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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF PUBLIC WORKS · TENDERS · ADVANCE INFORMATION · AND MUNICIPAL PROGRESS

EVERY THURSDAY

This paper reaches every week the Town and City Clerks, Town and City Engineers, County Clerks and County Engineers, Purchasers of Municipal Debentures and leading Contractors in all lines throughout Canada.

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CONTRACTS OPEN.

KEENE, ONT.—Two new residences will be erected here next summer.

COLLINGWOOD, ONT.—Brown Bros. will start a tannery in this town.

QUEBEC, QUE.—There is talk of erecting a theatre on the vacant lot near St. John's Gate.

HAYSVILLE, ONT.—Subscriptions are being received for building a tower on St. James church.

FREDERICTON, N. B.—The County Council are considering the question of repairs to the court house.

ARNPRIOR, ONT.—The by-law will shortly be submitted to the ratepayers to provide $15,000 for a sewerage system.

HINTONBURG, ONT.—At the next meeting of the council a by-law will be considered for raising funds by the issue of debentures.

TRAIL, B. C.—Frank Hanna will erect a theatre. Seattle parties are figuring on the erection of another hotel, to cost from $10,000 to $12,000.

BUCKINGHAM, QUE.—A proposal to erect a hose tower is being considered by the village council, also the building of a vault for the registry office.

SOUTHAMPTON, ONT.—The by-law to purchase the Saugeen water power and install an electric light plant has received the sanction of the ratepayers.

GALT, ONT.—George Bernhardt will shortly erect a business block next the Iroquois hotel. It is improbable that the opera house will be erected this year.

CALGARY, ONT.—The Rocky Mountain Railway & Coal Company ask power for the extension of their line from this point to Lethbridge and the international boundary.

MOSSOMIN, N. W. T.—Tenders are invited until the 8th of February for the construction of a heating apparatus for the court house. Plans may be seen at the court house.

BRIDGETOWN, N. S.—The Annapolis County Council have resolved to grant a free right of way to any company which will construct a railway from Digby Gut through Granville to intersect the D.A.R. at this point.

MERRITTON, ONT.—Mr. T. L. Willson has made a proposition to the Ontario government to develop 60,000 horse power of Niagara Falls, and to commence the work of construction before the 1st of May next.

VURDEN, B. C.—The mayor has stated that the adoption of a drainage system will necessitate the building of a pumping station at the dyke.—The lighting of the village will be taken up at an early date.—A number of houses will be erected in Queen's park during the coming summer.

VICTORIA, B. C.—W. Jensen, of the hotel Dallas, visited Greenwood recently to select a site for a new hotel building.—The British Columbia Southern Railway Company will seek authority to issue $30,000 bonds per mile for an extension of a railway to McLeod and Lethbridge.

TWEED, ONT.—Tenders are asked until the 15th of February for the erection of a brick school house in this village, from plans which may be seen at the office of Thomas Hanley, architect, Belleville, or Emerson & Campbell, this town. Address Wilson Sills, secretary Public School Board.

ROSSLAND, B. C.—A company of eastern capitalists has been formed to build an electric railway between this town and Spokane, a distance of 160 miles. It is not likely that the Rossland branch will be constructed this year, but steps will be taken at once to build that portion from Spokane to the boundary line.

LONDON, ONT.—Whiskard's departmental stores on Dundas street are to be enlarged.—William Hayman has taken out a permit to erect a brick residence on Ontario street, to cost $1,000.—The sewer committee have decided to call for tenders for the Warncliffe road section of the sewerage system and the section extending from Ridout and King streets to Richmond and Gray streets. It was originally intended to have the latter section constructed of 24 inch tile, but the engineers have reported that a brick sewer would be preferable. A provision has been inserted in the specifications that only Portland cement be used in the work.

HAMILTON, ONT.—The Board of Governors of the city hospital will get estimates for a new fire escape for the Maternity hospital, and for improving the escapes on the main building.—The City Council have decided not to accept the tender of the Reid Company for the supply of lumber, but to advertise for new tenders for car load lots.—The City Engineer has reported that it will be necessary to complete the brick sewer on Wood street, from John to James streets, so that the sewage now entering the Bay at

the foot of James street may be diverted to Ferguson avenue, there to be purified when the disposal works are erected there. This is the most essential brick sewer required to be built, but if funds permit, it would be well to extend the third-class brick sewer on Queen street, from Hannah street to Aberdeen avenue; to build the brick sewer petitioned for on Aberdeen avenue, from Garth to Locke streets; to build a third or fourth-class sewer on John street, from King to Robert, and also a pipe sewer on Kelly street and Evans street.

HULL, QUE.—The plans prepared by Mr. Hamel for a new school house have been accepted by the Board of School Trustees.

REVELSTOKE, B. C.—Chas. Holten & Co. are erecting a large brewery, to cost $15,000, and will add a bottling works and ice house at an early date.

RAT PORTAGE, ONT.—Plans for several large buildings are being prepared. Mr. Louis Hilliard, of the Hilliard House, will spend some $20,000 in enlarging his house, besides erecting a large fifty foot building of several stories on his property near the station.—The Electric Light Company propose increasing their plant.

OWEN SOUND, ONT.—A public meeting was held here on Tuesday last to discuss the terms of a by law to grant a bonus of $40,000 to the C. P. R. railway to increase the elevator capacity to 800,000 bushels, and also erect flour sheds to store 30,000 barrels. The meeting was favorable, and the by-law will be submitted to the ratepayers at an early date.

