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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL

PUBLIC WORKS • TENDERS • ADVANCE INFORMATION • AND MUNICIPAL PROGRESS

EVERY SATURDAY

Vol. 3.

Toronto and Montreal, Canada, September 3, 1892.

No. 30

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

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14 KING ST. WEST, TORONTO, CANADA
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64 Temple Building, Montreal,
Bell Telephone 2299.

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

ADVERTISING RATES ON APPLICATION.

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

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

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

NOTICE TO Architects, Engineers AND Surveyors.

Being about to publish and having completed the compiling of a

Directory of Architects, Engineers and Surveyors in the Dominion of Canada and Newfoundland,

containing an alphabetical and classified Directory of Architects, Civil, Consulting, Electrical, General, Hydraulic, Marine, Mechanical, Mining and Railway Engineers and Land and Lumber Surveyors, and before going to press, the publishers would like to receive the business card or correct name and address of every Architect, Engineer and Surveyor, so that they could verify every name and address they have obtained (over 2000). The

DIRECTORY

will be published during the month of October, 1892.

Price, \$2.00. To advance subscribers, \$1.50. Subscribers names are printed in the Classified Directory.

Send us a postal for our Prospectus Circular, which will be sent free.

Best advertising medium for supplymen, etc.

PIGEON & BUREAU, Publishers,

1786 ST. CATHERINE ST., MONTREAL.

TENDERS

For the various works required will be received up to noon of MONDAY, SEPTEMBER 13TH, 1892, for a Cottage and an Addition to the Protestant Hospital for the Insane at Verdun, Que. The lowest or any tender not necessarily accepted. Plans and specifications now on view at our offices

WRIGHT & SON, Architects,
204 St. James Street, Montreal.

Notice to Plumbers and Builders.

Cash Tenders will be received by me at the office of Messrs. Neville, McWhinney & Ridley, 18 and 20 King Street West, on and up to 12th September next, for the purchase of the stock in trade of W. H. Hewlett & Co. (insolvent) of 419 College Street, Toronto, Plumbers. Stock list may be seen at the said office of Neville, McWhinney & Ridley, at any time during office hours, and stock may be inspected at 419 College Street.

Dated this 30th day of August, 1892.
GEO. H. D. LEE, Assignee.



NOTICE TO CONTRACTORS.

Tenders will be received by registered post, addressed to the City Engineer, Toronto, up to eleven o'clock a. m. of September 13, 1892, for the construction of the following works.

CEDAR PAVEMENTS:

Royce avenue, from Symington avenue to Perth avenue.

Perth avenue, from Bloor street to Royce avenue.

Hernick street, from Bathurst street to Lippincott street.

Edmund street, from C. P. Railway to Royce avenue.

Lane south of Adelaide street to lane in rear of Arlington Hotel.

O'Hara avenue, from terminus of pavement to railway tracks.

CEDAR BLOCK, WITH CONCRETE AND GRANITE TOOTHING IN CENTRE:

High Park avenue, from Roncesvalles avenue to east limit of High Park.

COBBLE PAVEMENT.

Lane south of Queen street, from Tecumseth to Niagara street.

MACADAM PAVEMENT:

Centre road, Crescent road and South Drive.

PAVING ON TRACK ALLOWANCE ONLY:

Howard Park avenue, from Dundas street to Roncesvalles avenue.

CONCRETE WALK:

Queen street, north side, from Yonge street to James street.

Specifications and forms of tender may be obtained on and after September 7th, 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 5 per cent. on the value of the work tendered for under \$1,000, and 2 1/2 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 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 Committee on Works,
Committee Room, Toronto, Aug. 30, 1892.

TENDERS

Will be received up to and including Thursday, September 8th, for the erection of a

Brick Power House and Car Barn for the Brantford Street Railway Company, in the town of Brantford. Plans and specifications may be seen at the office of the Edison General Electric Co., 77 Bay Street, Toronto.

Steam Heating.

Sealed tenders addressed to the undersigned and marked "Tenders for Steam Heating," will be received until

Tuesday, the 20th September next,

for heating the County of Oxford House of Refuge, in accordance with plans and specifications prepared for the purpose by the Architects, Messrs. Cuthbertson & Fowler.

Plans, specifications and conditions may be seen and all information obtained from the Architects at their office in Woodstock.

JAMES WHITE,
County Clerk.

Woodstock, Aug. 27th, 1892.

USEFUL HINTS.

The art of brick-making is supposed to have originated in ancient times with the powerful races found in Egypt, Chaldaea, and China, in the old world, and in Mexico and Peru in the new. The ruins of buildings and tombs left in these countries testify that they were skilful builders. Rawlinson states that the dimensions of brick baked by the Chaldeans were 11 1/4 inches square and 2 1/2 inches thick, and those of later date 13 inches square and 3 inches thick.

