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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL

PUBLIC WORKS • TENDERS •
ADVANCE INFORMATION •
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.

VOL. 10.

DECEMBER 27, 1899

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At once, a thoroughly capable and experienced Draughtsman for general office work. Apply, stating all particulars, to

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Montreal, Que.



WELLAND CANAL NOTICE TO CONTRACTORS

Sealed tenders, addressed to the undersigned, and endorsed "Tender for Improvements at Port Colborne," will be received at this office until 1 o'clock on FRIDAY, THE 26TH DAY OF JANUARY, 1900, for the works of improvement at the upper entrance to the Welland Canal.

Plans and specifications of the works can be seen on and after the 26th day of December, 1899, at the office of the Chief Engineer of the Department of Railways and Canals, Ottawa, and at the Superintending Engineer's office at St. Catharines. Printed forms of tender can also be obtained at the places mentioned. In the case of firms there must be attached to the tender the actual signatures of the full name, the nature of the occupation and residence of each member of same, and, further, an accepted bank cheque for the sum of \$10,000 must accompany the tender. The accepted bank cheque must be endorsed over to the Minister of Railways and Canals, and will be forfeited if the party tendering declines entering into contract for the work at the rates and on the terms stated in the offer submitted.

The accepted bank cheque thus sent in will be returned to the respective parties whose tenders are not accepted.

The Department does not bind itself to accept the lowest or any tender.

Contractors are specially notified that the conditions requiring the works to be wholly completed by the 30th day of June, 1902, will be rigidly enforced and all penalties for delay enacted.

By order,

L. K. JONES,

Secretary Dept. Railways and Canals.

Department of Railways and Canals,
Ottawa, December 21, 1899.

WANTED

Wanted, a Civil Engineer to take charge of the Department of Works of the Municipal Corporation of the City of St. Catharines. Persons applying for the position will please state expected salary, and give testimonial as to character and ability.

J. ROLLISON,
City Clerk.

City Clerk's Office, St. Catharines, 20th Dec., 1899.

TENDERS FOR BRIDGE

Sealed tenders, addressed to George Stewart, Esq., County Clerk, Peterborough, will be received up to TUESDAY, JANUARY 23RD, 1900, at four o'clock p.m., for

Floating Bridge and Approaches

over Chemong Lake. Bulk and separate tenders received.

Plans, etc., may be seen at the office of J. E. Belcher, Esq., County Engineer, Peterborough. An accepted cheque for five per cent. must accompany each tender. The lowest or any tender not necessarily accepted.

(Sgd.) E. HAWTHORNE,
Warden.

CONTRACTS OPEN.

LEWISVILLE, N.B.—G. R. Jones will erect a butter factory, 43 x 23 feet.

WARWICK, ONT.—Wm. Holbrooke is preparing to build a residence.

COLCHESTER SOUTH, ONT.—Lewis Ferris purposes building a residence.

KINGSVILLE, ONT.—The Baptists are soliciting subscriptions for a new church.

BEDFORD, QUE.—The ratepayers have petitioned to have the streets lighted by electricity.

CANTLEY, QUE.—Rev. Father Motard is arranging for the erection of a new presbytery.

MAGOG, QUE.—It is reported that a new hotel will be built on Main street next spring.

PERTH, ONT.—Thos. Barrie will rebuild his hotel stables in the spring, probably of brick.

FREDERICTON, N.B.—An engineer has reported that a system of sewage for this city will cost \$70,000.

CARLETON PLACE, ONT.—Findlay Bros. intend putting in some new machinery early in the new year.

NORTH SYDNEY, C.B.—It is said that a large publishing house is looking for a site here on which to build.

SMITH'S FALLS, ONT.—A by-law authorizing the issue of \$12,060 of debentures has been passed in council.

BROCKVILLE, ONT.—The town engineer has reported that a sewer on Victoria street 300 feet in length will cost \$1,100.

WILBERFORCE, ONT.—It is said that the Rathbun Co., of Deseronto, will erect a saw mill here and another at Baptist.

