

CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF PUBLIC WORKS AND MUNICIPAL PROGRESS

EVERY WEDNESDAY

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.

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THE CANADIAN CONTRACT RECORD,

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CONTRACTS OPEN.

KIRKTON, ONT.—A new residence will be built next year by Arthur Frances

ATHENS, ONT.—Funds are being collected to build the proposed Methodist church.

HARRINGTON, ONT.—James S. McKay intends building a residence next summer.

WATERLOO, ONT.—The Mennonites contemplate building a church next spring.

ADVOCATE HARBOR, N.S.—A. C. and C. W. Elderkin will build a new schooner.

MITCHELL, ONT.—A. Mutton is putting in the foundation for a new residence.

SOUTH HARVEY, ONT.—Alex. Thompson intends building a residence next year.

NORTH TORONTO, ONT.—New hose will likely be purchased for the fire department.

AMHERST, N. S.—The ratepayers will vote on a \$50,000 sewerage proposition on the 20th inst.

SARNIA, ONT.—The by-law to raise \$5,000 by the issue of debentures has been passed in council.

MONKTON, ONT.—It is the purpose of William Boady to erect a residence on his farm next summer.

FORT WILLIAM, ONT.—The corporation will borrow \$17,000, for which purpose debentures will be issued.

EAST TORONTO, ONT.—Debentures will be issued by the corporation to cover the cost of laying water mains.

MIDLAND, ONT.—The question of providing increased school accommodation will likely be taken up at an early date.

ARNPRIOR, ONT.—A by-law to borrow \$2,000 for construction of sewers will be placed before the electors on January 6th.

ACTON, ONT.—None of the tenders submitted for purchase of local improvement debentures have been accepted by the council.

WOODSTOCK, ONT.—It has been decided to submit a by-law to the ratepayers to grant a loan of \$12,000 to the Woodstock Wagon Co.

BEETON, ONT.—The village clerk has been instructed to have debentures printed in connection with recent by-law to borrow \$7,000.

MAGNETAWAN, ONT.—A by-law to assist Lewis F. Purdy to reconstruct and improve his flour mill has been finally passed by the council.

KINGSTON, ONT.—It is stated that tenders are about to be invited for the erection of a central heating plant at Queen's College.

PUGWASH, N.S.—At a meeting of the ratepayers last week, it was decided to purchase a steam fire engine and other fire apparatus.

HANOVER, ONT.—Duncan Campbell, village clerk, invites bids up to December 31st for purchase of \$10,000 4½ per cent. twenty-year debentures.

LINDSAY, ONT.—A by-law to raise \$20,000 for road improvements and purchase of road machinery will be submitted to the electors on January 6th.

ST. MARYS, ONT.—The St. Mary's Roller Mill Co. propose to erect a large mill for the milling of coarse grain. J. H. Carter and H. L. Rice are interested.

GUELPH, ONT.—Hon. G. W. Ross, Premier of Ontario, has offered to donate half the cost of providing two additional lecture rooms for the Agricultural College here.

CHATHAM, N.B.—Tenders close today (Wednesday) for purchase of \$110,000 forty year 4 per cent. debentures. Particulars from T. M. Gaynor, town clerk.

SUNDRIDGE, ONT.—O'Neil & Scell, of London, have purchased the Anderson saw mill, and in the spring purpose rebuilding it and installing a new plant.

TRENTON, ONT.—A by-law is to be submitted to the ratepayers granting exemption from taxation to Gilmour & Co., who propose re fitting and again operating their large saw mill.

WATFORD, ONT.—Plans are about to be prepared by M. L. Buffy, architect, of London, for improvements to the Presbyterian church here, including new heating system.

NEWCASTLE, N.B.—The by-law to provide funds for the installation of electric light, water works and sewerage systems was carried here last week by a large majority.

FALLOWFIELD, ONT.—The ratepayers of Nepean will vote on a \$10,000 debenture by-law to construct three iron bridges over the Jock river at this place.

BROCKVILLE, ONT.—B. Dillon, architect, is preparing plans for a residence to be built by W. A. McNeill, a farmer residing between Lansdowne and Gananoque.

BERLIN, ONT.—The Berlin & Bridgeport Electric Railway Co., capital \$50,000, has been incorporated, to build a railway from this place to Bridgeport, one and one-half miles.

CORNWALL, ONT.—The question of submitting a by-law to the ratepayers to raise \$16,000 for the erection of a new waterworks pump house is under consideration by the council.

CHATHAM, ONT.—A new Baptist church will be erected in this city.—J. L. Wilson & Son, architects, are taking tenders for furnaces for new Wesley church on 8th concession of Raleigh.

CREDIT FORKS, ONT.—Walter Stewart, architect, of Hamilton, has been instructed to prepare plans for a club house to be built here by the Caledon Mountain Club, to cost \$1,500.

