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Vol. 3.

Toronto and Montreal, Canada, August 6, 1892.

No. 26

THE CANADIAN CONTRACT RECORD.

PUBLISHED EVERY SATURDAY
As an Intermediate Edition of the "Canadian Architect
and Builder."

Subuription price of 'Canadian Architect and Builder" fineluding "Canadian Contract Record"], \$2 per annum, payable in advance. C. H. MORTIMER, Publisher,

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Telephone 2362.

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64 Temple Building. . Montreal
Bell Telephone 2299.
Information solicited from any part of
18 Dominion regarding contracts open to

ADVERTISING RATES ON APPLICATION

At its Convention held in Toronto, Nov. 80 and 21, 1889, the Ontario Association of Architects signified its approval of the CANADIAN CONTRACT RECORD, and pledged its members to the this journal as their medium of communication with contractors with respect to advertisements for

tractors with respect to advertisements for Tenders. The following resolution was unanimously adopted at the First Annual Meeting of the Province of Guebec Association of Architects, held in Montreal, Oct. 10th and 11th, 1890: "Moved by M. Perrault, seconded by A. F. Duniop, that we the Architects of the Province of Quebec now assembled in Concention being satisfied that the GANADIAN 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

TENDERS

will be received at our offices until 5 p.m. FRI-DAY, AUGUST 12TH, for

Hot Water Heating, Plumbing and Gasfitting, Electric Bells, Elevator, Mantels, &c.,

for new Hospital for the Sisters of St. Joseph.

Plans and specifications at said offices. No tend r necessarily accepted.

MOORE & HENRY, Architects. London, Canada.



Notice to Contractors

Tenders will be received by registered rost. addressed to the City Engineer, Toronto, up to eleven o'clock a. m. on TUESDAY, AUGUST 16TH, 1892, for the construction of an

18 Inch Tile Pipe Sewer

in connection with the new cattle market and bway. Specifications and forms of tender may be ob-

tained on and after the 9th 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, on the value of the work tendered for must accompany each and every tender, otherwise it will not be entertained. All tenders must bear the boins fide signatures of the contractor and his surctice (see specifications) or they will be ruled out as in-

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

JOHN SHAW.

Chairman Committee on Works.

Committee Room, Toronto, Aug. 5th, 1892.

TENDERS

Will be received up till SATURDAY, AUGUST 13TH, for all trades in connection with the erection of an

Addition to Hospital on Major Street.

Plans and specifications may be seen at the

DARLING, SPROATT & PEARSON, Mail Building, Toronto.

Lowest or any tender not necessarily accepted.

SEALED TENDERS

For the various works required in the erection of an Addition to the Protestant Hospital for the Insane, Verdun, Que, will be received at the office of the undersigned up to noon on

Friday, August 19th.

Plans and specifications can be seen at our office on and after Tursday, August 9th,
The lowest or any tender not necessarily ac

WRIGHI & SON, Architects, Rooms 14 & 15, Mechanics' Building, St. James Street, Montreal

SEALED TENDERS

will be received by the Corporation of the County of Bruce at the County Clerk's office, Walkerton until noon on WEDNESDAY, THE 31ST AUGUST, for the

Construction of a Sewer

from the County Gaol to Durham street in said town, a distance of about twelve hundred feet.

Parties may tender separately for the excata-tion, and furnishing and laying of sewer-pipe. Plans and specifications may be seen at the office of the undersigned.

The Committee do not bind themselves to ac

cept the lowest or any tender. GEORGE GOULD.

Clerk County Bruce

Walkerton 1st August 1802

Notice to Contractors

Fenders will be received by registered post, addressed to the City Engineer. Toronto, up to Eleven o'clock a.m. on TUESDAY, AUGUNT 9TH, 1892, for the following work and supply of Cement:

CEDAR BLOCK PAVEMENT On McMurrich Street, from Davenport Road to Belmont Street.

Supply of Cement for the current year.

Supply 01 cellibil for the chiribil year.

