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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF PUBLIC WORKS, TENDERS, ADVANCE INFORMATION AND MUNICIPAL PROGRESS EVERY SATURDAY

Vol. 3. Toronto and Montreal, Canada, March 26, 1892. No. 7

THE CANADIAN CONTRACT RECORD,
A Weekly Journal of Public Works, Tenders, Advance Information and Municipal Progress.
PUBLISHED EVERY SATURDAY
As an Intermediate Edition of the "Canadian Architect and Builder."
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Information solicited from any part of the Dominion regarding contracts open to tender.

ADVERTISING RATES ON APPLICATION.

At its Convention held in Toronto, Nov. 30 and 31, 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 H. Perrault, seconded by A. P. 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."
The publisher desires to ensure the regular and prompt delivery of this Journal to every subscriber, and requests that any cause of complaint in this particular be reported at once to the office of publication. Subscribers who may change their address should also give prompt notice of same, and in doing so, should give both old and new address.

TENDERS

Will be received by the undersigned up to THURSDAY, THE 31ST DAY OF MARCH INSTANT, at 4 o'clock p. m., for the erection of an

ACADEMY BUILDING

of brick, with stone trimmings, according to plans and specifications which can be seen at the Town Clerk's office in Amherst on and after the 16th instant.
Tenders must be addressed to the undersigned, marked "Tenders for Amherst Academy," and accompanied by a certified cheque for 5 per cent. of contract price, otherwise such tender will not be entertained.
The Board of School Commissioners do not bind themselves to accept the lowest or any tender.
W. FRED'K DONKIN,
Secretary Board School Commissioners
Amherst, N. S., March 16th, A. D. 1892.

DRAUGHTSMAN

Wants position; open next week. Address "TOTAL," care of Canadian Contract Record, 13 King St. West.

TENDERS

Will be received by the undersigned until THURSDAY, MARCH 31ST, for the various works required in making ALTERATIONS TO A BUILDING on King Street East, for the TORONTO COFFEE HOUSE ASSOCIATION. No tender necessarily accepted.
GORDON & HELLIWELL, Architects,
26 King Street East.

TENDERS

Will be received by the undersigned until FRIDAY, APRIL 1ST, for the various works required in the erection of a
Public School Building at Mimico, Ont.
Plans can be seen on and after Tuesday, 22nd inst.
No tender necessarily accepted.
GORDON & HELLIWELL, Architects,
26 King Street East.

CITY OF WINNIPEG.

Specifications and Bill of Quantities of Vitrified Sewer Pipe.

Tenders for the following pipe, addressed to the Chairman of the Committee on Works, City Hall, Winnipeg, marked "Tender for Sewer Pipe," will be received up to 6 o'clock p. m. on March 31st, 1892:

DIAMETER, INCHES.	NUMBER OF PIPES.	LN. FEET.
9 straight	1600	3200
12 straight	1500	3000
12x6 junctions	260	520
12x9 junctions	12	23
15 straight	400	800
15x6 junctions	70	140
15x9 junctions	6	12
18 straight	170	340
18x6 junctions	30	60
18x9 junctions	6	12

Sewer pipe shall be of vitrified salt glazed clay of the best quality, uniform in size and texture, and thoroughly burned and glazed. They must be free from fire cracks and flaws, and otherwise perfectly sound. The thickness of the pipe shall be one-twelfth of the inside diameter, and they must not vary more than one-half inch in two feet from a straight line, nor more than one-half inch from a circle of the stated diameter of the pipe. Pipes shall be delivered and carefully piled or distributed at places to be pointed out by the Engineer. Pipes shall be inspected by the Engineer after they have been delivered, and those not complying in every particular with the specification shall be rejected, and shall be removed from the work forthwith by the contractor, or by the Engineer at the contractor's expense. All junctions shall be of the Y pattern.
The pipe to be delivered in lots on the order of the City Engineer, between the time of entering into the contract and the 1st May, 1892. All pipe ordered must be delivered within three weeks of the date of the notice. This contract will only apply to pipe ordered on or before the above date.
Each tender must be accompanied by a marked cheque for \$175
H. N. RUTAN,
City Engineer.

TO FIRE COMMITTEE.

FOR SALE - 1000 FEET PERFECTLY NEW 3/4" RUBBER LINED COTTON FIRE HOSE, in 50 feet lengths (best brand in market) with nickel plated couplings. Apply
P. O. Box 1889, MONTREAL.



TENDERS FOR SUPPLIES.

Sealed tenders addressed to the undersigned and marked "Tender for" as the case may be, will be received by the Committee on Water Works by registered post only at this office up to the hour of 2 o'clock p. m. on
MONDAY, APRIL 4th, 1892,
for the following supplies required by the Department for the ensuing year -
Cast iron pipe, 4", 6" and 12", special castings, hydrants, stop valves, general stores, lumber, pipe laying, pig lead, lead pipe, bar iron and steel, brass work for house services, brass and bronze castings, iron stop cock boxes, rubber valves and packing, valve and meter chambers, lubricating oils, oak tops for valve chambers, &c.
Tenders must be made upon the proper form attached to the specifications, which may be obtained at the office of the Water Works Department.
A deposit, cash or marked cheque, for the amount named in the specifications must accompany each tender.
The lowest or any tender not necessarily accepted.
JAMES GOWANLOCK,
Chairman Committee on Water Works.
City Hall, Toronto, March 22nd, 1892.

A glass manufacturer of Vienna, Austria, claims that he has produced a new substitute for glass. In an account of his invention he says, "I dissolve from four to eight parts of collodion wool in about one hundred parts by weight of ether or alcohol or acetic ether, and with this I intimately combine from two to four per cent. of castor oil or other non-resinous oil, four to ten per cent of resin or Canadian balsam (soft rosin). The compound, when poured upon a glass plate and subjected to the drying action of a current of air of about fifty degrees Centigrade, solidifies in a comparatively short time into transparent, glass-like sheet or plate, the thickness of which may be regulated as required. The sheet or plate so obtained has substantially the same properties as glass, as it will resist the action of salts and alkalis and of dilute acids, and, like glass, is transparent and has no smell. On the other hand, it has the advantage of being pliable or flexible and infrangible to a great degree, while its inflammability is much less than that of the collodion substitutes.