TORONTO JUNCTION, ONT.—J. Hall is building the foundation for two new houses on the corner of Keele and Annette streets, and foundations are being put in for other houses to be built next spring.

CARGILL, ONT.—H. Cargill, lumberman, of this place, is endeavoring to secure the establishment of a beet sugar industry at this place, and is said to have interested Toronto and Montreal capitalists in the project.

ST. THOMAS, ONT.—The Aylmer, St. Thomas & London Electric Railway Co. is seeking incorporation, to construct an electric railway from Aylmer to St. Thomas and thence to London.—W. J. Lindsay will shortly commence the erection of two stores.

COLLINGWOOD, ONT.—A proposition to grant a loan of \$9,000 to G. A. Stewart and G. R. Cameron, of Strathroy, in aid of a grist mill to be erected by them within this town, will shortly be submitted to the electors.

PARRY SOUND, ONT.—The Parry Sound Lumber Co. are converting their saw mill from water power to steam.—F. W. and G. A. Weiland, of Duluth, are likely to build one of their new Hatch electric smelters on the Anglo-American Copper Mining Company's property.

PETERBOROUGH, ONT.—W. H. Hogg, of the Bank of Montreal, will receive tenders up to noon of 23rd inst. for alterations and additions to stone horse, 273 Hunter street. Plans at office of J. E. Belcher, architect.

ST. CATHARINES, ONT.—The Department of Railways and Canals at Ottawa are asking for tenders up to January 3rd, 1902, for the supply of

timber, hardware, castings, paints, oils, etc., for use on the Welland canal and its branches during the year 1902. Specifications at the office of the superintending engineer at this place.

STRATFORD, ONT.—The stores of Joseph Rankin, with adjoining land, have been purchased by the Whyte Packing Co., who intend having the premises rebuilt.—The question of providing funds for road improvements is under consideration by the city and county councils.

WINCHESTER, ONT.—On January 6th the ratepayers of Winchester township will vote on a by-law to raise \$5,050 for the purpose of constructing a bridge over the Nation River. Particulars may be obtained from George Quart, township clerk.

BROMPTON FALLS, QUE.—The Brompton Pulp & Paper Co. intend at a later date to develop another power for electrical purposes alone, with a view to furnishing light and power to Windsor Mills and Sherbrooke. J. D. Straw, of Lewiston, Me., is engineer in charge of construction.

HULL, QUE.—The warden of Wright county has been authorized to borrow \$3,000 for the purchase of a site for new registry office, plans for which have been prepared by M. C. Edey, architect, of Ottawa. Councillors Sylvain, Conroy and McCloskey have been appointed a building committee.

NORTH SYDNEY, N. S.—The Sydney Coal Co. are negotiating for the purchase of the water front property with a view to the erection of a large shipping pier.—Preparations are under way for the construction of the Nova Scotia Steel & Coal Co.'s pier at this place.

NIAGARA FALLS, ONT.—The McPherson Switch & Frog Co. have submitted a proposition to the council to establish a branch factory in this town. They offer to build a plant to cost \$40,000 in consideration of exemption from taxation and a grant of \$2,500.

ST. JOHN, N. B.—The new mill to be erected by John E. Moore on the site Barnhill's old mill at Pleasant Point will be commenced after the turn of the year.—The C. P. R. will, in the near future, commence work on a new branch line from Mattawankeag to Princeton, Me., a distance of fifty miles. The route has been located by Mr. Lumsden, engineer for the C. P. R.

FREDERICTON, N. B.—The Department of Public Works is asking for tenders up to Monday, 30th inst., for rebuilding portions of the North-West Miramichi bridge in Northumberland county. Plans at above department and at office of Hon. L. J. Tweedie, Premier.—A company has been formed here, with a capital of \$25,000, to manufacture a patent combination wagon rack. John Palmer is president and W. G. Clark secretary.

SAULT STE. MARIE, ONT.—John Dillon will build three houses on Albert street, to cost \$3,000 each, and two on Grace street, to cost \$1,500 each.—Plans are being prepared for the ship-building plant to be established at this place by English capitalists. There will be sixteen tube work mills, two of which will be located here and fourteen at the Michigan Soo.

HALIFAX, N. S.—The congregation of St. Paul's church will erect a fire Sunday School building, at a cost of \$25,000.—D. Pottinger, manager Intercolonial Railway, Moncton, invites tenders up to Wednesday, January 8th, for alterations to station in this city. Plans at office of the station master at Halifax and St. John, at the Intercolonial Railway office, 143 St. James street, Montreal, and

at office of Sprout & Rolph, architects, 94 King street west, Toronto.

