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# CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF THE CONTRACTING INDUSTRY

PUBLIC WORKS • TENDERS • ADVANCE INFORMATION • AND MUNICIPAL PROGRESS

EVERY THURSDAY

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. 6.

APRIL 11, 1895

No. 10.

## THE CANADIAN CONTRACT RECORD,

PUBLISHED EVERY THURSDAY

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### CANADIAN CONTRACTOR'S HAND-BOOK

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C. H. MORTIMER, Publisher,  
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## TENDERS FOR DEBENTURES

The Municipal Council of the City of Nanaimo invite proposals up to MONDAY, 29TH APRIL, 1895, endorsed "Tender for Debentures," for the purchase of

### \$10,500.00 DEBENTURES

issued under the authority of the Commercial Filling By-Law, 1894. The Council reserves the right to reject the highest or any proposal.

S. GOUGH, City Clerk.

Nanaimo, B. C., 22nd March, 1895.

## Notice to Contractors

Sealed tenders, separate or bulk, will be received by the undersigned up to 12 o'clock, noon, WEDNESDAY, APRIL 17TH, 1895, for the Brickwork, Plastering, Carpenter and Joiner's work, Slatting and Painting required in the erection of a

### RESIDENCE

for David Lloyd in the Town of Newmarket, according to plans and specifications prepared for the same by Wm. Bunney, Registered Architect, Newmarket.

Plans and specifications can be seen at Mr. David Lloyd's office, Main Street, Newmarket, on and after Tuesday, April 9th, 1895.

The lowest or any tender not necessarily accepted.

DAVID LLOYD.

Newmarket, April 1st, 1895.

## TENDERS

Will be received for a BRICK RESIDENCE for G. F. MCKIMM, Smith's Falls, Ont. Plans may be seen at the office of the undersigned from the 13th to the 17th inst. Tenders close on the 17th inst. at 1 o'clock. The lowest or any tender not necessarily accepted.

LANGLEY & LANGLEY, Architects,  
Canada Life Building, Toronto.

## TENDERS TO EXCAVATORS

Tenders will be received by the undersigned up to SATURDAY, APRIL 13TH, at twelve o'clock, noon, for the clearing away of all old buildings, etc., and for the excavation required for the erection of a large office building for the Independent Order of Foresters at the North-west corner of Bay and Richmond Streets, Toronto. Plans and specifications may be seen on and after Thursday, the 11th inst., and all information obtained at the offices of the Architect.

GEO. W. GOUINLOCK, Architect,  
53 King Street East

The lowest or any tender not necessarily accepted.

## TENDERS

Sealed tenders will be received by the undersigned until noon of TUESDAY, APRIL 16TH, for the

### Heating of an Addition to St. Francis Xavier's College, Antigonish, N. S.

and of an adjacent Dwelling House, with Steam or Hot Water. Tenderers will make their own plans and specifications.

Plans of the buildings and any information on which to base heating plans and estimates may be obtained from the undersigned. The right is reserved to reject the lowest or any tender.

D. A. CHISHOLM,  
Secretary-Treasurer of the Board of  
College Governors

Antigonish, N. S., April 3rd, 1895.

## TENDERS

Sealed tenders, marked "Waterworks," will be received by the undersigned on or before the

1st of May, 1895,

For the construction of

### A SYSTEM OF WATERWORKS AND SEWERAGE IN THE TOWN OF SUDBURY, ONT.

Plans, specifications, etc., can be seen and forms of tender had at the following places:

Office of Gordon & Rorke, Engineers, Sudbury.

" Montreal Star, Montreal.

" Messrs McPherson, Clark & Jarvis, Barristers, Toronto.

An accepted bank cheque, equal to 5 per cent. of the amount of tender must accompany each tender. This cheque will be forfeited if the party declines to enter into the contract and will be returned in case of non-acceptance of tender.

The lowest or any tender not necessarily accepted.

March 18, 1895. A. FERRIS,  
Clerk Town of Sudbury.

E. Schmidt, contractor, of Pembroke, Ont., has formed a partnership with W. Markus, and the new firm will be known as Schmidt & Markus.

## CONTRACTS OPEN.

AMHERST, N. S.—An electric street railway for the town is spoken of.

DUNNVILLE, ONT.—The Dunville Electric Light Co. will erect a power station.

FREDERICTON, N. B.—A considerable amount of asphalt paving will be done this summer.

ST. HENRI, QUE.—The Council has decided to issue debentures to meet its indebtedness.

SARNIA, ONT.—Plans for the new hospital are being prepared by H. G. Phillips, architect.

WATERLOO, ONT. The construction of a sewerage system has been decided upon by the Council.

ATHERLEY, ONT.—Robt. Calderwood is making preparations to erect a new brick dwelling house.

HULL, QUE.—The School Commissioners have decided to build an extension to St. Antoine convent, at a cost of \$5,000.

SHERBROOKE, QUE.—The erection of a new Episcopal church is being agitated. Canon Thorneloe is the prime mover in the project.

ACTON VALE, ONT. A bonus of \$15,000 has been granted to J. C. McFarlane & Co., towards the erection of a cigar factory.

KALSO, ONT.—A by-law authorizing the Council to borrow the sum of \$10,000 for city improvements has been carried by the ratepayers.

ST. JOHN, N. B.—G. E. Fairweather, architect, invites tenders until the 13th for the erection of a stable and conservatory for W. H. Thorne.

