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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF THE INTERESTS OF THE CONTRACTOR

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.

VOL. 8.

APRIL 1, 1897

No. 9.

THE CANADIAN CONTRACT RECORD, PUBLISHED EVERY THURSDAY

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

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G. H. MORTIMER, Publisher,
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TENDERS WANTED

Sealed bulk tenders will be received by the undersigned up to eight o'clock p.m. on Thursday, April 8th, 1897, for the various trades required in the

ERECTION OF A PUBLIC SCHOOL BUILDING

in the Village of Chesley. Plans and specifications can be seen at the office of M. A. Halliday, Secretary.

The lowest or any tender not necessarily accepted. Tenderers to state the price they will allow for the house situated on the school grounds.

M. A. HALLIDAY,
Secretary Chesley Public School Board.

CEMENT CONCRETE SIDEWALKS

Sealed tenders will be received by the undersigned until 7 p.m.,

Thursday, April 15th, 1897,

for the construction of about 40,000 square feet of cement concrete sidewalks in the Town of Galt.

A certified cheque for the sum of \$100.00 and the bona fide signatures of sureties must accompany each tender.

The lowest or any tender not necessarily accepted. Specifications and all information will be furnished on application to the undersigned.

A. J. McPHERSON,
Town Engineer.

Galt, March 27th, 1897.

SEWERS

NIAGARA FALLS, CANADA

Sealed proposals will be received by the Corporation of the Town of Niagara Falls, Canada, until 8 o'clock p. m. on

Monday, the 6th Day of April, 1897,

for the furnishing of all the materials and doing all the work necessary for the complete construction of Sections No. 3, 4, 5, 6 and 7 of the Niagara Falls Sewerage System.

The works to be built under these sections and the approximate quantities of the same are as follows:

Section 3:—About 735 feet of 15 inch, 1,190 feet of 12 inch, 2,146 feet of 10 inch and 9,044 feet of 8 and 9 inch Pipe Sewers.

Section 4:—About 360 feet of 18 inch, 1,083 feet of 12 inch, 470 feet of 10 inch and 3,976 feet of 8 inch Pipe Sewers.

Section 5:—About 2,361 feet of 15 inch, 255 feet of 12 inch, 370 feet of 10 inch and 2,190 feet of 8 and 9 inch Pipe Sewers.

Also about 769 feet of Brick Sewer, 24 x 36 inches, and outlet into the Niagara Gorge, consisting of shaft and tunnel in rock, pipe, chambers, etc.

Section 6:—About 1,129 feet of 12 inch, 1,222 feet of 10 inch and 4,080 feet of 8 and 9 inch Pipe Sewers.

Section 7:—About 550 feet of Brick Trunk Sewer, 4 feet by 6 feet, in deep cut

Including in these sections all the rock excavation and appurtenances required

Proposals may be made in bulk sum for all the sections or for one or any number of sections. Each proposal must be accompanied by a certified cheque for a sum equivalent to six per cent (6%) of the amount of the same, payable to the Treasurer of the Town of Niagara Falls, said cheque to be returned to the person making the proposal, unless he fail to execute the contract should it be awarded him.

A bond for an amount equal to forty (40) per cent of the estimated total cost of the construction of each section will be required by the Town of Niagara Falls for the faithful performance of the same, and the successful bidder for each section, before being awarded the contract, must appear before the Mayor with approved sureties for this purpose.

A certificate signed by the sureties must accompany each proposal.

Proposals shall be enclosed in sealed envelopes and addressed "The Town of Niagara Falls, Ontario, John Robinson, Clerk," and endorsed "Proposal for Section No. _____ Niagara Falls Sewerage System." (If more than one section is tendered for, the envelope must be so endorsed).

Plans, profiles and drawings may be seen, and specifications, forms of proposal, contract, etc., may be obtained at the office of the Engineer, Bridge Street, Niagara Falls, Canada, after Friday, March 26th, 1897.

The Corporation and the Sewer Committee reserve the right to reject or to recommend to be rejected, any or all proposals

CHARLES C. COLE, Mayor
WILLIAM COLE, Chairman of Com.
J. B. STEVENS, Secretary.
CHARLES H. MITCHELL, Engineer.

BUSINESS NOTES.

A. T. Corp, painter, London, Ont., has assigned to C. B. Armstrong.

J. H. Young, contractor, Middleton, N. S., is reported to have assigned.

The estate of Young Bros. & Co., Ltd., Hamilton, is being offered for sale by the assignee, F. H. Lamb.

The assignment is announced of George Bail, contracting carpenter, Montreal, with liabilities of \$12,000.

The Montreal Sand and Gravel Co., with headquarters at Montreal and capital stock of \$40,000, is seeking a Dominion charter.