QUEBEC, QUE.—Hon J D Roland and Mr. Godfroi Langlois, representing the company which proposes to build a railway to Nominique, have asked the provincial government for a grant of \$8,000 a year for twelve years.—Engineers have been investigating the improvements needed to the harbor here.—It is reported that Joseph H. Coburn, of Carthage, N.Y., intends building a ground wood pulp and sulphite mill in Canada.—The paving of Dalhousie street and asphaltting of D'Auteuil, St. Anne, Esplanade, and Garden streets are works which will be carried out next year.

LONDON, ONT.—Herbert Matthews, architect, is preparing plans for alterations to residence on Talbot street for John Coote, also for a residence on Elmwood avenue, South London.—H. C. McBride, architect, is preparing plans for alterations and additions to factory on King street for Elliott, Marr & Co.—At a meeting of Middlesex county council, last week, it was decided to build two new bridges next year, one over the Thames river at Muncey site, and the other south of Strathburn, opposite the town line of Dunwich and Aldboro. An engineer will report as to the cost at the January meeting.

OTTAWA, ONT.—The breakwater at Burritt's Rapids has been carried away, and a new one will have to be erected.—It is proposed to erect a memorial to the late Nicholas Flood Davin. H. J. Morgan is one of the promoters.—James W. Woods, manufacturer of lumbermen's supplies, has purchased the Clemow and Slater properties, which gives him possession of the entire frontage between Elgin street and the canal basin on Slater street. It is Mr. Wood's intention to erect in the spring a new manufacturing establishment 90x145 feet, also a warehouse 140x145 feet, at a total cost of \$90,000. The present building will be converted into offices.

WINNIPEG, MAN.—Dr. J. R. Jones, convener of the synod committee, has called attention to the necessity of erecting a new building for St. John's college.—It has been pointed out that another 100 pounds pressure pump is required for the waterworks.—The Canadian Pacific Railway expect next year to haul a large percentage of the timber brought into Winnipeg, and for this purpose are surveying lines of railway into the Western Ontario and Eastern Manitoba timber belts. Lines from Raleigh to Long Lake and from Lac Suelle to Dinorwic are being surveyed.

PETROLIA, ONT.—The ratepayers will on January 6th, be asked to grant exemption from taxation and free water to the Petrolia Packing Co to assist them in erecting the necessary buildings in this town for a pork-packing manufactory and cold storage plant.—The Petrolia Rapid Railway Co. have made application to the council for permission to construct and operate along the streets of the town a single iron or steel rail with necessary side tracks and turn-outs. S. A. Armstrong, of Sarnia, is one of the promoters.

SYDNEY, N. S.—The Cape Breton Electric Co. are about to commence the erection of a new power house, to be 61x100 feet, with car barn 80x160 feet. It is probable that it will be of brick and steel, with concrete foundation. One thousand horse power in engines will be installed at the outset.—Vooght Bros. have purchased a site for their new block, which will be five storeys and contain two elevators.—Chief Menzie, of the Fire Brigade, has been delegated to inspect the fire equipment of the larger towns of the province with a view to making improvements here.—It is report-

ed that English capitalists are looking for a site here for the establishment of boiler works.—A staff of engineers under the direction of Hiram Donkin, have commenced a survey of the proposed cantilever bridge across the strait of Canso.—A public meeting was held last night to consider the report submitted by W. T. Jennings, C. E., of Toronto, on the extension of the water-works system.

HAMILTON, ONT.—The Grand Trunk Railway will build a bridge at Burlington Heights.—The Hamilton Suburban Railway Co. is applying for incorporation, Henry T. Thurber, of Detroit, being the representative of the American capitalists composing the company. There are to be three sections of railway, Hamilton to Waterloo, Galt to Guelph, and Hamilton to Guelph.—The Rapid Electric Railway Co., which proposes to build from this city to Port Dover, is also seeking incorporation.—The council has approved of the by-law to raise \$31,000 for construction of sewers on Catherine street and Birch avenue.—A representative of the T. Eaton Co., of Toronto, has arranged for a lease of a building for a factory to be established in this city.—A. W. Peene, architect, has taken out a permit for a brick dairy building and stables on John street for the Pure Gold Milk Co., to cost \$9,460.—F. J. Lyne is about to build two brick dwellings on William street, between Barton and Birge streets, to cost \$1,700.

VANCOUVER, B. C.—It is reported on good authority that J. A. McNair, of the Hastings Shingle Manufacturing Co., has purchased land in the east end as a site for a large shingle mill.—A provincial order-in-council has been issued granting certain water rights at Coquitlam Lake to the Vancouver Power Co. Thus the company is placed in a position to commence work immediately on the development of the power there. It is proposed to develop 5,000 horse power, with an ultimate increase to 15,000. In connection with the scheme a tunnel two miles long will be built.—It is reported that Mr. LePage intends building a glue factory in this city.—Work is about to be commenced on the erection of a large saw and shingle mill at this place, on a site recently acquired by J. G. Scott, of New Westminster, and some Michigan parties.