There are no special tests for ascertaining the quality of a varnish. Spreading a thin layer on a sheet of glass, and then observing the character of the film produced on drying, secures all that can be done. It ought to become dry to the touch within eight or ten hours, and not become fissured even when exposed to sunshine during a year; nor should the surface become dull through the appearance of "bloom," caused by the minute exudation of solid fatty acids originating from the linseed oil employed in its preparation.

It is well-known that common putty becomes exceedingly hard with age, which renders the removal of glass from sashes peculiarly difficult. A practical man tells us that he thinks himself lucky if he can take out one pane out of three without breakage. It is stated, however, that the putty may be softened by using a paste of caustic potassa, easily prepared by mixing the caustic alkali, or even carbonate of potash or soda, with equal parts of freshly burnt quicklime, which has previously been sprinkled with water, so as to cause it to fall into powder. This is then mixed with water to a paste, and is spread on the putty to be softened. Where one application is not sufficient it is repeated. In order to prevent the paste from drying too quickly it is well to mix it with less water, adding some soft soap instead.

CONTRACTS OPEN.

BOKESTOWN, N. B. The Methodist congregation are about to erect a new church.

LISTOWEL, ONT.—Messrs. Hay Bros. contemplate enlarging their grain elevator.

BRACKBRIDGE, ONT.—It is reported that a new pulp mill is to be erected here by a Mr. Davis.

TORONTO JUNCTION, ONT.—It is reported that a large flour mill and elevator will be erected in this town.

PIKINGTON, ONT.—Mr. D. Wright contemplates the erection of a two-story brick residence at an early date.

COURTRIGHT, ONT.—J. J. Coyle, of this place, will receive tenders until this evening (3rd inst.) for building a lock-up.

AMHERSTBURG, ONT.—The Michigan Central Railway Company will shortly commence the erection of a new station.

DIGBY, N. S.—A company is being formed to construct waterworks. It is proposed to pump water from springs to a reservoir.

DERBY, N. B.—Tenders are wanted by the Building Committee until the 10th inst. for enlarging and repairing the Methodist church.

VICTORIA, B. C.—The Board of Management of the Protestant Orphan's Home have selected a site for their new building on Hillside avenue.

ORILLIA, ONT.—On Monday next the rate payers will vote on a by-law to raise the sum of \$20,000 for the extension of the waterworks system.

NAPANEE, ONT.—The corporation invite tenders until Sept. 10th, for construction of masonry and timber sub-structure of bridge on Centre st.

LEAMINGTON, ONT.—On Monday last the ratepayers of this place carried a by-law to provide funds for the purchase of an electric light plant.

STRATHROY, ONT.—This town is advocating the construction of an electric tram line along the Mount Brydges road to connect with the Canadian Pacific.

SMITH'S FALLS, ONT.—At a recent meeting of the committee of St. John's Church, it was decided to proceed at once with the erection of a new church.

BRACKVILLE, ONT.—A company from this town are preparing to get out lithograph stone in Marmora township, and intend building a mill for the purpose.

WOONSTOCK, ONT.—John Peers, of this town, invites tenders until the 5th inst. for drainage work.—The Council are discussing the advisability of erecting a new fire hall.

MUNCTON, N. B.—Mr. D. Pottinger, Superintendent Intercolonial Railway, will receive tenders until the 7th inst., for the construction of freight sheds at St. John and Newcastle, N. B.

PRESTON, ONT.—A committee appointed to report on the advisability of erecting a market building will report in favor of the erection of a one-story ornamental building, to cost \$2,000.

ST. THOMAS, ONT.—A syndicate has purchased 28 acres of land at Port Stanley, on which

they will build a number of cottages. They are also negotiating with an American gentleman to build a summer hotel.

KINGSTON, ONT.—Mr. George Penn will shortly erect an expensive cottage at Thousand Island Park.—It is reported that the Thousand Island Steam Boat company will build a new steamer for river accommodation.

ST. JOHN, N. B.—It is understood that Mr. Hanson, of the Fina Sarsaparilla Company, will shortly visit the city with a view of selecting a site for a four-story building which the company propose to erect for manufacturing purposes.

GLERNOKA, ONT.—Mr. J. C. Wilson, of this town, intends building a summer hotel here during the coming fall. The building will cost about \$10,000, and will be lighted by electricity. Mr. Wilson also contemplates building a cable railway at the mountain.

OTTAWA, ONT.—Mr. Smith, Deputy Minister of Marine, will receive tenders until the 17th inst for the construction of a wooden lighthouse, with dwelling and outbuildings, on the southern extremity of Giant's Tomb Island, in the Georgian Bay.

HAMILTON, ONT.—The committee appointed to consider the petition for a water supply of the Central Fair Agricultural and Industrial Company, have recommended to council that a six inch water main be laid from Breithour's Corners to the grounds of the company, the cost of which is estimated at \$2,600.—The following building permits have been granted: William Strong, two-story brick dwelling on Ontario avenue, cost \$1,600; Mrs. John Hunter, a two-story brick dwellings on Colborne street, between Macnab and Park streets, cost \$2000.