CONTRACTS OPEN.

WELLAND, ONT. - The extension of the sewerage system is being discussed.
UNIONVILLE, ONT. - The ratepayers have decided to build a new school house.
NANAIMO, B. C. - The Council is considering the erection of a two-story brick fire-hall.
ARNPRIOR, ONT. - Mr. C. I. Sinn has purchased a site on which to erect a residence.
PRESOTT, ONT. - Mr. Isaac P. Wiser intends building a handsome residence this summer.
ATHERLEY, ONT. - The G. I. R. will erect a new iron bridge here during the coming summer.
INTERNATIONAL BRIDGE, ONT. - The Episcopal congregation will erect a new church on the old site.
BOND HEAD, ONT. - The Methodists of this place will build a new church during the coming summer.
BRANDFORD, ONT. - Mr. Willis Chipman, C. E. of Toronto, is preparing plans for a sewerage system for the town.
WHITEWOOD, MAN. - Mr. Hughes, of Wapella, was in town recently looking for a site for the erection of a grist mill.
GAINSBORO, MAN. - A number of residents are organizing a joint stock company for the purpose of building a grist mill.
POINT EDWARD, ONT. - A by-law will be submitted to the ratepayers to grant a bonus of \$5,000 to establish salt works here.
BRANDON, MAN. - Mr. J. Lapham wants tenders for the erection of a substantial brick block on the property south of Rossar avenue.
DORCHESTER, N. B. - Plans are now in course of preparation for a brick hotel to be erected in this town, at an estimated cost of \$7,000.
ENETER, ONT. - The erection of a rectory and school house for the Trivet Memorial Church will be commenced during the coming summer.
ST. THOMAS, ONT. - The plans for the new Y.M.C.A. building which Mr. Wood proposes to erect have been submitted and approved, and a site is being looked for.
DAWY, N. S. - The provincial government is asking for tenders for the erection of a new bridge across the Joggins, south end. Tenders will be received up to March 31st.
BARRIE, ONT. - Mr. R. Graham is calling for tenders for the heating of the Court House by hot water, steam or hot air. Tenders will be received up to the 15th day of May.
OWEN SOUND, ONT. - Tenders are wanted until April 2nd, for the erection of a brick school house on lot 12, concession 3, Derby. Plans at Butcher's hardware store - Jas. Smith secretary.
KINGSTON, ONT. - At a recent meeting of the School Board, it was decided to apply to the City Council for an appropriation of \$20,000 with which to erect a new school building on Union Street.
ORMISTOWN, QUE. - A. McEachern Secretary-treasurer, will receive tenders until Monday, 4th of April, for the building of a steel bridge across the Chateauguay River near this village. Plans to be seen at the office of the Parish Council.

STRATFORD, ONT.—Mr. Andrew Jeffrey, hardware merchant, intends to erect a two-story red brick residence in this city, to cost about \$2,500. Mr. H. J. Powell will have charge of the work. The contract will be awarded at an early date.

SMITH'S FALLS, ONT.—Mr. L. G. Martin will receive tenders until the 28th inst. for the erection of a stone residence at Merrickville, including hot water heating. He also wants tenders until the 4th of April for the erection of a brick market building here.

GURFILL, ONT.—Tenders are wanted for the erection of a brick house for Mr. C. W. Kelly. The City Council has decided to issue debentures to the amount of \$30,000, to provide for the erection of a new bridge, extension of water mains and new boilers for the waterworks.

LACHINE, QUE.—H. Robert, Sec. Treas., will receive tenders until the first day of April for one 50 arc light dynamo of 1,200 c. p., one 650 mean descent dynamo of 12 c. p., one 100 h. p. Corliss condensing engine, one 100 h. p. high speed engine, and one 100 h. p. steel boiler.

FLESHERTON, ONT.—Plans have been prepared by Mr. Clarke, architect, for a residence to be erected at the corner of Peter and Elizabeth streets for Mr. G. Mitchell, banker, of this place. Mr. Clarke is also preparing plans for a residence to be erected for Mr. Clayton Timble. A new school is to be erected at Hopeville by the rate-payers.

CALGARY, N. W. T.—The Dominion Government has passed an order authorizing the erection of a public building to cost \$45,000. The building will be erected on the Hull site, opposite the present post office. The Board of Directors of the General Hospital are inviting plans for a new stone hospital, two stories and basement, cost not to exceed \$50,000.

LONDON, ONT.—Plans have been prepared for the remodelling of the drill shed, and will be submitted to the authorities for approval at an early date. Messrs. Moore & Henry, architects, want tenders for the erection of a brick dwelling on Clarence street for Messrs. E. W. Saunders & Co. The Board of Education have decided to immediately commence the reconstruction of the Talbot street school which was recently destroyed by fire.

MONTREAL, QUE.—The city council are discussing the construction of a subway on Berr street. A deputation of citizens will interview the Minister of Public Works for the Dominion to endeavor to secure the granting of a subsidy to complete the wharf at Longueuil. Mr. W. H. Davis, of Ottawa, has written to the city council offering to build a steel observatory 200 feet high, with electric elevators and outlooks every fifty feet. He was requested to submit plans and specifications. Dr. Brisson, Mayor of Laprairie, has written to the Harbor Commissioners, urging the construction of a wharf at Point St. Charles.