GODERICH, ONT.—At the meeting of the county council last week Mr. Ainsley, county engineer, reported on the construction of bridges. He recommended the construction of a wooden bridge over the Aux Sable river at the boundary between the counties of Huron and Middlesex, at a cost of \$1,500, and a Pratt steel truss bridge, 360 feet long, on concrete piers and abutments on the boundary between Colborne and Goderich townships, to cost \$9,000. He also advised that tenders be called immediately for the reconstruction of the Stanley bridge over the Bayfield river, near Clinton, to be 100 feet long, also the bridge over the north branch of the Mattiand river between Upper and Lower Wingham, to be 140 feet long. Both these bridges will likely be of steel on concrete abutments. The road and bridge committee concurred in the report of the engineer, but decided to defer the question of building the Colborne and Goderich township bridge until the June meeting.

VICTORIA, B. C.—The site is being cleared for the erection of the proposed smelter at Osborne Bay, plans for which are being prepared by P. C. Bellenger, of Butte.—W. S. Gore, Deputy Commissioner of Lands and Works, invites tenders up to noon of 21st inst. for erection of gaol at Vernon.—The survey parties of the Pacific Northern and Omineca Rail-

way Co., under the direction of J. P. Gray, have completed their season's work, which was to determine the most favorable route for a railway from salt water at the head of Kitimaat Arm to Hazelton. The route has been laid out for a distance of 82 miles, and during the winter plans, estimates of cost, etc., will be prepared so that work may be commenced in the spring. — William Thompson, consulting engineer for the Tye Mining Co., states that the company has decided to erect a smelter of 100 tons capacity, and that it may be located at Ladysmith. An aerial tramway will convey the ore from the mine on Mount Sicker to the smelter. — The Mayor has vetoed the contract for the construction of the Point Ellice bridge, and has called a meeting of the council to reconsider the question. It is his wish to employ a bridge expert to decide upon the style of bridge to be built.

MONTREAL, QUE.—The Lachine Rapids Hydraulic & Land Company will issue bonds for \$1,500,000 to erect a steam plant. — The Canadian Pacific Railway Co. are having plans prepared for a large passenger yard between Aqueduct and Seigneurs streets. The number of tracks for the new yard has not yet been decided upon, but there will probably be 12 or 16, converging into the main line. — Barnett & Record, of Chicago, have made a proposition to the Harbor Commissioners to make new plans for the elevator to be built in the harbour. — An effort will be made by some of the aldermen to get an appropriation from the city council for a new civic hospital, the idea being to erect two or three pavilions. — At the quarterly meeting of the Montreal Presbytery last week, the proposed union of St. Mark's church and the Nazareth street mission was approved of, on the condition that either or both places of worship be sold and a new one erected on another site. — The chief engineer for the Harbor Commissioners estimates that \$383,000 will be required for the paving of wharves with granite blocks. Besides this work, there will be shed and cranes to be built and car tracks to be laid which will bring the cost of work yet to be done in the harbour to over \$1,000,000. — The Royal Electric Co. have informed the city council that it is the intention to replace the lamps now in use by a new type, the work to be done during the next two years. — A report has been submitted to the city council showing what it would cost to put the sidewalks and macadamized road in good condition. The estimate is as follows: Repairs to permanent roadways, \$137,593; repairs to permanent sidewalks, \$22,731; new macadam roads, \$77,843; repairs to macadam roads, \$92,057; wooden sidewalks (new and repairs), \$153,631. — The Fire and Light Committee has decided to purchase two new fire engines. An appropriation of \$5,000 has been made for the purchase of new hose and other fire apparatus.

TORONTO, ONT.—A by-law to provide the sum of \$133,500 for the erection of new exhibition buildings, including art gallery, dairy building, manufacturers' building, and improvements to main building, will be submitted to the electors on January 5th. — The congregation of Carlton street Methodist church are raising funds to refurbish the church parsonage. — It is estimated that the new mineralogical and geological building to be erected on the site of old Wycliffe college will cost \$200,000, and that the new medical building of Toronto University will cost \$100,000. — F.H. Herbert,