WINNIPEG, MAN.—C. H. Wheeler, architect, has prepared plans for repairs to Jas. Robertson & Co's block which was damaged by fire recently. The cost of execution is estimated at \$5,000.—The City Council has decided to construct a cedar block pavement on 1st street, from Portage avenue to 8th avenue south.—Tenders were asked during the past week for the construction of a number of sewers, the contracts for which have not yet been let.—Hon. Mackenzie Bowell was in the city recently to arrange for the construction of new barracks for the Canadian Dragoons stationed here.

MONTREAL, ONT.—Tenders have been called during the past week for the construction of sewers on a number of streets. Contracts for which will be awarded in a day or two.—Permanent sidewalks will be constructed at an early date on St. Catherine street, from Harbor street to De Lorimer avenue; St. Alexis and Hospital streets, opposite lot cadastral No. 115, West ward.—At a special meeting of the St. James club, held last week, the plans prepared by Messrs. Hopkins for the contemplated improvements, were submitted and approved. The cost of this work is estimated at \$50,000.—Theo. Daoust, architect, will shortly call for tenders for 28 stores and a large theatre for Messrs. Wilson & Frost, to be erected on St. Lawrence street, also for several private residences in this city and surrounding country.

TORONTO, ONT.—The Toronto Public Hall Company, which has recently secured possession of the Academy of Music, is said to have selected a site on Yonge street on which to erect a new theatre, to be fitted up with all modern improvements.—It is reported that Mr. Massey, of the Massey-Harris Company, contemplates the erection of a building for religious and philanthropic purposes at the south west corner of Victoria and Shuter streets, and that he has already secured an option of the property.—Mr. Hamilton, Superintendent of Waterworks states that when the new engines are completed he will recommend that the 2,367 feet of wooden conduit that runs partly across the Island and out into the lake, be changed to steel. The cost is estimated at \$50,000.—The Local Board of Health has decided to ask the council to have all the sewers emptying into the bay, extended to the windmill line.—The agreement between the city and the railway companies regarding the erection of the new Union Station has been signed, and it is stated that the work will be proceeded with at an early date.—The by-law to grant a bonus of \$20,000 to the Toronto and Richmond Hill Electric Railway was carried by the ratepayers o

the County of York on Monday last, and the construction of the road will now be proceeded with. The main line of the railway will commence at the junction of Bathurst street with the C. P. R. tracks, running north about five miles, by way of Spadina road, thence to Richmond Hill. The company also intend to construct a line from east to west on St. Clair avenue.—Ground has been broken at the south west corner of Bloor and St. George streets for an expensive residence.—A sufficiently signed petition has been received by the Council for the construction of a granolithic sidewalk on the west side of Sherbourne street, from Bloor street to Wilton avenue, and tenders will be called for the work.—J. O. Orr, Chairman Parks and Gardens Committee, will receive tenders until the 7th inst. for alterations to pavilion at Island Park and for filling in lagoon near Lakeside Home for Sick Children. Plans at office of Park Commissioner, St. Lawrence Hall.—The following building permits have been granted. Francis Ferguson, No. 1 Courtney Place, six det. a story and attic bk. dwellings, w. side Cowan ave., s. of King st., cost \$27,000; Urquhart & Smith, 21 Mansfield ave., pr. s. d. a story and attic bk. dwellings, n. side King st., w. of Beatty ave., cost \$8,000; J. Jennings, 247 Concord st., det. a story bk. dwelling, cost \$1,200; Sisters of St. John, a story bk. addition to hospital, Major st., cost \$6,800; R. T. Brown, three att. a story and attic bk. dwellings, 28 Oxford st., cost \$6,000; J. A. Kent, 6 Garden ave., pr. s. d. a story and attic bk. dwellings, n. side King st., nr. Queen st. (Parkdale), cost \$7,000; Louisa Tolton, 70 Harvard ave., det. a story stone and bk. dwelling, e. side Dowling ave., n. of King st., cost \$8,500.

FIRES.

The town hall and market buildings at Parkhill, Ont., were totally destroyed by fire on Wednesday last. Loss about \$7,000; insurance \$2,500.—Lawrence Bros. flour mill at Watford, Ont., was burned to the ground on the 27th inst. Loss \$8,000.—A residence on North Front street, Belleville, owned by Mr. Robert Moffatt of Toronto, was burned on Saturday last. The house was insured.—The American Rattan works at the corner of Niagara and Tecumseh streets, Toronto, were damaged by fire on the 26th August to the extent of \$55,000. The loss on the building, which was owned by the Canada Permanent Company, is said to be \$40,000.—The residence of John P. Creer, at Shakespeare, Ont., was totally destroyed by fire on Monday last. Insurance \$500.—Sinclair's tannery at Shelburne, Ont., was destroyed by fire on Thursday last. Loss \$3,000. Insurance \$1,500.

