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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL

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 THROUGHOUT CANADA.

Vol. 4.

AUGUST 17, 1893

No. 26

THE CANADIAN CONTRACT RECORD,
PUBLISHED EVERY THURSDAY
is an Intermediate Edition of the "Canadian Architect and Builder."

Subscription price of "Canadian Architect and Builder" (including "Canadian Contract Record"), \$2 per annum, payable in advance.

C. H. MORIMER, Publisher,
CONFEDERATION LIFE BUILDING, TORONTO.
Telephone 2362.
64 Temple Building Montreal.
Bell Telephone 2299.

Information solicited from any part of the Dominion regarding contracts open to tender.

ADVERTISING RATES ON APPLICATION.

At its Convention held in Toronto, Nov. 20 and 21, 1889, the Ontario Association of Architects signified its approval of the CANADIAN CONTRACT RECORD, and pledged its members to use this journal as their medium of communication with contractors with respect to advertisements for Tenders.

The following resolution was unanimously adopted at the First Annual Meeting of the Province of Quebec Association of Architects, held in Montreal, Oct. 10th and 11th, 1890: "Moved by M. Perrault, seconded by A. F. Dunlop, that we the Architects of the Province of Quebec now assembled in Convention being satisfied that the CANADIAN CONTRACT RECORD affords us a direct communication with the Contractors,—Resolved, that we pledge our support to it by using its columns when calling for Tenders."

Subscribers who may change their address should give prompt notice of same. In doing so, give both old and new address. Notify the publisher of any irregularity in delivery of paper.

BARTER AND EXCHANGE.

This department has been opened for the speedy barter and exchange of second-hand plant or material, or small lots of new or second-hand materials by builders and others not regularly engaged in the sale of such articles. Advertisements other than those of the above description will not be inserted.

RATES—12 words and under, 15 cents; each additional word, 1 cent (three figures count one word), on two or more subsequent insertions a discount of 10 per cent. will be allowed. Not more than four insertions of an advertisement can be granted.

Replies to advertisements may be addressed to a box at this office, in which case necessary stamps must be sent for re-mailing replies. Advertisements for this department must be prepaid.

TO ARCHITECTS.—About 1½ quires of Whatman's Drawing Paper for sale (Imperial size), only \$3.50 for the lot. Box 151 at this office.

Notice to Contractors

CANADIAN CONTRACTORS' HAND-BOOK

A new and thoroughly revised edition of the *Canadian Contractors' Hand-Book*, consisting of 150 pages of the most carefully selected material, is now ready, and will be sent post-paid to any address in Canada on receipt of price. This book should be in the hands of every architect, builder and contractor who desires to have readily accessible and properly authenticated information on a wide variety of subjects adapted to his daily requirements.

Price, \$1.50, to subscribers of the CANADIAN ARCHITECT AND BUILDER, \$1.00. Address

C. H. MORTIMER, Publisher,
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TENDERS

Will be received by the undersigned for building a 4-foot Sidewalk on north side Davenport Road, between Bathurst and Dufferin Streets (about 1½ miles long.

Plans, specifications, etc., can be examined and tenders will be received at office of undersigned up to 5 o'clock p.m. August 26, 1893.
Lowest or any tender not necessarily accepted.

PETER S. GIBSON, C.E.,
York Township Engineer.
Willowdale, Aug. 10, 1893.



Notice to Contractors

ASHBRIDGE BAY IMPROVEMENT.

Tenders will be received by registered post, addressed to the City Engineer, Toronto, up to 11 o'clock a.m. on FRIDAY, 25TH AUGUST, 1893 for the construction of a jetty in connection with the above improvement. Plans and specifications may be seen and forms of tender obtained on and after the 18th inst. at the office of the City Engineer. A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 2½ per cent. of the value of the work tendered for, must accompany each and every tender, otherwise it will not be entertained. All tenders must bear the bona fide signatures of the contractor and his sureties or they will be ruled out as informal.

The Committee do not bind themselves to accept the lowest or any tender.

DANIEL LAMB,
Chairman Committee on Works.
Committee Room, Toronto, August 15, 1893



NOTICE TO CONTRACTORS.

Tenders will be received by registered post, addressed to the City Engineer, Toronto, up to 11 o'clock a.m. on Friday, the 25th August, 1893, for the construction of the following pavements on track allowances, viz.:

Parliament street, Carlton to Gerrard street, asphalt with tothing on concrete.
College st., McCaul to Bathurst st., asphalt with tothing on concrete.
College st., Bathurst to Dufferin st., vitrified brick on concrete.
Dundas st., Arthur st. to Jamieson ave., vitrified brick on concrete.

Specifications may be seen and forms of tender obtained on and after Saturday, August 19th, 1893, at the office of the City Engineer.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 2½ per cent. of the value of the work tendered for, must accompany each and every tender, otherwise it will not be entertained.

The tenders must bear the bona fide signatures of the contractor and his sureties or they will be ruled out as informal.

DANIEL LAMB,
Chairman Committee on Works.
Committee Room, Toronto, August 15, 1893.



Sealed tenders, addressed to the undersigned, and endorsed "Tender for Hot Water Heating Apparatus, Drill Hall, Toronto, Ont.," will be received until MONDAY, 28TH AUGUST, for the construction of a Hot Water Heating Apparatus at the Drill Hall, Toronto, Ont.

Plans and specifications can be seen and form of tender and all necessary information obtained at this Department and at the office of R. C. Windeyer, Esq., Architect, Toronto, Ont., after Monday, 18th inst.