architect, is taking tenders for the erection of a pair of residences on Collier street, near Park road, for R. I. Laughlin. — Contracts are about to be awarded for the balance of the work of building the new Orthopedic Hospital at 100 Bloor street west. It is reported that next summer a large building will be erected on the south-east corner of Queen and Bay streets. — Building permits have been granted as follows: F. R. Baumhard, pair semi detached, two storey and attic residences, east side Callendar street, near Howard avenue, cost \$4,000; R. J. Milligan, three attached two storey brick residences, west side Rusholme road, near Bloor street, cost \$7,000 (F. F. Saunders, architect, P. Saunders & Son, builders); W. Parkhill, two storey and attic brick and stone dwelling, west side Crawford street, cost \$2,500 (G. C. Watson, architect, McCurdy & Co., builders); King Bros., pair two storey and attic, semi-detached brick dwellings, Clinton street, near College, cost \$3,500 (G. R. Harper, architect); L. Bedford, brick-clad residence, 25 Hunter street, cost \$1,000; B. Bedford, rough cast dwelling, 11 Hunter street, cost \$900; W. Littleford, rough-cast dwelling, 13 Hunter street, cost \$1,100; James Crane, three attached, two storey brick dwellings, east side McKenzie Crescent, near Dovercourt road, cost \$4,000 (Orr Bros., contractors.) — The city council has given notice of its intention to construct the following works. Asphalt pavement on St. Clarens avenue, from College to Bloor street, cost \$19,125; tar macadam roadways on Draper street, from Front street to Wellington Place, cost \$2,230; on Allan avenue, from Broadview to Bolton avenue, cost \$3,910; on St. Paul street, from King to Queen streets, cost \$2,385; cement concrete walks on Carlaw avenue, west side, from Eastern avenue to 1,057 feet south, cost \$1,707; on Bolton avenue, west side, Queen to Gerrard streets, cost \$2,238; on Dunn avenue, east side, from King to Queen streets, cost \$1,744; on George street, east side, from Wilton avenue to Gerrard street, cost \$1,944; on Dunn avenue, west side, from King to Queen streets, cost \$1,650, also several other walks. — Plans of alterations and additions to be made to the Intercolonial Railway station at Halifax, N.S., are on

view at the office of Sproatt & Rolph architects, 94 King street west. Tenders close January 8th. — Tenders are wanted at 54 Cowan avenue for slating, hot water heating, plumbing, plastering, and electric wiring. — It has been proposed that a new library and museum be built in connection with Knox College, to be known as the "William Cayen library." At a meeting of the Trades and Labor council, held last week, the question of building a new labor hall, to cost \$10,000, was considered. — Work will shortly be commenced on a new Sunday School building in connection with the Dovercourt Road Baptist church, for which purpose \$10,000 has already been subscribed. — B. Robins, a large real estate owner in Buffalo, was in Toronto last week, and intimated that he would shortly begin the erection of a large apartment house in this city, the plans for which are being prepared by a local architect. — The Ontario Electric Co. will apply to the legislature at its next session for incorporation and power to construct a railway from Toronto to Cornwall. Sir Richard Cartwright, of Ottawa, A. L. Jewell, banker of Boston, and George E. Smith, electrician, of Boston, are associated with the enterprise. — The city engineer has submitted a report on the subject of dumping grounds, in which he states that to crib a space 1,200 feet long by 50 feet wide in front of the existing grounds would cost \$23,000. He recommends that either crib work or a stone breakwater be constructed from the foot of Bathurst street, from the lake shore. High park, at a cost of \$225,000 and \$160,000 respectively. The cost of installing an electric service for dumping material into Ashbridge's Bay is placed at \$55,000. — In his fortnightly report to the city council the city engineer states that to extend the Don river into Ashbridge's bay by a channel would cost \$3,000, exclusive of piling or land damage. He recommends the construction of the following works: Five thousand feet 6-inch water main on Greenwood avenue, cost \$5,000; asphalt pavement on Spicer avenue, from Huxley street to 189 feet south, cost \$1,830; cedar block pavement on Wyndham avenue, cost \$1,500; concrete sidewalk on east side Booth avenue, from Queen street to Eastern avenue, cost \$

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5; water main on Dundas street, north Bloor street, and also along Dewson street and McPherson avenue, cost \$6,000.

FIRES.

St. John's Roman Catholic church at Whitby, Ont., almost totally destroyed; insurance \$900.—Mr. Zilliox's hotel at Russell, Ont.; some insurance.—Residence of the Lieutenant-Governor of Quebec, damaged to extent of \$4,000.—Residence of Fred Duncan at Millbrook, Ont., totally destroyed.—Shingle mill of Harrison & Hawke at Shallow Lake, Ont., they will re-build.—Cork factory, corner Gauchetiere and Chenneville streets, Montreal, owned by John Auld; loss \$5,000, partially covered by insurance.—Piano factory of George Ducharme in the End, a suburb of Montreal; loss \$100,000, insurance \$4,000.—The drying building of the Grey & Bruce Cement Co., at Owen Sound, Ont., damaged to extent of \$1,000.—Anglican church at Berheme, Man., burned on the 16th inst.

CONTRACTS AWARDED.

TRURO, N.S.—The contract has been let for the building of a contagious hospital here.

LONDON, ONT.—The tender of H. Hara & Co., of Toronto, has been accepted for purchase of \$20,000 county ventures, their figure being 96½.

PETERBOROUGH, ONT.—The Canadian Cordage Co. have placed a \$1,000 order for electrical apparatus with the Canadian General Electric Co.

