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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF 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. 8.

SEPTEMBER 30, 1897

No. 35.

THE CANADIAN CONTRACT RECORD, PUBLISHED EVERY THURSDAY

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OF THE
Village of Chesley School Debentures

Sealed Tenders will be received by the undersigned up to six o'clock p.m. on FRIDAY, THE FIFTEENTH DAY OF OCTOBER, 1897, for the purchase of the above mentioned debentures.

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JOS. McNEIL,
Municipal Clerk.

J. M. STEWART, M. D., Reeve.

E. Robert, contractor, Montreal, is said to be offering to compromise.

William Glanville, brick manufacturer, Palmerston, Ont., is announced to have assigned to H. McEwing.

CONTRACTS OPEN.

GRAVENHURST, ONT.—The new fire hall will cost \$1,568.50.

FOREST, ONT.—There is talk of macadamizing the main street.

DRESDEN, ONT.—John Gordon is preparing to build a grain elevator.

GANANOQUE, ONT.—It is said that a drill shed will shortly be erected here.

ALMONTE, ONT.—A new bridge is to be built over the Mississippi at Glen Isle.

MOUNT FOREST, ONT.—The municipal council will spend \$5,000 on sidewalks.

HUNTSVILLE, ONT.—It is the intention of R. Secord to erect a saw mill at once.

SHELBURNE, ONT.—Harry Chipchase intends building a brick house this winter.

ST. JOHN, N.B.—The foundation for the new north end fire station is well under way.

WOODSLEE, ONT.—The Roman Catholics have commenced the erection of their new church.

ROSSLAND, B. C.—The ratepayers have asked the provincial government to build a court house here.

SHAWVILLE, QUE.—Wm. Graham has purchased a lot at Stark's Corners on which to erect a store.

QUYON, QUE.—Hector McLean contemplates erecting a grist mill here next spring, to cost about \$20,000.

GALT, ONT.—The Fire and Light Committee has recommended that a new fire hall be built, at a cost of \$4,000.

SMITH'S FALLS, ONT.—Mr. J. A. Ellis, architect, of Toronto, was in town last week in connection with the Central school improvements.

BROCKVILLE, ONT.—A deputation interviewed the Minister of Militia at Ottawa last week regarding the erection of a drill shed in this city.

NELSON, B. C.—The Electric Light Company have submitted an offer to the town for lighting the streets, which will shortly be considered.

CARLTON PLACE, ONT.—The proposal to construct an electric railway from here to Lanark is still being considered. The promoter is a Mr. Fowler.

MAGOG, QUE.—R. Langelier will commence building at once, having secured a site.—A. Shedrick, whose building was burned recently, is rebuilding.

VALLEYFIELD, QUE. J. E. Vanier, C. E., 107 St. James street, Montreal, will receive tenders until noon of the 30th inst. for the construction of sewers.

HULL, QUE.—The corporation wants tenders by October 19th for the purchase of \$53,500 of waterworks debentures. Address, John F. Boulter, City Clerk.

LINDSAY, ONI. It is reported that Mr. J. E. Broderick, headmaster of the Lindsay schools, has purchased the Head cottage and will erect an addition thereto.

SHEFFORD VALE, QUE.—Shefford

County Council has decided to purchase a steam stone crusher, subject to the Quebec government paying one half the cost.

TRENTON, ONT. Mr. C. J. Pusey, president of the Iron, Dale, Bancroft & Ottawa Railway, has made arrangements to construct an additional five miles of road this fall.

RAT PORTAGE, ONT.—David White, of Brantford, is erecting a saw mill at Bell City. In the spring it is the intention of his company to build a planing mill and stamp mill.

BLENHEIM, ONI.—J. L. Wilson, architect, of Chatham, has been instructed to prepare plans for an hotel building, to include store, bank and barber shop, and to cost \$8,000.

FENELON FALLS, ONT.—We understand that County Councillor Ellis, is having plans prepared for a stern wheel steamer for the Lindsay Coboconk route next season.

METCALFE, ONT.—F. Iveson, township clerk, will receive tenders until Saturday, Oct. 2nd, for the deepening and widening of section No. 3 of Doyle's creek, in the township of Osgoode.

GRAND FORKS, B. C.—At its last meeting the council decided to call for bids for the putting in of a water works and electric light system, at a cost of \$10,000 and \$3,000 respectively.

ST. JOSEPH, QUE.—The "La Compagnie de Telephone de Beauce" is the name of a company seeking incorporation to construct telephone lines. Taschereau & Pacaud are solicitors for the applicants.

WOODSTOCK, ONT.—Mr. Ball, councillor, states that it is the intention of the Ontario government to remove the observatory from Toronto to a point further west, and that Woodstock has been mentioned as a favorable location.