Persons tendering are notified that tenders will not be considered unless made on the printed form supplied, and signed with their actual signatures.

Each tender must be accompanied by an accepted bank cheque, made payable to the order of the Honourable the Minister of Public Works, equal to 5 per cent. of the amount of the tender, which will be forfeited if the party decline to enter into a contract when called upon to do so, or if he fail to complete the work contracted for. If the tender be not accepted, this cheque will be returned.

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

By order,
E. F. E. ROY,
Secretary.

Department of Public Works.
Ottawa, 11th August, 1892.

CONTRACTS OPEN.

ST. HYACINTHE, QUE.—The United Counties Railway Company is about to erect a new depot here.

WALKERTON, ONT.—An agitation has been commenced for a system of sewerage for the town.

PILOT MOUND, MAN.—Mr. J. T. Gordon has had plans prepared for a large grain elevator to be erected here.

HARROW, ONT.—Mr. T. R. Quick has purchased a site on King street and proposes to build a house thereon.

GANANOQUE, ONT.—Preparations are being made for laying the foundation of the new electric light building.

PORTAGE LA PRAIRIE, MAN.—It is stated that the proposed Imperial bank building will not be erected this year.

STANSTAD JUNCTION, QUE.—There is a prospect at present of securing a system of water works for this village.

ST. THOMAS, ONT.—The City Council has decided to have a new sewerage system constructed for the eastern part of the city.

VANCOUVER, B. C.—F. M. Rattenbury, architect, has been engaged to carry out some improvements to the Hotel Vancouver.

CHATHAM, ONT.—Tenders are invited by Rev. R. McCosh for building a brick rectory for Christ Church, T. J. Rutley, architect.

STRATHFORD, ONT.—The Board of Works has recommended to Council that a sewer be built on Cambria street, from Erie to Church street.

RENFREW, ONT.—Mr. A. Harnet desires to receive tenders until the 1st of September for the heating and plumbing of his new building.

HALIFAX, N. S.—Specifications have been prepared and tenders will shortly be invited for lighting the streets of this city by electricity.

PRINCE ALBERT, N. W. T.—Mr. J. M. Coombs, Clerk, invites tenders until the 21st inst. for the purchase of \$3,000 worth of debentures.

TILBURY CENTRE, ONT.—It is expected that an electric light system will be established here shortly. Mr. Powell, Reeve, is looking into the matter.

GALT, ONT.—The stock of the Galt and Preston Street Railway Company is being rapidly taken up, and the work of building will be begun at an early date.

WARWICK, ONT.—W. R. Fellows, Clerk, will receive tenders until to-morrow (Friday) for building a stone arch over Wolfe Creek, known as Wilson's bridge.

WINDSOR, ONT.—The Canada Patent Brush Company will ask the City Council to grant a bonus to aid in rebuilding their factory, destroyed by fire a few weeks ago.

WATERLOO, ONT.—A by-law will shortly be submitted to the ratepayers authorizing the Council to issue debentures to the extent of \$16,000 to cover the cost of a system of sewerage.

CANNING, N. S.—A company has been formed to carry out the construction of a system of water supply from the North mountains, about 2 miles distant. Dr. Borden is one of the chief promoters.

ISLINGTON, ONT.—At the last meeting of the Etobicoke Township Council, it was decided to have the abutment lengthened at the Queen street bridge, Mimico, preparatory to erecting a new iron bridge.

SACKVILLE, N. B.—Mr. David Allison will receive tenders until Wednesday, the 23rd inst., for the erection of a residence for students in connection with Mount Allison University. Plans may be seen at the University library.

GUELPH, ONT.—Mr. H. J. Powell, architect, will receive tenders until the 1st of September for tearing down old buildings on site and excavating for the proposed new opera house. Tenders are to be addressed to Mr. Powell, care of Mr. F. Dowler.

ALVINGTON, ONT.—Messrs M. J. Dudley and H. L. Binder have purchased the corner lot opposite the Grand Central and propose to erect a white brick hotel, three storeys high, and of the most modern style of architecture, estimated cost \$10,000.

PETROLEA, ONT.—Tenders will be received at the Town Clerk's office until Friday next for the construction of a cedar block pavement on Walnut and School streets in this town. Particulars may be obtained from John M. Moore, Town Engineer.

WINNIPEG, MAN.—Thos. Gilroy, Chairman Finance Committee, will receive tenders until Tuesday, the 22nd inst., for the purchase of \$74,000 worth of pink fund debentures, to run 30 years—The C. P. R. is making preparations to erect its large sorting elevator here.

PETERBORO, ONT.—The by-law to raise the sum of \$14,000 for the erection of an other school building in the South ward, and making repairs to the Central school was defeated by the ratepayers last week. A by-law to provide \$3,800 for constructing a drain for the Edison Co., was voted on and carried.

ORILLIA, ONT.—The Town Council desires to secure plans for a market building to be erected on the corner of West and Mississauga streets, the cost of execution not to exceed \$15,000. Plans to be sent in before the 28th inst. Particulars may be obtained from C. E. Grant, Town Clerk, or D. McNab, Chairman Property Committee.

DEER PARK, ONT.—A meeting of residents was held a few evenings ago to discuss the proposal to construct water mains for the purpose of supplying water for fire and domestic purposes. A report was read from Peter Gibson, engineer, in which he stated that 5,460 ft. of 84 inch pipe and 8,300 feet of 6-inch pipe would be required. Messrs. Tait, Fiske, T. Baldwin, Dr. Baldwin and J. Gibson were appointed a committee to further the scheme.