PARRSBORO, N.S.—W. R. Huntley, in place, has been awarded a contract to build two large coal barges for the Cumberland Railway & Coal Co. They will be built at Riverside.

RIDGETOWN, ONT.—The contract for warming and ventilating new town hall here has been let to the James Hart Mfg. Co., of Brockville, who will build two of their largest Kelsey warm air heaters.

TORONTO, ONT.—Smith & Woods have been given the brick-work contract for two residences to be built on the northwest corner of Maple avenue and St. Andrew road. Balance of contracts not let. H. Herbert, architect.

WIRE NAIL PRICES.

The manufacturers of wire nails in the United States continue to cut prices, and it is predicted that the market has not reached bottom. A dispatch from New York, dated December 12th, states that the Union Iron & Steel Company, of Philadelphia, Pa., has made another cut and is quoting \$1.95 per keg in Pittsburg. Several other companies have refused to meet the cut. Over-supply is thought to be the cause of the depression, though all companies appear to be getting a good business and exports of wire products show an unusually large increase over last year. One company refused to sell nails at the extreme

low price is using the products that heretofore have entered into the manufacture of wire nails in the manufacture of finished products for which there is a brisk demand and a wider margin of profit.

REAL ESTATE TRANSFERS.

The following transfers of vacant property in Toronto are reported since last issue:

Kenilworth Ave., e. s., Toronto Mortgage Company to Frank M. Gray, 100x115, being lots 27 and 28, assessed at \$150, no improvements.

Margueretta St., e. s., Martha J. Austen to Geo. H. Sylvester, 20x117, being part lot 40, assessed at \$80; no improvements.

Murray St., e. s., David Fasken to Elizabeth McMullen, 20x100, being north 16 feet lot B, and south 4 feet lot C, assessed at \$1,000, no improvements.

Pine Hill Road, s. s., Horace Thorne to Chas. C. Foster, 1 3-10 acres, being

block D, assessed at \$2,600, no improvements.

Simpson Ave., n. s., People's Loan and Deposit Company to Thomas G. Sister-son, 25x113, being lot 90, assessed at \$200, no improvements.

William Ave., n. s., Alfred Hoskin to John Small, 50x30, being rear 30 feet of lot 64, assessed at \$50, no improvements.

Bloor St., s. s., Fred S. Watson to Hannah Kettle, 100x130, being lots 5 and 6 and easterly 17 feet lot 4, plan 430, block A, assessed at \$400, no improvements.

Sully St., w. s., Geo. Williams to Elizabeth Williams, 19x113, being lot 9, (Continued on page 6.)

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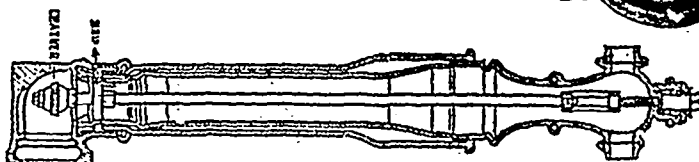
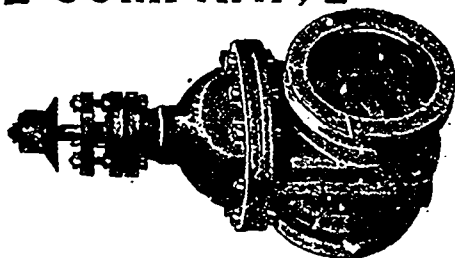
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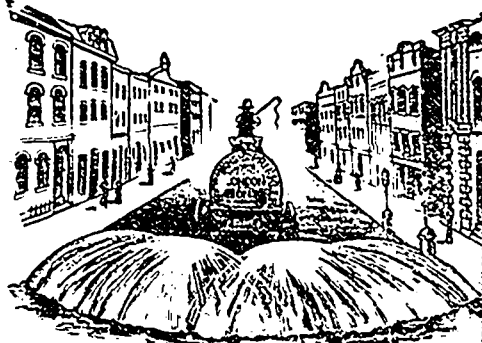
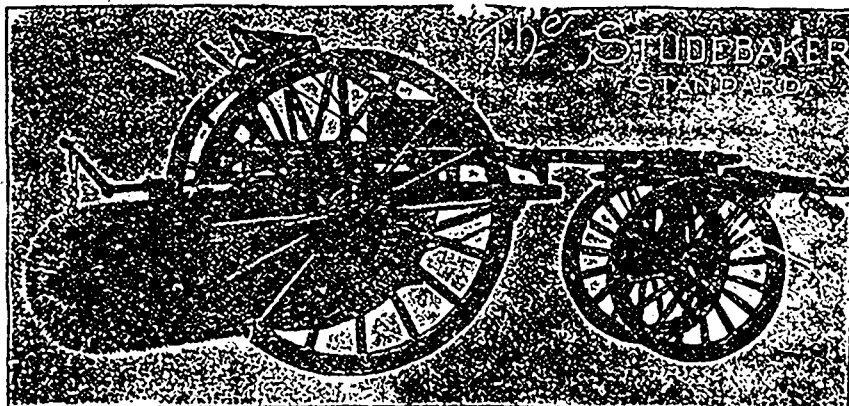
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THE STRENGTH OF BEAMS.