CONTRACTS OPEN.

LUCAN, ONT.—The Presbyterians have decided to enlarge their church.

BATH, ONT.—Joseph Garnier is making preparations to erect a building.

LISTOWEL, ONT.—Thomas Page is preparing to build a new residence.

KENTVILLE, N. B.—P. E. Lloyd will build a saw mill and sash and door factory

KEMPTVILLE, N. S.—Arthur Bowen will erect a large roller mill here this summer.

BLENHEIM, ONT.—William Snow will shortly commence the erection of a brick house.

SEELEY'S BAY, ONT.—Dr. Gardiner intends building a brick residence this spring.

MAIDSTONE, ONT.—A steel or wooden bridge will be built over Belle river this spring.

LYN, ONT.—Tenders are wanted by G. C. Cumming for the erection of a brick residence.

ANDERDON, ONT.—Two bridges over the Canard river were carried away by a recent flood.

NEEPAWA, MAN.—J. Davidson, ex-M.P.P., will erect a large store building at Wabigoon, Ont.

EXETER, ONT.—The Council is considering the question of constructing granolithic sidewalks.

RODNEY, ONT.—The town councillors are considering the question of installing an electric light plant.

WINNIPEG, MAN.—The proposed abattoir scheme is likely to meet with opposition by the legislature.

HAWTHORNE, ONT.—M. Blake is making preparations for the erection of a brick residence in the spring.

WELLAND, ONT.—The ratepayers have sanctioned a by-law to issue debentures to the amount of \$10,000.

DUNDAS, ONT.—Plans have been prepared for a new school building, work on which will shortly commence.

WALKERTON, ONT.—A by-law will be submitted to the ratepayers to raise \$10,000 for building a new town hall.

TILBURY, ONT.—Joseph Pelpier has purchased property at Tilbury Corners, on which it is proposed to erect a hall.

KAMLOOPS, B. C.—William Roper, of Ducks, and W. R. Hull, of Calgary, contemplate erecting a first-class hotel at this place.

METCALFE, ONT.—On the 3rd inst. a by-law will be submitted to the ratepayers to raise \$9,000 for the erection of a high school.

MCKILLOP, ONT.—The trustees of school section No. 6 have decided to erect a brick school-house, with caretaker's residence in attic.

KEEWATIN, ONT.—Several citizens have purchased property on which to erect

residences.—Plans have been adopted by the School Board for a new school, and work will shortly be commenced.

OWEN SOUND, ONT.—Mr. J. Jameson, of the C.P.R., is laying out the ground for the proposed elevator.

LORNEVILLE, ONT.—Tenders are asked by N. L. Campbell until the 10th inst. for the erection of a dwelling house on lot 7, concession 2, Eldon.

PERTH, ONT.—An agreement has been reached with A. Charlebois, of Quebec, by which he will undertake the construction of a waterworks system. A drainage system will also be considered at an early date.

COLLINGWOOD, ONT.—It is rumored that another large elevator is to be built here, and that a strong company has been organized for the purpose.

ROSSLAND, B. C.—It is rumored that the promoters of the Le Roi mine propose erecting a smelter at Northport, with a capacity of 350 tons per day.

ST. JOHNS, QUE.—It is reported that a company will shortly undertake the construction of an electric railway between St. Johns, Longueuil and St. Lambert.

ST. CATHARINES, ONT.—The McMillan & Haynes Co. propose to erect a saw factory, provided no adverse change is made by the government in the tariff.

STRATFORD, ONT.—The Waterloo st. church congregation have appointed a committee to engage an architect to report on the cost of improvements to their church.

CLAYTON, ONT.—Tenders are asked until the 9th inst. for building a brick veneered Presbyterian church. Address John McIntosh, chairman Building Committee.

DELHI, ONT.—Separate tenders are asked by J. H. Ferguson, secretary-treasurer, until April 8th, for the erection of a four-room brick school-house in this village.

DRUMBO, ONT.—M. F. Ainslie, clerk, will receive tenders until noon, April 10th, for building either a wooden or composite bridge over Horner's Creek, Township of Blenheim.

ARTHUR, ONT.—Geo. Gray, architect, of Harriston, has prepared plans for a three-story hotel to be erected here by E. J. O'Callahan on the site of the old Ontario House.

OSHAWA, ONT.—The citizens are taking steps to secure the erection of a public hospital, and a committee has been appointed to further the scheme. W. E. Ayer is secretary.

RICHMOND HILL, ONT.—The School Board have accepted the plans of J. Francis Browne, architect, of Toronto, for the proposed school building, which will cost about \$4,000.