DRAYTON, ONT.—It is understood to be the intention of the proprietor of the electric light plant to put in a new machine.

PRESCOTT, ONT.—Three sites have been submitted to the company which proposes starting a starch factory at this place.

MOUNT FOREST, ONT.—The town clerk has been instructed to advertise for tenders for purchase of local improvement debentures.

NEW WESTMINSTER, B. C.—The Brunette Saw Mill Company are about to build a new planing mill, 70 x 150 feet, at Sapperton.

HALIFAX, N.S.—The Carrutte-Patterson Manufacturing Co., whose premises were recently destroyed by fire, will rebuild at once.

NELSON, B.C.—Plans are being prepared for a warehouse and cold storage plant to be built at this place by J. Y. Griffin & Co., of Winnipeg.

ANTIGONISH, N.S.—An engineer is wanted to take charge of the steam heating and electric light plant in St. Francis Xavier College.

TIVERTON, ONT.—A new Presbyterian church is to be built next summer, the brick for which will be supplied by Bell Bros., of Paisley.

LANGSIDE, ONT.—D. Donaldson, of Teeswater, is preparing plans for a brick residence to be built next spring by James Taylor, of this place.

ST. MARVS, ONT.—The St. Marys Natural Gas, Oil, Mineral & Development Co. have again made application to the council for a franchise.

OMEMEE, ONT.—The township council has decided to build a steel bridge over Pigeon river, towards which the government has made a grant.

MERRICKVILLE, ONT.—Thos. Atkinson, of the township of Wolford, has purchased property in this village and will erect a residence next spring.

RENFREW, ONT.—Four tenders have been received for purchase of \$14,000 of debentures, but at council meeting on 20th inst. no award was made.

QUEBEC, QUE.—The directors of the Great Northern Railway Co. have decided to proceed at once with the construction of an elevator at this place.

WINNIPEG, MAN.—C. J. Brown, city clerk, is taking tenders this week on construction of macadam pavement on York ave., from Smith to Main streets.

DESERONTO, ONT.—The Fire Underwriters Association have recommended the extension of water mains on several streets for fire protection purposes.

WINDSOR MILLS, QUE.—A by-law has been passed in council granting a franchise for street lighting to a local company, who will put in an electric plant early in the spring.

BRANTFORD, ONT.—The by-law to raise \$50,000 has been approved of by the Lieutenant-Governor in council and has passed its third reading in council.

PHOENIX, B. C.—Duncan McIntosh has returned from Montreal, where he interviewed capitalists regarding the new tramway and an electric light project here.

HUNTSVILLE, ONT.—Capt. Marsh, of this place, is endeavoring to induce the G.T.R. officials to build a railroad connecting Peninsula Lake and Lake of Bays.

WEBBWOOD, ONT.—The Spanish River Pulp Co., in which W. J. Sheppard, of Waubaushene, is interested, has purchased the Doran water power at this place.

VICTORIA HARBOR, ONT.—It is understood that the Victoria Harbor Lumber Co. intend building a large dock and a boarding house, at a total cost of about \$40,000.

BERLIN, ONT.—It is said that the Berlin & Waterloo Electric Street Railway Co. will make an experiment with the storage battery system for the operation of cars.

EDMONTON, N.W.T.—R. J. and T. G. Hutchings have purchased a site and intend erecting a brick building next spring, to be occupied by the Great-West Saddlery Co.

LITTLE CURRENT, ONT.—The saw mill at this place known as the "red mill" has been purchased by McArthur Bros., who will make improvements thereto early in the spring.

LANARK, ONT.—W. J. Jackson and James Sheridan, of Playfair, were in town last week soliciting funds for the erection of a bridge over the Mississippi river at Sheridan's Rapids.

COBOURG, ONT.—On Monday next the ratepayers will vote on by-laws granting exemption from taxation to the Crossen Car Co. and a bonus to Dick, Ridout & Co., woollen mill proprietors.

KINGSTON, ONT.—Power & Son, architects, invite tenders up to 29th inst. for converting the Brown carriage factory building on Barrie street into a laundry for the Imperial Steam Laundry Co.