When a straight beam is fixed horizontally at one end and is loaded at the other end or over its whole length, it is no longer straight, but is curved downwards, and the vertical distance of the outer end from the original straight position is called the "deflection" of the beam. The amount of deflection caused by a given load will depend on the nature of the material, and will be scarcely perceptible in a beam or stone so long as the load does not approach too near the breaking weight. Also in beams of cast iron the deflection for a safe load is but small, but in those of wood, wrought-iron, and steel a considerable amount of deflection may be produced by a safe load and without injury to the elasticity of the material. The resistance of a beam to bending is called its "stiffness," while the resistance to fracture is called its "strength," and these two kinds of resistance follow very different laws.

When beams are employed in a building it is essential that the deflection under the load sustained should not exceed a certain quantity, otherwise the stability of the structure will be endangered. A convenient rule has been laid down by Tredgold in the case of floor timbers, that the deflection in the middle of a horizontal beam supported at each end shall not exceed one-fortieth of an inch for every foot of length, or 1 in. to a beam 40 ft. long, when fully loaded.

In a beam of "uniform strength" throughout its length and supported at each end, the line of curvature when deflected by a load at the centre will be an arc of a circle, and the deflection will be proportional to the square of the length divided by the product of the depth into the modulus E. In all other beams the deflection varies as the cube of the length multiplied by the load and divided by the product of E into the moment of inertia" (I) of the section. In a beam of rectangular section we have I proportional to the breadth and cube of the depth, so that the deflection in beams differing in size but of the same material and with the same load is proportional to the cube of the length directly, but inversely as the breadth and cube of the depth.

The "stiffness" of a beam or its resistance to ending being inversely as the deflection under a given load, must, therefore, be proportional to the breadth and cube of the depth, and inversely as the cube of the length; while the "strength," or resistance to fracture, has been shown to be proportional to the breadth and square of depth, and inversely as the length.

When the load is uniformly distributed over the whole length of a beam which is supported at each end, its deflection is five-eighths of that produced by the same load placed at its middle point; and in calculating the deflection of a beam under a given load at the centre we must add five-eighths of its own weight to the given load in order to obtain the correct amount of deflection.

If the beam is fixed at one end and loaded at the other, we must add three-eighths of the weight of the beam to the load in order to obtain the true deflection.

In a beam of rectangular section sup-

ported at each end and loaded by a weight W in the middle, the deflection is found by the following rule: Divide the product of W into the cube of the length by four times the product of E into the breadth and cube of the depth; all dimensions being expressed in inches, W and E being in tons.

If the beam is supported at one end only and loaded with W at the other end, then the rule for the deflection is: Multiply the cube of the length by four times W, and divide by the product of E into the breadth and cube of the depth; all dimensions in inches, W and E being expressed in tons.

(To be continued.)

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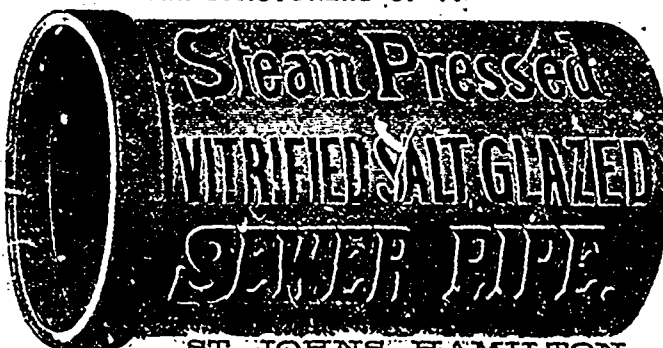
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MUNICIPAL DEPARTMENT

SEWAGE DISPOSAL IN TORONTO.

(Continued from last issue.)