CONTRACTS AWARDED.

EMBRO, ONT.—Messrs. B. F. Young, of Stratford, and A. E. Causey, of St. Mary's, have been awarded the contract for the erection of the new town-hall.

WINNIPEG, MAN.—The contract for the erection of Ald. Hallam's new block on Ross street, has been awarded to Messrs. Gray Bros., at the price of \$6,300.

KNOWLTON, QUE.—The Council have accepted the tender of the Dominion Bridge Company, of Montreal, for three new iron bridges, at the price of \$1,815. It is estimated the masonry will cost about \$2,400.

TORONTO, ONT.—The contract for paving King street from Dufrin street to Roncesvalles avenue has been awarded to Mr. C. H. Clarke. The contract price is \$20,700.—At a meeting of the Board of Works held on Friday of last week, the following contracts were awarded: sewers on Markham and Cunningham streets, Cathro & Co., \$793 and \$448 respectively; cedar block paving on Evans and Montague avenues, W. H. Gibson \$528 and \$548 respectively; cedar block paving, Delaware avenue, from Bloor to College street, Construction and Paving Company, \$10,097.

MONTREAL, QUE.—Theo. Daoust, architect, has awarded the following contracts. Two tenement houses on St. Denis street, for P. G. Martineau; stonework, P. Mainville & Son; brickwork, Meloche & Bourgeois; roofing, plumbing and plastering, N. Zureal; for six stores for Messrs. Wilson & Frost, at corner

Sherbrooke and St. Lawrence streets; stonework, Wilson & Frost; brickwork, Charpentier & Pepin, iron girders, E. Chanteloup, plastering, H. Constant. For building on St. Charles Berromme street for Mr. Jos. Gauthier, whole contract to Messrs. Wilson & Frost.—P. Lortie & Son, architects, have awarded contracts as follows for the erection of a building at the corner of Wellington and Charron streets, to cost \$11,000, brickwork, G. Leger, roofing, J. Thibault, plastering, St. Denis & Dube, painting, Jos. Guy.

STRENGTH OF STRUCTURAL IRON.

The greatest strength of cast iron is resistance to crushing, hence it is applicable for columns. Its strength as a girder is greater than that of wrought iron, but its comparatively brittle character makes it inapplicable for this purpose, where it would be subject to jarring, as in bridges or girders for buildings. Its most important element, however, is probably its stiffness, in which it is not exceeded by any other material except expensive grades of steel. It is therefore used in machine frames in all possible forms, where its strength may be so great that jars and shocks will have no effect whatever upon it. In general it may be said that cast iron should be used wherever its strength can be made so far in excess of any strain that can be put upon it, that there is no necessity of applying calculation to determine the strength. The only exception to this is its use in columns supporting a perfectly dead load, as in the columns of tall buildings. The columns of a bridge or an elevated railway should be wrought iron or steel. If it is desirable to make structures of this kind stiffer than they can be made with wrought iron, it will be found better and cheaper to use stone than iron for the columns, because of the immense mass of material required to absorb the shocks.

Wrought iron is strongest under tension, next strongest as a girder, the weakest under compression. Its extreme between strongest and weakest is not nearly so great as in cast iron, consequently it may be used in any position, but its compression strength and stiffness are so much less than cast iron that it is not used in these forms except for special reasons. It bends, but does not break easily, and it is not affected by any shock that does not bend or batter it. It is, therefore, an excellent material for anything that it is subject to continual vibration, as bridges shafting and boiler plates. Wrought steel is of so many different grades that it is almost impossible to keep track of them, but in general it may be said to have the same characteristics as wrought iron, slightly exaggerated, and is therefore valuable in the same kinds of places. Its use is recommended in place of wrought iron when increased strength is required without increased size.

Cast steel apart from those grades used as cutting tools, has the same characteristics as cast iron, but is stronger in every way. Its use is especially valuable in the place of cast iron from which it was made, but it does not have the same brittleness. For example, a piece of cast iron bearing a load would be easily broken by a hammer blow that would not affect a similar piece of malleable iron similarly loaded. A blow that would break the loaded piece of malleable iron would not affect the same piece if it were wrought iron, while a load that would bend a piece of wrought iron used as a girder would be easily borne by a cast-iron girder. A cast-iron girder having only a load that would easily be borne by a similar wrought-iron would be broken by a blow that would not affect the wrought iron. Cast steel is not only stronger than cast iron, but it is less susceptible to shock, but a blow that would break a piece of cast steel would not affect or at most batter, a similar piece of wrought iron of wrought steel.

MUNICIPAL DEPARTMENT.

BRICK SIDEWALKS.

All things considered, bricks for sidewalks are cheaper and more desirable than any other material, for the man who must count the cents before he spends the dollars, and cost is usually the first consideration in the matter of home building.