Specifications and forms of tender may be obtained on and after August and, 1892, 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 Five per cent on the value of the work tendered for under \$1.000, and 2} per cent for the value of the work tendered for over that amount, 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 (see specifical)

of the contractor and his sureties (see specifications), or they will be ruled out as informal.

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

JOHN SHAW, Chairman of Committee on Works, Committee Room. Toronto. July 28, 1892.

TENDERS

will be received by the undersigned for the Corpo ation of the Township of York for

Grading and Macadamizing

on Howland Ave and Bridgeman street from Davenport road south to C. P. R. (the above roads are about 40 rods east of Bathurst St.) Plans, specifications, etc., can be seen at the office of the undersigned, and tenders will be re-

ceived up to 5 o'clock p.m. on Tuesday, 23rd

August, 1892. The lowest or any tender not necessarily ac-

PETER S. GIBSON, C.E. Vork Tp. Engineer.

Willowdale, Aug. 4th, 1802.

TENDERS FOR

PIPE SEWER

Sealed tenders will be received by the Chair man of the Board of Works of the Town of Owen Sound, up to 6 p.m., SA LURDAY, AUG 137H 1892, for the construction of a Pipe Sewer, 3426 feet long on Bay St. in said town. Also at the same time sealed tenders will be received for supplying the following approximate lengths of sewer pipe F. O. B. at the Town of Owen Sound, to be delivered on or before Aug. 20th 1892

81 feet of 6 inch pipe.

Engineer in charge.

18 " 9 " "
546" " 12 " x 6 in, bevel junction pipe,
138" " 15 inch pipe,
336" " 15 " x 6 inch bevel junction pipe,
435" " 18 " "

Each pipe to be 3 feet in length.

An accepted Bank Cheque payable to the order of the Treasurer of the Town of Owen Sound for the sum of two hundred dollars (\$200) must acine sum of two hundred dollars (\$200) must accompany each tender for the construction of Pipe Sewer—and a like accepted Bank Cheque must accompany each tender for the supply of pipelin either case this cheque will be forfeited if the party decline the contract, or fail in the performance thereof—and will be returned in case of non-

ance thereol—and will be returned in case of non-acceptance of tender.

Plans and specifications to be seen at the office of the Town Engineer.

The Board of Works reserve the right to reject any or all tenders.

R. M. DOWALL. CHAS, GORDON

Chairman Bd. of Works

UNDERPINNING BY BORE-HOLES.

A very ingenious system of securing foundations of quay walls, bridge piers, reservoir embankments, and other struc tures from further yielding or sinking is proposed by Mr. Walter R. Kinipple, M. Inst. C. E., in an article in Engineering It consists of underpinning by means of grouting and stock ramming, introduced through bore-holes or tubes, by which means the foundations are strengthened and widened, and the underlying strata made firmer. Mr. Kinipple says. "should the wall be founded on sand or gravel, all that would be necessary would be to put down a series of bore-holes of, say, three inches to six inches in diameter at inter

vals along the line of will, and several in the width of wall." These bores are made through the vertical section, and on each side of the wall, and will reach below the footings into the strata beneath Pipes are then placed in the bore-holes and thick neat Portland cement grout is is then passed through the pipes, or forced down and this will fill up the crevices, rendering the foundation compact, and will cement the wall to the stratum of sand or gravel on which it is founded, and the stratum will also be comented together or rendered firm for several inches, thus adding a new foundation course below the wall. A second solidified stratum can be added below the first if necessary.

The bore-holes may in some cases be bored in oblique directions through the wall, so that the foundations could be widened by this means. If the underlying stratum is of clay, or of a clayey nature, the author proposes, instead of forcing down cement grout, to force down the tubes clay worked up with hydraulic lime, sand mixed with iron filings and salammoniac, partly-set neat Portland Medina cement concrete," such materials to be made up into convenient sized balls or rolls, put into the tubes, and rammed down with a heavy ram or monkey worked by a hand, or steam-ringing, or pile-driving machine so as to force the balls into the soft stratum, and consolidate it. By this means the foundations can be wiped beyond the base of walls. After one layer has been deposited, the bore-holes can be sunk deep er and another layer added. This plan is called "stock ramming," and is applicable to many purposes, such as stopping leaks under reservoir embankments. Mr. Kin ipple has used these methods with successful results. The method appears to be applicable also to the foundations of buildings which have settled, in which case the bore-holes would be made in an oblique direction on each side of the wall. As a mode of underpinning, the plan has advantages over the ordinary laborious methods, and it can be done expeditiously and without disturbing or removing the soil on either side of the wall. It may also with advantage be used, as suggested, for raising walls and factory chimneys, or for bringing them back to the perpendica