WINDSOR, ONT.—A curling rink company has been formed, with a capital of \$5,000. The provisional directors are: D. L. Carley, James Anderson, C. T. Cooney, James Smyth, Arch. McNee, C. M. Walker and A. R. Bartlett.

LENNOXVILLE, QUE.—Suggestions have been made for increasing the accommodation at Bishop's College. The principal advises that a portion of the recent legacy of the late J. H. R. Molson, of Montreal, be invested in building an addition to the college.

GUELPH, ONT.—The Board of Trade is endeavoring to have the fire appliances brought up to the requirements of the underwriters.—G. R. Bruce, architect, will receive tenders up to October 1st for the erection of a dwelling house on Woolwich street. Plans at 37 Oxford street.

DUNDAS, ONT.—The plans of Mr. Arnout have been adopted by the Town Council for the construction of a dam, to cost \$5,500. Work will be commenced this fall. Tenders are being taken this week for the erection of a fire hall, from

plans by W. A. Edwards, architect, Hamilton. Address H. Bertram, Chairman Fire and Water Committee.

BRAMPTON, ONT.—The late Miss Jane Porter left an estate of \$40,000, of which \$4,000 was left as a bequest to Peel county towards the erection of a House of Refuge at or near this town. Mr. Justice Rose has granted an application for the money to be used in the erection of such a building.

AYLMER, QUE.—Michael Sheridan, contractor, of Montreal, will establish a saw mill here. The plant will cost \$50,000, and will be in operation next spring.—It is stated that the town council at its next meeting will take the necessary steps to improve the sanitary condition of the town.

BRFRIIN, ONT.—Dr Bryce, secretary of the Provincial Board of Health, recently visited the sewage farm here and recommended several improvements, including the erection of an abattoir.—A committee of the Board of Health has been appointed to look up a suitable site for an isolation hospital.

KINGSTON, ONT.—Mr. L. C. Barnett, architect, of Minneapolis, Minn., was recently in the city endeavoring to secure the contract to build the proposed elevator for the Montreal Transportation Co.—The Board of Trade has decided to build a summer hotel, and a committee has been appointed to select a site.

SACKVILLE, N. B.—Incorporation has been granted to the Sackville Machine and Foundry Company, to manufacture mill supplies, machinery, etc., and construct waterworks systems and similar works; capital, \$15,000; promoters, B. B. Teed, barrister, Wm. Ogden and David Wheaton, lumbermen, and others.

PARRY SOUND, ONT.—Excavating for John Clark's residence has been commenced.—Should arrangements be completed for through traffic to the ports of Halifax and St. John, the Ottawa, Arnprior and Parry Sound Railway will construct two more elevators and improve the terminal facilities at Deep Harbor.

KOOTENAY, B. C.—John M. Harris, president of the Reco Mining Company, has conceived the idea of driving a cross-cut tunnel through Noble Five mountain. The tunnel would be two miles long, twelve feet high, wide enough for a double car track, and chambered the entire length so as to allow for drainage and natural ventilation.

QUEBEC, QUE.—The enlargement of the Chateau Frontenac is said to have been fully decided upon. It will be commenced immediately. One hundred and twenty five new rooms will be added, at a cost of \$25,000. J. N. St. Pierre will erect a large building, 150 x 50 feet on Prince Edward street and 90 x 40 feet on Crown street, four stories, with flat roof. Miller & Lockwell are making extensions to their tobacco factory at St. Pierre de Charlesburg.—The Chicic Co. will erect a warehouse. It will be of four stories, 70 feet square, with flat roof.

OTTAWA, ONT.—In connection with the new wing to the General hospital on Water street, it is stated that an east wing adjoining the building which is being raised will be erected by the hospital authorities at an early date.—The Ottawa & New York Railway Co. have purchased property in the vicinity of the Nicolet hotel, and intend, it is said, to erect a new station.—The Edmonton, Pease River & Yukon Railway Co. are seeking incorporation, to construct a railway from Edmonton, N. W. T., to a point on the navigable waters of the Yukon. Code & Burnett are Ottawa agents for the company.—It has been decided to construct asphalt walks on Metcalfe street.

WINNIPEG, MAN.—George D. Wood & Co., wholesale hardware merchants,

have decided to build a new warehouse corner Mc Dermid & Alfred streets. The foundation will be laid this fall.—The time for receiving tenders for macadam roadways on Smith, Carlton and Edmonton streets has been extended for two weeks.—Parkins & Co., photographers, have been granted a permit to enlarge their premises.—Several offers of sites for the new central fire hall have been received, and a selection will be made at an early date.—The Board of Works will recommend the construction of a granolithic walk on William avenue, to cost \$1,266. Tenders are asked by H. Wilson, chairman Committee on Works, until October 27th, for the erection of a bridge superstructure. Plans at office of Mr. H. N. Ruttan, city engineer.