SHERBROOKE, QUE.—The Bell Telephone Company have purchased a site on which to erect a new block. Plans for the same are being prepared by Clift & Pope, architects, of Montreal.

CHARLOTTETOWN, P. E. I.—The sum of \$10,000 has been subscribed for a cold storage depot at this place.—A joint stock company has been formed for the erection of a wood-working factory.

HALIBURTON, ONT.—W. Giles will receive tenders until Friday, the 16th inst., for the erection of a town hall in this village, plans for which may be seen at the office of Wm. Prust, clerk of Dysart.

WINDSOR, ONT.—The Market Committee of the City Council will recommend extensive alterations to the market building, including concrete sidewalks and floors. The total cost is estimated at \$3,000.

RAT PORTAGE, ONT.—It is understood that the C. P. R. will shortly undertake the erection of a new depot here. It is also stated that the C. P. R. will erect a 6-ton derrick here for handling heavy mining machinery.

CHATHAM, ONT.—The by-law to issue debentures to the extent of \$10,000 for erecting a market building has been defeated by the ratepayers.—J. L. Wilson & Sons, architects, are receiving tenders for a brick veneered residence.

SMITH'S FALLS, ONT.—Tenders are asked by E. Kennedy until Tuesday, April 20th, for the erection of a three-storey brick hotel on the site of the present Mackenzie house on Beckwith street. Plans may be seen at Mr. Kennedy's store.

MIDLAND, ONT.—A \$3,000 addition will be built to the West Ward school.—The Grand Trunk Railway Company have made a proposition to the town to erect a large elevator here, with a capacity of 700,000 bushels, in lieu of a bonus of \$25,000.

FORT WILLIAM, ONT.—At a public meeting held last week a committee was appointed to report on the most suitable system of waterworks and electric light for the town. Particulars may be obtained from James Murphy, president Board of Trade.

GALT, ONT.—Mr. A. J. McPherson, town engineer, writes that, owing to the defeat of the by-law to expend \$50,000 on road improvements, the work will in consequence be limited to the ordinary repairs and maintenance, for which about \$6,000 is available.

RENFREW, ONT.—Mr. Potter, C.E., has presented a comprehensive report on the construction of waterworks and sewerage systems, in which a steam pumping plant at Bonnechere is recommended. A by-law to provide \$72,000 for the work will be submitted to the ratepayers.

FREDERICTON, N. B.—A proposition is now under consideration for the erection of an annex to Victoria Hospital, to cost \$10,000.—R. C. John Dunn, architect, of St. John, has been instructed to prepare plans for improvements to the city hall here.—The question of putting in a fire alarm system will be considered by the City Council at an early date.

QUEBEC, QUE.—It is rumored that Mr. H. J. Beemer will seek a charter for the construction of an electric railway between St. Joseph de Levis and Chaudiere.—A syndicate of St. Roch capitalists are considering the erection of a large opera house on Joseph street.—It is proposed to erect just outside St. John's gate a large building to be used as a conservatory of music, at an estimated cost of \$60,000.

KINGSTON, ONT.—The Kingston Street Railway Company propose to make several improvements this spring, including the extension of its line to the depot.—Francis Davis has purchased property on Frontenac street, near Union street, on which he will erect two dwellings.—Mr. Mills, principal of the Ontario Agricultural College, Guelph, was in this city recently, and as the result of his visit it is said a wing will be added to the dairy school.

ST. JOHN, N. B.—Mr. Hurd Peters, city engineer, has prepared plans for new wharves at the harbor, and tenders for the work will shortly be asked.—The Safety Board will recommend the Council to establish a fire alarm system for Carleton.—R. C. John Dunn, architect, will shortly commence the preparation of plans for a new fire station in the north end.—It is the intention of the St. John Yacht Club to make improvements to their club-house.—Tenders close on the 1st of May for the purchase of \$274,000 of debentures. For particulars address H. E. Wardroper, common clerk.—In the report of director Smith to the Board of Works, the sum of \$6,000 is asked for laying asphalt sidewalks, \$800 for a street plant, and \$36,400 for street improvements.

LONDON, ONT.—J. T. & J. W. Cahill have purchased sites on Elmwood avenue on which it is proposed to erect two residences.—The Board of Trade will again

petition the Dominion government for a grant towards the Port Stanley harbor. It is estimated that from \$36,000 to \$40,000 will be required for dredging and repairs to piers.—James Grant, clerk of London township, will receive tenders until the 3rd inst. for building a stone abutment at the north end of the Adelaide street bridge. Plans at the office of F. H. Talbot, county commissioner, this city.—The City Engineer is asking for tenders for an 18-inch tile sewer on Evergreen avenue.—The promoters of the York street Methodist mission have found the present place of worship too small, and will erect a new building as soon as a suitable site can be secured.