CHILLIWACK, B. C.—McLean Bros. have commenced work on the dyking scheme, which will take about fifteen months to complete.—C. L. Street intends rebuilding his mill lately destroyed by fire.

CHARLOTTETOWN, P. E. I.—Tenders closed yesterday for construction of ten miles of the Murray Harbor branch of the Prince Edward Island Railway. Particulars from G. A. Sharp, superintendent.

SARNIA, ONT.—By the provisions of the by-law granting a franchise to the Sarnia Street Railway Co., a portion of the road is to be completed by July 1st, 1900, and the balance within twelve months from that date.

OSHAWA, ONT.—The town has agreed to grant a loan of \$50,000 to the McLaughlin Carriage Co., to assist them in rebuilding their factory. The building will be 800 x 50 feet, three storeys, and equipped with modern machinery.

PEMBROKE, ONT.—The council are still undecided as to the building of a steel or wooden bridge at Mary street.—J. W. Munro is reported to have purchased property now occupied by W. Cranley, with the intention of erecting a building on the property.

PORT ARTHUR, ONT.—The Minneapolis & Ontario Bridge Co. has been incorporated, with capital of \$300,000, to build the international bridge over the Rainy river for the Rainy River Railway Company. The bridge will be a mile long, is to be completed in a year, and will cost \$200,000.

GRAND FORKS, B. C.—The provincial government will be asked to contribute \$3,400 towards the construction of a bridge across the north fork of Kettle river.

ST. JOHN, N.B.—A draft of agreement has been drawn up between the city and the Imperial Dock Co. The city agrees to give the company a site at Carleton for a dry dock, and the company are to build warehouses and a wharf 400 feet long on the southern side of the basin, and are given the option of constructing a wharf on the northern side. The city is to build a wharf at Union street.

TRURO, N.S.—T. G. McMullen, M.P. P., is preparing to build another dam a Union, on the Salmon river, in New Brunswick.—The construction of a railway from Noel to Elmsdale is being advocated.—The question of constructing a sewerage system, at a cost of \$53,000, was discussed at a recent public meeting. It was decided to hold another meeting on February 19th next.

HAMILTON, ONT.—The Harbor Committee will ask the Dominion authorities at Ottawa to provide auxiliary power to swing the bridge at the Beach in the event of an accident to the electric plant.—It is understood that about \$300,000 will be spent by the government on the harbor improvements at the beach.—Local capitalists are understood to be interested in the formation of a company to be called the Huntsville, Lake of Bays and Algonquin Park Railway Co., one of the objects being to construct a steam or electric railway over the portage between the Lake of Bays and Peninsula Lake, in Muskoka. The cost is estimated at \$20,000.

LONDON, ONT.—By the explosion of a boiler last week the factory of the Crescent Mill & Timber Co. was slightly damaged. The boiler was completely destroyed.—The city engineer has submitted to the Board of Works a report on the works required to be carried out next year. For permanent walks he asks \$78,102, the greater portion of which is for cement walks. He states that the 43-inch concrete tile used to replace wooden culverts is not of a permanent nature, and recommends light steel bridges with concrete walls. Sewer extension is recommended to cost about \$40,000. He further states that many of the cedar block pavements should be replaced by either asphalt or brick.

VANCOUVER, B. C.—It is the intention of Dr. H. B. Findley, of Victoria, to erect a residence in this city next spring.—The E. & N. Railway Co. are inviting tenders for brick and stone work and concrete foundation of power house.—R. M. Frupp, F. R. I. B. A., is preparing plans for two houses on English Bay, one house at M. Pleasant, and another at the west end (to be tendered on privately).—The council will memorialize the Dominion government to erect a custom house in this city.—The plans for buildings to be built at this place by the Pacific Coast Lumber Co., of New Westminster, show a saw mill 50 x 200 feet, shingle mill 50 x 150 feet, dry kiln 100 x 105 feet, planing mill 100 x 110 feet, and storehouse 100 x 150 feet. The work may not be commenced before 1901.