KINGSTON, ONT.—Petitions have been presented to council asking for the construction of granolithic walks on the following streets: Ontario street, west side, between Clarence street and Johnson street, Princess street north, between Bagot and Wellington streets; Clarence

street, south side, between Ontario and King streets; King street, east side, between Clarence and Johnston streets; Princess street, between King street and Wellington street.

HAMILTON, ONT.—The Hamilton and Toronto Sewer Pipe Co will make additions to their buildings. Two new kilns will also be erected.—The new Catholic church to be built in the west end will be begun this week. It is to cost \$15,000 and will have a seating capacity of 500.—Satisfactory progress is being made with the establishment of the proposed smelting works in this city. The syndicate is meeting with opposition by reason of the extortionate demands of the owners of property through which the switch is to run, and the contracts for buildings cannot be let until the switch is arranged.

LONDON, ONT.—Mr. W. J. Clarke will erect a brick residence on Kent street.—Mr. Thomas Smallman contemplates erecting an addition to his Dundas street residence, at a cost of \$4,000. The water for the city is proving to be inadequate to meet the demands, and steps will be taken at once to provide additional plant. New steam pumps, with a pumping capacity of 4,000,000 gallons, will probably be constructed. Mr. Keefer, C. E., has been engaged to make an examination and report.—Messrs. Jones, McBride & Farncombe will let contracts this week for two houses on Queen's avenue for Messrs. Watson & Coles.

TORONTO, ONT.—Right Rev. Mgr. Rooney has purchased the property on the north-west corner of Bathurst and King streets. It is said a private hospital will be erected on the site.—A petition is being circulated amongst the residents of Carlton street for the construction of an asphalt pavement from Parliament street to Yonge street.—The Board of Works has been granted the sum of \$5,000 for the extension of the sewer emptying into Ashbridge's bay.—A petition has been prepared asking for an asphalt pavement on Front street.—Building permits have been granted as follows: A. Robinson, two story brick addition to rear of store, s. w. cor. Harbor and Borden streets, cost \$1,000; Land Security Co., 1 story bk. office building, 26 to 32 Victoria st.; Mr. Earls, pair semi-detached 2 story and mansard brick dwellings, e. side Markham st., near Ulster st., cost \$7,000; Jas Clifford Austin ave., two story bk. store and dwelling, s. e. corner Pape and Austin ave., cost \$1,400.—Tenders are invited by the Land Security Co. until Saturday next for the erection of a building on Victoria street, just south of their present offices. Plans may be seen at the office of G. M. Miller, architect.

MONTREAL, QUE.—The City Council has approved of the purchase of sites for the proposed incinerators.—Twenty-five designs have been received by the Design Committee for the proposed monument to be erected on Dominion Square to the memory of the late Sir John A. Macdonald. We learn that the decision of the Committee is in favor of the design sent in by Mr. George E. Wade, the well known sculptor of London, Eng. The cost of the monument is estimated at \$20,000.—It is estimated that the harbor improvements will cost \$3,000,000 and that three years more will be required to complete them.—Two new elevators are shortly to be placed in the Central post office.—Mr. P. W. St. George, City Surveyor, will receive tenders until Wednesday, the 23rd inst., for the construction of sewers in the following streets: Chenneville street, from Dorchester street to Lagacheviere street; Duluth street, from Cadieux street to Hippolyte street; Dufresne street, from Logan street northward to end of existing sewer; St. Famille street, from Prince Arthur street to Pine avenue; St. Hubert street, from Roy street to Rachael street; St. Jean lane, from Fullum street to Archambault lane; Logan street, from Shaw street to deLorimer avenue; Metcalfe street, from Dorchester street to St. Catherine street; Pantheon street, from end of existing sewers northward to Prince Arthur street; Rachael street, from St. Urbain street to Mitcheson or Clarke street.—Mr. W. Alexander, of Toronto, has purchased property at the corner of University and St. Catherine streets and will erect a large dry-goods store thereon.—Tenders will be received until the 19th inst. for the enlargement of No. 11 police and fire station, corner Ontario and Caedry streets. Messrs Perrault & Lesage will have charge of the work.

OTTAWA, ONT.—The Building Committee of the Protestant Hospital will call for tenders for tinting the walls of the different wards.—Messrs. Arnold & Calderon, architects, invite tenders this week for the erection of a steam power house for the Chaudiere Electric Light and Power Company.—Mr. George Matthews, sr., who is engaged in the pork packing industry, is considering the erection of another large pork packing establishment somewhere in Canada, to cost about \$30,000, and should the City Council grant him sufficient inducements, will locate in this city.—A new Presbyterian manse will be erected in New Edinburgh. It will be solid brick, with stone foundations, 41 x 38 feet in size and two and one half stories high, cost \$4,000. Mr. M. C. Edey will be the architect.—J. H. Balderson, Secretary Department of Railways and Canals, will receive tenders until Tuesday, the 12th of September, for the supply of the following rails: 1,000 tons of 50-lb. steel rails, to be delivered c. i. f. on the Prince Edward Island railway wharf at Summerside; 300 tons of 56-lb. steel rails, to be delivered c. i. f. on the Intercolonial railway

wharf at Richmond. Halifax; 5,000 tons of 67-lb. steel rails, to be delivered on the Intercolonial railway, Princess pier, wharf, at Levis, opposite Quebec.—Major Muished of the Royal Engineers is expected to reach Ottawa shortly on his way to Esquimalt to supervise the construction of the fortifications at Esquimalt Harbor, B. C.—The Dominion Parliament voted \$70,000 for this purpose. Tenders are invited by E. F. E. Roy, Secretary Department of Public Works, until Monday the 28th inst. for the construction of heating apparatus in the Toronto drill shed. Plans may be seen at the office of R. C. Windyger, architect, Toronto.—A by-law to raise funds for the construction of a sewer on Murray street has been passed in Council.—A granolithic sidewalk will be constructed on the south side of Rideau street, from Little Sussex to Nicholas street.