The North American Chemical, Min ing Manufacturing Company is making application for permission to change its name to the Owen Sound Fortland Cement Company.

CONTRACTS OPEN.

CARMAN, MAN, A new Haptist church is to crected here,

HARTLAND, N.B.—A system of water-works is shortly to be constructed.

SEAFORTH, ONT. - Mr. G. A. Strong is calling for tenders for the erection of a brick block on Main street.

TORONTO TUNCTION, ONT.—Mr. J. A. Ellis, architect, is preparing plans for new stables to be erected in connection with the Peacock hotel, to cost 1,500.

LEAMINGTON, ONT.—The Town Council will be asked to submit a by-law to the ratepayers to raise the sum of \$5.500 for the purchase of an electric light plant.

WINDSOR, ORT - Mr. Win Newman, C. E., has received instructions to prepare a survey of the Sandwich, Windsor and Amherstburg street railway to the latter point.

GUELPH, ONT.— Mr. James Hewer will receive tenders until Wednesday, the 10th inst., for the construction of a stone highway bridge over the River Speed, on the Edinburgh road.

BRANTFORD, ONT. The Government architect is at present preparing plans for the new drill shed to be erected here and it is expected that tenders will be asked in a couple of weeks.

ARNURIOR, ON r. —It is stated that a new hotel building is to be erected here, at a cost of \$20,000. —McLaughlin Bros. are about to creet a new steam saw mill on the bank of the river a little south of the present water power mill.

HAMILTON, ONT.—Mr. C. Carroll, 63 James street south, will receive tenders until Monday, the 8th inst., for the erection of a brick house on George street for Mr. O. A. Horning —A committee has been appointed to procure a design for the Macdonald Memorial statute.

KINGSTON, ONT.—Sufficient funds cannot be secured to proceed with the erection of a Masonic hall.—Sir John Thompson, was interviewed recently regarding the breakwater to be constructed at the wharf. He stated that the work would be commenced as soon as the city was ready.

WINNIPEG, MAN.—Ald. Hallam, of Toronto, was in the city recently arranging for the erection of a large wholesale block on Princess street.—Tenders are now being asked for the plumbing, heating and sewer connection of the new addition to the Manitola college.—Tenders are now being asked for the construction of a number of sewers.

TORONTO, ONT .- It is reported that the C. P. R. authorities have decided on the crection of a large hotel, the site chosen being the old Bishop Strachan property on Front Street West, opposite the present Union Station. It is said that the plans for the proposed building have already been drafted, and that the transfer of the land to the company will take place at an early date.-The Village Council of North Toronto has decided to erect a fire station in rear of the present town hall.—The Medical Health officer has reported in favor of the erection of another crematory in the northwestern part of the city. The Council has ordered that the same be built.-Building permus have been granted as follows Jas. R. Dunn. 202 Spadina Ave., 2 story and attic bk. dwelling. e. side Buhurst st., n. of Lowther Ave., cost \$3.000; City and County Loan Association, alterations to office, 32 and 34 Queen st. east, cost \$3,000; Ontario Flats and Power Co., Niagara st., bk. add. to factory, cost \$3500.