BRANTFORD, ONT.—A proposal to introduce a new system of heating into the Court House and gaol is under consideration by the County Council.

GORRIE, ONT.—Hammond Bros.' steam saw mill was wrecked by a flood on Monday last. A dam at Wm. Dane's grist mill was also washed away. The loss will reach \$4,500.

PETERBORO', ONT.—A movement is said to be on foot to extend the Peterborough Electric street railway to Lakefield, a distance of nine miles, using the G. T. Ry. Co.'s track.

CARLETON PLACE, ONT.—Mr. Fowler, of this town, who is the chief promoter of the Peith & Lanark Electric Railway scheme, states that the enterprise will shortly assume practical shape.

LISTOWELL, ONT.—The Town Council at a recent meeting, decided to ask for tenders until May 1st for lighting the town with electricity. Fourteen arc lights of from 1500 to 2000 candle power will be required.

CORNWALL, ONT.—Mr. J. L. Weller has been engaged to act in conjunction with Mr. Brown, the Town Engineer, in

preparing plans and specifications for brick and tile sewers, to be built during the year.

**NIAGARA FALLS, ONT.**—The Niagara River Tramway Co. has been incorporated with a capital stock of \$40,000, to establish a cable tramway over the Niagara River, in the counties of Lincoln and Welland.

**WINDSOR, ONT.**—Daniel Scotten has purchased property at the corner of Ouellette avenue and London streets, and is having plans prepared for a four-story building containing stores and offices to be built thereon.

**VANCOUVER, B. C.**—Tenders for electric lighting for the city are invited by Thos. F. McGuigan, City Clerk, until Saturday, the 1st of June next. Conditions, etc., may be obtained from the City Engineer.

**BROCKVILLE, ONT.**—Tenders are asked by John Stagg, Chairman Board of Works, until the 22nd of April for the supply and delivery of 100,000 feet of pine and cedar timber, for sidewalks and street purposes.

**HALIFAX, N. S.** The City Treasurer has been authorized to advertise for a loan of \$175,000.—The Council has authorized the construction of water mains to Willow park, at a cost of \$11,000.

**BARRIE, ONT.**—At a special meeting of the Public School Board held on April 4th, the plans of Kennedy & Co., for alterations and improvements to the Central school, were adopted. The cost of the work will be about \$8,000.

**VICTORIA, B. C.**—The Blackman & Ker Milling Co., of this city, have decided to establish an oatmeal mill and elevator at South Edmonton, Alberta. Construction will be proceeded with as soon as plans can be prepared.

**HUNTSVILLE, ONT.**—The Huntsville & Lake of Bays Transportation Company is applying for incorporation to establish an electric railway between Lake of Bays and Peninsula Lake. The capital will be \$25,000.

**LEVIS, QUE.**—The corporation has received an offer from a company which proposes to establish a system of waterworks and drainage for the town, also to light the streets by electricity. Negotiations are now in progress.

**RAT PORTAGE, ONT.**—The Town Council is considering the question of constructing sewerage and waterworks systems, but no definite steps will be taken in the matter, until financial arrangements are made to cover the cost of the work.

**BURK'S FALLS, ONT.**—Competitive plans for a two-story four-roomed brick veneer school-house are invited by the School Board until the 15th of May. The successful competitor will receive a commission of 5 per cent. on contract price. Particulars may be obtained from James Sharpe, Secretary of the Board.

**GANANOQUE, ONT.**—Application has been made for a free site, free water and exemption from taxation for the establishment of a branch here of the White Cloud Novelty works, of White Cloud, Mich.—It is stated that the sum of \$12,000 will be placed in the Dominion supplementary estimates for building a new drill hall in this town.

**MONCTON, N. B.**—The City Council is arranging to place on the market \$250,000 of city bonds.—The New Brunswick Legislature has been asked to contribute the sum of \$25,000 towards the proposed dock at this place, the city having already granted that amount. A similar subsidy will probably be obtained from the Dominion Government, and this amount will enable the work to be commenced.

**QUEBEC, QUE.**—The Governors of the Jeffrey Hale hospital have not yet chosen

an architect to prepare plans for their proposed new building, which is estimated to cost about \$50,000.—J. H. Beemer is said to have decided to construct an electric railway throughout the city and extending to La Bonne, St. Anne. In connection with the scheme, a large hotel and park will be established at Montmorency Falls.

**KINGSTON, ONT.**—The City Engineer is preparing estimates for extending the waterworks system.—W. Newlands, architect, is asking for tenders until 6 p. m. today (Thursday) for building a brick residence for J. C. Strange.—The City Council have accepted the terms of the Dominion Steel & Blast Furnace Co., of Youngstown, Ohio, to establish a blast furnace here to cost \$600,000, and a by-law will be submitted to the ratepayers asking permission to raise the sum of \$250,000 to bonus the enterprise.

**BERLIN, ONT.**—H. L. Jauzen is about to erect an opera house here.—Debentures will be issued to cover the cost of Market improvements.—The Town Council has resolved that the construction of sewers during the year shall be carried out by day labor, and the Sewers Committee has been authorized to secure the necessary materials, and engage an engineer.—The Berlin & Waterloo street Railway is to be immediately converted to the electric system. Mr. E. Carl Breithaupt, of Berlin, has been appointed consulting engineer for the work, and is at present preparing the necessary plans and specifications.