MONTREAL, QUE.—The Alaska Feather & Down Co. are in the market to purchase 1,000 cords of white poplar wood, not smaller than 6 inches and cut in 6 or 8 ft. lengths, and delivered on railroad lines within 100 miles of this city.—The management of the Windsor hotel intend to thoroughly overhaul the interior of the building and to completely refurnish the bed rooms. The report that a large addition to the hotel was to be built is denied.—The head master of St. Albans school, in his remarks at the closing services, referred to the necessity of

building a school chapel.—The Electric Fire-proofing Co., of New York, have invented a process for rendering wood fire-proof, and a company is in process of formation for Canada. The works will be situated in this city and will be erected at once. Samples of the wood are on view at the offices of R. Wilson-Smith and Meldrum & Co., who are acting as agents for the New York people.

OTTAWA, ONT.—L. K. Jones, secretary Department of Railways and Canals, invites tenders up to Wednesday, January 10th, for the annual supply of timber, hardware, castings, paints, oils, etc., for the Welland canal and its branches for the year 1900.—Early in January building operations will be commenced on a new government dredge. The plans, as prepared by the Public Works Department, show that the vessel will cost about \$12,000. The rebuilding of the freight steamer Welshman will also be proceeded with next month, at a cost of about \$8,000.—Wm. Fields and Wm. McDonald have taken out a building permit for the erection of two semi-detached dwellings on Henderson avenue, to cost \$1,800.—Ald. Raphael has made an estimate of the required improvements in St. George's ward. He places the sum at \$210,000, which includes \$100,000 for asphalt pavement on Rideau street, \$25,000 for asphalt on Nicholas street, \$51,000 for asphalt on Daly avenue, and \$30,000 for tar macadam roadway on Rideau street.

TORONTO, ONT.—Mr. Wm. Kent, of the firm of Ambrose Kent & Sons, proposes to erect a residence in the spring.—Mr. Dan Scott, of Borden street, will erect a residence next year on Dovercourt road.—At the last session of Parliament \$50,000 was placed in the estimates for harbor improvements and for straightening the Don. It is expected that the Minister of Public Works will shortly visit this city to make arrangements for proceeding with the work.—The Foster Bros. Manufacturing Co., of Utica, N.Y., have taken over the factory of the Toronto Carpet Co. at foot of Jarvis street, and will establish a branch of their bedstead manufactory.—The Island Association and the Consumers Gas Co. have reached an agreement under which the latter will supply gas to the island residents by means of a pipe to be constructed across the bay.—The following building permits have been granted. Wm. Finan, two-storey brick residence, west side Dovercourt road, near Van Horne, cost \$1,600; C. F. Strutt, two-storey rough-cast dwelling, west side Shaw street, north of College, cost \$1,000; A. Gardiner, addition to brick dwelling, 65 William street, cost \$1,500; Wm. Booth, pair brick, two-storey dwellings, south side Chicora avenue, near Avenue road, cost \$4,000.—Mr. Leonard, general superintendent of the C. P. R., has secured an appropriation of \$200,000 for permanent improvements in Ontario. The docks, yards and storage capacity for flour at Owen Sound will be increased, at a cost of \$30,000. At Toronto Junction the terminal yards will be increased and a new storage building erected. The sum of \$40,000 will be spent in straightening the line between here and Havelock. At Smiths Falls \$6,000 will be spent on new divisional offices, and \$11,000 in enlarging the tea store houses at that place. The sidings between this city and Montreal will be lengthened, at a cost of \$20,000, and there will be erected in this city, between York and John streets, new freight sheds, 40 x 150 feet.

BUSINESS NOTES.

H. Lewis has registered proprietor of the business of J. E. Lewis & Co., plumbers, Montreal.

James Douglas, contractor, of Westmount, Que., is reported to have assigned, with liabilities of \$93,348.

FIRES.

Thos. Good's house at Belleville, Ont.; loss, \$1,000.—Shingle mill at Milltown, owned by H. F. Eaton & Sons, of St. Stephen, N.B.—Works of the Carrutte, Patterson Manufacturing Co., tar paper manufacturers, Halifax, N.S.; loss \$5,000.