OTTAWA, ONT .- T. Trudeau, Deputy Minister of Canals will receive tenders until Tuesday, the 23rd inst., for works connected with Sections No. 1 and 2, Soulanges Canal, situated at the Cascades Point, Que.-The Dominion Government has decided to ask for tenders for the extension of the wharf at the Grosse Isle quarantine station into deep water, and for the construction of a new wharf at Albert Head, the quantitine station on the Pacific side near Victoria harbor. B.C.-It is understood that there will be added large steel cylinders for the disinfection of clothing by superheated steam. - The Department of Marine will creet a new lighthouse in the Gulf of St. Lawrence, off the ceast of Labrador. The Chief Engineer will shortly locate the site. - Archbishop Duhamel has purchased a site on the Richmond Road on which to erect a magnificent

archepiscopal palace—E. F. E. Roy, Secretary Department of Public Works, will receive tenders until Thursday, 8th September, for the erection of a Court House, etc., at Moose Jaw, N. W. T.

MONTREAL, OUR -Mr. James Barter, of St. James street, has decided to erect a large block on St. Lawrence street, above Sherbrooke street, containing thirty-one stores and a large hall overhead. The block will be of out stone, three and four stories high, costing \$275,000 and it is said will be the largest block in the city. - The proprietors of the franchise of the Yule bridge over the Rapids of the Richelieu River at Chambly Canton, are considering the erection of a new bridge, to connect the village of Richelieu and Chambly Canton, and invite offers for the purchase of the stone piers and abutments contained in the old bridge.-Notice has been given to the interavers that sewers will be constructed on the following streets. Colemine street, from Charles voix street to Butler street, Fullum extens on, from Canadian Pacific Railway to Moreau street; Rushbrooke street, from Charlevoix street to Butler street: Ryde street, from Charlevoix street to Butler street -A new building is to be erected for the Sisters of the Holy Name at Outremont, to be used as a mother house. The site is on the mountain slope of the Cote des Neiges road, and consists of sixty-seven acres. Plans are now being prepared and ground will be broken next spring -The City Surveyor will receive tenders until Wednesday the 17th inst., for the construction of sewers on the following streets: St. Antoine street, from Guy street to Desrivieres street; St. Catherine street, from Harbor street to Delevis street, Dorchester street, from Catlieux street to German street, German street, from Craig street to Dorchester street; Moreau street, projected Forsyth street to projected Hochelaga street; Seaver street, from St. Catherine street to Robillard street.- A special meeting of the Outrement Council was held last week to take steps to secure the extension of the Montreal electric street railway to that place -A. Dubreuil, architect, is preparing plans for two houses to be erected on Amherst street for Mr.

J. Gaudet. Tenders will be asked for shortly.— James Amess, architect, is preparing plans for a house at Montreal Junction, for Mr. Lusher .-Messrs, Isaac Collins and M. G. Cruickshank will each erect a residence at Point St. Charles -Wright & Son, architects, are calling for tenders up to Monday next, for the erection of a bakery and stable on Bleury street for Messis, W. & J. S. Wylic .-- Mr. A. F. Dunlop, architect, has purchased the Valve's Point at St. Ann's and will erect a summer cottage thereon.

FILES.

The main building of the Stormont cotton mills at Cornwall, Ont., was destroyed by fire on Thursday last. Loss, \$15,000. - The Restigouche Spool Company's factory at Jacquet River, N.B., was destroyed by fire on the 2nd inst. Loss, \$30,000.-A brick building on the corner of Albert & Princess streets, at Clinton, Ont., known as the Clinton Carriage Works, was burned on Tuesday last. The building was owned by Henry Cantleton. -- Kelly Bros. saw mills at River Herbert, N.S., were burned on Saturday last. Loss, \$12,000.-Mr. George Temple's dwelling house at Alvinston, Ont., was destroyed by fire on the 31st ultimo, Insurance, \$500.-A serious fire occurred at Strathroy, Ont., on Wednesday last. destroying the four-story factory of the Strathroy Knitting Company and the Roman Catholic church opposite. Loss on factory, \$100,000; insurance, between \$60,000 and \$70,000. Loss on church \$8,000, with \$3,580 insurance.

CONTRACTS AWARDED.

MONTREAL JUNCTION, QUE.—Messrs. Anthony & Lapp have been awarded the contract for the erection of a Presbyterian church.

PETERBORO', ONT.—The Central Bridge Conpany, of this town, has secured the contract for the erection of a new bridge at Bobcaygeon.