**OTTAWA, ONT.**—Tenders are invited by J. H. Balderson, Secretary of the Department of Railways and Canals, until Tuesday, the 30th inst., for the supply and delivery of \$25,000 barrels, or any portion thereof, of Portland cement. Specifications may be obtained at the office of the Chief Engineer of Railways and Canals.—The Ontario Government has been asked to grant financial aid towards the construction of an inter-provincial bridge across the Ottawa river between this city and Hull. It is probable a grant will be made.—E. F. E. Roy, Secretary of the Department of Public Works, invites tenders until Tuesday, the 30th inst., for the erection of a post-office at Rimouski, Que. Plans may be seen at the Court House at Rimouski and at the above department.

**HAMILTON, ONT.**—At the last meeting of the Waterworks Committee, the question of increasing the city's water supply was considered. It was decided to recommend to Council the adoption of the plan prepared by Mr. Haskins, City Engineer, which included the building of a new reservoir. The plan also provides for an additional set of pumps to be erected at the beach. The estimated cost of the scheme is \$98,000. Estimates were also presented and passed by the Committee for 6-inch mains as follows: on Kent street, 350 feet, cost \$470; Aberdeen avenue, cost \$1,540; Barton street, cost \$500; Clark avenue, cost \$1,170.—Building permits have been granted as follows: E. B. Patterson, two-story brick dwelling on Market street, cost \$1,225; James Hobbs, two-story dwelling on Augusta st., cost \$1,700.

**WINNIPEG, MAN.**—Tenders for the supply of from 400,000 to 1,000,000 feet B. M. of pine lumber, and for the supply of hardware as per schedule, are invited by the city until Thursday, the 25th inst. Address J. C. Sproule, Chairman Committee on Works, for further particulars.—Proposals are invited by the city, addressed to R. W. Jameson, Chairman Finance Committee, until Friday, the 10th of May, for the purchase of \$91,538 of local improvement debentures bearing interest at 5 per cent. per annum, payable half-yearly.—The Committee on Works have recommended that tenders be asked for a steel superstructure for the Osborne

street bridge, and for repairs to the piers; also that the city engineer be instructed to prepare plans and specifications for an overhead bridge in wood, iron, or steel, over the tracks and yard of the C. P. R.—It is considered by local architects that the amount of building operations in the city this season will be about the same as last year. Besides the new schools to be erected, there will be a fair number of new residences and small buildings, but a large part of the work will be the renovation and improvement of buildings, which will include stone foundations, steam and hot water heating, plumbing, etc. Mr. S. Frank Peters, architect, has the rebuilding of the Western Canada block and the Doll block in hand, and Mr. H. S. Griffith is preparing plans for two large business blocks and warehouses, two solid stone buildings, to be built at Stonewall, to cost \$10,000; for a \$4,000 church, and for a number of fine residences.

**LONDON, ONT.**—Dr. J. D. O'Neil has been granted a permit for alterations to hotel property, corner York and Talbot streets, to cost \$2,500.—J. H. Moran has purchased a lot on Wellington streets and purposes erecting a residence thereon.—The bicycle clubs of this city have almost decided on the construction of a bicycle track at Queen's Park. The cost will be about \$2,000.—At a meeting of the London and Port Stanley Railway Company held last week, at which the secretary and engineer of the Lake Erie and Detroit River railway were also present, the erection of new bridges across Kettle and Mill Creeks at St. Thomas was decided upon. The bridges will cost between \$25,000 and \$30,000 each, and are to be completed within six months. Mr. De Gurse has been appointed engineer for the L. E. and D. R. R., and Mr. O. Graydon for the L. and P. S. R. It is probable steel bridges will be built.—The wardens of St. Matthew's church have not yet decided on plans for their proposed new church. Several designs have been submitted, but none have been found suitable, and it is not improbable that competitive plans will be asked for.—Tenders are asked by the City Engineer until the 15th inst. for an addition to the Central fire hall.

**MONTREAL, QUE.**—The Hamburg American Packet Co. are asking for tenders for stevedoring, grain lining, required on the Hansa line of steamers during the coming year.—Mr. Pearson, City Hall Engineer, presented a report to the City Hall Committee at the last meeting, showing that it would cost \$15,160 to put the City Hall in proper sanitary condition. The report was referred to a committee for consideration.—The Jesuit Fathers have decided to build their church in the parish of Immaculate, and have instructed Messrs. Tanguay & Vallée, architects, of Quebec, to proceed with the work at once. The church will be 80 feet in width, built of Canadian stone, with all the latest improvements. The seating capacity will be four thousand. A handsome steeple will be built, and an electric clock placed therein. There will also be a chime of bells which will probably be imported from France. The church will be lighted by electricity, and the total cost will be between \$100,000 and \$150,000.—The Lachine Rapids Hydraulic and Land Company has been formed for the purpose of utilizing the water power of the Lachine rapids, and with this end in view, plans have been prepared by W. McLea Walbank, architect, and Thos. Pringle, hydraulic and mechanical engineer. It is proposed to construct a dam parallel to the shore, 3,500 feet in length, the wheels and power being located at the end of the property and the power house on a cross dam, containing 66 water wheels of 8,000 horse power under the average head. The site chosen is opposite the head of Isle au Heron.—The consideration of the

extension of the Bonsecours market, at a cost of \$75,000 has been postponed for a week by the Finance Committee.—Building permits have been granted as follows: Wm. Robb, three story brick residence, Drummond st., cost \$2,500; Jas. Ogilvie Bros., 3 storey stone front store, corner Mountain and St. Catherine st., cost \$75,000; C. Belhumeur, 2 story brick cottage on Visitation street, cost \$1,500; Estate Cherrier, alterations to two stores, Notre Dame street, cost \$5,500.