CONTRACTS AWARDED.

FOREST, ONT.—Granolithic sidewalk debentures have been sold to the Standard Bank for \$5,525.50.

VANCOUVER, B.C.—McLeod & Co. have contract for considerable alterations and additions to house at Fairview. R. M. Fripp, F.R.I.B.A., architect.

VICTORIA, B.C.—D. F. Adams has secured contract from the provincial government to construct a Howe truss bridge over Courtenay river, to be 222 feet in length. John Robertson, of the Shore Street Iron Works, will supply the ironwork for this bridge, as well as for the bridge to be constructed at Revelstoke.—Geo. Bishop has secured contract for erection of additional officers' quarters at Esquimalt; price, about \$6,500.

MONTREAL, QUE.—Perault & Lesage, architects, have accepted the following tenders for the erection of three cut-stone front houses, three storeys high, containing nine dwellings, on Marie-Anne street, near St. Andre: Roofing, Bernier Freres; plastering, Napoleon Depatie; painting and glazing, Louis Lamoureux; plumbing, Pierre Leclercq Fils; tinsmithing, Cadieux & Briard.—W. A. Fleming & Co., of this city, have been awarded a contract for belting by the Dominion Iron & Steel Co., of Sydney, C.B.—It is understood that the Connors syndicate have let the contract for building several ships to C. I. de Souza, of this city, who is associated with British ship-building firms. It is said that the work will be done in Canada.

HAMILTON, ONT.—The following tenders were received by the Board of Works enlarging the filtering basins: Thomas Barnes, \$32,000, and 40 cents a cubic yard for extra excavation; McQuillan & Co., Toronto, \$55,000, and 25 cents for extra excavation, 40 cents for extra dry excavation, and \$1,000 extra if a steel pipe is substituted for a wooden conduit; M. A. Pigott, \$29,950, and 36 cents for extra excavation; George F. Webb, \$29,779; John Dickenson & Son, \$20,375, and 30 cents extra for excavation and 25 cents for dry excavation. The tenders for the iron pipe for the proposed third main were: United States Cast Iron Pipe & Foundry Company, Buffalo, \$28.50 per ton, \$1 extra if tested in this city by hydrostatic pressure, this figure not including the duty of \$8; Garhshore-Thomson Pipe Co., \$35. The acceptance of the tender of John Dickenson & Son for enlarging the basins has been recommended. The iron pipe contract has not yet been awarded.

BELGIAN ARTIFICIAL STONE.

An artificial stone from Belgium has recently been introduced into the French market, which is said to have four times the force of resistance of French free-stone and which has nearly all the properties of Cobastang granite. It has been tried in the Malines Arsenal and is found to be insensible to the action of cold, absorbs only six to seven per cent. of water, even after a long, dry spell, and cannot be crushed under a pressure of forty kilogrammes (88.184 lbs.) to the square centimetre. This artificial stone is manufactured at Uccles, near Brussels, in the following manner: Eighty parts of extremely clean and dry coarse sand are mixed with twenty parts of hydraulic lime

reduced to a fine, dry dust; this mixture is put into an iron box, which is plunged into a boiler of water, and this is hermetically closed. During seventy two hours the cooking goes on under a pressure of six atmospheres, the temperature being maintained at 165 degrees. At the end of this time the iron box contains a perfect homogeneous mass of stone, which rapidly hardens upon exposure to the air. The most varied colors are given to this stone, and its manufacture costs only 1d. per cubic foot.

USEFUL HINTS.

In all buildings there are always certain rooms easily warmed, while others require more heat. The rooms to the east are in the sunshine, while those to the west are in the shade; or some are exposed to cold winds, while others are in protected sections. Some rooms have a large number of occupants and large volumes of air are required, while others, having but a small number, but being perhaps much exposed, require smaller volumes of fresh air, but at a higher temperature.