WINNIPEG, MAN.—The contract for the supply of vitrified, glazed Scotch fire-clay drain pipes has been awarded to Francis Hyde & Co., of Montreal, About \$5,000 worth will be required.

MONTREAL, QUE.—The contract for feed wire for the electric street railway has been awarded to

the Eugene Phillips Electrical Works, and for ground wire to the Royal Electric Company.

STRATFORD, ONT.—Messrs, A. J. Pailey and R. Ledman, of this city, have the contract to erect an ircn bridge, with stone abutments, at Smith Creek, Port Dover Junction, for the Grand Trunk Railway,

Preston, Ont.—The Canadian Office and School Furniture Company, of this town have been awarded the contract for the seating of opera houses at Ottawa, Victoria. B. C., and Truro, N. S. They have also secured the contract for the furniture and interior fittings of the New Court House at Woodstock.

HAMILTON, ONT,—Contracts have been awarded as follows for the erection of a large warehouse at the corner of King William and Hughson streets, for Messrs. Wood, Vallance & Co. Brick and stone work. George E. Mills. carpenter work, William Halliday; galvanized from work, Thomas Itwin & Sons.

OTTAWA, ONT.—The contract for section 13 of the Soulanges Canal was first awarded to Messrs. D. O'Brien & Son, of Montreal. This firm being unwilling to proceed with the work, the Minister of Railways at Canals has decided to award the contract to Mr. Randolph Macdonald, of Toronto, at the price of \$515,000.

ST, John, N.B.—The following tenders have been received for the harber improvements at Sand Point: Beatty & Thompson, \$165,000; G. S. Mayes, \$152 000, and N. K. & M. Connolly, \$133 000. The Board of Works have decided to award the contract to N. K. & M. Connolly.

TORONTO. - The Pease Furnace Co. have been awarded the contracts for heating as follows. Residence of Hon. Edward Blake, Jarvis St., residence of Rev. Provost Boddy, Trinity College; St. Simon's Church, Howard St.; Mr. H. D. Warren's residence, Wellesley St.; Strickland & Symons, architects -The Local Board of Health have accepted the following tenders for the erection of the Isolation hospital Masonry and brickwork, Davidge & Lunn, \$9,700; carpenter work, Hutchins & Burns, \$6,066; galvanized iron and slating, Douglas & Plunkett, \$1,265; plastering. Duckworth Bros., \$1,947; painting, W. J. Moore, \$714; drainage, plumbing, flooring and heating are not included in the contracts awarded. -The Canadian Granue Company of Ottawa has been awarded the contract for supplying 60,000 blocks of granue for paving King and Yonge streets.

USEFUL HINTS.

HARDENING CEMENT BRIQUETTES .-M. Le Chatelier, the well known French engineer, says Engineering, advocates the practice of hardening cement briquettes in hot water. In this way the chemical reactions are accelerated, and in the case of good cement, the briquette is said to be as strong, after two days' hardening in hot water, as after seven days' in cold, or after seven days' hardening in hot water the briquette gives the same results as after twenty-eight days in cold. This method is also of value in detecting the presence of free lime in the specimen; as in that case the briquette flies to pieces, from the expansion of the lime, if the hardening takes place in warm water.

In erecting a chimney says the Master Steam Fitter care should be taken that the building is not proceeded with too rapidly. It is sometimes restricted to a rate not exceeding 6 feet a day in height. It is advisable to build chimneys when the work can be most steadily preceeded with. When the structure is built up too rapidly, and the mortar has not time to set, a gale of wind is liable to press the chimney over to one side, where it stays. The compressible nature of the mortar offering little or no resistance, consequently the less mortar used the better. Cement, owing to its crumbling when exposed to a high temperature, cannot be recommended except for the top of the shaft, where it may, however, be usefully employed. Grouting should, as a rule, not be attempted.

MUNICIPAL DEPARTMENT.

LEGAL DECISIONS AFFECTING MUNICIPALITIES.