WINNIPEG, MAN.—The Confederation Life Association will convert one of their large buildings into an opera house.—The City Council have taken steps to secure a waterworks system. A committee has been appointed to arrange with an expert to report upon the cost of a suitable system.—Notice has been given that the City Council will construct macadam roadways on the following streets: On St. Mary avenue, from Main street to Colony street, cost $13 940; on Fort street, from York avenue to Broadway, cost $1,868; on Notre Dame avenue, from Ellen street to Nena street, cost $10,728; on Ross avenue, from Princess street to Nena street, $13,558; on William avenue, from Charlotte street to Nena street, cost $11,898, on Logan avenue, from Ellen street to Nena street, cost $9.246; on Isabel street, from Notre Dame avenue to Logan avenue, cost $10,375.—The City Engineer has reported that the following streets be repaired: Princess street, Notre Dame avenue to Point Douglas avenue, asphalt, stone curb, full width; Logan avenue, Main street to Princess street, full width, cedar block, pine curb, Main street, Portage avenue to Graham avanue, full width, cedar blocks; River avenue, Main street to Osborne street; from Main street bridge to River avenue, and from Osborne street to River avenue, macadam, pine curb.

MONTREAL, QUE.—The Sisters in charge of the girls' school at St. Henri have decided to erect a new school building, and for the purpose have purchased a block of land at the corner of St. James street and Metcalfe avenue. The cost of the building is estimated at $60,000.—Melville Presbyterian church congregation at Westmount lately decided to build a new church, and at a special vestry meeting of St. Mathias congregation, held last week, it was also agreed to erect a new edifice.—The port warden, in his annual report to the harbor commissioners, calls attention to the necessity for constructing a dry dock.—Gamelin & Huot, architects, are preparing plans for a house to be rebuilt on St. Denis street for Jos. Lorange; a house on Laval avenue for D. Houle; for reparations o a house at Vaudreuil for M. Ovilas Perrault, and for reparations of the residence of Francois de Sales Bastien at Vaudreuil.—L. R. Montbriant, architect, has invited tenders for two houses, six tenements, to be erected on St. Denis street for G. Lebel.—W. E. Doran, architect, has called for tenders for the residence of Hon. Judge Doherty on Stanley street.—Clift & Pope, architects, have prepared plans for reparations of the residence of T. May on Stanley street.—J. Alcide Chausse is preparing plans for four stores and two halls to be erected on the corner of St. Catherine and Panet streets for Thomas Dionne.

TORONTO, ONT.—The property known as Grand's Repository on Adelaide street west has been sold to Mr. W. D. Grand, of New York, and Mr. W. H. Smith, of Toronto. It is stated that the new owners will make extensive alterations to the building.—Mr. McDonald, of Galt, has made arrangements with the Grand Trunk Railway Company for the lease of certain property near the western cattle market on which he will erect an abattoir, to cost from $15,000 to $25,000.—Negotiations are said to be in progress for the erection of a Baptist church at the corner of Farley avenue and Tecumseh street.—The City Council has decided to instruct the City Solicitor to make application to the Ministers of Marine and Public Works for permission to construct a swing bridge at the western channel.—Instructions have been issued to invite tenders at once for the construction of the Fort Rouille sewer, estimated to cost $7,000.—It is rumored that a prominent citizen will, in the coming spring, erect a twelve-storey building at the north-west corner of Queen and Teraulay streets.—It is the intention of the Toronto Electric Light Company to erect a fireproof building, to replace the one destroyed by fire last week.—The City Council has given notice of its intention to construct the following works: Sewers—on Gerrard street, from Yonge street to Church street, cost $1,539; on Adelaide street, from Bay street to York street, cost $3,000. Cedar block roadways—on Carlton street, from Parliament street to Sumach street, cost $3,320; on Buchanan street, from Yonge street to Teraulay street, cost $1.350. Brick roadways—on Shaw street, from Queen street to Arthur street, cost $11,000; on Charles street, from Church street to Jarvis street, cost $4,210; on Jameson avenue, from King street to Queen street, cost $7,750; on Leonard avenue, from Nassau street to Bellevue place, cost $4.200; on Bellevue avenue, from Bellevue place to College street, cost $10.400. Cement concrete sidewalk—on B'oor street, north side, from Yonge street to Jarvis street, cost $1.800.

OTTAWA, ONT.—Invitations for tenders for three wharves in the province of Quebec were sent out by the Department of Public Works on Saturday last. Two at Lotbiniere and Cap a l'Aigle are crib work, and the third at St. Valentine is sheet piling.—The proposed Ottawa and Gatineau sanitorium for consumptives is likely to be an accomplished fact The site most likely to be selected is on a piney ridge at the east side of Lake Harrington, near Meeches lake, about twelve miles up the Gatineau. The first building will be large and will provide for the treatment of consumptives on the most modern approved scientific principles.—It is reported that repairs will be made to the Welland canal the coming summer.—The City Engineer, in his annual report, recommends that additional pumping apparatus be provided at the water works, and the enlargement of the aque duct for furnishing the requisite additional water power. The cost of the improvements is placed at $120,000. He also recommends the construction of a 12-inch main on Wellington street, an 8 inch main on Botelier and Sussex street, an 8 inch main on Head, Middle and River streets, also the erection of 100 additional hydrants, the whole to cost $30,000.—Tenders are invited by E. F. E. Roy, secretary of the Department of Public Works, until Monday, February 8th, for the construction of a heating apparatus for the court house at Moosomin, N.W.T. Plans may be seen at the above department. Tenders are also asked by Mr. Roy until Friday, February 12th, for the construction of a wharf at Wallace, Cumberland county, N. S., according to a plan to be seen at the post-office, Wallace, and at the above department.—Incorporation is asked for the St. Luke's General Hospital, the object being to equip a new building for patients. Among the doctors interested are Sir James Grant, Dr. Sweetland, Wright, Rogers and others.—Mr. Shirley Ogilvie has purchased property on Summerset st. and will probably erect a residence for himself.—A by-law has received its second reading in council to raise the sum of $50,000 for the drainage of Dalhousie ward.—The ratepayers of Nepean township are taking steps to secure the erection of a High School building, and a meeting has been called to discuss the question.—The estimates of the various departments are being prepared and will be submitted to the House at an early date.—The Central Canada Exhibition Association has decided to enlarge its grounds, and will put up a new main building.—Tenders are asked until February 5th for erecting a stone school house at Merivale. Plans may be seen at the office of M. C. Edey, architect, Sparks street, Ottawa, by whom tenders will be received.