LONDON, ONT.—No. 2 Committee of the Board of Education have decided to recommend the immediate erection of a two-room school building on Colborne street south. In the meantime tenders will be taken for brick veneer and frame buildings, in order to compare the cost of each. Plans have already been prepared.—The City Engineer has been instructed to prepare plans for alterations to the police station, to accommodate the city ambulance.—Designs are invited for the proposed Jubilee hospital. The new building will cost about \$75,000.—The Board of Trade will petition the Minister of Public Works to proceed with the harbor improvements at Port Stanley.—Josiah Garratt has commenced the erection of a brick boiler house and coal shed at the city gas works, to cost \$5,000.—Herbert Mathews, architect, will receive tenders for a public school building on Colborne street until 5 p.m. October 4th.—J. H. Vanstone has taken out a permit to erect a brick house on Byron avenue, to cost \$1,700.

TORONTO, ONT.—Lount, Marsh & Cameron, of this city, solicitors for applicants, are seeking incorporation from the Dominion government of a company for the purpose of constructing a railway from a point near the head of Chilcat Inlet, on the Linn canal, to the Rink rapids, on the Yukon river, with power to construct bridges, wharves, telegraph and telephone lines, etc.—J. A. Nesbitt, real estate agent, has completed the sale of the late Dr. Strange's residence on Simcoe street to a prominent physician, who will remodel and enlarge the premises.—The City Engineer has reported in favor of a macadam roadway from Bloor street, down Queen's Park to the crescent, at a cost of \$3,500. He has also recommended the construction of a concrete sidewalk on Lakeview avenue, west side, between Harrison street and Churchill avenue.—A real estate man gives it as his opinion that the Imperial Insurance Company will shortly erect a new structure at the corner of Victoria and King streets.—The construction of a 24 foot macadam roadway on Harbord street, from St. George to Huron streets, at a cost of \$2,000, has been recommended.—A. R. Denison, architect, is preparing plans for a large addition to the Hotel Hanlan, consisting of 35 bedrooms, a large dining room, 33 x 50 feet, and a billiard room, to be of same construction as present building. We are advised by same architect that the new building at the south-west corner of Yonge and Temperance streets will shortly be commenced.

HAMILTON, ONT.—Mr. Witton, architect, has received instructions to remodel the interior of the Royal Hotel. It is proposed to have marble staircases, to furnish the rooms, enlarge the dining-room and put in new freight and passenger elevators, at a cost of about \$20,000.—The Board of Works have given permission to the Hamilton, Chedoke & Ancaster Electric Railway Co. to enter the city.—Building permits have been granted as follows: Toronto, Hamilton & Buffalo Railway Co., new freight sheds on Yonge

street, 40 x 300 feet, frame, with corrugated steel roof; R. & J. Poag, brick house on Wentworth street, between Barton & Cannon streets; R. O. Bigelow, alterations to 113 and 115 John street north; Thomas Lovejoy, residence on Emerald street, between Evans and Cannon streets.—Mayor Colquhoun has been negotiating with Mr. John Wilson, of the Heinze Pickling Co., of Pittsburg, Pa., for the establishment of a branch in Ontario, and he is said to have decided to recommend to his principals that the branch be established here. Mr. McPhie, architect, has been instructed to prepare plans of a shelter for wholesale butchers.—Chief Atcheson, of the fire department, is preparing specifications for an aerial truck, to cost \$1,200.—The finance committee will advertise for tenders for the purchase of \$25,000 of debentures.—It has been decided to establish an electric light plant at the Beach pumping house, at a cost of \$500.—E. G. Barrow, city engineer, has reported on the prevention of the flooding of James and Barton streets. He recommends the construction of a sewer on Catherine street south and the building of a short storm water sewer from Wood street northerly. The estimated cost is given as \$20,000. The Sewers Committee have approved of the report, and decided to ask the council to sanction the work.