At the pumping station the sewage would be passed through a strainer, in order to prevent any possible danger of objectionable floating matter being found stranded along the shore in the vicinity of the outlet. If, however, the council object to turning crude sewage into the lake, Mr. Rust recommends as the most fitting alternative, the adoption of his second proposal—the construction of septic tanks and the purchase of some 500 or 600 acres of land to be used as filter beds, the sewage to be lifted to this point. As we stated above, the estimated cost is £480,000 and the annual cost £15,000. Incidentally Mr. Rust mentions that various engineers who have reported on the subject of the disposal of sewage of the city during the past twenty years have recommended that the sewage should be discharged directly into the lake, but at a point much nearer to the water intake than that proposed by himself. Nevertheless, they were all of opinion that there was not the slightest danger of any contamination of the water supply; and the risk is now considerably diminished, by the fact that whereas formerly the supply was taken from a depth of only 20 feet, the intake pipe has since been extended and the water is now procured at a depth of 50 feet. Mr. Rust points out that a bacterial treatment scheme would cost much more than that for discharging the crude sewage into the lake, and the annual expenditure would also be considerably greater. The second, third and fourth schemes are limited in the estimates to the treatment of 25,000,000 gallons a day, which is slightly in excess of the dry weather flow; but as the amount of sewage increases, not only the pumping plant but the septic tank, bacteria beds, filter area and force mains will also have to be increased. Here Mr. Rust mentions a peculiar point in connection with the water supply. He observes that it is somewhat remarkable that from 1 a.m. to 5 p.m. when it would be considered that the flow of sewage would be very small, it is as high as 15,000,000 or 16,000,000 gallons. Mr. Rust argues that as there is very little water used during these hours some 12,000,000 to 15,000,000 gallons must be going to waste somewhere, probably caused by innumerable leaks, bad plumbing fixtures, etc., and that, in comparison with the large amount of water used per head in Toronto as compared with European cities, it is self-evident that a large saving would be effected in connection with sewage disposal if the quantity of water used would conform more closely to European practice.

Mr. Rust anticipates that there will be some dissatisfaction among the citizens owing to the fact that he has recom-

mended that the crude sewage be discharged into the lake, but he reminds them that the difference in the cost of the schemes has to be considered, and also the difficulty of procuring land at a reasonable cost at a suitable distance from the centre of the city, and so situated that the construction of disposal works would not be detrimental to the surrounding property. It is pointed out that though disposal works would be comparatively free from smell, and would not, in Mr. Rust's opinion, be a nuisance, there is always a sentimental objection on the part of property owners to having sewage works located in their immediate neighborhood. In connection with the location of the outfall, should it be considered advisable in the distant future to dispose of the sewage by a different method than by turning it into the lake, there would be no difficulty in procuring a large tract of land at a reasonable cost in the neighborhood of the outfall, the only drawback being that the elevation of the ground in the neighborhood is so much above the lake level that the annual cost of pumping would be somewhat heavy. In concluding his report Mr. Rust remarks that in all probability the municipality of a European city situated on a large body of water would turn their sewage directly into it. Some distinction, however, in our opinion, should be drawn between turning the sewage into the sea and turning it into an inland fresh water lake, though in the case of Toronto the great area of Lake Ontario may be

urged in support of the scheme. Mr. Rust mentions incidentally that the city engineer of Manchester, an inland city, recommended in preference to any system of treatment that the sewage be carried by an intercepting sewer 15½ miles in length and discharged into the Mersey. This recommendation, as our readers are aware, was not adopted, bacterial treatment being preferred. It is quite correct as Mr. Rust adds, that although bacterial treatment has been adopted by a large number of towns and cities in England the majority of these places are inland and so far only one or two towns situated on tidal waters are carrying out schemes of bacterial treatment. Although, for the present, at all events, Mr. Rust pronounced in favour of turning the sewage into the lake, he concludes his report with an emphatic commendation of bacterial methods, with two reservations. He says "If it were finally decided to adopt the bacterial method of sewage disposal for this city, it would be found thoroughly efficient and satisfactory. This is borne out by the experiments that have been carried on in England during the past six or seven years, but as I have already explained, at present there is not sufficient data upon which to base an estimate of the annual cost of operation, nor is there sufficient information to decide finally as to the lifetime of the beds." These are the two points upon which municipal engineers are now busily engaged in throwing some light.

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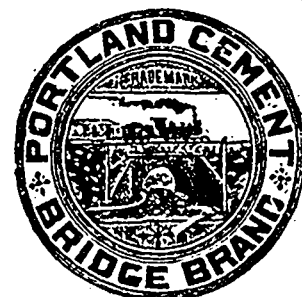
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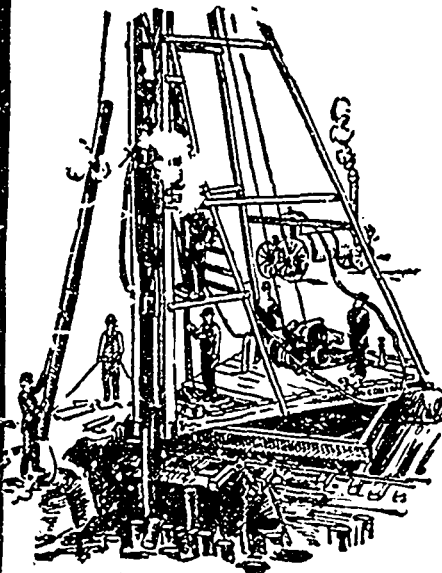


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