FIRES.

A large portion of the works of the Toronto Electric Light Company were destroyed by fire last week, including dynamos, motors, etc. The loss will reach $75,000.—Thos. Marks & Co.'s farm root-house at Port Arthur, Ont., has been burned.—Stone & Wellington's greenhouse at Welland, Ont., including the main office and the large worksheds, was destroyed by fire on Monday last. The loss is partially covered by insurance.—The building occupied by the Belleville Business College at Belleville, Ont., was consumed by fire on the 24th inst. Loss $9,000; insurance $4,000.—A cheese factory at Newton, Ont., owned by Hugh Jack, has been burned. Loss covered by insurance.—The Royal Hotel at Wolfville, N. S., has been destroyed by fire.—The saw mill of the Montague Paper Company at Lake Megantic, Que., was completely consumed by fire on the 21st inst. The mill was valued at $50,000, on which there was an insurance of $29,000.—The Hannah block at Shelburne, Ont., and a number of other business establishments were destroyed by fire on Monday last. The loss to G. H. Hannah's building is placed at $11 000, and that to E. Berwick & Co.'s building at the same amount.—The gas works at Berlin, Ont., were wrecked by an explosion on Tuesday night last.

CONTRACTS AWARDED.

BLYTH, ONT.—Cowan & McGill, of this town, have the contract for the erection of a large brick house for George Bowes, of Hullett.

WALLACEBURG, ONT.—Bartley Hurley has secured the contract for erecting a dwelling for J. F. Webber, to be of wood, with brick foundation. Cost $1,800.

ROSSLAND, B C.—The contract has been let for the erection of the block for the Bank of British North America. It will be frame, two stories high, and will cost $5,000.

HALIFAX, N. S.—Samuel Marshall has been awarded the contract for erecting Scriven & Son's brick building on Barrington street.

KINGSTON, ONT.—J. B. Reid, of Ogdensburg, has been given a contract to build a new casino among the Thousand Islands, near Alexandria Bay. The contract price is $15,000.

TORONTO, ONT.—The Fensom Elevator Works shipped last week to Halifax, N. S., a car load of elevator machinery, and will send forward another car load in the course of a few days.

NICOLET, QUE. — Preparations are being made for the erection of a new cathedral in the spring. The contract has been given to Paquet & Godbout, the price being in the neighborhood of $50,000.

ST. JOHN, N. B.—James McDade has been awarded the contract for supplying the galvanized hot air and ventilation piping for the new High School building. From nine to ten thousand pounds of galvanized iron will be required.

OTTAWA, ONT.—The contract for the new opera house has been awarded to E. C. Horn, contractor and builder, of New York. The site will be on Queen street, and the building will have a frontage of 186 feet. The accepted plans were prepared by Messrs. J. B. McElfatrick & Son, of New York, and call for a building of stone and brick, as nearly fireproof as possible, with a seating capacity for 1,500 people. The cost is placed at $100,000, and work will commence on the 1st of April.

MONTREAL, QUE.—Building permits have been granted as follows: One house, three stories, brick, to be erected on Fullum street for Nap. Provost—masonry, D. Peltier; carpenter and joiner's work, Z. Dufort. Modification and alterations of a house on Dorchester street for the Hon. C. A. Geoffruro—architects, Cox & Amos; masonry, H. Réaume; carpenter and joiner's work, Bourgouin & Cadieux. —L. R. Montbriant, architect, has let contracts as follows for modifications and alterations to a house on Desiry street for J. A. Madore: Masonry, Labelle & Ouimet; carpenter and joiner's work, J. B. Gratton; roofing, plumbing and heating, Noél & Germain; plastering, T. Leclaire.—Clift & Pope, architects, have let the contract for a building, three stories, for John Gault, to Simpson & Peel for all trades.—David Ogilvy, architect, has awarded contracts as follows for one building, three stories, to be erected on St. Catherine street, for Alex. Scott: Masonry, O. Martineau; carpenter and joiner's work, Simpson & Peel; plumbing and heating, F. H. Barr; brick, P. C. Wand; plastering, James Morrison & Son; painting and glazing, George Kimber; iron work, Dominion Bridge Co.—Messrs. Cox & Amos, architects, have accepted the following tenders for the modification of a residence, three stories, on Dorchester street for the Hon. C. A. Geoffrion: Masonry, H. Rhéaume; carpenter and joiner's work, Bourgouin & Cadieux; roofing, plumbing and heating, Leclerc & Son.

MIXING AND APPLYING PAINT.

There are two reasons why we paint our buildings, and two reasons why we wish the paint to wear well when once the buildings are painted. Paint preserves and beautifies. The first is a purely utilitarian matter; the latter a matter of æsthetics. Both together constitute our reasons for painting. The reasons for wishing the paint to preserve its original condition long and well are similar—identical, indeed. It's a matter of money and appearance.