There are other kinds of sidewalk that are more attractive, easier kept clean, are smoother, or drier; but the item of cost is of paramount importance to the average home maker.

In our larger cities, on business streets it is fitting and proper that property owners put down heavy stone walks, or pavements of cement or granolithic concrete or manufactured stone. But suburban residences do not need such expensive sidewalk material. Usually the masses are well content with a sidewalk of bricks if it is properly constructed.

Right there is the point we would emphasize, "The proper construction of brick sidewalks." An inspection would reveal the fact that in three-fourths of all brick sidewalks put down, the work is illy done. This is why the "Tar and Sand" men are driving their humbug article over us in their attempt to supplant the old standard sidewalk, and we can see now in the suburbs, great stretches of these walks put down as an inducement to would-be purchasers of town lots.

In my daily walks around the towns, both at home and abroad I have studied the sidewalks first, the people afterwards. I find they all do about as their neighbors. If A puts down a board walk, B does likewise. If C lays a brick walk, and does the work himself, D will make the attempt, or set his boys at the job. The work is performed without any attempt at skill or perfection of detail. In these days of light and knowledge, the average citizen thinks he need not be told how to put down brick sidewalk. He will tell you he has seen it done hundreds of times and it is a very simple affair. So he has, usually by some one as ignorant of the matter as he himself.

In the South there are a great many colored men who call themselves bricklayers. They generally secure all the jobs of laying brick sidewalks or repairing same, at an advance of twenty-five cents per day above laborers' wages. These men without having learned a trade, with little skill or practical knowledge of mechanical work, are entrusted with work that requires care and judgment to insure a good and lasting job.

We frequently find the brick walk full of sunken holes, crushed or rotten bricks, the whole walk is wet, sodden, muddy, and one is inclined to avoid going over it. The bricks are lying in a pool of clay and water, that when stepped on roll around and sink deeper in the mud, or send a shower of muddy water upwards waist high over the person. The writer has had the water squirted in his face on several occasions from beneath the bricks of such walks. The trouble was, there was no drainage for surface water. The bricks were laid on the clay which is no foundation. Every wet spell or heavy shower drove them down deeper, and made bad matters worse. This caused the owner and all others who walked over it to condemn brick sidewalks. The fault was not in the

MUNICIPAL ENGINEERS, CONTRACTORS, AND MATERIALS.

bricks, it was in the construction of the walk.

The brick that will wear out, disintegrate under the heels of pedestrians or by the elements of frost and water, should never be put in the sidewalk. The one bad brick in the midst of the hundred good ones condemns the whole lot.

In many places, towns and villages are built on hilly or rolling ground. The grading of streets leaves many of the town lots from one foot to five or more feet above the grade. The surface water from these lots falls down and is scattered over the sidewalks and is a source of much annoyance, unless precautions are taken to carry this water away or under the sidewalk.

We will suppose your street is brought to proper grade, and curbed. Measure back from the curbing the width of the walk adding six inches, remove the earth, soil or clay eight inches below the top of curb line and make the bottom leaver and solid.

The excavation should now be filled in with five inches of fine crushed rock, coarse gravel, cinders or coal ashes, or any other good hard material that will answer the purpose of drainage. This should be leveled and made solid; on top of this put two inches of sand, spread evenly about the concrete and give it one and a half inches to fall to the curbstone, bringing it to the grade with a trowel. The bricks which should be good and hard, well burned, are now laid on the sand foundation, but down to a line, or straight-edge frequently applied. As fast as the bricks are put in place, scatter clean sharp sand over them, and with an old broom sweep it well into the spaces between bricks, which would be as small as possible. Leave a good coat of sand on the walk until the bricks are firmly bedded, then sweep clean. A row of bricks on end or on edge on the outside of the walk, next to the fence or wall acts as a protection to the walk and assists in keeping surface water from flowing over it.—*The Clayworker.*

A ROAD EXHIBIT AT CHICAGO.

A memorial has been presented to Congress urging that a comprehensive exhibit of roads and their construction and maintenance be made at the World's Fair at Chicago. The author of the memorial, Mr. Albert A. Pope, directs attention to the fact that the classification adopted by the commissioners does not provide for such an exhibit. He refers to the language of the act of Congress providing for the celebration at Chicago, which declares among other things that it is fit that there should be an exhibit of the progress of civilization in the New World, and he insists that the provisions of the act will not be complied with in letter or in spirit if there be no proper exhibit of the civilization of the country as illustrated by its roads, their construction and maintenance.