MONTREAL, QUE.—Mr. A. J. Corriveau, the promoter of the Montreal Southern Counties Railway, has lately returned from making a circuit of the proposed route. It is the intention to run the line through Chambly, where the necessary power will be obtained.—A meeting of capitalists interested in the proposed Mount Royal tower project was to have been held last week, but was postponed. Mr. Lapointe, the promoter of the project, has tenders for the construction of the tower from several Chicago firms.—At the regular meeting of the Chambre de Commerce, plan No. 19 for harbor improvements was considered. It was decided not to recommend this plan to the government, but to hold to the original plan.—The Road Committee will recommend to council that the \$6,000 voted to repair the paving on Craig street be utilized for sidewalk purposes.—A petition is being circulated at Pointe St. Charles requesting the management of the Grand Trunk Railway to erect a new station in the vicinity of Hibernia road.—At the last meeting of the Health Committee, a petition was read from the council and citizens of DeLoirnie municipality protesting against the re-erection of the eastern abattoirs on the old site. It suggested that they be erected at Longue Pointe, near the river side.—Application will be made to the Finance Committee for money to build sewers on the following streets: St. Denis, from St. Ignace to C.P.R. tracks; DeMontigny, from Beaudry to Montcalm; St. Henry, Notre Dame to St. Paul; Derivieres avenue, St. Andre, from Marianne to Mount Royal and from Mount Royal to Perrault street.—A. Prefontaine, architect, is preparing plans for a college to be built at Boucherville for the commissioners of that parish. Tenders will be invited shortly.—Macduff & Lemieux, architects, are calling for tenders for a large factory, 204 x 40 feet, with extension 75 feet, to be built on St. Ambroise street, St. Henri, for the Moseley Shoe & Leather Co.—A. Prefontaine, architect, is taking tenders for a convent to be erected at St. Eustache for the Ladies of the Congregation of Notre Dame.

FIRES.

The house owned by A. E. Haffie, Landsdowne, Ont., was destroyed by fire on Monday last. Loss \$2,000; insurance \$1,000.—The Lakeview hotel at Bowmanville, Ont., has been burned. The building was owned by Mrs. Ruebottom, and was only partially insured.—A residence

at Victoria Corners, Ont., owned by James Brethour, was destroyed by fire recently.—H. P. Eckardt & Co., wholesale grocers, Toronto, suffered \$30,000 loss by fire last week. About \$1,000 will cover the loss on building.—The dwellings on the farm of John Owens, near Alloa, Ont., were burned last week, at a loss of \$1,500.—Fire at West Prince Albert, N.W.T., on the 26th inst., destroyed a brick block owned by E. J. Cann, of Fort Steele.—The following buildings at Teeswater, Ont., have been destroyed by fire. Frame buildings, owned by S. Sofley, Toronto, Caldecott, Burton & Spence, Toronto, and M. Hadwen, Toronto.—The factory of the Foisy Piano Manufacturing Co., Papineau road, Montreal, was recently damaged by fire to the extent of \$4,000.—The large departmental store at Garden Island, Ont., owned by the Calvin Co., was burned a few days ago. The building will be rebuilt.—The residence of Frank Wagoner, at Vienna, Ont., has been burned.—A building at Campbellford, Ont., owned by Matthew Galvin, was destroyed by fire on Wednesday of last week; insurance \$6,000.—Fire at Point du Chene, N.B., destroyed the following buildings: Point du Chene hotel, owned by John McDonald, Seaside hotel, owned by Mrs. James McDonald, store owned by Mrs. Johansen.—Anderson Bros.' saw mill in Sullivan township, near Chesley, Ont., has been destroyed by fire. Loss \$6,000, insurance \$1,800.

CONTRACTS AWARDED.

NELSON, B.C.—A sewer contract has been awarded to Edward Bragg.

TILBURY, ONT.—Charles Clark has secured the contract for the new Presbyterian manse.

BERLIN, ONT.—School debentures have been disposed of to G. A. Stimson & Co., of Toronto.

DUNCHURCH, ONT.—The contract for building a cheese factory has been given to John Burns, at the price of \$650.

BLACKVILLE, ONT.—Brown & Semple have been awarded the plumbing contract for Dr. Murphy's block of stores at Renfrew.

CORNWALL, ONT.—Larkin & Connolly have sub-let a mile and a half of the Iroquois canal to the Gilbert Blasting & Dredging Co.

TILBURY WEST, ONT.—The tender of O'Hara & Co., Toronto, for Big Creek and No. 4 government drain debentures, has been accepted.

PORTAGE LA PRAIRIE, MAN.—The town council has decided to purchase a fire engine from John McKechnie, of Winnipeg; price, \$2,500.

MONTREAL, QUE.—C. St. Jean, architect, has awarded the contract for reparations and decorations to the Church of St. Sebastien, all trades, to P. Boileau & Bros.

WINNIPEG, MAN.—The tender of Kelly Bros. has been accepted for macadamizing Princess street and McDermid avenue, at the price of \$20,319 and \$4,016.25 respectively.

GUELPH, ONT.—Charles Raymond is building a residence, 57x27 feet, two storeys. Chubb & Son have the contract for stone and brickwork and Mr. Mahoney that of the carpentering.

OTTAWA, ONT.—T. J. McLaughlin, of this city, has been awarded the contract for the building of a new swing bridge over the Rideau canal at Bank street. The sum of \$25,000 has been voted for this work.