How to do painting that wears well seems but little known, even among professionals. It is usual for paint to show signs of deterioration the first year, and to go to pieces, in many cases, in a short time after that. Now when we paint our house we have a right to expect that the job will last for some years.

White lead is used to give a good paint; it does not do so now, because it is too pure. All carbonates are easily acted upon by the weather, and white lead is carbonate (more exactly hydro-carbonate) of lead. It is too soft and besides this, it is chemically active in paint form (with the oil, &c.), and this effects its durability. Sulphur gases also act upon it, forming with it a black sulphide of lead. It is not fit for paint used alone. Zinc oxide is a hard, very white, non-poisonous pigment, and is unnaffected by gases, &c. But it is too hard and brittle, used alone, to make a good paint. It will scale off, and lead will flour or chalk off; the one is too hard and the other too soft for paint. But mix the two together, and you counteract those two defects; the zinc gives proper hardness to the soft lead, while the lead gives proper softness to the hard zinc. But this is still an imperfect paint, as mixed with oils and driers there will still be a chemical activity, inimical to wear. Also, the mass forms too dense a paint.

Paint blisters are caused by steam, &c., forming under the paint. If the paint is made porous by the addition of an inert chrystaline substance like silica, for instance, or barytes, then this steam or vapour will pass through the paint layers and cause no trouble. An inert substance will also prevent the chemical activity mentioned, by keeping the belligerent parties separated. Therefore, 50 parts lead, 40 parts zinc, and 10 parts silica (finely ground and floated), all by weight, will give you a perfect paint—at least as perfect as we can devise, and certainly far more durable than any pure lead paint ever made This is not mere theory; it is a scientific fact, supported by actual practical demonstration. It is well known at least that lead paint does not answer at all at seashore places; lead and zinc are used together, and are able to withstand the salty atmosphere.

In addition to being the best paint mixture, it is also a cheaper one than lead alone. Approximate compounds are made by many as "whites" or compound leads.

Another factor in successful painting is the doing of it right. The woodwork should be quite dry and clean, and free from all loose particles. A building that stands unpainted for a few months will show cracks and stains, but it will take *the paint better and retain it longer than* when painted immediately after erection. The reason is this: Fresh wood, even when apparently dry, contains considerable moisture, and this must escape. If it escapes after the paint is on, so much the worse for the paint. As for the cracks, putty them. Then you will have a solid surface. And it is a mistake to have the surface quite smooth, as paint holds much better on a slightly rough surface than on a smooth one. A little fuzziness is just right for holding paint on.

For priming, use the lead and zinc mixture; don't use ochre, or imagine that anything does for the first or priming coat, for it is the foundation for the subsequent coats to rest on. Ochre priming is too hard and will not hold paint, which will scale off. This is the general conclusion among the best master painters. Raw linseed oil is best for outside painting. Use as little driers as possible, as driers impair the durability of the paint; they are a necessary evil. Buy the best.

It is customary to shellac pine knots (other sorts don't need it) before priming, but this may be done with even better results upon the priming coat. Use the best grain alcohol orange shellac varnish, and use it thin. Make the priming mostly oil; the second coat somewhat heavier, and the third coat still heavier, or with more lead, &c., to the oil used. Paint should be well brushed out. This is important, as the paint will last longer for it. Allow, if possible, a few days between coats. Paint applied in fall or winter will last much longer than that put on in spring or summer. Putty holes, &c., on top of priming coat. Get (or make) pure linseed oil and best whiting putty, if you want it to remain. Much putty sold is bad.

The matter of color is important, but cannot be treated now. Some colors do not wear well, others do not look well. A few words touching these things would be sufficient to make clear most of the chromatic problem.

TESTS FOR MORTAR.

Some one writes to The Builder to ask, what practical test can be applied to mortar to see whether the contractor has put in too much sand, and whether he has used sharp sand. As this is a question which probably occurs to a good many young architects, the answer to it is of some importance. The Builder gives two methods of making the test. One is to have a thin section of a piece of the hardest mortar cut, and examined by polarized light through a microscope, which will show the shape of the grains, as well as their proportion to the mass. The other method is to dissolve some of the mortar in hydrochloric acid, which will attack the lime, leaving the sand; but where cement is used in the mortar, clay from the cement may be left with the sand A third test which it suggests, but does not recommend, is to pulverize some of the mortar, and throw the powder into a specific gravity solution, in which the lime will be held in suspension, while the sand will sink. While all these methods have their value, we will suggest that a readier and better test consists in rubbing a bit of the hardest mortar with the fingers. If the sand is easily rubbed out, too much has been used. In good mortar, hardened as it hardens in the wall, without the rapid drying which destroys the properties of loose bits exposed to wind and sun, the sand should be firmly held by the mortar. A few trials will enable a young architect to make this test with sufficient accuracy. He will soon find that cement mortar is far more likely to be over-sanded than mortar containing lime. There is a strange superstition among masons, which leads them to suppose, as they claim, that cement will take more sand than lime, whereas for making mortar, as distinguished from well-compressed concrete, the case is exactly the reverse; few cements are used for mortar bearing so much as three parts of sand, while mortar made with good lime is all the better for having five parts of sand to one of the dry lime. The sharpness of the sand is shown to a certain degree by the same test, as mortar will hold firmly a considerably larger proportion of sharp than of water-worn sand; but by putting a few particles of the sand in the palm of the hand and rubbing it with the finger, the difference between sharp and rounded grains may be immediately detected.—American Architect.

USEFUL HINTS.