HAMILTON, ONT.—The Water Works Committee has decided to build a six-inch main on Burlington street, between King and Barton streets, at an estimated cost of \$3,230. It is stated that the promoters of the Toronto, Hamilton and Buffalo railway will award the contract for the construction of the line at an early date. W. A. Edwards, architect, will receive tenders until Monday, the 28th inst., for the erection of a brick residence on John street south. Charles Mills architect, will receive tenders until Saturday the 2nd April, for the various works required in making alterations and additions to the Grand Opera House. Plans have been completed for the new Maternity hospital and will be presented to the hospital committee for approval at an early date.

VANCOUVER, B. C.—The congregation of Zion church are considering the erection of a new edifice. Application will be made to the Dominion Parliament for an act to incorporate a company to construct, operate and maintain a tunnel under the First Narrows of Burrard Inlet, and a bridge over the Second Narrows of Burrard Inlet, and to construct and operate railways on the north and south shores of Burrard Inlet to connect the tunnel and bridge and with the Canadian Pacific Railway; with power also to lay water mains or pipes through the tunnel and across the bridge. The estimated height of the arches of the bridge will be eight feet above wa-

ter, and the estimated interval between the centre piers will be 100 feet. A draw will be provided in the bridge of 100 feet clear water-way.

TORONTO JUNCTION, ONT.—Plans have been prepared by Mr. A. B. Pipher for two brick houses on Murray avenue. The Town Engineer has been instructed to prepare new plans for a system of sewerage for the town, in accordance with the arrangements made with the City of Toronto, also to prepare an estimate of the cost of constructing sewers on the streets recommended by the Board of Health. Mr. A. B. Pipher, architect, is preparing plans for a new hotel to be erected by Messrs. Millar & Firm opposite the Campbell block. It is to be a solid brick, three stories high, with about thirty rooms, including bath. At the west side will be erected a store. Large driving sheds and barn will be erected in the rear. Mr. Pipher is also preparing plans for a residence to be erected at Weston.

HALIFAX, N. S.—The Board of Works has recommended the construction of a sewer on South Robie street, at a cost of \$900. The City Council are looking for a suitable site for the erection of a market building. G. E. Harris, General Manager Nova Scotia Telephone Co. will receive tenders until the 28th inst. for heating their new building. Tenders will be received at the office of the Public Works Department until noon on Wednesday, the 6th of April, for the erection at Truro of a building for the Provincial School of Agriculture. Plans may be seen at the office of Edward Elliot, Architect, Bedford Row, and at office of Prof. Smith, Agricultural Farm, Truro. The City Council will apply to the Local Legislature at its present session for power to borrow the sum of \$15,000 for the purchase of a steam fire engine and apparatus.

OTTAWA, ONT.—Tenders have been asked by the Public Works Department for the construction of two registry offices at Prince Albert and Edmonton. The trustees of the Ottawa Separate School have decided to build a new school house on Sherwood St. A deputation from Golden recently waited on the Minister of Public Works to urge the necessity of placing a sum in the supplementary estimates for the purpose of improving the harbor at that place. The Alberta Railway and Coal Company will apply to Parliament for power to construct and operate an irrigation ditch or canal from the crossing of the Milk river by the railway in a north-westerly direction to Lethbridge. E. F. E. Roy, Secretary Department of Public Works, will receive tenders until Friday, 22nd of April, for the erection of a drill hall at Victoria, B. C. Plans may be seen at the Department of Public Works, this city, and at the office of F. C. Gamble, engineer, Victoria.

TORONTO, ONT.—Mr. Berkeley G. Turner corner of Christie and Garnet streets, has had plans prepared for a residence to be erected on the east side of Crawford street. Mr. H. B. Howson is making arrangements to erect two cottages on the Island. The plans for the proposed University gymnasium to be erected in the Queen's Park have been completed. The building will be 180 feet long and 60 feet wide, with two stories and a basement, and will cost about \$25,000. The City Engineer has been instructed to report as to the practicability and cost of constructing a bridge across the Grand Trunk railway in rear of the toll gate at the intersection of King and Queen streets, for the purpose of enabling the street railway company to enter High Park at the Indian road. The Board of Works has decided to construct sewers on Tyndal avenue, from Huxley street to the G.T.R. tracks, and on Glen Road, at a cost of \$310 and \$530 respectively. An American syndicate has obtained from the University authorities a 30 days option for the purchase of the old Upper Canada college and grounds for the sum of \$250,000. M. Sheard, architect, 120 Yonge street, will receive tenders until the 2nd of April for the erection of six attached brick houses on Ann street. The ice-dealers of this city have formed themselves into a joint stock company, with a capital stock of \$100,000. They will erect immense icehouses at Frenchman's Bay. A block of stores is to be erected on Bathurst st., north of Bloor street, on the property of Mr. D. Moore, of 544 Bloor street east. The following building permits have been granted: E. McMartin, det.

2-storey and attic bk. dwelling, 208 Soranren ave., cost \$2,000; Wm. Brand, pr. s. d., 2-storey bk. dwellings, n. side Argyle st., between Givens and Dundas st., cost \$3,500; Samuel Van Avery, three att. 2-storey and attic bk. dwellings, e. side Bathurst st., n. of Bloor st., cost \$2,000. Ashfield & Wilton, seven att. 2-storey and attic bk. dwellings, w. side Bolton ave., s. of Cummings st. cost \$21,000. Wm. Belshaw, five att. 2-storey b. f. dwellings, w. side Sackville st., between Sydenham and St. David st., cost \$10,000, and ten 2-storey b. f. dwellings, on each side of new street opened between Sydenham and St. David st., cost \$20,000; John Sloan, additions to residence 143 Isabella st., cost \$2,000. W. Kidd, additions to factory, 130 Richmond st. west.

FIRES.