TORONTO, ONT.—Mr. F. H. Herbert, architect, has prepared plans for a residence to be erected on the n. e. cor. of Madison and Bernard avenues for W. R. Wadsworth, manager of the Bank of Toronto. The same architect is also preparing plans for a new residence on Spencer avenue, Parkdale, for W. R. Cavell, barrister, tenders for which will be called shortly.—It is learned that during the coming summer the completion of the Toronto Island breakwater is to be pushed forward. The principal part of the work that remains to be done is the placing of the cribwork on the western side of the eastern gap in position. No decision has yet been reached by the Public Works Department at Ottawa regarding the application of the city to have the breakwater extended from its present terminus along the south shore of the Island. What the Government proposes to do in that respect will be disclosed in the supplementary estimates.—A deputation from Penetanguishene and Midland, among whom were Dr. Spohn, Charles Beck, of Penetanguishene and J. B. Horrell, of Midland, interviewed the Ontario Government last week, requesting a grant of \$3,000 a mile for a three mile extension of the Penetanguishene and Midland railway to the Reformatory. The Government promised consideration.—The Cork Company of Canada, which is at present applying to the Dominion Government for incorporation, proposes to erect a factory in this city. The provisional directors are Messrs. C. R. De La Sabliere, L. O. Dusseau, J. A. Gendron and L. O. Blachaud, of Toronto, and John Howard, of London, England.—The Public School Board is asking for tenders until noon today (Thursday) for the supply of 1,000 desks and seats.—The Property Committee has placed the sum of \$5,000 in the estimates for a new fire hall on Dundas street.—The Board of Works on Monday last ordered the laying of car tracks on Dovern court road, from College to Dundas streets, and the paving of the street with granite sets on a concrete foundation, at a cost of \$11,305.—It has been decided that the new store building for Mr. R. Simpson, to replace the one recently destroyed shall be made as thoroughly fireproof as possible.—Building permits have been granted as follows: Frank Addison, pair s. d. 2 story bk. dwellings, 78 and 80 Harvard ave., cost \$2,200; House of Providence, 3 story bk. add., cost \$25,000; Mrs. W. J. Stibbs, re-erection of 32 Wellington st. west, cost \$4,500.

**FIRES.**

V. H. Carpenter's basket factory at Grimsby, Ont., was destroyed by fire last week, also a small house belonging to the Maybee estate. Small insurance.—The Grand Opera house and three stores at Goderich, Ont., were burned on the 4th inst. The buildings were owned by George Archison, and the loss is partially covered by insurance.—The residence of Hugh McLatchie, of Pendleton, Ont., has been destroyed by fire. Loss, \$4,000; no insurance.—The residence of D. C. Craig, at Vancouver, B. C., was burned recently.—A dwelling house at Oakville, Ont., owned by C. W. Anderson, was destroyed by fire last week; partially insured.—The Mulvey school house at Winnipeg, Man., erected two years ago

at a cost of \$41,000, was burned to the ground on the 9th inst. Insurance, \$12,000.—The saw and grist mills of Andrew Thompson, at Strathroy, Ont., were consumed by fire during the past week. Loss, \$5,000; insurance, \$1,600.

**CONTRACTS AWARDED.**

LONDON, ONT.—A. Graham, of this city, has been awarded a large contract in Chatham for artificial stone pavements for the season of 1895.

AMHERSTBURG, ONT.—The Miller-Gatfield Coal Company has awarded the contract to Fluke and Babcock, of Windsor, for the construction of a large dock here.

OTTAWA, ONT.—A. Carvock's tender of \$8,654 has been accepted by the School Board for the erection of an annex to Elgin street school. W. J. Campbell's tender for supplying three boilers has also been accepted.

OWEN SOUND, ONT.—The Dominion Government has let a contract to Porter, Read & Cowan, of this place, to build a dock 1550 feet in length on the west side of the river. The work is to be completed by the 15th of June.

MILTON, ONT.—The contract for the erection of a new Episcopal church has been awarded to the Coleman Planing and Lumber Co., of Burlington. The plans were prepared by C. J. Gibson, architect, of Toronto.

COLLINGWOOD, ONT.—The contract for building a new wing to the Globe hotel, the property of John Rowland, has been awarded to Wilson Bros., of this town, for the sum of \$6,375, without heating. Fred F. Hodgson, architect.

GUELPH, ONT.—S. Rundle has been given a contract to build a two-story white brick house on Paisley street, for Mrs. Foster. He has also received a contract to erect a brick house for J. J. Fox Elora road, near Marden.

WINNIPEG, MAN.—The contract for the Red Deer Valley railway has been let to R. Barclay Bruce, of Calgary, and construction is to commence at once.—The contracts for the O'Brien terrace improvements have been let by Mr. C. H. Wheeler, architect, the amount aggregating about \$8,000. The brickwork, stonework and plastering will be done by Rouike & Cass; the painting by J. A.

(Continued on page 4.)