OTTAWA, ONT.—The Department of Railways and Canals will receive tenders until the 17th inst. for works connected with the Iroquois section of the Galops canal, to be completed by the 31st January, 1899.—The Ottawa Amateur Athletic Club will proceed at once with the construction of an extension to the club-house, for which purpose the sum of \$25,000 will be borrowed.—A petition has been presented to the City Council requesting the paving with asphalt of Banks street, from Maria to Ann streets.—Tenders for the stonework of an English church at Metcalfe are invited until the 10th inst. Plans may be seen at the office of A. M. Calderon, architect.—Work will be commenced at once on the proposed opera house.—The government have stated that it is the intention to erect a suitable geological building in this city, with provision also for a national art gallery. No definite plans, however, have as yet been made.—Tenders will shortly be asked by the city for 2,000 feet of hose.—The Capital Athletic Association have under consideration the erection of a building suitable for their purposes.

MONTREAL, QUE.—The Road Committee of the City Council have reported in favor of petitioning the government for the erection of a new super-structure at the Seigneurs street bridge, for the widening of the Napoleon road bridge, and for the erection of a new structure over the canal at Atwater avenue.—W. McLea Walbank, of the Lachine Rapids Hydraulic & Land Company, will receive tenders until the 3rd inst. for stringing about ninety miles of No. 6 wire from Lachine Rapids to the Wellington street bridge.—The Board of Health have requested an appropriation of \$7,000 to build permanent stables for the scavenging department.—The Road Committee want \$10,000 for the purchase of stone.—P. W. St. George, city surveyor, will receive tenders until Wednesday, April 7th, for the construction of drains throughout the city.—It is reported that as the result of his recent visit of inspection, Mr. Costé, Chief Engineer of Public Works, has made a report to the Dominion government urging the immediate construction of the east end harbor works in this city.—The City Council have passed the recommendation of the police committee that a new police station be built in St. Sauveur.—The Dominion government have passed an order-in-council granting \$300,000 to the G. T. R. for the extension of Victoria bridge over the St. Lawrence, and this has been supplemented by a grant of \$150,000 by the provincial government. Plans will be submitted at once to the Board in England, and work will commence about May 1st.

TORONTO, ONT.—It is rumored that the American Hotel, corner York and Wellington streets, is to be replaced by a new structure.—Ground has been broken for a new residence to be erected on the west side of St. George street, just below Bloor street.—Tenders are asked by Mr. F. H. Herbert, architect, 9 Toronto street, up to 5 p.m. on April 3rd, for all trades in connection with the erection of a brick cottage on Elgin avenue.—J. C. Harris

proposes to build an abattoir in the vicinity of the cattle market.—The Public School Board have decided that it will be impossible to enlarge the Rosedale school this year, owing to lack of funds.—The Toronto Technical School have asked the City Council for a grant of \$75,000 for a new building.—In the report of the City Engineer presented to Council on Monday last, the construction of an asphalt pavement is recommended on Harbord st., from St. George to Huron sts., at an estimated cost of \$3,280, and a macadam roadway on Classic place. The following pavements are recommended as local improvements upon the initiative. Asphalt on Adelaide street, from Yonge to Bay, and Colborne street, from Yonge to West Market; cedar block on Harbord street, from Huron to Bathurst. The following amounts for the substitution of cast-iron pipe for the present cement mains are asked: \$1,800 for Queen street, from Soho to Spadina; \$2,160 for Queen, from Spadina to Bathurst; \$1,150 for John, from King to Queen.—The T. Eaton Co. will erect a large warehouse at the southwest corner of James and Louisa streets, the foundation for which is now being laid.—St. Andrews' Brotherhood of East Toronto intend building a club-house on Woodbine avenue.—James Beatty, No. 1,497 Queen street west, has been granted permission to erect a pair of semi-detached brick dwellings, to cost \$5,000.