The difficulty of finding a suitable paint for painting galvanized iron, and one that possesses adhesive qualities, has perhaps been experienced by most painters. There is a certain peculiarity about galvanized iron and zinc which makes it difficult to paint durably with such paints as are in general use. Within the entire range of mixtures with which we have experimented for that purpose, we find none to give as good satisfaction as carbon black, or lamp-black, mixed with pure linseed oil. This, if applied under favorable conditions, will last many years, and does not flake off like other paints, but only wears out by slowly perishing away.

Yellow and orange chromes have a tendency to rapidly blacken, as in the case of white lead, when exposed to sulphur gases, or when mixed with pigments containing sulphur and arsenic sulphide.

Painters will find that zinc white which has become hard may be softened, so that it can again be used for oil-paint coats, by annealing in a closed iron receptacle. This is the only known process, but the zinc white will not remain entirely white.

MUNICIPAL ENGINEERS, CONTRACTORS AND MATERIALS

MUNICIPAL DEPARTMENT

THE USE AND MISUSE OF WATER.*

(Concluded.)

STOP-TAPS.

The insertion of a stop-tap on each service should be looked upon as sine qua non. It will facilitate the detection of waste or leaky fittings, and prevent the emptying of mains, so common in some towns, to enable repairs to be effected. The general use of stop-tops pre-supposes that an effective system of inspection is in operation, so as to prevent light lead pipe and indifferent fittings being used. If there is no such control it would be better for the corporation or company to do the repairs themselves. The waterworks engineer manages his works as well for a company as for a corporation, but I suppose there will be a consensus of opinion that the supply of such an essential as pure water should be in the hands of the local authority. It is a question as to whether the water and sanitary arrangements of the household should be under the immediate control and actually maintained by the local authority, first on the score of public health, and next in order to secure efficiency and economy in those works in which the general community has a direct interest.

The competition amongst plumbers and the desire of householders to get the work done cheaply leads to the use of much inferior material and bad workmanship, and this often means disease and deteriorated health, if not death. Under the Public Health Acts the local authority exercises certain powers in regard to house drainage, and there is a limited control over the lengths of lead pipes, taps, &c.; but from an engineering or sanitarian point of view, the control does not go far enough, and, as a matter of fact, a house may be built in any large town in this country and the sanitary arrangements pass the usual inspection, yet upon examination a terrible state of things might exist The author does not wish to undervalue the great progress being made, but he speaks from an intimate acquaintance with this particular branch of work and from dozens of cases which have come to his knowledge during the last ten years or so. Is it desirable to repair waterworks fittings at actual cost price? Many authorities wash their taps free, and no doubt it pays to do so. Should winter bursts be repaired at cost price?

UNIVERSAL USE OF METERS.

It has been suggested that every house should be supplied by meter, but this would involve a capital outlay of several million sterling, besides a good round sum yearly for maintenance. The author does not believe in a metered system. The very poor require to be taught to use, not to stint, the water. If we are to secure a healthy community its individuals must be kept healthy, and to be healthy one must be kept clean. There are disease centres in every town, and we need to cleanse them. A man may live in a mansion fitted up to sanitary perfection, but unless his neighbor in the slums is helped to a clean, healthy home, and taught the common laws of health, the mansion and its inmates will sooner or later suffer. Isolation is a splendid thing to stop the spread of disease, but we want, if possible, to prevent the very origination or the development of the germ of disease itself. The waterworks engineer can do much in this way, and is doing much now. If water had to be paid for by meter instead of by a rate, we should get people going without their bath to save the money. Money making is a disease with certain individuals, and there are hundreds of people who put up with a most insanitary appliance rather than pay the water rate for a proper w.c.

The public health is a matter left in the hands of the local authorities, and, in populous centres at least, the immediate removal of decomposing matters is a necessity, and can only be accomplished by an efficient water-carriage system. The water-rate, therefore, should be such as will include the water for a w.c. or two according to rental. In many towns a charge of 10s. a year for every w.c. is made. There is no blame to the water companies, but the local authorities of such towns are to blame if they do not arrange with the water company for the supply, and, if necessary, pay for the water to the w.c.'s. Where the pail or pan system is in operation the local authority has to remove the contents, and therefore it is a reasonable request on the part of a ratepayer to be supplied with water for sanitary purposes at the lowest possible figure. Although one is not in favor of meters, it is to be regretted that some people are able to deliberately waste water without being made to pay for it. Paying seems to be the only object lesson in economy with certain individuals.

* A paper by R E W Berrington, C E, F G S (Wolverampton) read at the Nottingham Meeting of the British Association of Water Engineers

COMBINATION OF BRICK PAVEMENT AND MACADAM ROAD.

Engineers are generally well aware that a macadam road is the most expensive road to maintain that can be built when the traffic is at all heavy unless it has a top finish of crushed granite. The Engineering News places the cost of a 16 foot macadam road with telford bottom at about $5,000 per mile. Roads which cost such a sum are out of the question in purely agricultural districts.

In Monmouth, Ill., a combination of brick pavement and macadam is being tried which appears to have considerable merit. The Monmouth Daily Review says. "The ground was prepared for it by grading and being allowed to stand for two months. It was treated to an occasional scraping so that it would pack evenly, and when the contractors were ready to lay brick it was as hard and even as a floor. The first thing was setting the curbing. This was made of 2×6 in. oak plank set 7 feet apart and held by oak stakes 18 in. long and put down every four feet. Inside this was put a 5 in. bed of sand. This was evened up and the single course of No. 1 paving brick made by the Galesburg Paving Brick Co. was put down. They were set on edge and made a fine roadbed. Outside the curb 2 feet of the crushed rock was laid, grading it up to make an easy approach. This makes a road 11 feet wide and the finest in the land. The earth road on each side was graded and worked, making it in all 40 feet wide and affording tracks on each side for use in dry weather."