FIRES.

The Imperial Straw Works at the foot of Bay street, Hamilton, were damaged by fire last week to the extent of \$3,000. The roof of the building was burned off.—Lee's opera house, the City hotel, Dumphy's hotel, Palmer's tannery and Estey's warehouse, at Fredericton, N. B., were destroyed by fire on Saturday morning last. Several other buildings were badly damaged. Loss \$20,000, small insurance.—The residence of Hugh Cameron at Fingal, Ont., was burned to the ground recently, with all its contents. The loss is heavy, there being no insurance. McRae & Co.'s saw mill at Calabogie, Ont., sixteen miles from Renfrew, was totally destroyed by fire on Saturday last. The loss will be about \$8,000.—A three-story furniture manufactory, with contents, including machinery, at Ste. Canegonde, Que., belonging to Messrs. Lajoie, was totally destroyed by fire on Monday last. Mr. Lajoie estimates the damage at \$15,000, and the insurance at \$5,000.—J. W. Green & Son's saw mill at Kingsville, Ont., was burned to the ground on Tuesday morning last. Loss, \$2,000; insurance, \$400.—The Clinton organ factory at Clinton, Ont., with all machinery, stock and tools, was destroyed by fire last week. The loss above the insurance, which is \$4,500, will be about \$5,000.—Mr. J. K. Page's residence, near Welland, Ont., in Pelham township, was burned recently.—The residences of Aaron Bail and James Harris, at Delaware, Ont., were destroyed by fire a few days ago. Loss about \$4,000, with very little insurance.—A disastrous fire occurred at Ottawa on the 13th inst., commencing in the rear of J. B. Abbott's carriage factory at the corner of Wellington and Bay streets, a three-story wooden building, which was destroyed. J. Latremouelle's tailor shop and dwelling was entirely destroyed, and the stores of J. F. Grant and C. W. Willemot were badly damaged. The loss is estimated at \$30,000.—The residence of Mrs. Smith, situated on Wingham street, Ingersoll, was totally consumed by fire recently. The loss is partially covered by insurance.

CONTRACTS AWARDED.

TORONTO, ONT.—The sub-committee of the Parks and Gardens Committee has accepted the tender of R. Forsyth for a granolithic sidewalk on Queen street avenue, at \$1.57 per lineal foot.

HALIFAX, N.S.—The contract for trenching for the new pipe line has been awarded to Mr. A. McKinnon. The prices are: Earth, 28c per yard, \$1,333.92; rock, \$1.97c per yard, \$9,551.65; total, \$10,785.57.

ARNPRIOR, ONT.—The contract for constructing the road-bed of the Ottawa, Arnprior & Parry Sound Railway from Brudenell ten miles westerly has been awarded to Mr. William Heald, who will begin work at once.

LONDON, ONT.—Messrs. Jones, McBride & Farncombe, architects, have awarded the following contracts: Hardwood fittings for store in St. Thomas, Messrs. Pennington & Baker, Hamilton, house for Murray Anderson, Ed. Martyn, brickwork; I. Sergeant, carpenter work; J. Lucas, painting; Gould & Stratford, plastering; Smith Bros., plumbing.

MONTREAL, QUE.—The following tenders were received for the construction of the Colerette ladder: E. Chanteloup, \$4,326; Messrs. Lariviere, \$4,500; Mr. Ledoux, \$4,400. The contract has been awarded to Mr. Chanteloup.—Messrs. Perrault & Lesage, architects, have awarded the contract for alterations to residence for Mr. Alex. Bourgeau to Mr. Louis Beaudry, at the price of \$5,000.

OTTAWA, ONT.—Contracts have been awarded as follows for additions and improvements to the Stewart Presbyterian Church. Masonry and brickwork, W. Stewart; carpenter work, H. Reynolds; painting and glazing, J. Shepperd; heating and plumbing, Douglas Bros. The contracts for electric lighting, seats and furniture have not yet been let, estimated cost of proposed improvements, \$2,500.

WINNIPEG, MAN.—The contracts for the new building for the Canadian Rubber Co. of Montreal, have been awarded. Messrs. Rourke & Cass will do the masonry, and Mr. Melvin the carpenter work; cost \$12,000. S. Frank Peters, architect.—Work has been commenced on the new manse for St. Andrews' church, to be erected on the corner of Jemima and Ellen streets. The contractors are: stonework, J. Brunell, superstructure, W. A. Charlesworth; estimated cost, \$5,000.

NEWCASTLE, N. B.—The contract for the erection of the new academy building has been awarded to Messrs. J. K. McDonald & Co., of New Glasgow. The building, with heating and ventilation and furniture, is estimated to cost \$18,000. It will be 60x50 feet in size, two stories and basement, with a tower in front, the top of which will be 68 feet from the ground. The architects are Messrs. J. C. Dumaisq and H. H. Mott, of Halifax.

MUNICIPAL DEPARTMENT.

THE DISINFECTION OF TOWN SEWAGE WATER BY MEANS OF LIME.*

BY PROF. PFCILL.