HAMILTON, ONT.—A. W. Peene, architect, is receiving tenders for a residence, corner Grant avenue and Main street. Same architect is preparing plans for the following: Dwelling houses on Main st. w.; large residence for W. G. Walton on the mountain top; residence on Wentworth street south; residence at Hagersville for J. H. Hager, alterations and additions to residence on Sherman avenue; alterations and additions to residence on James street south; alterations and additions to the Hamilton Club; alterations to office building, James street south.—Barton Township Council have passed a by-law to grant \$8,000 for the erection of three new schools.—The Hamilton Radial Railway Company propose to extend their line to the easterly limits of Burlington.—The estimated cost of the proposed nurses' wing in connection with the General Hospital is \$5,000. The Council will be asked to make a grant for the purpose.—A building permit has been issued to W. Lachance for repairs to Hannah street Methodist church, to cost \$2,000.—The Hamilton, Chedoke & Ancaster Electric Railway Company have appointed a committee to consider tenders for the construction of a railway to Chedoke.—It is proposed to build headquarters in this city for the Royal Templars. The scheme is to establish an endowment fund with which to erect the building.—Building permits have been granted as follows: Thomas Lovejoy, two-story brick dwelling on Emerald street, cost \$1,500; E. B. Patterson, two-story brick dwelling, corner John and Stuart streets, for M. Allan, cost \$1,000; George H. Milne, two-story brick school-house on Caroline street, cost \$2,000; Thomas Allen, two-story brick dwelling and store, corner Oxford and York streets, cost \$1,100; Samuel McCready, two-story brick dwelling, corner Barton street and Birch avenue, cost \$1,600.—F. J. Rastrick & Sons, architects, invite tenders up to the 5th inst. for the erection of a brick school-house for the trustees of school section No. 3, Barton.

FIRES.

The warehouse of W. P. Ware & Son on William street, Montreal, was gutted by fire on the 24th ult. The loss is estimated at \$10,000, covered by insurance.—At Port Elgin, Ont., on March 28th, fire destroyed the Queen's Hotel stables, Harron's carriage building and other smaller

structures. Total loss, \$3,000.—Premises at Norwood, Ont., owned by R. Wilson, W. Rogers, C. O. Reilly and J. Mongraw, were recently burned.—The residence of Mrs. Rogers at Prince Albert, N. W. T., was destroyed by fire a few days ago, also the Canadian Pacific reservoir building at Stonewall, Man.

CONTRACTS AWARDED.

CARLETON PLACE, ONT.—Debentures to the amount of \$20,000 have been disposed of.

TEMPERANCEVILLE, ONT.—The contract for the new Methodist church has been let to L. Innes & Sons.

HAMILTON, ONT.—The contract of enlarging the Grenville canal has been awarded by the Dominion government to Pigott & Ingles, of this city.

CLAYTON, ONT.—Levi Blair has the contract for building the cheese factory here. The steam fitting will be done by William Taylor, of Carleton Place.

LONDON, ONT.—The contract for an iron bridge at the foot of Dundas street has been secured by the Central Bridge & Engineering Co., of Peterboro'.

CROTON, ONT.—Contracts for the new Methodist church have been let as follows. Masonry, Gregory & Clifford; other trades, Charles Hubbell, of Thamesville.

QUEBEC, QUE.—W. J. Peter's tender for the sub-structure of the bridge over the St. Charles river has been accepted. New tenders are invited for the super-structure.

ST. JOHN, N. B.—The mason work on the new Catholic parsonage at Carlton will be executed by John Flood. Edward Bates has the contract for the carpenter work.

NEWCASTLE, ONT.—The Board of Education have awarded the contract for the new school building to J. H. Poole, who submitted a lump tender something under \$6,000, exclusive of heating and furniture. Curry, Baker & Co., Toronto, architects.

RAT PORTAGE, ONT.—Contracts for Brydon & Robinson's block have been let as below. Mason work, Kelly & Brown, carpenter and other trades, McQuarrie & Fraser.

TORONTO, ONT.—Hayes' patent steel lathing, manufactured by The Metallic Roofing Co., of Toronto, is being used in the reconstruction of the Parliament Buildings at Ottawa.—The Ontario Mutual Life Assurance Company are remodeling the premises at 50 and 52 Adelaide street east, tenders for which have been accepted as below Heating, Toronto Furnace Company, plumbing, Purdy, Mansell & Mashinter; other trades, Davidson & Co.

OTTAWA, ONT.—The Deputy Minister of Railways and Canals has announced that M. G. Hogan, of Montreal, has secured the contract for section 12 of the Soulanges canal. Sections 4, 5, 6 and 7 are awarded to Andrew Onderdonk, of Hamilton.—Baker Bros., of Casselman, Ont., will supply 275,000 bricks for the new building of the C. Ross Company in this city.—The contract for the building of St. Joseph's Orphanage has been let to Joseph Fauteux, for \$28,000. The building will be four stories high.

DEEP FOUNDATIONS.

A paper on "Deep and Difficult Foundations" was lately read by Mr. George E. R. Thomas before the Western Society of Engineers, Chicago. It explains the process of putting down a shaft at the Chapic Mines, Iron Mountain, Michigan, U. S. A., by the freezing method. This is the only instance in America of a shaft being lowered by the Poetsch system, although in Europe the system has been applied in several cases. In the words of

(Concluded on Page 4.)