CITY OF HALIFAX V. LORDLY. L was walking along the sidewalk of a street in Halifax at night, when an electric light went out, and in the darkness she fell over a hydrant and was injured. In an action against the city corporation for damages it was shown that there was a space of seven or eight feet between the hydrant and the inner line of the sidewalk, and that L. was aware of the position of the hydrant and accustomed to walk on that street. The statutes respecting the government of the city do not oblige the council to keep the streets lighted, but authorize them to enter into contracts for that purpose. At the time of this accident the city was lighted by electricity by a company which had contracted with the corporation thereof. Evidence was given to show that it was not possible to prevent a single lamp or a batch of lamps going out at times. The Supreme Court of Canada held that the city was not liable; that the corporation being under no statutory duty to light the streets, the relation between it and contractors was not that of master and servant or principal and agent, but but that of employer and independent contractors, and the corporation was not hable for negligence in the performance the service; that the position of the hydrant was not in itself evidence of negligence in the corporation; and that L. could have avoided the accident by the exercise of reasonable care.

GOOD POINTS ON STREET PAVING.

The report of the Kansas City Municipal Improvement association's committee on pavements, submitted to that body at a recent meeting, contains many good points on street pavements, and from which we quote as follows:

The records of the past demonstrate

The records of the pest demonstrate that as nations increased and grew in wealth, education and power, so surely did the streets and avenues of the cities, also highways and thoroughfares of the country, become paved and beautified, and one of the first evidences of the deterioration and decay of nations is to be found in the neglect and carelessness shown in the maintenance of the roads and avenues, until eventually they become in most cases no more than winding paths

Recent excavations disclose the fact that the inhabitants of Egypt, Babylon and Greece more than 3,000 years ago made the pavements of their residences, the courts to their palaces and public buildings, as well as the roads and streets of their cities and the highways connecting them, a constant study. Later, as the Romans increased in power and assumed control of the most of the then known world, in that proportion did their roads and streets improve, so that 2,000 years ago they had attained such a degree of perfection that many of them remain to this day, the attention of the traveling public being directed to them by the residents of the countries through which they are laid with noide

they are laid, with pride.

At the end of the eighteenth century the roads of northern Europe, England and Scotland had fallen into such a condition as to be almost impassable, as the writings of the most emment men of that period now show. This emergency developed two men who have become almost reverenced by the people of England and Scotland for the great good achieved by them in the paving of the roadways in the cities and townships of Great Britain. The first of these two was John London Macadam, who came to the United Stateswhen fourteen years of ago, remained until near thirty and then returned to England. In 1811 he addressed a memorial on the subject of roads and

MUNICIPAL ENGINEERS, CONTRACTORS, AND MATERIALS.

their pavements to the house of commons, which led to the adoption of his system and to his appointment as surveyor of roads. Within a few years he had personally supervised the road making in twenty-eight counties in England and during his life nearly every traveled road and street in Great Britain was a monument of his success. Being a retiring man he declined the order of knighthood. His remains now rest in a village church-yard of one of Scotland's smallest towns.

Thomas Telford was the second. He was made president of the Institute of Civil Engineering of London from its commencement, and retained the position until his death, many years afterward. He received the order of knighthood to have been one of the greatest engineers of the world. His remains now rest in Westminster abbey, where England finds a final resting place for those whom she

a final resting place for those whom she highly honors.

The system of paving inaugurated by these men has since been followed in the building of seven-eighths of all the paved roads and streets now existing, not only abroad, but in our own country as well.

The value of a good pavement, and the importance of keeping it in good condition in our larger cities, can not be overestimated. A perfect pavement has not and probably never will be found. It should be smooth and hard to give a sure foot-hold for animals, not becoming slipfoot-hold for animals, not becoming slip-pery by use, be as noiseless and free from dust and mud as possible, be easily and cheaply cleaned, and be of such material and construction that it can be readily taken up and relaid when necessary gas and sewer connections are to be made. Economy of maintenance also requires that the material used at the surface be of such nature as will form perfect bond and be durable.

Streets used for different purposes demand different pavements. Thus, a street in the centre of a wholesale district in a large city where transferring of heavy merchandise is constantly being done, requires an altogether different pavement from a street used for part or boulevard purposes, where no heavy drafting is allowed. The question before us naturally divides itself into the following heads or subdivisions:

First-Pavement adapted to the wholesale and other districts of our cities where heavy drafting is done.