The substance of the proposition contained in the memorial is that a building be erected to contain an exhibit of examples of road making and maintenance; that publicity be given to the subject throughout the United States and Europe so as to attract the attention of road engi-

neers and builders of road machinery everywhere, and that a large amount of literature on the subject of road making should be distributed gratuitously to those who may visit the department. It is suggested that exhibits of sections of the best road construction throughout the world should be shown; particularly that there should be exhibited sections illustrating the best and cheapest methods of constructing the common country roads in the various states; that competent road engineers and geologists should be employed in arranging this exhibit, and that expert chemists who have made a study of constructing artificial stone and cement should be engaged in the work, the great object in view being the education of the people how to use to the best advantage, under the existing circumstances and environments, whatever money may be spent in the construction of good highways. This exhibit, the memorial says, will not be for this nation alone, but for all the nations of the earth whose representatives may be gathered at the World's Fair.

THOROLD CEMENT

WELLAND CANAL ENLARGEMENT,
RESIDENT ENGINEER'S OFFICE,
WELLAND, April 17th, 1884.

JOHN BATTLE, Esq., Thorold:

Dear Sir,—Yours of yesterday, relative to Thorold Hydraulic Cement, is received. In reply, I beg to say that my tests of the Thorold Hydraulic Cement have extended over a period of twenty-eight years, and have been on a large scale, as exemplified in the locks, bridges, culverts and other masonry on the Welland Canal and Welland Railway, and that the record, which has been invariably satisfactory, is to be found in examination of the structures. The necessary tearing down of masonry and concrete, during the Welland Canal Enlargement, has afforded abundant evidence of the reliability of the Thorold Hydraulic Cement, both in masonry and concrete, and above and under water. I desire no better cement for the class of work referred to.

I am, dear Sir, yours truly,
W. G. THOMPSON,
Resident Engineer.

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

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Double Strength for railway culverts, etc.

Sewer Bottoms or Invert Blocks, Cement.
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 AGENT.

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LUMBER.
 CAR OR CARGO LOTS.

	Toronto.	Montreal.
1 1/2 to 2 clear picks, Am. ins.	30 00 @ 32 00	40 00 @ 45 00
1 1/2 to 2 three uppers, Am. ins.	37 00	40 00 45 00
1 1/2 to 2 pickings, Am. ins.	27 00	27 00 30 00
3 inch clear.	52 50	50 00 60 00
1 1/2 to 2 and 12 dressing and better.	18 00	18 00 20 00
1 1/2 to 2 and 12 mill run.	13 00	14 00 19 00
1 1/2 to 2 and 12 dressing.	14 00	16 00 18 00
1 1/2 to 2 and 12 common.	12 00	13 00 8 00 10 00
1 1/2 to 2 and 12 spruce culls.	10 00	11 00 10 00 12 00
1 1/2 to 2 and 12 maple culls.	9 00	9 00 9 00
1 inch clear and picks.	28 00	30 00 33 00 35 00
1 inch dressing and better.	18 00	20 00 18 00 20 00
1 inch siding, mill run.	14 00	16 00 14 00 16 00
1 inch siding, common.	11 00	12 00 12 00 14 00
1 inch siding, ship culls.	10 00	11 00 10 00 12 00
1 inch siding, mill culls.	8 00	9 00 8 00 9 00
Cull scantling.	8 00	9 00 8 00 9 00
1 1/2 and thicker cutting up plank.	22 00	25 00 22 00 22 00
1 1/2 inch strips, 4 in. to 8 in. mill	14 00	15 00 14 00 15 00
1 inch strip, common.	11 00	12 00 11 00 12 00
1 1/2 inch flooring.	15 00	15 00 14 00 15 00
1 1/2 inch flooring.	14 00	16 00 14 00 16 00
XXX shingles, sawn, per M	2 30	2 30 2 30 2 35
16 in.	2 30	2 35 2 30 2 35
XX shingles, sawn.	1 30	1 35 1 30 1 35

YARD QUOTATIONS.

Mill cull boards and scantling	10 00	10 00
Shipping cull boards, promiscuous widths.	13 00	13 00
Shipping cull boards, stocks	16 00	16 00
Hemlock scantling and joist up to 16 ft.	22 00	22 00 10 00
Hemlock scantling and joist up to 18 ft.	22 00	23 00 12 00 13 00
Hemlock scantling and joist up to 20 ft.	23 00	24 00 13 00 14 00
" " " 18 ft	14 00	14 00
" " " 20 ft	15 00	15 00
" " " 22 ft	16 00	16 00
" " " 24 ft	17 00	17 00
" " " 26 ft	19 00	19 00
" " " 28 ft	21 00	21 00
" " " 30 ft	23 00	23 00