THE Authorities at Ottawa have been investigating the merits of the new Wall Plaster, known as

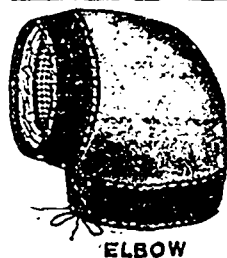
“ASBESTIC”

which is nearly the pure product of Asbestos, and possesses all the remarkable qualities of that mineral, being Absolutely Fire-Proof, and as a Plaster, Cohesive and Elastic, besides allowing a Perfect Surface Finish. The result of such examination and investigation, from actual work done in Ottawa, and the opinions of eminent Architects, is to prove that it is all that it is claimed to be. A large order has been given for this material, which is to be used in the reconstruction of the Parliament Buildings, lately destroyed by fire.

The Authorities have shown great wisdom in their choice, as the cost over ordinary plaster is very trifling, and the advantages so manifest to every Architect who has given this remarkable production careful attention, that it cannot fail to commend itself as a positive assurance of safety against fire risk, entailing the minimum of cost for such an object.

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WINNIPEG

the author, "We can defy the flowing quicksand, water bearing materials, or even water, and hold it absolutely rigid until such time as we have completed our work. Ten-inch pipes were in this case lowered to the depth of 104 feet so as to form a circle proportionate to the size of the shaft, by using a jet of water under high pressure on the inside of the pipe. The lower end of each pipe was toothed with steel, like a trepanning instrument, and the upper end attached to a toothed wheel, into which two pinions were geared and driven by a steam engine. When these pipes were in position a smaller pipe 3 inches in diameter was placed within a larger pipe, which was then withdrawn, and again another pipe, 1 1/2 inches in diameter, open at the bottom, was placed inside the 8-inch pipe for introducing the circulation freezing fluid, chloride of calcium in solution at a temperature of 35 Cent. or -31 Fahr. This fluid was cooled by means of a Linde refrigerator, in which anhydrous ammonia was employed, and was then forced by a circulating pump into the 1 1/2-inch pipe, whence it rose to the cooling tank. Fifteen thousand gallons of this fluid were circulated through the entire system every 33 minutes, the flow being directed

into the stanpipes by a system of valves. When the frozen portion of the ground between the pipes had become frozen together into a solid mass, it took the form of a cone, owing to the fact that the fluid on emerging from the 1 1/2-inch pipe was of a lower temperature than it was at the surface of the ground, and after it had done its work. Quicksand, when frozen in this manner, is temporarily covered into a

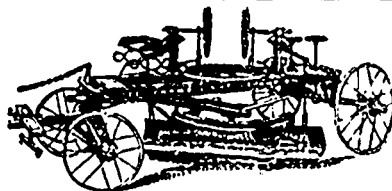
kind of sand stone, and requires heavy charges of dynamite to break it up. When the work was completed the ground took several weeks to thaw and to return to its normal temperature. The author is confident that this system will prove to be the method of the future, and that it has only to be widely known to be universally employed in water-bearing districts and in localities abounding in quick-sand.

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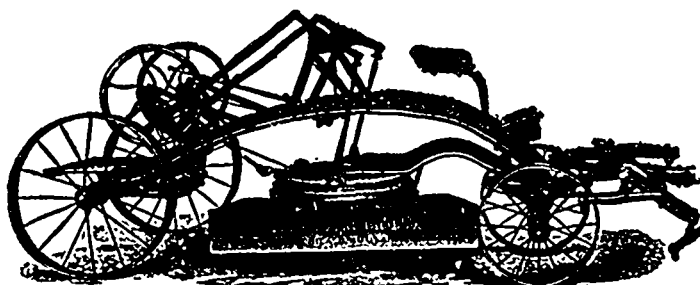
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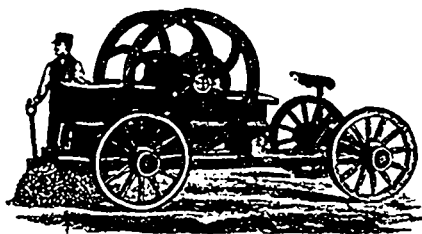


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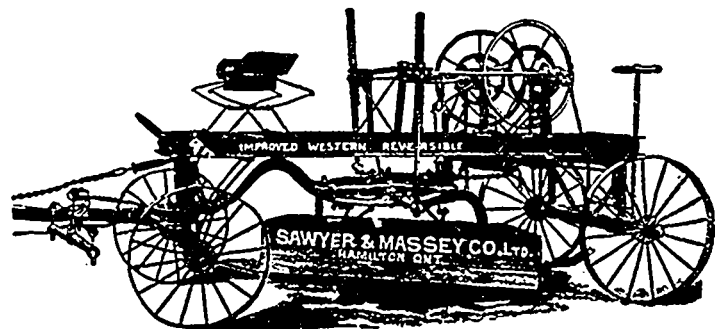
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TO MUNICIPAL OFFICERS.