Many towns, in default of irrigation farms, are compelled to purify their sewage by chemical means before its discharge into rivers; and it would seem from the transactions of the German Public Health Society that, as a rule, more attention has hitherto been paid to clarification than to disinfection. The author remarks that in certain cases, as for instance, where typhoid fever or cholera may be present, it is most important that the sewage water should be disinfected, as it might otherwise communicate the germs of those diseases to persons using the river water mingled with the effluent for drinking or for domestic purposes. Among the chemical substances most largely used in sewage treatment is lime, itself an excellent disinfectant; but it seemed doubtful whether this material, in the way in which it is now employed, really serves to destroy the bacilli of typhoid fever and cholera. In order to determine the question, the author investigated the proportions in which lime must be added so as to effect object. Attention is directed to his previous experiments with lime, in which he found that the addition of 1 per cent. of milk of lime (which was equivalent to 1.37 per mille of slaked lime) was sufficient to disinfect the Berlin sewage water containing the bacilli of typhoid fever. It was, however, necessary to complete the investigation of this subject, and to carry out the experiments more fully. Previous tests had shown bouillon to be more favorable to the development of the germs than either gelatine or agar-agar, and the cultivations therefore took place at blood-heat in bouillon. The Berlin sewage water, when in a fresh condition, is dark grey in color, and has a sickly, disagreeable smell. It was, in all cases, slightly alkaline, and needed 1 per mille of normal acid to render it neutral. After sterilisation of the sewage water, at a temperature of 160 deg. C., and at a pressure of five atmospheres, the alkalinity was slightly increased. In each case 50 cubic centimetres of sewage water received one quarter of a cubic centimetre of a 24 hours' old bouillon-culture of typhoid fever or cholera bacilli. The liquid thus contained about the same number of germs as did the fresh sewage water. It was necessary first to sterilize the sewage water, in order to study the behaviour of these special bacilla without the interference of the numerous other species usually present. For reasons given, the lime was used in the form of a dry powder, obtained by calcining marble, and slaking 100 grammes of the same with 60 per cent. of distilled water. After the introduction of the lime, the flask, with its contents, was kept in constant movement, to prevent the settling of the suspended matters and the precipitate. Several flasks of each test were filled simultaneously to give parallel results. The lime was used in the proportion of 1-5, 1-2 and 1 per mille. To determine the rapidity with which the lime did its work, the author withdrew samples for culture at stated intervals. From the first set of tests, which are recorded in the form of a table, it is seen that only the 1-per-mille dose of lime was fatal to the germs under all conditions, though the 1/2-per-mille solution destroyed all germs after two hours' exposure, and subsequent experiments proved that even 1 1/2 hours' action of the lime was sufficient. In a second

table are shown the results of adding lime to sterilized sewage water into which a proportion of typhoid and cholera germs had been introduced on agar-agar, and therefore in the absence of nutritive bouillon. In this case also the lime proved as efficacious as before.

In a further series of experiments the author investigated the influence of lime upon sewage water not previously sterilized. For this purpose 12 samples of fresh sewage were collected in flasks, and the contents of six of these flasks were sterilized, the others remaining untreated. To four of the sterilized flasks 1 2 per mille of lime was added, and to the other two 1 per mille. The six flasks of untreated sewage had in each case 1-2 per mille more lime than the former ones—namely, four of them 1 per mille, and two of them 1.1 2 per mille of the lime. The contents of all the 12 flasks having received a fragment of agar-culture of typhoid bacilli, were examined at intervals of one hour and 1.1-2 hour, and from these tests also it appeared that a dose of 1 per mille of lime was needed to destroy all germs of cholera and typhoid fever in from 1 to 1 1/2 hours; it being a condition, moreover, that the liquid should remain throughout this time in motion. For sewage at rest, the author's experiments led him to the conclusion that not less than 3 per mille of lime would be needed. At no existing sewage works is the lime employed at present in sufficient quantities to destroy the pathogenic germs, and its value as a disinfectant is often partially neutralised by the use with it of sulphate of alumina. The author points out that a valuable index of the sufficiency or otherwise of the lime treatment is afforded by the alkalinity as tested by titration of the effluent with normal acid, and he has calculated a scale for this purpose.

Municipal officers, contractors and others, are requested to mention the CONTRACT RECORD when corresponding with advertiser.

DEBENTURES WANTED.

Municipalities issuing debentures, no matter for what purpose, will find a ready purchaser by applying to G. A. STIMSON, 9 Toronto Street, Toronto, N. B.—Money to loan at lowest rates on first mortgage.

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*Abstract of a paper from "Zeitschrift für Hygiene" in the Proceedings of the Institution of Civil Engineers.