The Journal of the Franklin Institute publishes a long statement as to a new method of testing the efficiency of coverings for steam pipes, which was described by Professor Charles L. Morton before Section D of the American Association. By this method a section of the steam is heated electrically by means of a coil of wire in oil within the pipe. The amount of energy necessary to keep the pipe at a definite temperature is measured. Since the energy thus supplied is just sufficient to maintain a constant temperature, it must therefore equal the energy lost by the pipe. Hence, from the electrical energy supplied, the author is enabled to calculate the heat lost from the outside of the pipe.

REMOVING IRON RUST FROM MARBLE.
—The removal of iron rust from marble is an operation which depends upon the solubility of iron sulphide in a solution of potassium cyanide, and to properly do the work the following scheme is suggested by a writer in an exchange: Clay is made into a thin paste with ammonium sulphide, and the rust spot smeared with the mixture, care being taken that the spot is only just covered. After a lapse of ten minutes this paste is washed off and replaced by one consisting of white bole

mixed with a solution of potassium cyanide—1.4—which is in its turn washed off after a lapse of about two and a half hours. Should a reddish spot remain after washing off the first paste a second layer may be applied for about five minutes.

The following suggestion in regard to the treatment of walls and lighting of school rooms is offered by a specialist who has made the eyes of school children a study. He advocates the use of tinted walls and tinted shades in class rooms, so as to take away the glare which tends to strain the eyes of children. He says: "Clear, white walls are a menace to the eyesight that ought not to be tolerated in any school room. It is in just these particulars that the service of women on school boards is efficient. Women take pains, and know from experience in the furnishing of their own homes how much apparently trifling details contribute to comfort, as well as to effect. Men, as a rule, are content to put this kind of work in the hands of tradesmen, who may or may not be intelligent workmen."

DURABILITY OF STONE.—To ascertain the comparative durability of marble or other calcareous stones, immerse equalized cubes of various stones in dilute muriatic acid of the same degree of strength in different vessels. Those which dissolve most slowly will be least liable to decay. Palladio says soft stones, and stones the nature of which we are not acquainted with, should be quarried in the summer, and exposed for two years to the effects of air and frost before being used. When this can not be done, stones that are not calcareous may be tested in some degree by immersing them in water, by exposing them to red heat and to frost, or by covering them with dilute nitric acid for several days. The stones which absorb the least quantity of water and which are least changed by the action of acid, heat or frost, may be fairly considered as most capable of resisting the effects of the atmosphere.—Stonemason.

DATE OF PUBLICATION.

Architects, Engineers, Municipal Authorities and others are reminded that the **CONTRACT RECORD** is printed every Tuesday afternoon, and that advertisements should reach the office of publication not later than 2 o'clock p.m. on that day to ensure insertion in the issue of the current week. Advertisements are frequently received too late for insertion, to avoid which special attention is directed to this announcement.

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PAINT FOR GALVANIZED IRON.

In an article in the Painters' Magazine which points out that oil paint peels off galvanized iron readily if not soon renewed, the following treatment is advised: Dissolve two ounces of chloride of copper, two ounces nitrate of copper and two ounces sal ammoniac in one gallon of water; then add two fluid ounces of crude hydrochloric acid. This solution must be made in stone or earthenware to prevent precipitation of the copper salts. Cover the surface of the galvanized iron with this solution and it will assume a black color, which on drying over night will turn light gray and upon which a red lead priming, thinned with equal parts of raw linseed oil and turpentine, will hold like grim death. Subsequent coats can be given in colors rich in oils, etc. Galvanized iron should at no time be first coated with an all oil paint.

CEMENT WASH FOR THE PROTECTION OF IRONWORK.