TORONTO, ONT.—The Bennett & Wright Co. have secured the contract for heating and ventilating the new building, corner King and Yonge streets, for the Lawlor Estate; Darling & Pearson, architects.—The contract for heating and plumbing of S. F. McKinnon's new warehouse on York

street has been let to Purdy, Mansell & Mashinter.

PETERBORO', ONT.—The county council have let the contract for a bridge over Deer river to James Scott and A. Waller, at the price of \$1,125. The contract for building concrete abutments for Steele's bridge, over the Ouse river, in the township of Asphodel, has been awarded to J. Hayes, of this town, for the sum of \$890. The contract for superstructure will be let as soon as the abutments are completed.

QUEBEC, QUE.—Mr. St. Pierre is rebuilding his boot and shoe factory. Mr. Page, of St. Raymond, has the carpenter work, and Mr. Parent, of Beauport, the masonry contract. Building permits have been granted as follows. Brick elevation on Ste. Genevieve Hill for Mr. Legare, contractors, Flann & Bernier. Repairs of house, corner Notre Dame and Mountain streets, for M. Welsh, contractor, G. Brousseau. Repairs, corner St. Olivier and Tachereau streets, for A. Marois.

HAMILTON, ONT.—Leitch & Turnbull, elevator manufacturers, of this city, have just completed elevators in the following buildings: Hydraulic passenger elevator, hospital, Galt; steam belted freight elevator, Gutta Percha & Rubber Mfg. Co., Toronto; freight elevator, Geo. Foster & Son, Brantford; carriage elevator, John Temple, Hamilton; belt power elevator, Hollinger & Ball Chair Co., Hanover; elevator, C. C. Hamilton, Shediac, N. B.; elevator, Raymond Mfg. Co., Guelph. This firm have now on hand the following work. Fast speed passenger elevator and steam pumping plant, Spectator building, Hamilton; passenger elevator, Ladies' College, Hamilton; freight elevator, Riordon Paper Mills Co., Merriton; belted electric passenger and freight elevator, Butterworth & Co., Ottawa; belt power elevator, J. Duff & Son, Hamilton; belt power elevator, Sewage Dis-

posal Works, Hamilton; elevator, Chas. Fawcett, Sackville, N. B.

BIDS.

TORONTO, ONT.—The following are the tenders submitted for elevators for the new municipal buildings. Electric elevators—Jack & Robertson, \$29,875, Otis Bros. & Co., \$44,500, Standard Elevator Company, \$25,900, and with enclosures \$13,900 more; the Fensom elevator works, \$44,000. Hydraulic elevators—Otis Bros. & Co., \$46,500, Standard Elevator Company, \$31,600, and with enclosures \$45,500, the Fensom elevator works, \$48,000. The architect, Mr. E. J. Lennox, has recommended that electric elevators be used, as being more economical. For clocks for the same buildings the tenders were as follows. Ambrose Kent & Co., tower and office clock, \$7,126, if striking apparatus is left off, deduct \$1,100, if small striker used, a further reduction of \$800. Winding tower and electric office clocks—J. E. Ellis & Co., tower clock, \$6,242, office electric clocks, \$3,500, additional work already done, \$750; total, \$10,492. Winding tower clock only—W. Ashall, dials, \$4,401; striker, \$3,358, J. E. Ellis & Co., \$5,575, with 2,000 pound bell, \$8,575, according to specifications, but including striker only, \$6,242, including striker and bells, \$10,017, including chime of three bells, \$9,292. A comparison shows a difference in favor of pneumatic clocks of \$3,366.

The Gravel & Construction Co., of Toronto, Ltd., has been incorporated, to construct public works and deal in building and trading material; capital \$40,000. The members of the company are Archibald Campbell, M.P., Joseph Smith and R. L. McCormack, Toronto Junction; J. P. McIntosh, Toronto, and A. H. Royce, York township.

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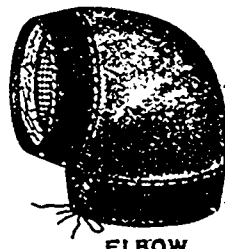
- A few of the principal Buildings **PLASTERED WITH ASBESTIC**—
- THE McDONALD BUILDING**, Victoria Square, Montreal.
 - THE YOUNG WOMEN'S CHRISTIAN ASSOCIATION BUILDING**, Montreal.
 - THE ROYAL VICTORIA COLLEGE**, Montreal.
 - THE PROTESTANT INSANE ASYLUM**, Verdun, near Montreal.
 - THE GRAND HOTEL**, St. Hyacinthe, Que.
 - THE NEW CUSTOMS-APPRAISERS STORES, NEW YORK**, now building, which will consume 5,000 tons.
 - THE PARLIAMENT BUILDINGS, OTTAWA**, portion of which was recently destroyed by fire and rebuilt.