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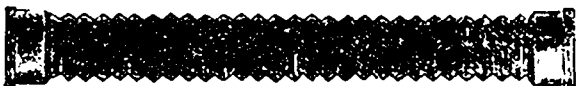
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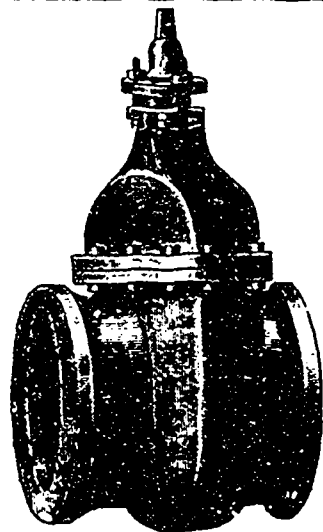
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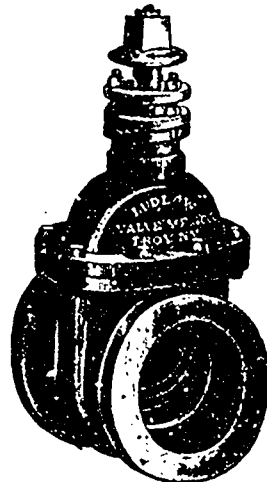
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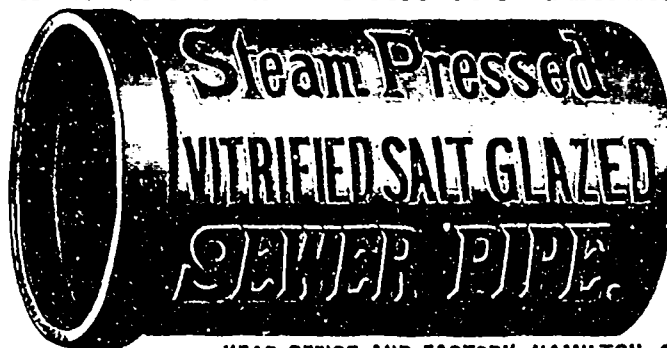
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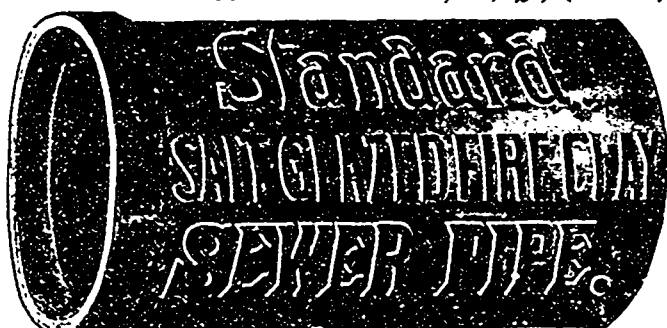
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Viaducts, Piers, Roofs, Turntables and Girders in Steel and Iron.

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CAPACITY: 2,000 TONS PER ANNUM.

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1 1/2 to 2 clear picks, Am ins.	34 00	36 00
1 1/2 to 2 three uppers, Am ins.	37 00	40 00
1 1/2 to 2 pickings, Am ins.	27 00	30 00
3 inch clear.	52 50	60 00
1 x 10 and 12 dressing and better.	20 00	21 00
1 x 10 and 12 mill run.	13 00	14 00
1 x 10 and 12 decking.	15 00	16 00
1 x 10 and 12 common.	12 00	13 00
1 x 10 and 12 spruce culls.	11 00	10 00
1 x 10 and 12 maple culls.	9 00	9 00
1 inch clear and pick.	28 00	30 00
1 inch dressing and better.	18 00	20 00
1 inch siding, mill run.	14 00	16 00
1 inch siding, common.	13 00	14 00
1 inch siding, ship culls.	12 00	12 00
1 inch siding, mill culls.	8 00	9 00
Cull scantling.	8 00	9 00
1 1/2 and thicker cutting up plank.	22 00	25 00
1 inch strips, 4 in. to 8 in. mill run.	14 00	15 00
1 inch strips, common.	11 00	12 00
1 1/2 inch flooring.	15 00	16 00
1 1/2 inch flooring.	15 00	16 00
XXX shingles, sawn, per M.	2 50	3 00
XX shingles, sawn.	1 50	2 00
YARD QUOTATIONS.		
Mill cull boards and scantling	10 00	10 00
Shipping cull boards, promiscuous widths.	13 00	13 00
Shipping cull boards, stocks	16 00	16 00
Hemlock scantling and joist up to 16 ft.	11 00	12 00
Hemlock scantling and joist up to 18 ft.	12 00	13 00
Hemlock scantling and joist up to 20 ft.	13 00	14 00
Scantling and joist, up to 16 ft.	15 00	16 00
" " " " " " " "	18 00	19 00
" " " " " " " "	22 00	23 00
" " " " " " " "	26 00	27 00
" " " " " " " "	30 00	31 00
" " " " " " " "	34 00	35 00
" " " " " " " "	38 00	39 00
" " " " " " " "	42 00	43 00