Coatings or coverings of cement have been employed by certain railway companies in France for some years past to protect the metallic portions of bridges crossing their lines from the rapid destruction to which such parts are liable by reason of oxidation, through being continually exposed to the action of clouds of steam and gas, products of combustion escaping from the locomotives. Formerly the practice was to protect such structures as were most exposed to such deterioration by providing sheet metal guards, in the form of reversed channels, secured to beams in a direction parallel to the lines, which guards were replaced as soon as they had become worn out. At present, however, ironwork in situations where it is exposed to the above deteriorating effects is usually protected by a coating of cement. A method of applying the cement which is used in Austria, and which is highly spoken of, consists in brushing down the ironwork with a heather broom, dampening it with a rag or whitewash brush, and afterwards applying two coats of Portland cement wash made rather thick, and having added to it a proportion of fine sharp sand. In Berlin a coating of mortar containing a third part of cement has likewise been successfully employed for preserving the parts of ironwork which are buried in the ground. At Zeebrugge, in Belgium, where a deep-water harbor is now in course of construction, a portion of the pier of 300 metres in length is being formed of open work, and the steel piles of this part are endued with a coating of semi-fluid cement mortar, applied by means of an apparatus worked by compressed air, the piles having been first subjected to a preliminary cleansing by means of a sand blast projected by the same apparatus.

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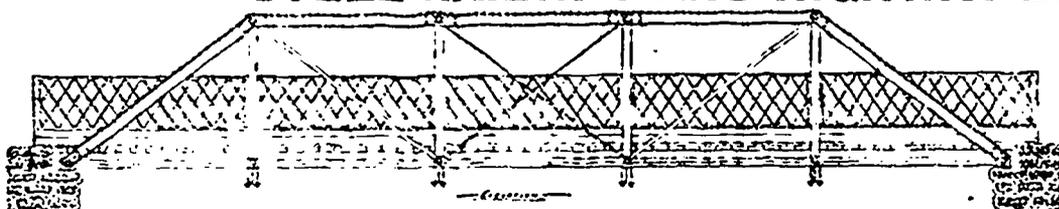
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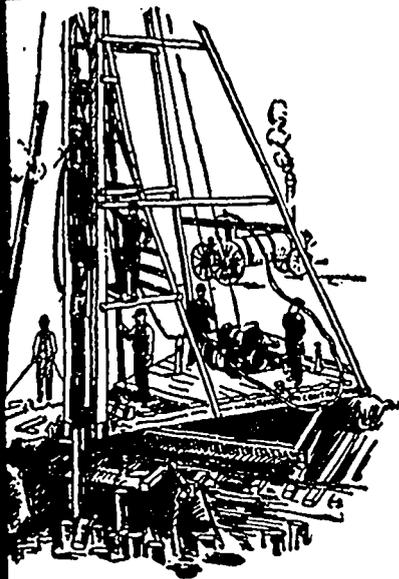
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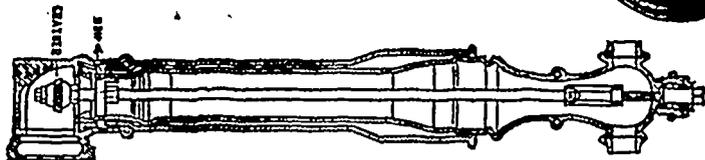
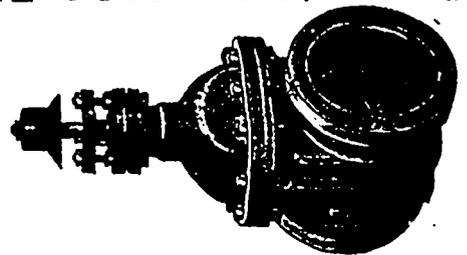
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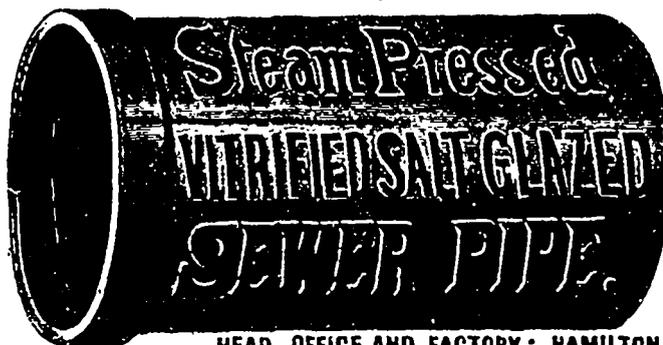
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MUNICIPAL DEPARTMENT

THE GOOD ROADS MOVEMENT.