The CONTRACT RECORD is desirous of publishing, as far as possible, advance information regarding projected works of construction in all parts of Canada, such as sewerage and waterworks systems, railways, street pavements, public and private buildings, etc. Municipal officers would confer a favor upon the publisher by placing at our disposal particulars of such undertakings which are likely to be carried out in their vicinity, giving the name of the promoter, character of the work, and probable cost. Any information thus furnished will be greatly appreciated.

AN INVESTIGATION OF THE BENEFIT OF STRUCTURE ON THE WEARING POWER OF PAVING BRICK.*

By PROFESSOR EDWARD NORTON, JR.

In 1892 it was my fortune to conduct a series of experiments on the general properties of paving brick for the Ohio Geological Survey. I say experiments, though that is hardly the proper term to apply to the work which I did. My investigation consisted at that time of obtaining samples, selected in each case by the manufacturer, from some forty-five paving brick plants in the limits of Ohio. These samples were assembled at Columbus and tested by abrasion, absorption and crushing. The samples being selected by the manufacturers and coming from plants which used clays of all descriptions, from the alluvial clays of the Ohio river up to the shales and fire clays of the coal measures of Ohio, naturally gave a very wide range of qualities owing to the great diversity of materials used. Not only did variations in character come from this cause, but also from the differences in structure due to methods of manufacture and similar differences of vitrification due to varying conditions of burning and cooling.

Under these circumstances it was, of course, impossible to draw accurate conclusions as to the effect of any particular type of machine, and well nigh impossible to draw even broad conclusions as to one type against another type. A careful review of all the data obtained in making this test showed that side cut brick had a higher average in wearing power than end cut brick. Eliminating so far as the nature of the samples made it possible to do so, differences in machinery and kind of clay used, comparisons between shale end cut brick and shale side cut brick showed a slight difference in favor of the latter.

Also, the subject of repressing was considered in this same connection and an attempt was made to find out the effect of repressing by considering the general average of all repressed brick against all

plain brick, and also in several specific instances comparisons were made between repressed brick and plain brick of the same manufacturer. In this test the advantage seemed to lie with the repressed brick.

Professor H. A. Wheeler, of St. Louis, has assured me that he has recently gone carefully over the data of my test, and while he was unwilling to believe the conclusions which I there deduced he was still unable to dispute that all the evidence pointed that way. The unsatisfactory nature of this test, however, has left me ever since its completion with a desire to probe the matter to the bottom.

In July, 1895, the commission on paving brick test of the National Brick Manufacturers' Association authorized me to begin a series of tests looking towards the solution of this question. A very partial and incomplete verbal report was made at Atlanta in December, 1895. Since that time the work has been pushed along with what speed was possible, and I have now ready the result of the first investigation of this sort in which the conditions of variations have been practically eliminated and in which a real comparison is possible.

THE SAMPLE OF CLAY.

The sample of clay which was used in making this structure test consisted of about ten tons of shale material, which was ground by dry pan, screened, and run into a pile on the floor. This material was then shoveled over several times so as to mix the earlier and later portions of the charge. When it was considered to be homogeneous it was then tempered into pugmill and packed-as fast as tempered into barrels of which some sixty were filled. Three barrels of this standard sample of clay were sent to ten different manufacturing establishments, all of them makers of paving brick or manufacturers of paving brick machinery.

THE MANUFACTURE OF THE BRICK.

With the sample a specific set of directions was sent asking each one to unpack

the clay, retemper with as little water as possible, put it into their brick machinery, the nature of which was specific in each separate case, and make the whole amount into brick without admixture of any other clay material. The first third of the brick which came from the machinery were directed to be rejected and the samples for future work were selected from the middle and rear portions of the charge, hoping by this means to absolutely avoid intermixture with such clays as the machinery had been working previous to its use in this test. The bricks on issuing from the machine were then directed to be dried on floors without the aid of artificial heat, so that the greatest uniformity in drying could be attained. When dry the samples were packed in saw-dust and sent back to the factory which made the original sample of clay.

THE BURNING OF THE SAMPLE.

The execution of this work being intrusted to so many different men and under such a variety of working conditions, naturally took some time, but after some months the brick made by these different machines had been assembled at the original point. There they were marked and set in a kiln in a compact body, as nearly as possible in the same course and at the same distance from the wickets or fire holes, so that air checking or any imperfections of burning which one brick might happen to meet would probably be shared by the other portions of the series. This kiln was fired as usual and in due time its contents were drawn, and the sample bricks were then packed in boxes divided into two lots, part of them being sent to Mr. F. F. Harrington in St. Louis, for testing by cross breaking and crushing, while the majority, or possibly four-fifths of the series, was forwarded to me.