	Toronto.	Montreal.
Cutting up planks, 1 1/2 and thicker, dry.	25 00	26 00
Cutting up planks, 1 1/2 and thicker, board.	18 00	20 00
Cedar for block paving, per cord.	5 00	5 00
Cedar for Kerbing, 4 x 14, per M.	14 00	14 00
1 1/2 in. flooring, dressed, F.M.	31 00	31 00
1 1/2 inch flooring, rough, B.M.	22 00	22 00
1 1/2 " " " " " " " "	30 00	30 00
1 1/2 " " " " " " " "	19 00	19 00
1 1/2 " " " " " " " "	22 00	22 00
1 1/2 " " " " " " " "	18 00	18 00
Beaded sheeting, dressed.	22 00	22 00
Clapboarding, dressed.	12 00	12 00
XXX sawn shingles, per M.	2 65	3 00
Sawn lath.	2 50	2 60
Cedar.	2 90	2 90
Red oak.	30 00	40 00
White.	35 00	45 00
Basswood, No. 1 and 2.	18 00	20 00
Cherry, No. 1 and 2.	70 00	80 00
White ash, No. 1 and 2.	25 00	30 00
Black ash, No. 1 and 2.	18 00	30 00
Dressing stocks.	16 00	22 00
Picks, American inspection.	40 00	40 00
Three uppers, Am. inspection.	50 00	50 00
BRICK - M		
Common Walling.	7 50	6 00
Good Facing.	9 00	8 50
Sewer.	8 50	9 00
Pressed Brick, Per M:		
Plain brick, f. o. l. at Milton	16 00	16 00
" " " " and quality.	14 00	14 00
" " " " 3rd	8 00	8 00
Hard Building.	4 50	4 50
Moulded and Ornamental, per 100.	3 00	10 00
Roof Tiles.	74 00	74 00
Diamond locking tile.	16 00	16 00
First quality, f.o.b. at Campbellville.	18 00	25 00
and quality, f.o.b.	14 00	20 00
3rd	11 00	17 00
Ornamental, per 100.	3 00	10 00
Tiles.	24 00	26 00
Plain brick, "A" f.o.b. Don Valley	18 00	25 00
" " " " " " " "	16 00	22 00
" " " " " " " "	13 00	18 00
Trojan or Buff.	24 00	30 00
Ornamental, per 100.	3 00	60 00
Plain brick, f.o.b. Port Credit	18 00	25 00
" " " " and quality.	13 00	20 00
" " " " 3rd	10 00	16 00
Hard Building.	8 00	8 00
Ornamental, per 100.	3 00	10 00
SAND.		
Per Load of 1 1/2 Cubic Yards	1 25	1 25
STONE.		
Common Rubble, per ton, delivered.	14 00	14 00
Large flat Rubble, per ton, delivered.	18 00	18 00
Foundation Blocks, per c. ft.	50	50
Kent Freestone Quarries Moncton, N. B., per cu ft., f.o.b.	1 00	1 00
River John, N. S., brown Freestone, per cu ft., f.o.b.	95	95
Ballochmyle	80	75
New York Blue Stone.	1 05	1 05
Granite (Stanstead) Ashlar, 6 in. to 12 in., rise 9 in., per ft.	25	25
Moat Freestone	70	80
Thomson's Gateawbridge, cu. ft.	75	80
Credit Valley Rubble, per ton, delivered.	13 00	14 00
Credit Valley Brown Coursing, per superficial yard.	2 50	3 00
Credit Valley Brown Dimension, per cubic foot.	90	90
Credit Valley Grey Coursing, per superficial yard.	1 50	2 00
Credit Valley Grey Dimension, per cubic foot.	75	80
Madoc Rubble, delivered, per ton.	14 00	14 50
Madoc dimension floating, f. o. b. Toronto, per cubic ft.	70	32
Ohio Freestone, No. 1 Blue Promiscuous, f.o.b.	60	60
No. 1 Blue Dimension.	65	65
No. 1 Buff Promiscuous.	80	80
No. 1 Buff Dimension.	85	85
The above prices means freight and duty paid.		
2 in. sawed flagging per sq ft	11	11
3 1/2 " " " "	13 1/2	13 1/2
4 " " " "	16 1/2	16 1/2
4 1/2 " " " "	22	22
5 " " " "	27 1/2	27 1/2
6 " " " "	33	33
Duty to be added to these prices.		
Quebec and Vermont rough granite for building purposes, per c. ft. f.o.b. quarry	33	35
For ornamental work, cu. ft.	35	20
Granite paving blocks, 8 in. to 12 in. x 6 in. x 4 1/2 in., per M	50 00	50 00
Granite curbing stone, 6 in. x 20 in., per lineal foot.	70	70
SLATE.		
" red.	16 00	20 00
" purple.	9 00	10 00
" unfading green.	8 50	6 00
" black.	8 00	7 50
Terra Cotta Tile, per sq.	22 00	22 00
Ornamental Black Slate Roofing.	8 00	8 00
PAINTS. (In oil, @ lb.		
White lead, Can., per 100 lbs.	6 25	6 50
" zinc, Can.	6 50	7 50
Red lead, Eng.	6 50	6 50
" venetian, per 100 lbs.	1 75	1 60
" vermilion.	90	90
" Indian, Eng.	10	12
Yellow ochre.	5	10
Yellow chrome.	15	20
Green chrome.	7	12
" Paris.	25	40

	Toronto.	Montreal.
Black lamp.	15	25
Blue, ultramarine.	15	20
Oil, linseed, raw, @ Imp. A.S.	65	68
" " " " boiled.	68	71
" " " " refined.	78	85
Putty.	2 1/2	2 1/2
Whiting, dry, per 100 lbs.	75	100
Paris white, Eng., dry.	90	125
Litharge, Am.	6 1/2	8
Sienna, burnt.	15	2
Umber.	8 1/2	12
CREAM, LIME, etc.		
Cement, Portland, per bbl.	2 50	2 50
" English.	2 75	2 75
" Belgium.	3 25	3 25
" Thorold.	1 50	1 50
" Queenston.	2 25	2 25
" Napanee.	1 50	1 50
" Hull.	1 50	1 50
" Gernar.	2 65	2 85
" London.	2 45	2 90
" Newcastle.	2 35	2 50
" Belgium.	2 30	2 40
" Ca-adian.	2 25	2 30
" Roman.	7 75	7 75
" Parian.	4 10	4 75
" Superfine.	6 50	7 00
Keene's Coarse "Whites".	4 50	4 75
Calced plaster, per barrel.	1 50	1 70
Fire Bricks, Newcastle, per M	20 10	24 00
Scott.	30 00	35 00
Lime, Per Barrel, Grey.	40	40
" " " " White.	55	55
Plaster, Calcined, N. B.	2 00	2 00
" " " " N. S.	2 00	2 00
Hair, Plasterers', per bag.	80	1 00
HARDWARE.		
Cut nails, 5 d & 6d, per keg	2 40	2 25
Steel " " "	2 50	2 35
CUT NAILS, FENCE AND CUT SPIKES.		
40d, hot cut, per 10 lbs.	5	5
30d, " " "	10	10
20d, 16d and 12d, hot cut, per 100 lbs.	15	15
10d, hot cut, per 100 lbs.	20	20
8d, 9d, " " "	25	25
6d, 7d, " " "	40	40
4d to 5d, " " "	60	60
3d, " " "	1 00	1 00
2d, " " "	1 50	1 50
4d to 5d cold cut, not polished or blued, per 100 lbs.	50	50