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CUTTING RAFTERS.

Here is a quick way to cut rafters that are to form a roof having one-third pitch, says the National Builder. Suppose the building to be roofed is 18 feet wide. Take half the width of the building, which in this case is 9 feet. Multiply this by $2\frac{1}{2}$, and call the answer inches, giving in this case $22\frac{1}{2}$ inches, or one foot ten and a half inches. Add this to half the width of the building, which gives the length of the rafter, 10 feet $10\frac{1}{2}$ inches. Since this overruns, say 1-16 of an inch to the foot, it would make this measurement 9-16 of an inch too long. Call this a half an inch, which leaves the rafter 10 feet 10 inches in length. To put the matter plainly the following is presented.

| | |
|-----------------|----------------------------------|
| 18 | 9 |
| $4\frac{1}{2}$ | $1-10\frac{1}{2}$ |
| $22\frac{1}{2}$ | 10 feet, $10\frac{1}{2}$ inches. |

This problem, though not exact enough for actual use, will enable the estimator to get the length of his rafters, nearly, on paper, if his roof is a one third pitch. In actual practice it is best to make use of the steel square when laying out a rafter, then the length and bevels may be obtained at the same time.

FREEZING OF QUICKSAND.

A piece of information, says Architecture and Building, that at this time is not without interest, when the freezing of quicksand is so often used by engineers in excavating for foundations, is brought forward by the London Architect. It says: Freezing is occasionally employed in the north of Europe as an auxiliary in the carrying out of foundations. The first application was in the Siberian mines. In order to reach the gold-bearing rock, which is in many places beneath strata of gravel and sand containing watery seams, the natural cold of the winter season is turned to account. The ground is kept clear of snow, so as to permit the cold to penetrate as deeply as possible, after which the surface is thawed by fires until a shallow layer of earth can be removed. The freezing is then allowed to proceed and the thawing operation repeated, and this is continued as long as the cold weather lasts. In this way, through the long Siberian winters, open excavations are made to the gold-bearing rocks, the depth attained being from 25 to 75 feet, according to the duration of the cold season. Artificial cold for purposes of excavation was used first by Poetsch in 1883. By his process of the circulation of cold brine through a series of buried pipes, the most difficult quicksand may be made hard enough to be excavated like rock. It was used in sinking a shaft at the Courrieres mines. Among the applications of the freezing process are the sinking of the shafts for the cylinders of the hydraulic elevator for the canal lift at Les Fontin-

ettes, and the construction of a tunnel at Stockholm. The latter work was executed entirely by the introduction of cold air into the working chamber at the head of the tunnel, the cold preventing the infiltration of water until the beton lining was built, and the work of excavating and lining being carried on at temperatures ranging between 0 degrees and 25 degrees Fahr.

STORY OF THREE CHURCHES.

The following story comes from Waterloo, Ia., says Architecture and Building. The members of the Presbyterian church decided to erect a new place of worship. Stone was scarce; in fact, there were no quarries and no rock suitable for building purposes nigh at hand. At last their attention was called to what was apparently a large boulder which stood in the middle of a plain about eight miles from the town. This huge mass of rock was like an island in the midst of a vast sea. About eight feet of it projected above ground. The work of excavating this gigantic boulder was at once begun. When exposed to view it was found to be 28 feet high, 30 feet long and 20 feet wide. On this monolith the workmen began their labors with drill, hammer and dynamite, and the enormous rock was converted into building stones. The pieces were conveyed to the town, and before long a wonderful metamorphosis was apparent, and then this giant boulder, after resting undisturbed for countless years and buried by the deposits of ages, was transformed into a beautiful church. In its rough state this great rock is estimated to have weighed more than 2,500 tons.

To build a church from material taken from one boulder is certainly surprising, but not so much so as to build and complete a large wooden church from the timber of a single tree, no other lumber from any source being used, the building being the largest church edifice in the country. This building is situated in Santa Rosa, Cal., and was erected for the members of the Baptist communion of that place. The timber was taken from a redwood tree that grew in the neighborhood. The interior of the church was

panelled and finished with wood, not a particle of plaster or other similar material being used. The floors, seatings, pulpit, roof and roofing were all formed from material taken from the same tree, and after the building was finished in every particular, stuff was taken from it to manufacture 60,000 shingles, besides a large quantity of scantlings, joists and other dimension stuff.

There is a Presbyterian church at Hepburnville, Pa., that was built by one man. It is a beautiful stone structure built from great boulders taken from Brobst Mountain. The name of the man who built this church was George Taylor, and he labored at it for more than six years, quarrying and cutting his own stone and putting them in place when opportunity presented. The building is 60x38 feet, with a square tower 60 feet high. Before the church was quite finished Taylor grew ill. His hammer, chisel and trowel were laid aside, and they were never again taken up by him. In his will it was found that he left the church and all its belongings to the congregation. There remained a small debt, which was partially wiped out the first Sunday service was held in the building. A subscription was raised and a pretty memorial window was erected by the congregation in honor of the aged and untiring builder.