The premises of Duboudeau Bros., St. Paul street, Montreal, was damaged by fire to the extent of \$20,000 on Tuesday last. Mr. Frank McLaughlin's residence at Kingston, Ont., was burned on Saturday last. The Kingston hotel at Kingston, N. S., was destroyed by fire on the 21st inst.; no insurance. On Monday last fire at Bradford, Ont., destroyed the Stoddard building; loss \$20,000; insurance \$10,000; and the Bingham block, owned by Robert Ingham; loss \$15,000; insurance \$1,000. The Argyle hotel at St. Andrews, N. B., was totally destroyed by fire on the 20th inst. The residence of Mr. George Warder at Tiverton, Ont., was burned on Saturday last; loss \$1,000. The custom house at St. John, N. B., including the local custom offices, together with the Inland Revenue, Public Works, Marine and Fisheries, Immigration and Signal Service departments, was destroyed by fire on the 20th inst. The building was built of freestone, and cost in the neighborhood of \$320,000. Fire at Point Edward, Ont., on Thursday last destroyed the building owned by Mr. Hitchcock, Lawrence Knapp's meat market, F. O'Neil's grocery store, containing the post-office and the Spetz hotel. The total loss is between \$15,000 and \$20,000.

CONTRACTS AWARDED.

NIAGARA FALLS, ONT.—Mr. Geo. Fuller has been awarded the contract for the erection of the new separate school building.

CHELTONHAM, ONT.—The contract for the building of the Baptist church has been awarded to Gihham & Son, of Inglewood, for \$3,385.

BELLS CORNERS, ONT.—The contract for the erection of a new Presbyterian church has been awarded to Mr. Wm. Davidson, of Mount Forest.

COLLINGWOOD, ONT.—The Waterworks Committee has awarded the contract for the lowering and extension of the intake pipe to James Stone, at \$1 234.

GLENCOE, ONT.—The contract has been let for the rebuilding of the McKellar House. It is to be a red brick structure, and will cost about \$10,000.

VANCOUVER, B. C.—Mr. George Powell has been awarded the contract for cutting a trail from the dam at the waterworks to the proposed Capilano Park, a distance of 14 miles.

OTTAWA, ONT.—The Board of Works have accepted the following tenders for supplies: pipe, McKee & Co.; cements, F. H. Cluff; hardware, Thomas Brkett; plank, P. Burns.

ILDERTON, ONT.—Messrs. Bawden Bros. and Wm. Howard, of Exeter, have received the contract for the erection of an English church in this village. The foundation will be built of stone and the upper walls of brick.

HAMILTON, ONT.—Contracts for the erection of a Methodist church at Plains East have been awarded as follows: masonry, A. W. Buscombe, carpenter, F. Slater, Waterdown; lathing and plastering, Clapman & Sons; painting, S. W. Rickman, Waterdown, galvanized iron work John E. Riddell.

A peculiar method of building a wall, which would apparently lead to a great uniformity of style, is practiced by the Romans. They erect two parallel partitions of boards between which they pour a plaster of mud; the partitions are afterward removed, when the material solidifies.

PLUMBING PRACTICE.

Great care is taken by many plumbers in the adjustment of plumbing apparatus in that the work shall look symmetrical and mechanical in finish, says *Fire and Water*. This is proper and desirable, and should be insisted upon. It is often the case, however, that an excellent piece of work in appearance is not as complete in utility as it might have been had a little more pains been taken with a feature of the work often neglected. Why it is that a plumber will run a certain supply pipe to a point of delivery and then throttle it by a flat waterway bibb cock and a flat waterway stop cock is to some minds inconceivable. If it be intended, then there it no further use in writing about it. Still it would be quite as reasonable to have the cross section of the diameter of the pipe equal in area to the area of the stop cock or bibb cock, and the additional cost of the increased size of the pipe could then be avoided. This condition of things is frequently found in plumbing practice; it does not interfere so seriously in the matter of the size of discharge faucet, the excuse being, the larger the pipe the greater the velocity than in a small pipe. Yet losing sight of the fact that such be the case, why not continue the same "to the end" of the faucet and get the benefit of the velocity entire? The serious part, however, in the plan is the stop cock controlling the supply to the delivery pipe and discharge cock. Very few plumbers consider what detriment is effected in using a flat waterway stop cock supposed to equal in cross section of area the cross section of the area of the delivery pipe with which it is connected. A few minutes' consideration will convince the most obtuse plumber that the 1/2-inch and 3/8-inch stop cock with a flat waterway in but few instances possesses the area in cross section equal to 1/2-inch or 3/8-inch pipe, circular in form. Even if it did, it will be found that diverting a circular stream to a rectangular stream through the waterway of a stop cock and back again to a circular stream is at the expense of the energy of the velocity of the current of water occasioned by the diversion.

It is but trifling to maintain the relations necessary to reduce friction in moving water through service pipes. To break the current generated by velocity is the thing to avoid, and if it is recognized in plumbing practice, a good step in progressive plumbing will be inaugurated.

Therefore if you would obtain the best results from circular discharge pipes, be they lead, iron or brass, see to it that stop cocks are round waterway, and also the same regarding bibb cocks. It will be found upon close examination of the merits of this feature of plumbing that a great saving will be effected in the matter of frictional resistances, which absorb so much of the energy of the flow of water through distributing pipes in the dwelling and warehouse.

We have frequently seen three coats of oil paint applied to the weather board of a building in as many days, when to obtain the best results it should have taken as many weeks. Is it just and proper, then, to find fault with pigment, oil or workmanship, if in a comparatively short time unsightly and unsatisfactory blemishes begin to appear?

MUNICIPAL DEPARTMENT.

DUTIES OF COUNTY ENGINEER.

The county engineer should have control of all his assistants and clerks, with power to dismiss them for misconduct; should have all necessary contracts and specifications drawn up, should keep a road map of the county, showing its various subdivisions for taxation purposes, and all roads and bridges, each road being properly numbered; should have plans and profiles of all roads, also plans and sections of all bridges and large culverts. He should have a set of books showing the nature and amount of work to be done on each section of a road, according to its name, number or other designation, together with the contractor's name and the amount paid annually or half yearly for each description of work.