There is a proposition before the county council of Bruce, Ont., for the appointment of a county engineer to superintend the making of roads, bridges, etc. A committee, of which Councillor Scott is chairman, is collecting information on the subject. In a letter to the committee, Mr. A. W. Campbell, Provincial Road Instructor, says:

"Of course I am strongly in favor of a county council assuming control of all the leading roads, and having the work of their improvement placed in charge of a county engineer. In the county of Hastings this plan has been in operation for some years with the result that their main roads are the best in the province and the road expenditure of the county as a whole is under the average. The system works admirably and to the entire satisfaction of all concerned. The adoption of such a system does not necessarily mean that more money shall be spent on the roads. But it means practically that the money now being spent on the leading roads by the township councils would be concentrated and spent by the county councils. The township councils of your county annually spend 42,252 days of statue labor on the roads, and in addition to this, raise and spend \$22,657. The great bulk of this municipal expenditure is necessarily made upon the leading roads which would naturally be comprised in a county road system.

"For innumerable reasons it must be admitted that the most is not made of this expenditure, and it can be easily seen by experienced councillors where the money could be more advantageously expended by the county council, under proper plans and uniform system of construction, maintenance and supervision. It can also be seen where the maintenance of the leading roads under such a system would be more equitable to the townships, especially those near centres which are obliged to keep up roads for the accommodation of through and concentrated traffic. The counties of Wentworth, Oxford, Elgin, Dufferin, Victoria, Peterboro, York, Dundas, Grey, Stormont and Glengarry are considering the adoption of such a system now. The county of York, at its meeting last week, in considering this matter of the county system of roads, decided to call a convention early in January of all county councils interested for the purpose of considering the general adoption of some county system.

"Permanent engineers are now employed in some of the counties, such as Elgin, Middlesex, Oxford, York and Hastings. Their duties are to have charge and report on all county buildings, bridges, and such roads as are under the jurisdiction of the county council. The salaries range from about \$500 in Elgin to \$1,400 in Middlesex."

DECAY OF BRICKWORK UNDER WATER.

The bacterium is credited with a great deal now-a-days, but we doubt whether anything important of a criminal nature has hitherto been attributed to it in reference to the decay of brickwork. There can be no doubt, however, that brickwork would often stand better under water if certain bacteria were not present. Unless water be chemically prepared, that bacterium known as the nitrifying organism will almost always be in the water. And, in presence of certain food upon which it exists, it produces either directly or indirectly nitrous acid. This acid is capable of attacking cement until the substance of the latter entirely disappears. Thus, in setting bricks in cement, under water, it is almost impossible to defend the work from the depredations of these organisms. Then, again, bricks containing much iron, or calcium carbonate, may themselves be attacked at the same time. In fact, it has now been discovered that much of the work of disintegration of cement and brickwork under water (as in reservoirs and the like) hitherto attributed to the solvent action of carbonic acid, must now be transferred to the nitrifying organism and its nitrous acid. The transference will not make much difference to the brickmaker from a practical point of view, as he is so accustomed to provide very hard and non-porous bricks for reservoir work, and these are difficult subjects even to nitrous acid. At the

same time, as little iron and calcareous material as possible must be allowed even in these bricks—to say nothing of the commoner kinds of brick employed for work under water in other than reservoir constructions. But, to the cement maker this discovery is of importance, and to the engineer it has its bearings on the life of brickwork in general under water. Presumably, engineers and surveyors will not be enquiring for cements which are proof against nitrous acid, and where are they?—The Brickbuilder.

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The city of New Bedford, Mass., some twenty-five years ago adopted and laid down a considerable quantity of iron pipe having a cement lining. The last of the pipe has just been removed, and it was found to be still capable of doing its duty although the iron was considerably corroded at places. Some spots were corroded entirely through, although the cement held its shape. At the time it was laid gas iron pipe was very expensive while cement-lined wrought-iron pipe was comparatively cheap.



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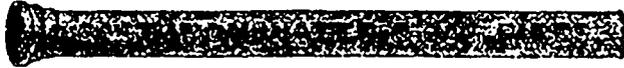
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