**WILLIS CHIPMAN, B. A. Sc.,**  
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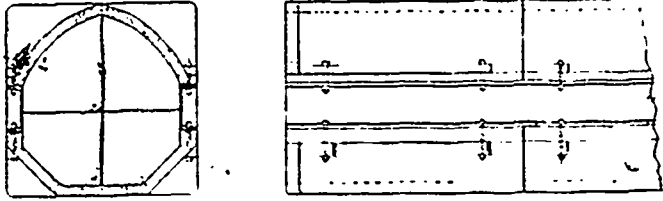
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MUNICIPAL ENGINEERS, CONTRACTORS AND MATERIALS

Payne, and the carpenter work by A. C. Sutherland. The plumbing and heating will be let later on.

**MONTREAL, QUE.**—The municipality of Verdun has awarded the contract for the construction of a dyke along the river bank to Messrs. Pezme & Cohenev, at the price of \$27,000. The dyke is to be finished by the 1st of October.—Messrs. Roy & Gauthier, architects, have awarded contracts as follows for the erection of a church at the corner of Roy street and Laval avenue: Masonry, Prenoveau & Martineau; carpenter and joiners' work, U. Pauze; roofing, Pelletier & Brosseau; plumbing and heating, Lamarche & Leclerc; plastering, Jos. Chamberland; painting and glazing, Lefebvre & Duquette.

**TORONTO, ONT.**—At a meeting of the Board of Works held on Monday the following tenders were accepted: down-draught furnaces at main pumping station, eight boilers, Hawley Down-draught Furnace Co., of Chicago, Ill., \$7,500; asphaltum Leader Lane, King to Colborne, Construction and Paving Co., \$979; dredging slips, F. B. McNamee, 25c. per cubic yard; concrete sidewalks, Lombard street, north side, between Victoria and Church streets, A. Gardner & Co., \$2.25 per lineal foot; Adelaide street, north side, between Post office and Church st., Construction and Paving Co., \$1.89 per lineal foot.—The tender of Smith Bros., of this city, for a chemical fire engine, has been accepted by the Fire and Light Committee. The price is \$1,001. Six tenders were sent in.

**BROKEN ASHLAR.**

This style of construction is gaining favor rapidly, and is destined to occupy a large place in building operations. Some of the reasons for this are worthy of consideration, writes W. D. Lewis, in Stone. To begin with, it appeals to the artistic taste, for while the elements of its construction are few and simple, it produces an endless variety of shading, owing to the inequalities of projections. It is this variety of expression which constitutes its charm. Like the shading of foliage, where variety produces the picturesque. In work of uniform coursing, there is too short a contrast to the variety of shade, lacking that harmony of expression so characteristic of broken work. As in varied gradations of shade in foliage, there is a general uniformity of masses, peculiar to the kind of growth, so there is a uniformity of massing necessary to the best effect of this class of work. A certain proportion must be observed which will insure diversity, and obviate complexity. The key of proportion is found in the "riser" or "jumper," whose length and height should be nearly equal, the stretcher two-thirds the height, and about twice the length of the "riser," the "snip," one-third the height, and of various lengths, being easily fitted when needed. With this method of preparation, the mason's work becomes easy and expeditious. Observing the rule of "two to one," two stones abutting the larger one, so as to coincide in height, and carefully breaking joint, to avoid vertical lining, distributing the different sizes evenly as possible, the work grows into "beauty which is a joy forever."

The Kingston Chemical Fire Engine Co. have been granted incorporation, with a capital stock of \$30,000.

John Snowball & Sons, brick and tile manufacturers, of Markham township, have assigned to John Eckardt.

Peter Howard and Thos. O'Connell have been registered proprietors of Howard & O'Connell, plumbers, Montréal.

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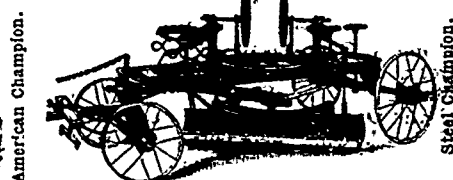
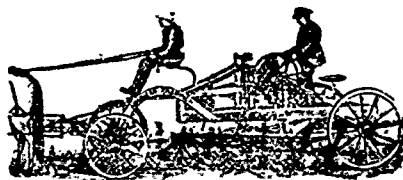
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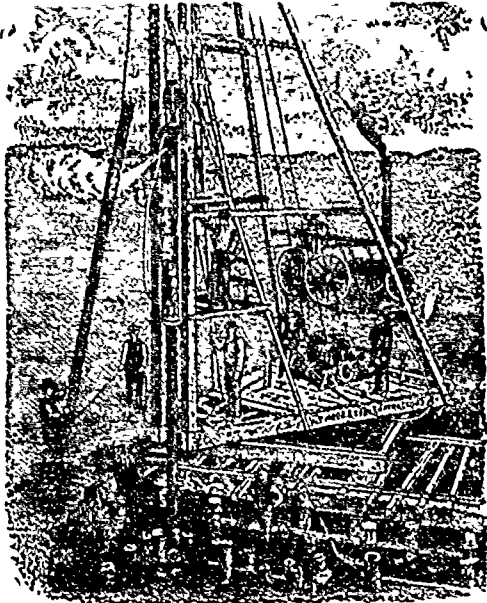