He should certify all amounts to be paid to contractors; report annually to the council on all work done under his control during the year, showing the amounts paid for each work, and giving a statement of the condition of all roads and bridges, together with any information which may show the advantages of the works executed.

He should also prepare estimates of work to be done each year, showing the proportions to be paid by each subdivision of the county and by the county at large, and also the unexpended balances on any contracts which may remain over to the credit of the various subdivisions of the county or to the credit of the county at large. He should also see to the advertisement for tenders of all works under his charge.

The assistant engineers should personally attend the execution of all works within their districts, measure up all stone or other material supplied, estimate as closely as possible the amount of macadam on hand at the end of the year, report on how much shall be required on each section for the ensuing year, attend closely to the manner in which the various contractors execute their work, instruct the men under them in the performance of their duties, see that the roads are not encroached on or interfered with, except on permission from the county engineer in writing, assist the county engineer in making surveys, taking levels and preparing plans, profiles and estimates, and furnish the county engineer with the data necessary for drawing up his annual report.

The county engineer and his assistants should be empowered by law to enter on and traverse the property of any person whatever, when it may be necessary to do so for the purpose of surveying or taking levels on the route or proposed route of a new road or drain, provided that they do no damage to such lands or pay for any necessary damage.

WATER SUPPLY AND MANUFACTURERS.

Manufacturers, when deciding upon a location, are wise in that respect when they look well after their water supply. Failure to do this often rises up in after years and troubles them, and the towns that desire the location of manufacturers are in a good way when one of the inducements they offer is plenty of good water. This people are coming to understand better year by year. Still it is a fact that some pretentious cities are furnished with water so poor in quality that, although it must be used for drinking and for domestic purposes, it will not answer the requirements in certain lines of manufacture in which water of a fairly good quality is required. And it is also a fact that manufacturers have refused to locate in such cities on this account, while others have been obliged to move for lack of fairly good water. There is a demand for more and better water, not only in cities, but in small towns, and this demand—this growing desire—has added in building up important industries in the manufacture of pumping machinery, and has brought

about such healthy competition in its manufacture as to reduce the cost and improve the quality two very desirable things.

A few years ago a pumping engine was a rather formidable as well as a costly piece of machinery; something no moderately small town could ever hope to own and operate. Pumping engines were luxuries for large cities. Now engines are made for such purposes, so moderate in cost, and so easily erected and managed, that any ambitious town of a few thousand inhabitants cannot afford to be without good water.

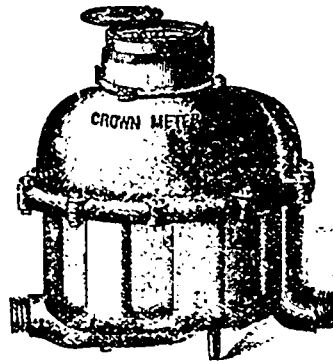
One of the commonest faults in securing a water supply is in stopping short of going far enough for it. In fact, it seems to be rather the rule, in the first instance, to consider immediate needs only, rather than to look ahead to future requirements. It costs a little more to go further to the certain supply than to stop short at the supply sure to be inadequate in a few years, but it generally pays in the end, especially in a country like this, where the little town of to-day is the pretentious city of to-morrow, to look for the more than adequate supply.

The greatest activity in providing water works has been in the smaller towns. In some large cities notable mistakes have been made, delays having placed them at the mercy of speculators, who have bought up the available supply with the intention of themselves supplying the cities with water. We believe every city should own its own water works, and supply manufacturers and others at the lowest possible cost that will pay expenses. Doing this induces manufacturers to locate, and thereby increases the general prosperity.—*American Machinist.*

National Meter Co.

GOWER & CO.,
AGENTS.

204 St. James Street, MONTREAL.



94,000 Meters sold and in use to date.

GOWER & CO. will also quote for FILTERS, STAND PIPES, CAST PIPES, SPECIALS, HYDRANTS, VALVES, and all Waterworks and Municipal Supplies.

THE CENTRAL BRIDGE WORKS

Peterborough, Ont.

WM. H. LAW, Proprietor and Engineer.

MANUFACTURER OF

RAILWAY AND HIGHWAY BRIDGES

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

Tension members forged without welds. Riveting done by hydraulic or compressed air machines by centres. Good workmanship and strict adherence to specifications and drawings.

CAPACITY 2,000 TONS PER ANNUM.

DEBENTURES WANTED.

Municipalities using debenture, 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.

ALAN MACDOUGALL,
CIVIL AND SANITARY ENGINEER,
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PATENT CAST IRON GULLIES,
Vitrified Clay Sewers - Dust Bins - Sewer Pipe
Cements - Steam Road Rollers - Stone
Breakers - Street Scrapers
Horse Brushes, etc.

**St. George's Patent Sectional
VITRIFIED CLAY SEWER**

CAST IRON STREET GULLEY.

Over 5000 Gulleys are now in use in the following towns: Montreal, Toronto, Ottawa, Quebec, St. Cuthbert, St. Henri, Peterboro', Owen Sound, Samia, Cote St. Antoine. A saving of \$22 on each gulley over the brick gulleys.



LEWIS SKAIFE,
Engineer and Contractor,
New York Life Building, - MONTREAL
AGENT.

CANADIAN BRIDGE & IRON CO.
MONTREAL.

Architectural Ironwork a specialty. Pleased to furnish estimates.

HAMILTON and TORONTO SEWER PIPE CO.

**Steam Pressed
VITRIFIED SALT GLAZED
SEWER PIPE**

**SEWERS,
GULVERTS,
AND
WATER PIPES.
INVERTS
For Brick Sewers**

Write for Discounts.

HEAD OFFICE AND FACTORY, HAMILTON, CANADA.