Three thousand feet of this road have been built at a cost of 88.3 cents per running foot, which is very little greater than the first cost of a macadam road of the same width. The life of such a road would probably be several times greater than that of the best macadam, since the heavy traffic would follow the brick roadway almost exclusively.

In locations where brick is quite expensive, instead of laying a roadway entirely of brick, two strips from 16 to 20 inches in width are laid so that vehicles could follow them as they would follow a line of rails. This arrangement would also afford two excellent paths for bicyclists and ought to gain the support of that important body of agitators for road improvement.

There can be no doubt that if the proper steps were taken such roads could be built all over the United States in a few years, at a very low cost, by employing the criminals and paupers of our cities, counties and states. It is a kind of work that would bring that class as little as possible into competition with other labor and should long since have been adopted as a means of relieving the tax payer of the cost of their maintenance. Where suitable clay could be found they might also be employed in manufacturing the paving brick.

THE WINDSOR WATERWORKS CASE.

The action for an injunction brought by certain citizens of Windsor to prevent the water commissioners of that city from spending $20,000 in making improvements to their waterworks, on the ground that the city had already expended nearly the statutory limit on the waterworks, and that in order to make these improvements they will have to draw on the water rates of the city, which it was claimed they had no right to do, was dismissed at Toronto by Mr. Justice Meredith, who dissolved the injunction at present in force. The action has been abandoned by the citizens, who instituted it. The point raised was of much importance to all the towns and cities of the province.

The city of Victoria, B. C., has 66,361 feet of sewers, or over twelve and a half miles.

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Prices of Building Materials.

CONDITION OF THE MARKET.

TORONTO. In another column reference will be found to the reduction which has been made by the Canadian nail manufacturers in the price of wire nails. The difference will amount to about 10 per cent. of the cost. As a result, probably, of the reduction, there has been an improvement in the demand. In cut nails business is quiet. In general the metal trade shows little activity. A fair trade is reported in window glass, and prices are held firmly. Cement, firebricks and paints and oils have not changed.

MONTREAL: The spring business has not yet commenced to move, and consequently builders' supplies are quiet. A change has been made in prices for pure white lead. The cement market is featureless, and stocks ample to meet all requirements until the fresh arrivals in the spring. There is some inquiry on import account for tin and Canada plate, and a few scattering orders have been placed for glass, paints and oils, cut and wire nails, etc.

LUMBER.

CAR OR CARGO LOTS.

	Toronto.		Montreal.	
	$	$	$	$
1¼ to 2 clear picks. Am ins.	33 00@36 00		40 00@45 00	
1¼ to 2 three uppers, Am ins.	37 00		40 00	45 00
1¼ to 2, pickings, Am ins.	26 00		27 00	30 00
1 inch clear			40 00	45 00
1 x 10 and 12 dressing and 1 better	20 00	22 00	18 00	20
1 x 10 and 12 mill run	16 00	17 00		19
1 x 10 and 12 dressing	20 00	22 00		18 00
1 x 10 and 12 common	13 00	14 00	8 00	10 00
Spruce culls	10 00	11 00	8 00	10 00
1 x 10 and 12 culls	9 00	10 00		9 00
1 inch clear and picks	28 00	3200	35 00	40 00
1 inch dressing and better	20 00	22 00	18 00	20 00
1 inch siding, mill run	14 00	15 00	12 00	16 00
1 inch siding, common	12 00	13 00	10 00	13 00
1 inch siding, ship culls	11 00	12 00	10 00	11 00
1 inch siding, mill culls	9 00	10 00	8 00	9 00
Cull scantling	8 00	9 00	8 00	9 00
1¼ and thicker cutting up plank	24 00	26 00	22 00	25 00
1 inch strips, 4 in to 8 in. mill run	14 00	15 00	14 00	15
Inch strips, common	11 00	12 00	10 00	12
1¼ inch flooring	16 00	17 00	12 00	15 00
1¼ inch flooring	16 00	17 00	12 00	15 00
XXX shingles, sawt, per M 16 in.	2 25	2 30	1 60	2 60
XX shingles, sawn	1 40	1 50	1 60	1 70
Lath	1 60			1 50

YARD QUOTATIONS.

Mill cull boards and scantling		10 00	10 00	12 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		10 00
Hemlock scantling and joist up to 18 ft	12 00	13 00	12 00	13 00
Hemlock scantling and joist up to 20 ft	13 00	14 00	13 00	14 00
Cedar for block paving, per cord		5 00		5 00
Cedar for kerbing, 4 x 14, per M		14 00		14 00
Scantling and joist, up to 16 ft		14 00		14 00
" " 18 ft		15 00		16 00
" " 20 ft		16 00		16 00
Scantling and joist, up to 22 ft		17 00		17 00
" " 24 ft		19 00		19 00
" " 26 ft		20 00		21 00
" " 28 ft		22 00		23 00
" " 30 ft		24 00		25 00
" " 32 ft		27 00		27 00
" " 34		29 50		29 50
" " 36 ft		32 00		32 00
" " 38 ft		33 00		33 00
" " 44 ft		34 00		36 00
Cutting up planks, 1¼ and thicker, dry	25 00	28 00	25 00	30 00