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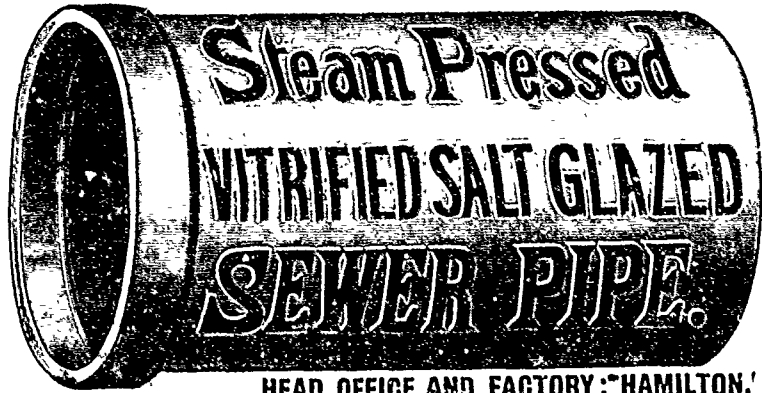
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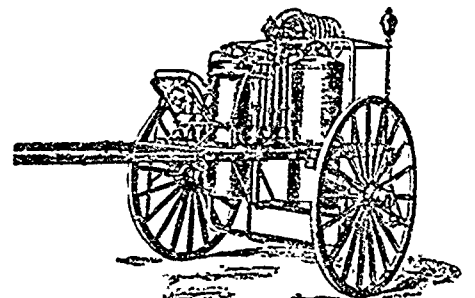
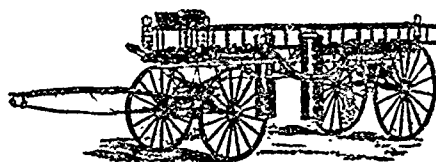
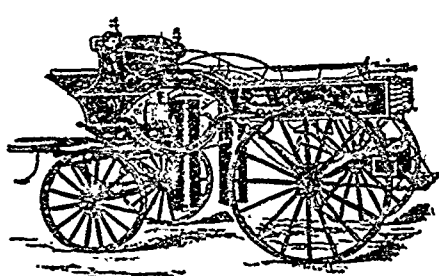
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For reference address **H. YOULDEN**, Chief Fire Department, Kingston.

# MUNICIPAL DEPARTMENT

## THAWING WATERPIPIES BY ELECTRICITY.

The London Electrical Review disposes thus of Mr. C. Hyatt Woolf's novel suggestion in the Standard that a current of electricity should be employed to melt the ice in frozen water pipes:—"The first question would be how much frozen water is there in the pipe, and then the electrical cookery people could soon tell us what it would take to thaw it. Suppose the pipe is 50 feet long and one inch internal diameter, we get a little less than 600 cubic inches of water, or one-third of a cubic foot as its contents—this is about 2 gallons or 20 lbs. It requires a h. p. minute to raise 22 lbs. of water 1 degree C., consequently to boil this water or furnish the heat to properly thaw the ice, about 100 h. p. minutes would be needed, or 1 h. p. for an hour and three-quarters, that is about eight pence worth of current at 6d. per Board of Trade unit. If the current were taken off the supply mains 13 amperes would be needed for an hour. A return circuit would probably be needed to prevent electrolytic action; to insulate the wire it might be strung with a row of glass beads close together. But we weary our readers, and, therefore, conclude with the suggestion that in the first place the effort of scientists would be better directed to ascertaining how deep a month's hard frost penetrates in different soils, and in the second that the energies of the water companies and the capital required for electric appliances would be more economically expended in burying the supply pipes below that depth and seeing that they are well protected when they enter houses, and, perhaps, in addition fixing a small cock in a suitable place, which could be safely left running full bore, without overtaxing the companies' powers of supply."

## GAS ENGINES FOR PUMPING WATER.

The use of gas engines for driving pumping machinery is hardly practised at all in the United States outside of irrigating work, says the Engineering Record, but in Germany they have been installed in a number of cities. At a recent meeting of gas and hydraulic engineers in Landsberg, Mr. Max Munzel described several of these plants. The authorities of Düren were the first to install such engines, which was done in 1884. It became necessary to provide a system of water supply for a population of 30,000, which was assumed to require about 790,000 gallons a day, to be supplied from two pumping systems working 12 hours a day. The two pumping systems which were built have a capacity of 33,000 gallons an hour each and are connected through a wrought-iron force main 14 inches in diameter with a water tower of 145,200 gal-

lons. From this water tower a 12-inch main leads to the system of distribution mains in the city. Since the suction level was about 16 feet below the surface of the ground, horizontal plunger pumps were selected with 40 horse-power duplex motors. The power-house is about 65 feet long and 44 feet wide. The suction pipe of each pump is 14 inches in diameter. The double-acting pumps have plungers 14.4 inches in diameter and a stroke of 30.4 inches, making 30 revolutions a minute. The 40 horse-power motors make 140 revolutions a minute, the connection between the pumps and motors being through friction clutches and spur gearing. There is a two horse-power motor between the larger pair, which drives a line of shafting below the floor of the station. The motors have on their main shafts which are belted to this shaft, so that by starting the small motor the larger ones are given the preliminary revolution necessary to set them in operation. Before starting up, the friction coupling with the pumps is thrown off and the by-pass valve opened. When one of the large motors has reached its normal speed the friction coupling is thrown on and the valve closed, thus putting the pumps at work. The total cost of the system of works amounted to \$38,750 for pumping station, pumps, motors, and water tower, \$30,750 for pipe, \$6,250 for wells and galleries, and \$16,750 for meters, service pipes, and miscellaneous work, or a total of \$92,500.

The completion of these works was followed speedily by the construction of other pumping stations driven by gas motors.