THE STANDARD CRAIN PIPE CO.
OF ST. JOHNS, P. Q. (L.I.M.)



Manufacturers of
**Salt-Glazed,
Vitrified
SEWER
PIPES**
Double Strength
Railway Cul-
vert Pipes,
Inverts, Vents,

AND ALL KINDS OF FIRE CLAY GOODS.

Prices of Building Materials.

LUMBER.

	Toronto.	Montreal.
1 1/2 to 2 clear picks, Am. ins.	10 00	10 00
1 1/2 to 2 three uppers, Am. ins.	17 00	17 00
1 1/2 to 2, pickings, Am. ins.	27 00	27 00
1 inch clear	25 00	25 00
1 x 12 and 12 dressing and better.	18 00	20 00
1 x 10 and 12 mill run	11 00	14 00
1 x 10 and 12 dressing	14 00	16 00
1 x 10 and 12 common	12 00	13 00
1 x 10 and 12 spruce culls	10 00	11 00
1 x 10 and 12 maple culls	9 00	9 00
1 inch clear and picks	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	11 00	12 00
1 inch siding, ship culls	10 00	11 00
1 inch siding, mill culls	8 00	9 00
Cull scantling	8 00	9 00
1/4 and thicker cutting up	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	14 00	15 00
1 1/2 inch flooring	14 00	16 00
XXX shingles, sawn, per M	2 20	2 20
16 in.	1 30	1 35
XX shingles, sawn	1 30	1 35

YARD QUOTATIONS.

Mill cull boards and scantling	10 00
Shipping cull boards, miscellaneous widths	13 00
Shipping cull boards, stocks	16 00
Hemlock scantling and joist up to 16 ft.	11 00
Hemlock scantling and joist up to 18 ft.	12 00
Hemlock scantling and joist up to 20 ft.	13 00
Scantling and joist, up to 16 ft.	14 00
" " " " 18 ft.	15 00
" " " " 20 ft.	16 00
" " " " 22 ft.	17 00
" " " " 24 ft.	18 00
" " " " 26 ft.	19 00
" " " " 28 ft.	20 00
" " " " 30 ft.	21 00
" " " " 32 ft.	22 00
" " " " 34 ft.	23 00
" " " " 36 ft.	24 00
" " " " 38 ft.	25 00
" " " " 40 ft.	26 00
Cutting up planks, 1 1/2 and thicker, dry	25 00
Cutting up planks, 1 1/2 and thicker, board	26 00
Cedar for block paving, per cord	5 00
Cedar for Kerling, 4 x 12, per M	14 00

R. M.

1 1/2 in. flooring, dressed, F.M.	28 00
1 1/2 in. flooring, rough, F.M.	22 00
1 1/2 in. dressed, F.M.	30 00
1 1/2 in. undressed, F.M.	19 00
1 1/2 in. dressed	18 00
1 1/2 in. undressed	15 00
1 1/2 in. dressed	12 00
1 1/2 in. undressed	10 00
1 1/2 in. dressed	22 00
1 1/2 in. undressed	12 00
1 1/2 in. dressed	25 00
1 1/2 in. undressed	12 00
1 1/2 in. dressed	26 00
1 1/2 in. undressed	12 00
1 1/2 in. dressed	27 00
1 1/2 in. undressed	12 00
1 1/2 in. dressed	28 00
1 1/2 in. undressed	12 00
1 1/2 in. dressed	29 00
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1 1/2 in. dressed	31 00
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1 1/2 in. dressed	98 00
1 1/2 in. undressed	12 00
1 1/2 in. dressed	99 00
1 1/2 in. undressed	12 00
1 1/2 in. dressed	100 00