B. M.

1¼ in. flooring, dressed, F M.	26 00	30 00	28 00	31
1¼ inch flooring, rough, B M.	18 00	22 00	18 00	22
1¼ " dressed, F M.	25 00	28 00	27 00	30 0
1¼ " undressed, B M.	18 00	19 00	18 00	19 0
1¼ " dressed	18 00	20 00	18 00	22 00
1¼ " undressed	12 00	15 00	12 00	15 00
Beaded sheeting, dressed	20 00	35 00	22 00	35 00
Clapboarding, dressed		12 00	8 00	12 00
XXX sawn shingles, per M 18 in.	2 60	2 70		3 00
Sawn lath	2 50	2 60	2 50	2 60
Cedar		2 90		2 90
Red oak	30 00	40 00	30 00	40 00
White	37 00	45 00	35 00	55 00
Basswood, No. 1 and 2	28 00	30 00	18 00	20 00
Cherry, No. 1 and 2	70 00	90 00	70 00	80 00
White ash. No. 1 and 2	24 00	35 00	30 00	35 00
Black Ash, No. 1 and 2	20 00	30 00	18 00	30 00
Dressing stocks	16 00	22 00	16 00	21 00
Picks, American inspection		30 00		40 00
Three uppers, Am. inspection		50 00		50 00

	Toronto.		Montreal.	
BRICK— ₱ M				
Common Walling		6 50		6 00
Good Facing		8 00		8 50
Sewer	8 50	8 00	8 50	9 00
Pressed Brick, Per M:				
Red, No. 1, f.o.b. Beamsville		15 00		
" " 2		13 00		
" " 3		9 00		
Buff		21 00		
Brown		24 00		
Roman Red		30 00		
" Buff		35 00		
" Brown		40 00		
Sewer		7 50		
Hard Building		6 00		
Roof Tiles		22 00		
Hip Tile (each)		20		
Ridge Tile "		60		
1st quality, f.o.b. at Port Credit		12 00		18 00
2nd " " " "		10 00		15 00
3rd " " " "		8 00		12 00
Hard building brick		6 50		
Ornamental, per 100	3 00	10 00		
SAND.				
Per Load of 1½ Cubic Yards		1 25		1 25
STONE.				
Common Rubble, per toise, delivered		10 00		11 00
Large flat Rubble, per toise, delivered		14 00		18 00
Foundation Blocks, per c. ft.		32		50
Kent Freestone Quarries Moncton, N. B., per cu ft., f.o.b.		1 00		
River John, N. S., brown freestone, per cu. ft., f.o.b.		95		
Ballochmyle	80	90	65	75
New York Blue Stone				1 05
Granite (Stanstead) Ashlar, 6 in. to 12 in., rise 9 in., per ft.				25
Moat Freestone			60	70
Thomson's Gatelawbridge, cu. ft.			75	80
Credit Valley Rubble, per car of 15 tons, at quarry		7 00		
Credit Valley Brown Coursing, up to 10 inch, per sup. yard, at quarry	1 50	1 75	1 50	1 75
Credit Valley Brown Dimension, per cu. ft. at quarry		60		60
Credit Valley Grey Coursing, per super. yard, at quarry.		1 00		1 00
Credit Valley Grey Dimension, per cu. ft., at quarry.		45		45
Clark's N. B. Brown Stone, per cubic foot, f.o.b.		1 15		1 00
Brown Free Stone, Woodpoint, Sackville, N.B., per cub. ft.		1 15		1 00
MadocRubble, delivered, per toise	14 00	14 50	14 00	14 50
Madoc dimension floating, f. o. b. Toronto, per cubic ft.	30	32		
Cape Bauld, N. B., Brown Freestone		90		70
Cocaigne, N. B., Gray Freestone (olive-green)		90		70
OHIO FREESTONE, FROM THE GRAFTON STONE CO.'S QUARRIES.				
No. 1 Buff Promiscuous		90		1 00
No. 1 Buff Dimension		95		1 05
No. 1 Blue Promiscuous		60		70
No. 1 Blue Dimension		65		75
Sawed Ashlar, No. 1 Buff, any thickness, per cub. ft.		1 10		1 20
Sawed Ashlar, No. 1 Blue, any thickness, per cub. ft.		80		90
Sawed Flagging, per sq. ft., for each inch in thickness.		06½		07½
Above prices cover cost freight and duty paid. For small lots add 5 to 10 cents per cubic foot.				
Quebec and Vermont rough granite for building purposes, per c.ft. f.o.b. quarry	33	1 50		
For ornamental work, cu. ft.	35	2 0		
Granite paving blocks, 8 in. to 12 in. x 6 in. x 4½ in., per M		50 00		
Granite curbing stone, 6 in. x 20 in., per lineal foot		70		
SLATE.				
Roofing (₱ *square*).				
" red		18 00		20 00
" purple		00		10 00
" unfading green		9 00		6 00
" black		8 00		5 50
Terra Cotta Tile, per sq.		25 00		
Ornamental Black Slate Roofing		8 50		
PAINTS. *(In oil, ₱ lb.*				
White lead, Can., per 100 lbs.	5 25	5 50	5 50	6 00
" zinc, Can., " "	6 50	7 50	6 50	7 50
Red lead, Eng.	4 00	5 00	4 50	5 00
" venetian, per 100 lbs.	1 60	1 75	1 60	1 75
" vermillion	90	1 00	90	1 00
" Indian, Eng.	10	12	10	12
Yellow ochre	5	10	3	5
Yellow chrome	15	20	15	20
Green, chrome	7	12	7	12
" Paris	20	25	14	20
Black lamp	15	25	12	25
Blue, ultramarine	25	20	12	18
Oil, linseed, raw, by bbl. ₱ *Imp. gal*	48	48	58	59
Oil linseed, b'd, by bbl., ₱ *Imp. gal*	51	51	62	63
Oil, linseed, refined, ₱ *Imp. gal*	78	85	75	75
(Less than bbl., 5c. per gal. advance)				
Putty	2½	2½	2¾	2¾
Whiting, dry, per 100 lbs.	60	80	60	75
Paris white, Eng., dry	90	1 25	90	1 00
Litharge Eng.	4	5	4 50	5 00
Sienna, burnt	10	15	12	15
Umber, "	8½	12	12	15
Turpentine	43			