## THE NEW PAVING STONE PROCURED IN MINNESOTA.

A new paving stone has been discovered and those who have taken the trouble to examine its qualities are very enthusiastic in its praise and assert that in a few years it will be the only material laid in the Northwest for paving. The stone is named by Professor Hall, of the state university, as a quartz biotite, and is composed of about 80 per cent. quartz and 20 per cent. mica. It is stated by geologists to be found in large quantities in Minnesota, and at least one quarry large enough to pave all cities of the Northwest has been opened near Little Falls. St. Paul, it is said, will make an experiment with the new stone in the near future.

This quartz biotite resembles a very fine grained granite in appearance and is not open to any of the objections that have been made against this well-known paving material. In the first place, granite wears perfectly smooth and becomes slippery, and, as all know, takes a very high polish. As laid in this city, rough dressed, the street soon becomes a succession of small slippery hillocks, for granite will not wear down even. This rock, being of a much firmer texture, will, it is claimed, in the course of time wear down to an even surface, which will never become perfectly smooth and hence will not be slippery. If such is the case, it will also be comparatively noiseless as com-

pared with granite. The new material is not at all soft. It is as heavy as granite and on account of the large percentage of quartz in its composition is hard and durable, even more so than granite.

It has been subjected to some very severe tests, side by side with the best specimens of granite, by interested parties in this city, and has held its own. In the matter of absorption of water this biotite or mica schist, as it is also called, ranks about the same as granite. For that matter, paving experts state that the absorption by any stone is hardly worth consideration. In the point of abrasion granite was found inferior. Samples of both, hewn to the same size and form, were placed in a rattler for several hours and upon being taken out it was found that the biotite had lost a smaller percentage. It is also stated that the new stone excels with regard to cleavage, and on that account it will be possible by the expenditure of the same amount of money as for granite to secure smoother surfaces on the paving blocks, and the latter will also be more uniform in size. There will be no difficulty in securing an unlimited supply of blocks about three inches thick and eight inches deep, which are considered the most desirable dimensions when the blocks are laid without a concrete base.—Minneapolis Journal.

## CORRECTION.

Mr. Hurd Peters, writes THE CONTRACT RECORD that the paragraph published in this department on March 28th, stating that Mr. Wm. Murdock, C. E., had been appointed City Engineer and superintendent of sewerage and water supply for the city of St. John, N. B., was incorrect. Mr. Peters says: "I am, as I have been for upwards of 30 years past, City Engineer, no other having held that office. Mr. William Murdock was, on the death of his uncle, Mr. Gilbert Murdock, during the last year, appointed in his place, superintendent of sewerage and water supply, which is his present position and in no way interfering with myself as City Engineer." We gladly give place to this explanation.

## KOSMOCRETE CONCRETE SIDEWALKS.

The Engineering News of January 3rd, in a short article on Concrete Sidewalks, states that they are rapidly becoming popular, and one special system is the Kosmocrete pavement, of which some 200,000 square yards have been laid in Brooklyn, N. Y., in addition to considerable amounts in other cities. A bottom course of dry binders, about 12 inches thick, is laid, and upon this a layer of concrete about 4 in. thick, composed of 3 parts of granulated granite or sharp gravel, 4 parts of 1½ in. stone and 1 part Portland cement. On this concrete is worked a facing about 1 in. thick, composed of granulated granite, a small percentage of silicious grit, Portland cement and carbon. The purpose of the granulated granite mixed with silicious grit is to prevent the surface from becoming slippery. This concrete is used not only for sidewalks, but for stable flooring and the paving of public buildings, including the armouries of the 23rd and 14th regiments in Brooklyn. It is also used for making sewer pipe. It is made by the Wilson & Baillie Manufacturing Company, of Brooklyn.

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WM. H. LAW - Manager and Engineer.