Toronto. Montreal.		Toronto. Montreal.		Bricks (Pressed).		Hearth.	
Ornamental, per 100	21 00	100 00	100 00	Itansville Pressed Brick Co	x	Garth & Co	xiii
Tiles	21 00	20 00	20 00	Don Valley Pressed Brick Works	x	Gurney Co., E. & C	xiv
Plain brick, 2 1/2 in. x 8 in.	12 00	12 00	12 00	Milton Pressed Brick & Sewer Pipe Co	x	Ives & Co., H. R.	iv
" " " "	12 00	12 00	12 00	Morris, E. D.	iv	King & Son, Warden	xiv
Terra Cotta Tile, per sq. ft.	24 00	24 00	24 00	Morrison & Co., T. A.	vi	McCloskey Mfg. Co.	xv
Ornamental, per 100	3 00	3 00	3 00	Toronto Pressed Brick & Terra Cotta Co.	vi	Miller Bros. & Toms	xiv
				The Ontario Terra Cotta, Brick & Sewer Pipe Co.	vii	Toronto Radiator Mfg. Co.	xi
CEMENT, PORTLAND, etc.				Builders' Supplies.			
Cement, Portland, per barrel	2 60	2 60	2 60	Adamant Mfg. Co.	vii	Iron Pipes.	
" Thorold	2 60	2 60	2 60	Adamson, Joseph	i	Ives & Co., H. R.	iv
" Queenston	2 60	2 60	2 60	Bremner, Alex.	iv	King & Son, Warden	xiv
" Niagara	2 60	2 60	2 60	Copland & Company	v	Laundry Tubs	
" Hull	2 60	2 60	2 60	Currie & Co., W. & F. P.	xiv	Forsyth, Robert	x
" German	2 60	2 60	2 60	Maguire, William	iv	Rice, Lewis & Son	iv
" London	2 60	2 60	2 60	Morris, E. D.	iv	Line and Stone.	
" Newcastle	2 60	2 60	2 60	McNally & Co.	ii	Currie & Co., W. & F. P.	xiv
" Belgian	2 60	2 60	2 60	Morrison & Co., T. A.	vi	Morris, E. D.	iv
" Canadian	2 60	2 60	2 60	Rathbun Co.	vii	Wright & Sons, C. B.	ii
" Roman	2 60	2 60	2 60	Rowe Geo.	ii	Legal.	
" Parisian	2 60	2 60	2 60	Strathy & Co., R. L. F.	viii	Denton Dodds & Denton	iii
" Superfine	2 60	2 60	2 60	Boiler Covering.		Mantels and Ornaments.	
Keene's Course "Whites"	4 50	4 50	4 50	Gast & Co.	ix	Millicamp Mfg. Co.	iv
Calced plaster, per barrel	1 50	1 50	1 50	Building Stone Dealers.		Metallic Lath.	
Fire bricks, Newcastle, per M	2 00	2 00	2 00	Adamson, Jos.	i	B. Greening Wire Co.	iv
Scotch	2 00	2 00	2 00	Bridgman & Co., J.	x	Metallic Roofing Co.	vi
Lime, Per Barrel, Grey	1 00	1 00	1 00	Samuel & Sons, Thomas	ii	Mortar Colors and Shingle Stains.	
" White	1 00	1 00	1 00	Builders' Hardware.		Cabot, Samuel	iii
Plaster, Calcined, N. S.	2 00	2 00	2 00	Rice Lewis & Son	iv	Maguire, Wm.	iv
" N. S.	2 00	2 00	2 00	Samuel, Benjamin & Co., M. & L.	x	Muirhead, Andrew	iii
Hair, Plasterers', per bag	50	50	50	Cements.		Toronto Pressed Brick Co.	iii
HARDWARE				Ornamental Plasterers.			
Cut nails, 5 d & 6 d, per keg	2 40	2 40	2 40	Adamant Mfg. Co.	viii	Baker, J. D.	iii
Steel "	2 50	2 50	2 50	Adamson, Jos.	i	Wright, Jas.	iii
CUT NAILS, FENCE AND CUT SPIKES.				Church and School Furniture.			
40d, hot cut, per 100 lbs	1 10	1 10	1 10	Canadian Office & School Furniture Co.	i	Plasterers	
30d, "	1 10	1 10	1 10	Office Specialty Co.	ix	Hynes, W. J.	i
20d, 16 d & 12 d hot cut, per 100 lbs	1 10	1 10	1 10	Contractors and Builders.		Watson Bros.	ii
10d, ho cut, per 100 lbs	70	70	70	Davidson & Kelly	ii	Plate Glass	
8d, 9d, " " "	70	70	70	Dick, James, sr.	vi	McCausland & Son	v
6d, 7d, " " "	70	70	70	Hood & Co., C.	ii	Toronto Plate Glass Importing Co.	vii
4d to 5d, " " "	70	70	70	Hancock, Thomas	ii	Plastering Fibre	
3d, " " "	70	70	70	Mortimore, Geo. Thomas	ii	Nowell & Co., R. L.	ii
2d, " " "	70	70	70	Murison & Burge	vi	Plumbers	
4d to 5d cold cut, not polished or blued, per 100 lbs	90	90	90	Roberts, William	ii	Bennett & Wright	ii
3d to 4d cold cut, not polished or blued, per 100 lbs	90	90	90	Thomas & Howell	ii	Horton, F.	vi
2d, " " "	90	90	90	Turner & Co., G. W.	vi	McCrie & Watson	vi
PINK BLIND NAILS.				Contractors' Plant and Machinery			
3d, per 100 lbs	1 50	1 50	1 50	Copland & Company	x	Cut Stone Contractors.	
2d, " " "	2 00	2 00	2 00	Adamson, Jos.	ii	Adamson, Jos.	ii
CASING AND BOX FLOORING, SHOOK AND TONALLO BOX				Consulting Engineer.			
12d to 30d, per 100 lbs	50	50	50	Barry, A. B.	ii	Derrick Builders.	
10d, " " "	60	60	60	Rowe, Geo.	ii	Door Springs.	
8d and 9d, " " "	75	75	75	Morrison & Co., T. A.	vi	Drain Pipe	
6d and 7d, " " "	90	90	90	Adamson, Jos.	i	Adamson, Jos.	i
4d to 5d, " " "	1 10	1 10	1 10	Bremner, Alexander	iv	Bremner, Alexander	iv
3d, " " "	1 50	1 50	1 50	Hibbard, H. & T.	ii	Currie & Co., W. & F. P.	xiv
FINISHING NAILS.				Isaac Brothers.			
3 inch, per 100 lbs.	85	85	85	Oakley & Holmes	ii	Chimney Topping.	
2 3/4 to 2 1/2 " " "	1 00	1 00	1 00	Bremner, Alexander	iv	Merchant & Co.	ii
2 to 2 1/4 " " "	1 15	1 15	1 15	Currie & Co., W. & F. P.	xiv	Metallic Roofing Co.	x
1 1/2 to 1 1/4 " " "	1 35	1 35	1 35	Hansen, Harald M.	xii	Samuel, Benjamin & Co.	x
1 1/4 " " "	1 75	1 75	1 75	Common Barrel Nails.		Sanitary Appliances	
1 " " "	2 25	2 25	2 25	1 inch, per 100 lbs.	1 70	Booth & Son	v
SLATING NAILS.				CLINCH NAILS.			
5d, per 100 lbs.	85	85	85	3/4 inch, per 100 lbs.	85	Sanitas Mfg. Co.	v
4d, " " "	85	85	85	2 3/4 and 2 1/4 " " "	1 00	Ives & Co., H. R.	iv