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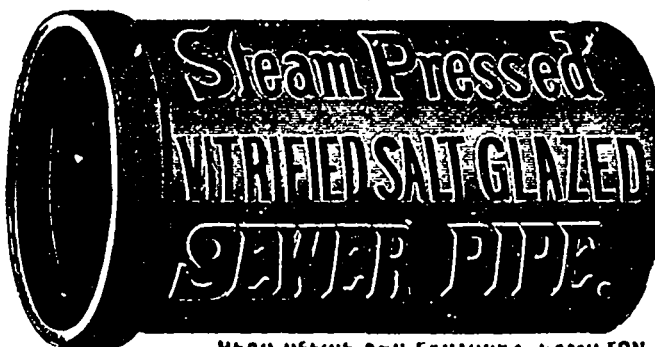
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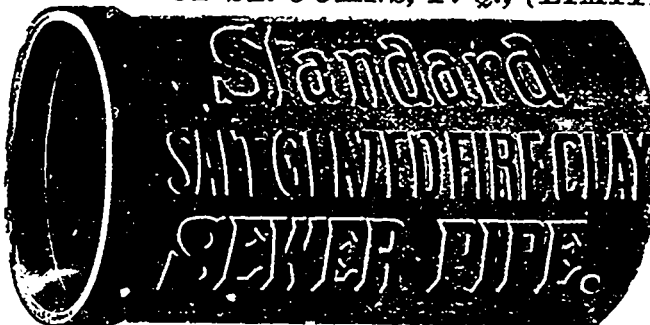
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TO MUNICIPAL OFFICERS.

The CONTRACT RECORD is desirous of publishing, as far as possible, advance information regarding projected works of construction in all parts of Canada, such as sewerage and waterworks systems, railways, street pavements, public and private buildings, etc. Municipal officers would confer a favor upon the publisher by placing at our disposal particulars of such undertakings which are likely to be carried out in their vicinity, giving the name of the promoter, character of the work, and probable cost. Any information thus furnished will be greatly appreciated.

SEWAGE PURIFICATION.

The following is the text of a paper on the above subject by Mr. W. F. Van Buskirk, City Engineer of Stratford, Ont., read before the Association of Executive Health Officers of Ontario:

"The smaller cities and towns of Ontario are apparently not prepared to expend large sums of money on sewage purification works, since it is with great difficulty that even a moderate appropriation for sewer construction can be obtained.

"Sewerage is a necessity, and no town in Ontario can long afford to be without a system. Sewage purification in the most approved manner is not always necessary, as in many cases the streams and bodies of water into which sewers discharge are not used for water supply.

"It is well understood that complete purification of sewage can be arrived at only by application to land, either by broad irrigation or by intermittent filtration through sand, gravel, or other porous material. Partial purification of sewage may, however, be attained by several well understood methods and in a great many cases will be sufficient for practical purposes.

"Complete purification, where a sufficient area of suitable land is not available, is expensive and difficult to attain, hence a too severe ruling by the health authorities will evidently tend to discourage and delay the construction of many much needed sewerage systems.

"The courts will apparently prevent pollution of a stream or body of water if riparian proprietors are materially injured, but will take into consideration the balance of inconvenience should the injury be trifling and can be compensated by a payment of money.

"The 'Rivers Pollution Act' is enforced by the authorities in England with great mildness, complete purification of sewage not being insisted upon unless water is taken for domestic supply from the rivers and streams at points which may be reached by the discharged sewage. When

such is the case, however, land treatment is insisted upon. Of this class of streams are those within the water-sheds from which the water supply of London is taken. Upon these streams there are thirty-eight towns which purify sewage by application to land and only one permitted to use chemical methods.

"In the case of streams not used for domestic water supply, any method is allowed that will purify the sewage to an extent sufficient to prevent its becoming a nuisance. Chemical precipitation is the most common method of treating sewage in this class, and in many cases experiments have been and are being made in further treating the effluent from precipitation tanks by rapid filtration.

"When a small quantity of sewage is discharged into a large volume of comparatively pure water, the organic matter in the sewage is destroyed by the oxygen of the air contained in the water and by the action of the minute forms of animal and vegetable life in the water and bed of the stream. In cases, however, where the quantity of sewage is greater than can be thus consumed, part of the proceeds of decomposition of the organic matter takes place in the absence of air, causing objectionable odors and serious pollution of the stream. This condition is greatly aggravated by sedimentation where streams have small velocity or where water is still, as in the case of lakes, etc.