	Toronto.		Montreal.	
CEMENT, LIME, etc.				
Portland Cements.—				
German, per bbl.		3 50	2 55	2 65
London "	2 75	3 00	1 92	2 05
Newcastle "		2 75	1 85	1 95
Belgian, Josson, artificial	2 65	2 75	2 65	2 75
North's "Conder"	2 65	2 75	2 65	2 75
English, artifical, per bbl.	2 85	3 15	2 55	2 65
Belgian, natural, per bbl.	2 55	2 65	1 70	1 85
Canadian "	2 55	2 75	1 80	1 85
Roman "			2.00	2 25
Parian "	4 75	5 00	5 50	5 75
Superfine "	75	7 25	8 00	9 00
Hydraulic Cements.—				
Thorold, per bbl.		1 75	1 25	50
Queenston, "		1 75	1 50	1 60
Napanee, "		1 75		1 50
Hull, "		1 75		1 50
Ontario, "		1 50		
Keene's Coarse "Whites"	4 50	4 75	4 50	4 75
Fire Bricks, Newcastle, per M	27 00	35 00	15 00	21 00
" Scotch "	27 00	35 00	19 00	21 00
Lime, Per Barrel, Grey		40		
" " White		50		
Plaster, Calcined, N. B.		2 00		
" " N. S.		2 00		2 50
Hair, Plasterers', per bag	80	1 00		
HARDWARE.				
Cut nails, 50d & 60d, per keg		2 75		2 75
Steel " " "		2 85		2 85
CUT NAILS, FENCE AND CUT SPIKES.				
40d, hot cut, per 100 lbs		2 35		2 35
30d, " " "		2 40		2 40
20d, 16d and 12d, hot cut, per 100 lbs		2 45		2 45
10d, hot cut, per 100 lbs		2 50		2 50
8d, 9d, " " "		2 55		2 55
6d, 7d, " " "		2 70		2 70
4d to 5d, " " "		2 90		2 90
3d, " " "		3 30		3 30
2d, " " "		4 00		4 00
4d to 5d cold cut, not polished or blued, per 100 lbs		3 00		3 00
3d to 5d cold cut, not polished or blued, per 100 lbs		3 25		3 25
FINE BLUED NAILS.				
3d, per 100 lbs		4 25		4 25
2d, "		4 75		4 75
CASING AND BOX, FLOORING, SHOOK AND TOBACCO BOX NAILS.				
12d to 30d, per 100 lbs		3 25		3 25
10d, " "		3 35		3 35
8d and 9d, " "		3 50		3 50
6d and 7d, " "		3 65		3 65
4d to 5d, " "		3 85		3 85
3d, " "		4 25		4 25
FINISHING NAILS.				
3 inch, per 100 lbs		3 60		3 60
2½ to 2¾ " " "		3 75		3 75
2 to 2¼ " " "		3 90		3 50
1¾ to 1¾ " " "		1 10		4 10
1¼ " " "		4 50		4 50
1 " " "		5 00		5 00
SLATING NAILS.				
5d, per 100 lbs		3 60		3 60
4d, " "		3 60		3 60
3d, " "		4 00		4 00
2d, " "		4 50		4 50
COMMON BARREL NAILS.				
1 inch, per 100 lbs		4 25		4 25
⅞ " " "		4 50		4 50
¾ " " "		5 00		5 00
CLINCH NAILS.				
3 inch, per 100 lbs.		3 60		3 60
2½ and 2¾ " " "		3 75		3 75
2 and 2¼ " " "		3 90		3 90
1¾ and 1¾ " "		4 10		4 10
1¼ " "		4 75		4 75
1 " "		5 25		5 25
SHARP AND FLAT PRESSED NAILS.				
3 inch, per 100 lbs.		4 10		4 10
2½ and 2¾ " " "		4 25		4 25
2 and 2¼ " " "		4 40		4 40
1¾ and 1¾ " " "		4 60		4 60
1¼ " " "		5 25		5 25
1 " " "		5 75		5 75
STEEL WIRE NAILS.				

Steel Wire Nails, 75c. and 10% discount from printed list.

Iron Pipe:

Iron pipe, ¼ inch, per foot	6c.	6c
" " ⅜ " "	7	7
" " ½ " "	8½	8½
" " ¾ " "	12	12
" " 1 " "	17	17
" " 1¼ " "	24	24
" " 1½ " "	30	
" " 2 " "	43	

Toronto, 65 per cent. discount.
Montreal, 60 to 65 per cent. discount.

Lead Pipe:

Lead pipe, per lb	7c.
Waste pipe, per lb	7½

Discount, 30 % off in small lots.

Galvanized Iron:

Adam's—Mar's Best and Queen's Head:		
16 to 24 guage, per lb	4½c.	4¾c.
26 guage, "	4¾	5
28 " "	5	5¼
Gordon Crown—		
16 to 24 guage, per lb	¼	4¼
26 guage, "	4½	4¾
28 " "	4¾	5

Note.—Cheaper grades about ½c. per lb. less.

Structural Iron:

Steel Beams, per 100 lbs	2 75	
" 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 35

(Corrected up to January 27th)