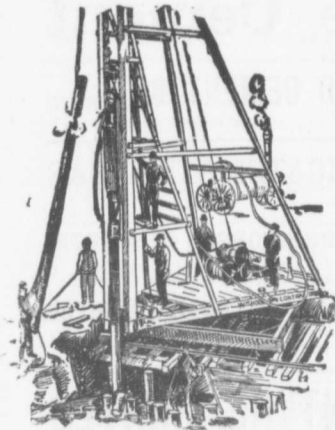
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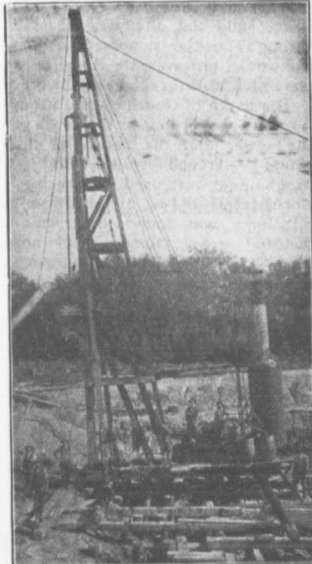
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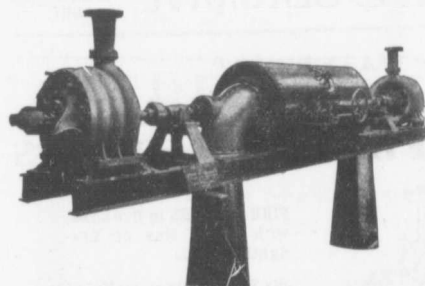
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The width of trench varied from 3 to 4 ft., according to the depth of the sewer and the nature of the ground. Trench screws with 1½-in. gas pipe were used for bracing. For sheeting 1½-in. dry hardwood, 8 ft. long, was found most satisfactory; green lumber will not stand driving. Tamarack, 4 x 6 ins., used for stringers.

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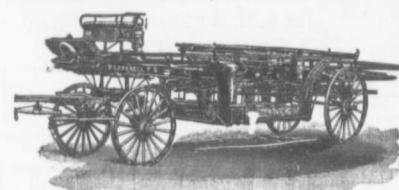
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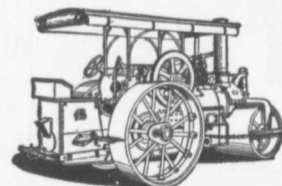
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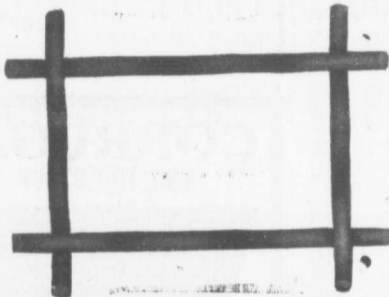
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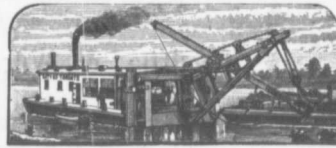
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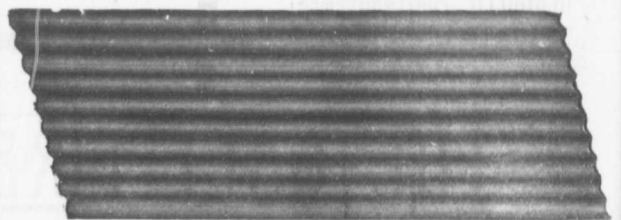
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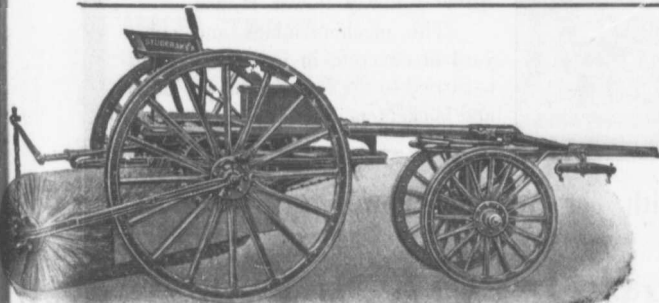
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(PATENT IMPROVED.)

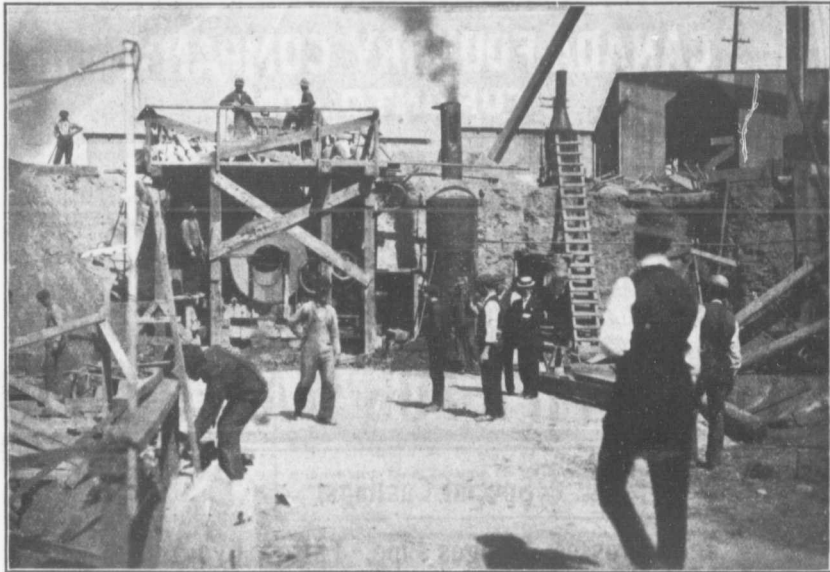
Does not clog or get out of order. Greatest width of spray can be graded from driver's seat to any volume.

IMPROVED VERTICAL SPRAY

for Pavements

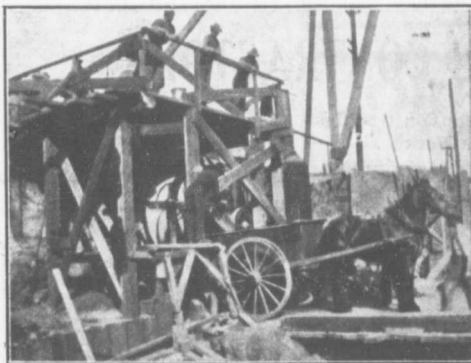
Geo. Heaman, Mnfr., London, Ont.

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615 Pender St.  
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# Ransome Concrete Mixers

are used extensively on all the large concrete contracts to-day.  
The simplicity of the discharge and the thorough mixing  
appeal to all wide-a-wake contractors.



These illustrations show one of our No. 3-1906 Model Ransome Mixers recently purchased by the Canadian White Company for the concrete work on the new Montreal Street Railway Power House.

This machine mixes one cubic yard of concrete in every batch and is carried to the forms by using carts and buckets as illustrated

All Capacities . With or Without Power . In Stock

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