Toronto, Montreal.			
" " 30 ft	25 00	25 00	
" " 34 ft	27 00	27 00	
" " 38 ft	29 50	29 50	
" " 36 ft	31 00	31 00	
" " 38 ft	33 00	33 00	
" " 40 to 44 ft	35 00	36 00	
Cutting up planks, 1 1/2 and thicker, dry.	25 00	26 00 25 00 26 00	
Cutting up planks, 1 1/2 and thicker, board.	18 00	18 00 18 00 18 00	
Cedar for block paving, per cord.	5 00	5 00	
Cedar for Kerbing, 4 x 14, per M.	14 00	14 00	
1 1/2 in. flooring, dressed, F.M.	31 00	28 00 31 00	
1 1/2 inch flooring, rough, F.M.	28 00	28 00 22 00	
Hull, dressed, F.M.	30 00	27 00 30 00	
1 1/2 " undressed, F.M.	19 00	18 00 19 00	
1 1/2 " dressed, F.M.	23 00	18 00 23 01	
1 1/2 " undressed.	12 00	13 00 12 00 13 00	
Headed sheeting, dressed.	22 00	22 00 23 00 23 00	
Clapboarding, dressed.	12 00	12 00	
XXX sawn shingles, per M	2 65	2 75 3 00	
18 in.	2 25	2 25 2 20	
Sawnlath.	2 00	2 00 2 00	
Cedar.	2 00	2 00 2 00	
Red oak.	30 00	40 00 30 00 40 00	
White.	35 00	45 00 35 00 45 00	
Basswood, No. 1 and 2.	18 00	20 00 18 00 20 00	
Cherry, No. 1 and 2.	20 00	20 00 20 00 20 00	
1 1/2 " dressed, F.M.	25 00	30 00 25 00 30 00	
Black ash, No. 1 and 2.	30 00	30 00 18 00 30 00	
Dressing stocks.	16 00	16 00 16 00 16 00	
Picks, American inspection.	40 00	40 00	
Three uppers, Am. inspection	50 00	50 00	
BRICK—M			
Common Walling.	7 50	6 00	
Good Facing.	9 00	8 50	
Sewer.	8 50	9 00 8 50 9 00	
Pressed Brick, Per M:			
Plain brick, f. o. b. at Milton	18 00		
" " and quality.	14 00		
" " 3rd	10 00		
Hard Building.	8 00		
Moulded and Ornamental, per 100.	3 00	10 00	
Roof Tiles.	24 00		
Diamond locking tile.	10 00		
First quality, f. o. b. at Campbellville.	18 00	25 00	
and quality, f. o. b.	14 00	20 00	
3rd	11 00	17 00	
Ornamental, per 100.	3 00	10 00 10 00	
Tiles.	24 00	26 00	
Plain brick, "A" f. o. b. Don Valley	18 00	25 00	
" " " " " "	16 00	22 00	
" " " " " "	13 00	18 00	
Trojan or Buff.	24 00	30 00	
Ornamental, per 100	3 00	60 00 3 00 60 00	
SAND.			
Per Load of 1 1/2 Cubic Yards	1 25	1 25	
STONE.			
Common Rubble, per toise, delivered.	14 00	14 00	
Large flat Rubble, per toise, delivered.	18 00	18 00	
Foundation blocks, per c. ft.	50	50	
Kent Freestone Quarries, Moncton, N. B., per cu. ft., f. o. b.	1 00		
River John, N. S., brown Freestone, per cu. ft., f. o. b.	80	95 65 75	
New York Blue Stone.	1 05		
Granite (Stanstead) Ashlar, 6 in. to 22 in. rise, 9 in. per ft.	70	25	
Mowat Freestone.	14 00		
Credit Valley Rubble, per toise, delivered.	13 00	14 00	
Credit Valley Brown Coursing, per superficial yard.	2 50	3 00 2 90	
Credit Valley Brown Dimension, per cubic foot.	90	90	
Credit Valley Grey Coursing, per superficial yard.	1 50	2 00 2 15	
Credit Valley Grey Dimension, per cubic foot.	75	80	
Madoc Rubble, delivered, per toise.	14 00	14 50 14 00 14 50	
Madoc dimension floating, f. o. b. Toronto, per cubic ft.	30		
Ohio Freestone, No. 1 Blue Promiscuous, f. o. b.	60		
No. 1 Blue Dimension.	65		
No. 1 Buff Promiscuous.	80		
No. 1 Buff Dimension.	85		
The above prices means freight and duty paid.			
2 in. sawed flagging per sq. ft.	11		
2 1/2 " " "	13 1/2		
3 " " "	16 1/2		
4 " " "	22		
5 " " "	27 1/2		
6 " " "	33		
Duty to be added to these prices.			
Quebec and Vermont rough granite for building purposes, per cft. 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 4 1/2 in., per M	50 00		
Granite curbing stone, 6 in. x 20 in., per lineal foot.	70		
SLATE.			
Roofing (per square).			
" red.	18 00	16 00	
" purple.	9 00	8 00	
" unloading green	9 50	6 00	
" black	8 00	7 50	
Terra Cotta Tile, per sq.	25 00		
Ornamental Black Slate Roofing.	8 25		
PAINTS. (In oil, per lb.)			
White lead, Can., per 100 lbs.	6 25	6 00 6 25	
" zinc, Can., " "	6 50	7 50 8 00	
Red lead, Eng.	3 1/2	6 50	
" venetian, per 100 lbs.	1 60	1 75 1 60 1 75	
" vermilion.	90	100 90 100	
" Indian, Eng.	10 12 10	12	
Yellow ochre.	5 20	4 12	
Yellow chrome.	15 30	15 30	
Green, chrome.	7 12	7 12	
" Paris.	25 40	30 20	