Second-Pavements adapted to the re-

tail portion of a city.

Third-Pavements adapted to the best residence portion of a city, where the expense is not an object so much as superior quality of paving.

Fourth—Pavements adapted to other

streets where original cost must be borne in mind.

A correspondent of the Engineering News states that "In 1880, while in charge of the Central Falls (R.I.) water works, I encountered about 1,000 feet of works, I encountered about 1,000 feet of six-inch pipe which had been previously laid for fire service, and only used when required for that duty, laid with cement joints. As the saving to the district would warrant the experiment, I recommended this pipe to be connected with the complete system then under construction, in order to test, by actual experiment, whether it could remain in service. The result was entirely satisfactory, not a leak being detected, and I presume it still being detected, and I presume it still remains in good condition. The pressure in this pipe is exceptionally high, according to my recollection over 100 pounds to the square inch.

ISAAC USHER & SON, THOROLD, ONT. Manufacturers of

QUEENSTON CEMENT

Proved by Government tests to be the best Canadian natural cement. Write for prices, &c.

Established 1841.

THOROLD CEMENT

ESTATE OF JOHN BATTLE.

Thorold, Ontarlo.

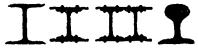
THOROLD, 25th March, 1879. JOHN BATTLE, Esq. Thorold:

Sir -I beg to state that during the past four years about one nullion bushels of Thorold Hydraulic Cement have been used in the construction of the Canal Works in my charge. This experience enables me to testify to the excellence of the article, especially when carefully burnt and thoroughly ground in the manner now carried out at your mills.

Lam, sir, your obedient servant, THOMAS MONRO. Engineer in charge of Welland Canal Enlargement.

COWER & CO.

204 St. James St., MONTREAL.



Rivetted Girders,

Iron and Steel Rolled Beams,

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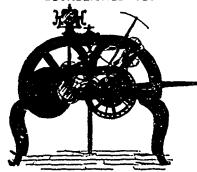
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13 to 2 three uppers, Am int.	37 00	40 00			
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11 and thicker cutting up	•		•		
plank	25 00	23 00	25 00		
z inch strips, 4 in. to 8 in. mill					
jun	15 00	14 00	15 ∞		
1 inch strips, common11 00	12 00	11 00	12 00		
1 1 inch flooring 14 ∞	15 00	14 ∞	1500		
11/2 inch flooring	16 ∞	14 00	16 ∞		
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YARD QUOTATIONS.					
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White	#5 00	70 00 25 00 30 00	70 € 30 € 18 €	35 00
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Common Walling Good Facing Sewer.	· · · · · • · · ·	7 50	9 40	8 50
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PAINTS. White lead, Can., per 100	(In oil, 166 625	65> 750	6 00 7 50	6 25 8 ∞
" venetian, per 100 lbs.	1 60	63 <u>4</u> 173	160	6 1 75
" vermilion	. 90	13	90	100
Vellow ochre		10 12	15	13 20 6
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Black, lamp.	. 15 2	12 25	ad to 3d cold cut, not polished		
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Paris white, Eng., dry	90 12		. NAILS	i.	
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Cement, Portland, per bbl.			3d, " "	1 50	1 50
" Thorold, "	260 300 150		PINISININ	-	. 34
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Napanee, ii	1 50		3 inch, per 100 lbs.	85 1 00	83
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" Scotch "		18 00 30 60	· · · · · · · · · · · · · · · · · · ·	2 25	1 25
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" White	53		inch, per to the.	85	85
Plaster, Calcined, N. B	3 00		alf and alf	1 00	100
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Hair, Plasterers', per bag	83		and ix " " "	1 35	1 35
HARDS	ARE.			2 00	3 00
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Steel " " " "	2 50	2 35	SHARP AND PLAT PR		
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7d. " " "	1 50	1 50	" tees, "	∌ 80	215
4d to 5d cold cut, not polished	•	•	" plates, "	2 55	2 35
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