3d, " " "	1 25	1 25	1 25	2 and 2 1/4 " " "	1 15	St. Johns Stone Chinaware Co.	iii
2d, " " "	1 75	1 75	1 75	1 1/2 and 1 1/4 " " "	1 35	Roofing Materials	
COMMON BARREL NAILS.				SHARP AND FLAT PRESSED NAILS.			
1 inch, per 100 lbs.	1 70	1 70	1 70	3 inch, per 100 lbs.	1 35	Clatworthy, Geo.	ii
3/4 " " "	1 25	1 25	1 25	2 3/4 and 2 1/4 " " "	1 50	Stained and Decorative Glass	
CLINCH NAILS.				Structural Iron:			
3/4 inch, per 100 lbs.	85	85	85	Steel beam, per 100 lbs.	2 75	Castle & Son	iv
2 3/4 and 2 1/4 " " "	1 00	1 00	1 00	" channels,	2 80	Dominion Stained Glass Co.	iv
2 and 2 1/4 " " "	1 15	1 15	1 15	" angles,	2 70	Elliott & Son	i
1 1/2 and 1 1/4 " " "	1 35	1 35	1 35	" tees,	2 50	Faircloth Bros.	v
1 1/4 " " "	2 00	2 00	2 00	" plates,	2 55	Grimson, G. & J. E.	iv
1 " " "	2 50	2 50	2 50	Sheared steel bridge plate.	2 25	Loughurst & Co., H.	iv
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B. Greening Wire Co.				Bellhangers.			
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Whitfield, John				Polito, T.			
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Wagner, Zeidler & Co.				Don Valley Pressed Brick Works			
Bellhangers.				Milton Pressed Brick & Sewer Pipe Co			
Richardson, I. T.				Morris, E. D.			
Bent Glass Manufacturers.				Morrison & Co., T. A.			
Polito, T.				Toronto Pressed Brick & Terra Cotta Co.			
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Toronto Pressed Brick & Terra Cotta Co.				McCloskey Mfg. Co.			
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Wright & Sons, C. B.				Hood & Co., C.			
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Canadian Office & School Furniture Co.				Mortimore, Geo. Thomas			
Office Specialty Co.				Murison & Burge			
Contractors and Builders.				Roberts, William			
Davidson & Kelly				Thomas & Howell			
Dick, James, sr.				Turner & Co., G. W.			
Hood & Co., C.				Contractors' Plant and Machinery			
Hancock, Thomas				Copland & Company			
Mortimore, Geo. Thomas				Cut Stone Contractors.			
Murison & Burge				Adamson, Jos.			
Roberts, William				Curtis & Rowe			
Thomas & Howell				Hibbard, H. & T.			
Turner & Co., G. W.				Isaac Brothers			
Contractors' Plant and Machinery				Oakley & Holmes			
Copland & Company				Chimney Topping.			
Cut Stone Contractors.				Bremner, Alexander			
Adamson, Jos.				Currie & Co., W. & F. P.			
Curtis & Rowe				Hansen, Harald M.			
Hibbard, H. & T.				Consulting Engineer.			
Isaac Brothers				Barry, A. B.			
Oakley & Holmes				Derrick Builders.			
Chimney Topping.				Rowe, Geo.			
Bremner, Alexander				Door Springs.			
Currie & Co., W. & F. P.				Morrison & Co., T. A.			
Hansen, Harald M.				Drain Pipe			
Consulting Engineer.				Adamson, Jos.			
Barry, A. B.				Bremner, Alexander			
Derrick Builders.				Currie & Co., W. & F. P.			
Rowe, Geo.				Hamilton and Toronto Sewer Pipe Co.			
Door Springs.				McNally & Co., W.			
Morrison & Co., T. A.				Maguire, William			
Drain Pipe				McRae & Co.			
Adamson, Jos.				Milton Pressed Brick & Sewer Pipe Co.			
Bremner, Alexander				Morris, E. D.			
Currie & Co., W. & F. P.				The Ontario Terra Cotta Pressed Brick & Sewer Pipe Co.			
Hamilton and Toronto Sewer Pipe Co.				Roofing Materials			
McNally & Co., W.				Merchant & Co.			
Maguire, William				Metallic Roofing Co.			
McRae & Co.				Samuel, Benjamin & Co.			
Milton Pressed Brick & Sewer Pipe Co.				Sanitary Appliances			
Morris, E. D.				Booth & Son			
The Ontario Terra Cotta Pressed Brick & Sewer Pipe Co.				Sanitas Mfg. Co.			
Roofing Materials				Ives & Co., H. R.			
Merchant & Co.				St. Johns Stone Chinaware Co.			
Metallic Roofing Co.				Door Springs.			
Samuel, Benjamin & Co.				Morrison & Co., T. A.			
Sanitary Appliances				Drain Pipe			
Booth & Son				Adamson, Jos.			
Sanitas Mfg. Co.				Bremner, Alexander			
Ives & Co., H. R.				Currie & Co., W. & F. P.			
St. Johns Stone Chinaware Co.				Hamilton and Toronto Sewer Pipe Co.			
Door Springs.				McNally & Co., W.			
Morrison & Co., T. A.				Maguire, William			
Drain Pipe				McRae & Co.			
Adamson, Jos.				Milton Pressed Brick & Sewer Pipe Co.			
Bremner, Alexander				Morris, E. D.			
Currie & Co., W. & F. P.				The Ontario Terra Cotta Pressed Brick & Sewer Pipe Co.			
Hamilton and Toronto Sewer Pipe Co.				Roofing Materials			
McNally & Co., W.				Merchant & Co.			
Maguire, William				Metallic Roofing Co.			
McRae & Co.				Samuel, Benjamin & Co.			
Milton Pressed Brick & Sewer Pipe Co.				Sanitary Appliances			
Morris, E. D.				Booth & Son			
The Ontario Terra Cotta Pressed Brick & Sewer Pipe Co.				Sanitas Mfg. Co.			
Roofing Materials				Ives & Co., H. R.			
Merchant & Co.				St. Johns Stone Chinaware Co.			
Metallic Roofing Co.				Door Springs.			
Samuel, Benjamin & Co.				Morrison & Co., T. A.			
Sanitary Appliances				Drain Pipe			
Booth & Son							