Toronto, Montreal.			
Black, lamp.	15	25	18 25
Blue, ultramarine.	15	20	12 18
Oil, linseed, raw, 1/2 Imp. gal.	64	68	61 65
" " boiled	68	71	66 68
" " refined,	78	81	75 77
Putty.	2 1/2	2 1/2	2 1/2 2 1/2
Whiting, dry, per 100 lbs.	75	100	60 75
Paris white, Eng., dry.	90	1 25	91 1 10
Litharge, Am.	6 1/2	8	6 1/2 8
Slenna, burnt.	15	20	12 15
Usher,	8 1/2	12	12 15
CEMENT, LIME, etc.			
Cement, Portland, per bbl.	2 50		
" Thorold,	1 50		
" Queenston,	1 50		
" Napanee,	1 50		
" Hull,	1 50		
" Ontario,	1 10		
" German,	2 65	2 85	
" London,	2 45	2 90	
" Newcastle,	2 35	2 50	
" Belgian,	2 37	2 40	
" Co-adian,	2 25	2 30	
" Roman,	2 75		
" Parian,	4 50	4 75	
" Superfina,	6 50	7 00	
Keene's Coarse " Whites "	4 50	4 75	
Calced plaster, per barrel.	1 55	1 70	
Fire Bricks, Newcastle, per M	20 00	24 00	
" Scotch	30 00	35 00	
Lime, Per Barrel, Grey.	40		
" White.	55		
Plaster, Calcined, N. H.	2 00		
" N. S.	2 00		
Hair, Plasterers', per bag.	80	1 00	
HARDWARE.			
Cut nails, 5 d & 6 d, per keg	2 40	2 25	
Steel "	2 50	2 35	
CUT NAILS, FENCE AND CUT SPIKES.			
40d, hot cut, per 100 lbs.	5		
30d, " "	10		
20d, 16d and 12d, hot cut, per 100 lbs.	15	15	
10d, ho; cut, per 100 lbs.	20	20	
8d, 9d, " "	25	25	
6d, 7d, " "	40	40	
4d to 5d, " "	60	60	
3d, " "	1 00	1 00	
2d, " "	1 50	1 50	
4d to 5d cold cut, not polished or blued, per 100 lbs.	50	50	

Toronto, Montreal.			
3d to 5d cold cut, not polished or blued, per 100 lbs.	90	90	
FINE BLUED NAILS.			
3d, per 100 lbs.	1 50	1 50	
2d, " "	2 00	2 00	
CASING AND BOX, FLOORING, SHOOK AND TOBACCO BOX NAILS.			
12d to 30d, per 100 lbs.	50	50	
20d, " "	60	60	
24d and 27d, " "	75	75	
30d, " "	90	90	
4d to 5d, " "	1 10	1 10	
3d, " "	1 50	1 50	
FINISHING NAILS.			
3 1/2 to 4 1/2 inch, per 100 lbs.	85	85	
2 1/2 to 3 1/2 " " "	1 00	1 00	
1 1/2 to 2 1/2 " " "	1 15	1 15	
1 1/4 " " "	1 35	1 35	
1 1/2 " " "	1 75	1 75	
1 1/4 " " "	2 25	2 25	
SLATING NAILS.			
5d, per 100 lbs.	85	85	
4d, " "	85	85	
3d, " "	1 25	1 25	
2d, " "	1 75	1 75	
COMMON BARREL NAILS.			
1 inch, per 100 lbs.	1 50	1 50	
3/4 " " "	1 75	1 75	
1/2 " " "	2 25	2 25	
CLINCH NAILS.			
3/4 and 1/2 inch, per 100 lbs.	85	85	
2 and 2 1/2 " " "	1 00	1 00	
2 and 1/2 " " "	1 15	1 15	
1 1/2 and 1 1/4 " " "	1 35	1 35	
1 1/4 " " "	2 00	2 00	
1 1/2 " " "	2 50	2 50	
SHARP AND FLAT PRESSED NAILS.			
3 inch, per 100 lbs.	1 35	1 35	
2 1/2 and 2 1/4 " " "	1 50	1 50	
2 and 1/2 " " "	1 65	1 65	
1 1/2 and 1 1/4 " " "	1 85	1 85	
1 1/4 " " "	2 00	2 00	
1 1/2 " " "	2 50	2 50	
Structural Iron:			
Steel beams, per 100 lbs.	2 75	2 50	
" channels,	2 85	2 60	
" angles,	2 50	2 50	
" tees,	2 80	2 05	
" plates,	2 55	2 35	
Sheared steel bridge plate.	2 25	2 35	

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