"The sewage of towns and cities in Ontario and the United States is much more dilute than that of English towns, owing to the much greater quantities of water consumed, the average for English towns being about twenty-five gallons per head per day, while that of Canada and the United States is about one hundred gallons per head per day. Further, most of the towns and cities of Ontario have a very small population per acre and by far the greater part of the washing water and excreta is deposited on the land in a way familiar to all, and never reaches the sewers.

"It will be found that in nearly all cases the quantity of sludge to be removed from the sewage is very small as compared with that required in large cities and in England. It is therefore probable, where partial purification only is required, that the methods most in use will not be necessary or advisable and will seldom prove both effective and cheap if applied without taking into consideration the different

conditions which obtain here. Chemical precipitation will, without doubt, prove much more expensive than rapid filtration through gravel aided by a current of air or than straining through coke. The annual cost of chemicals alone, for chemical precipitation, as given by the State Board of Health of Massachusetts, is thirty cents for each head of population, not to mention the extensive plant necessary and the cost of labor.

"The methods above mentioned, of rapid filtration and straining through coke, have the further advantage of disposing of the sludge to a considerable extent and in a much more cleanly and satisfactory manner.

"The following table of results is taken from the report of the Massachusetts State Board of Health and shows the comparative efficiency of the different methods of sludge removal from sewage:

| Method. | Average per cent. removal of a lb. ammonia. | Oxygen consumed. | Bacteria. |
|---------------------------------|---|------------------|-----------|
| Rapid filtration through gravel | 89 | | 96 |
| Chemical precipitation | 57 | 50 | 68 |
| Sedimentation | 30 | 21 | 55 |
| Straining through coke | 52 | 44 | 43 |

"The above results were obtained from experimental filters and tanks, using city sewage and operated under trained scientific supervision. Consequently it is to be expected that the less complicated methods would prove comparatively more efficient in general practice in the smaller cities and towns.

"A dilute sewage will naturally show a smaller percentage of purification by any method of treatment than a more concentrated sample, but on the other hand it will pass through the filters at a higher rate of flow per acre and with less clogging of the upper layers of filtering material.

"The above consideration would indicate that it will be possible to discharge the sewage of many small cities and towns into streams during periods of high water without causing a nuisance, but that some means of partial purification during the periods of low water and small flow is desirable; also that the method of straining through coke will give satisfactory results where the sewage to be treated is dilute. It should not be lost sight of that complete purification can readily be obtained by conducting the effluents from the coke-strainers to filter beds of sand or other porous material."

The death of Mr. Louis Kroetsch, clerk of Wellesley township, occurred at Berlin, Ont., last week.

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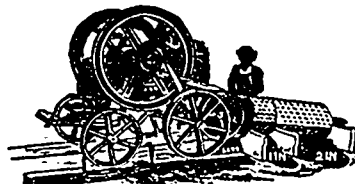
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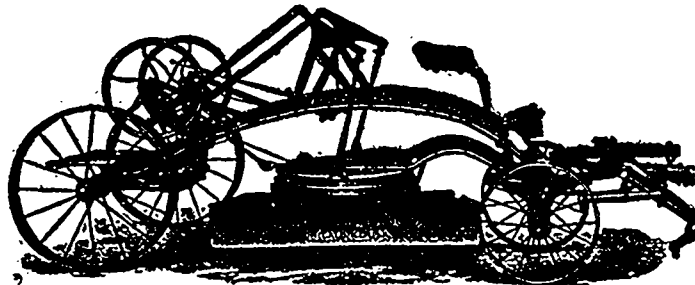
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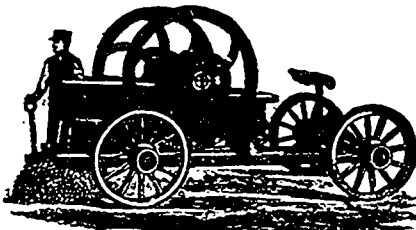
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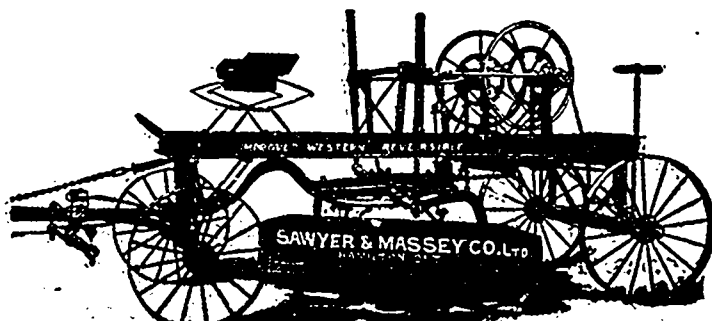
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