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**RAILWAY AND HIGHWAY  
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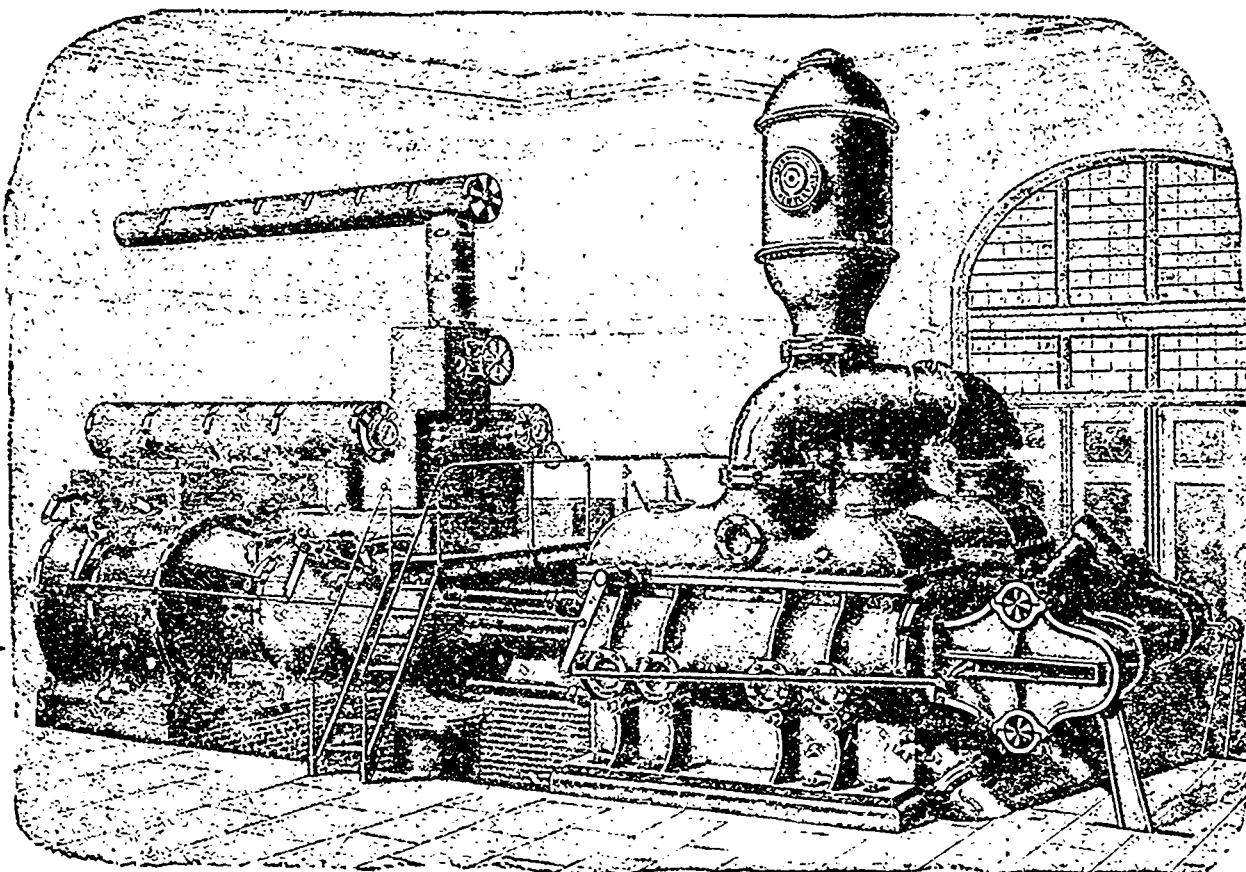
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Prices of Building Materials.

CONDITION OF THE MARKET.

TORONTO: The reports of proposed building operations from the different cities and towns indicate that the season of 1895 is opening with a satisfactory outlook, and the volume of trade will in all probability be in excess of last year. Prices of building materials are likely to remain firm. In hardware, trade continues to improve, and a number of earload lots have been shipped. Cut and wire nails are moving freely. Cement and firebrick are somewhat quiet, and prices remain unchanged. Lead and iron pipe and galvanized iron are moving freely and some large orders are reported. Considerable plate glass is being sent out.

MONTREAL: Orders are being placed for spring trade, which has a tendency to keep prices firm. A moderate demand is reported for cement, and some enquiries have been made for forward importations. Firebricks are quiet. The heavy iron and metal market is dull, with no changes to note. Glass is steady and quotations remain at \$1.15 to \$1.20 for first break, and \$1.25 to \$1.30 for second.

LUMBER.

CAR OR CARGO LOTS.

Toronto. Montreal.

Table listing lumber prices for various types of wood, including clear picks, three uppers, pickings, and different sizes of cull and joist.

YARD QUOTATIONS.

Table listing yard quotations for mill cull boards, shipping cull boards, hemlock scantling, and various sizes of cuttings up planks.

B. M.

Table listing lumber prices for dressed and undressed lumber, beaded sheeting, clapboarding, and various types of shingles.

Toronto. Montreal.

BRICK—Per M

Table listing brick prices for common walling, pressed brick, and various types of roof tiles.

SAND.

Per Load of 1 1/2 Cubic Yards

STONE.

Table listing stone prices for common rubble, large flat rubble, foundation blocks, and various types of granite and freestone.

Table listing stone prices for various sizes of flagging and granite curbing.

SLATE.

Table listing slate prices for roofing and terra-cotta tiles.

PAINTS. (In oil, per lb.)

Table listing paint prices for white lead, red lead, yellow ochre, and various types of putty and whiting.

CEMENT, LIME, etc.

Table listing cement and lime prices for various types and brands.

Toronto. Montreal.

Table listing cement prices for various types and brands, including Keene's coarse and calcined plaster.

HARDWARE.

Table listing hardware prices for cut nails, steel, and various types of cut nails and spikes.

FINE BLUED NAILS.

Table listing fine blued nail prices for different sizes.

CASING AND BOX, FLOORING, SHOOK AND TOBACCO BOX NAILS.

Table listing casing and box, flooring, and tobacco box nail prices.

FINISHING NAILS.

Table listing finishing nail prices for different sizes.

SLATING NAILS.

Table listing slating nail prices for different sizes.

COMMON BARREL NAILS.

Table listing common barrel nail prices for different sizes.

CLINCH NAILS.

Table listing clinch nail prices for different sizes.

SHARP AND FLAT PRESSED NAILS.

Table listing sharp and flat pressed nail prices for different sizes.

STEEL WIRE NAILS.

Steel Wire Nails, 75, 10 and 5 % discount from printed list.

Iron Pipe:

Table listing iron pipe prices for various diameters and lengths.

Lead Pipe:

Table listing lead pipe prices for various diameters and lengths.

Galvanized Iron:

Table listing galvanized iron prices for various types and gauges.

Structural Iron:

Table listing structural iron prices for steel beams, channels, angles, tees, plates, and sheared steel bridge plate.