	Toronto.	Montreal.
3d to 5d cold cut, not polished or blued, per 100 lbs.	90	90
PINK BLIND NAILS		
3d, per 100 lbs.	1 50	1 50
2d, " " "	2 00	2 00
CASING AND BOX, FLOORING, SHOOK AND TOBACCO BOX NAILS.		
12d to 30d, per 100 lbs.	50	50
10d, " " "	60	60
8d and 9d, " " "	75	75
6d and 7d, " " "	90	90
4d to 5d, " " "	1 10	1 10
3d, " " "	1 50	1 50
FINISHING NAILS.		
3 inch, per 100 lbs.	85	85
2 1/2 to 3 1/2 " " "	1 00	1 00
2 to 2 1/2 " " "	1 10	1 15
1 1/2 to 1 3/4 " " "	1 35	1 35
1 1/4 " " "	1 75	1 75
1 " " "	2 25	2 25
SLATING NAILS.		
5d, per 100 lbs.	85	85
4d, " " "	85	85
3d, " " "	1 25	1 25
2d, " " "	1 75	1 75
COMMON BARREL NAILS.		
1 inch, per 100 lbs.	1 50	1 50
3/4 " " "	1 75	1 75
1/2 " " "	2 25	2 25
CLINCH NAILS.		
1 inch, per 100 lbs.	85	85
3/4 and 3/8 " " "	1 00	1 00
2 and 3/4 " " "	1 15	1 15
1 1/2 and 1 1/4 " " "	1 35	1 35
1 1/4 " " "	2 00	2 00
1 " " "	2 50	2 50
SHARP AND FLAT PRESSED NAILS.		
3 inch, per 100 lbs.	1 35	1 35
2 1/2 and 2 1/4 " " "	1 50	1 50
2 and 3/4 " " "	1 65	1 65
1 1/2 and 1 1/4 " " "	1 85	1 85
1 1/4 " " "	2 50	2 50
1 " " "	3 00	3 00
Structural Iron:		
Steel beams, per 100 lbs.	2 75	2 50
" channels,	2 85	2 60
" angles,	2 50	2 30
" tees,	2 80	2 65
" plates,	2 55	2 35
Sheared steel bridge plate.	2 25	2 35

INDEX TO ADVERTISEMENTS

In the "Canadian Architect and Builder."

Architects.	Church and School Furniture.	Grates and Tiles.	Pipe Covering
Ontario Directory..... III	Bostwick, Geo. F..... xv	Bostwick, G. F..... xv	Can. Mineral Wool Co. vii
Quebec Directory..... vi	Can. Office & School Furniture Co..... v	Hollbrook & Mollington i	Plumbing Supplies.
Architectural Sculptors and Carvers.	Office Specialty Co..... v	Webster Bros. & Parkes i	Malcolm, W. B..... ii
Carnovsky, B. H..... IV	Cements.	Rice Lewis & Son..... IV	Sanitas Mfg. Co..... xi
Hicks, W. Stevens..... III	Adamant Mfg. Co..... viii	Heating.	St. Johns Stone China-ware Co..... iii
Holbrook & Mollington..... i	Bremner, Alex..... iv	Bigley, R..... xiv	Toronto Steel Clad Bath & Metal Co..... III
Wagner, Zeidler & Co..... xii	Currie & Co., W. & F.P..... xvi	Barron & Co., W. J. x	Roofing Materials.
Architectural Iron-Work.	Estate of John Battle iv	Manly & Co., E. A. xv	Merchant & Co..... II
Bostwick, Geo. F..... xv	McNally & Co., Wm. iv	McDougal & Co., R. xv	Metallic Roofing Co. ix
B. Greening Wire Co. III	Maguire Br. s..... i	W. S. & Co., H. R..... xii	Roofers
Dennis R..... II	Morris, E. D..... viii	King & Son, Warden. xv	Douglas Bros..... II
Dominion Bridge Co. I	Rathbun Co..... viii	McClary Mfg. Co. xvii	Duthie & Sons, G..... II
Lea, Joseph..... xvi	Usher & Son, Isaac. iv	Miller Bros. & Tomes. xvii	Hudson, W. D..... II
Meadows, Geo. B..... II	Webster Bros. & Parkes i	Robb Engineering Co. xiv	Metallic Roofing Co. ix
Whitfield, John..... II	Contractors and Builders.	Toronto Radiator Mfg Co..... xiii	Reemie & Son, R..... II
Architects' Supplies	Davidson & Kelly..... II	Iron Pipe.	Stewart, W. J..... II
Hearn & Harrison..... vi	Turner & Co., G. W..... vi	King & Son, Warden. xv	Williams & Co., H..... II
Art Woodwork.	Contractors' Plant and Machinery		