(To be Continued.)

An amendment to the County Councils Act is proposed to be made at the present session of the Ontario legislature. It reads as follows: "All county councillors shall ex-officio be Justices of the Peace for the whole county or union of counties in which their respective divisions lie; and no county councillor after taking the oaths or making the declarations as such shall be required to have any property qualification or to take any further oath to enable him to act as Justice of the Peace."

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* Paper read before the National Association of Brick Manufacturers of the United States.

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Advertisement for CARBISHORE-THOMSON PIPE & FOUNDRY CO. LTD. HAMILTON, ONT. Includes company name, address, and product details.

Prices of Building Materials.

Toronto. Montreal.

Toronto. Montreal.

CONDITION OF THE MARKET.

TORONTO: A moderate demand is reported for builders' supplies from outside points, but city trade shows very little life. Business is improving in cement and plumbers' supplies, the latter as the result of repairs being made to buildings. A reduction has been made in the price of plate glass, the discount now being 40 per cent., instead of 35, as formerly. The building season at Ottawa is starting out well, and work is now in prospect totalling in value about one million dollars. In northwestern Ontario there is also a small boom, many new buildings being in course of erection or contemplated at Rat Portage, Wabigoon, Keewatin and elsewhere.

MONTREAL: Considerable interest is now centered in the cement trade. The spring trade has started out well, and while no large sales are reported, car load lots continue to be disposed of freely. The demand is principally for the lower grades, which are rather scarce, and the inside price for Belgian is \$1.95. English brands ex-store sell at \$2. An advance of 10 cents per barrel has been established for spring delivery, owing to increased cost in the primary markets and an advance in freight rates. Firebricks are also in active enquiry. Cut nails show some improvement

LUMBER.

CAR OR CARGO LOTS.

Toronto. Montreal.

Table listing lumber prices for various types of wood, including clear picks, three uppers, pickings, Am ins., 1 inch clear, 1 x 10 and 12 dressing, 1 better, 1 x 10 and 12 mill run, 1 x 10 and 12 dressing, 1 x 10 and 12 common, Spruce culls, 1 x 10 and 12 culls, 1 inch clear and pickings, 1 inch dressing and better, 1 inch siding, mill run, 1 inch siding, common, 1 inch siding, ship culls, 1 inch siding, mill culls, Call scantling, 1 1/2 and thicker cutting up plank, 1 inch strips, 4 in to 6 in. mill run, 1 inch strips, common, 1 1/2 inch flooring, 1 1/2 inch flooring, XXX shingles, sawz, per M 16 in., XX shingles, sawn, Lath.

VAID QUOTATIONS.

Table listing mill cull boards and scantling, shipping cull boards, miscellaneous widths, Snapping cull boards, stock 15, Hemlock scantling and joist up to 16 ft., Hemlock scantling and joist up to 18 ft., Hemlock scantling and joist up to 20 ft., Cedar for block paving, per cord., Cedar for kerbing, 4 x 14, per M., Scantling and joist, up to 16 ft., 18 ft., 20 ft., 22 ft., 24 ft., 26 ft., 28 ft., 30 ft., 32 ft., 34 ft., 36 ft., 38 ft., 44 ft., Cutting up planks, 1 1/2 and thicker, dry.

B. M.

Table listing 1 1/2 in. flooring, dressed, F. M., 1 1/2 inch flooring, rough, F. M., 1 1/2 " dressed, F. M., 1 1/2 " undressed, B. M., 1 1/2 " dressed, B. M., 1 1/2 " undressed, B. M., Beaded sheeting, dressed, Clapboarding, dressed, XXX sawn shingles, per M 18 in., Sawn lath., Cedar, Red oak., White., Basswood, No. 1 and 2., Cherry, No. 1 and 2., White ash, No. 1 and 2., Black Ash, No. 1 and 2., Dressing stocks., Picks, American inspection., Three uppers, Am. inspection.

BRICK—M

Table listing Common Walling, Good Facing, Sewer, Pressed Brick, Per M: 1, No. 1, f.o.b. Beamsville, 2, 3, Buff, Brown, Roman Red, Buff, Brown, Sewer, Hard Building, Roof Tiles, Hip Tile, Ridge Tile, 1st quality, f.o.b. at Port Credit and, 2rd, 3rd, Hard building brick, Ornamental, per 100.

SAND.

Table listing Per Load of 1 1/4 Cubic Yards.

STONE.

Table listing Common Rubble, per ton, delivered, Large flat Rubble, per ton, delivered, Foundation Blocks, per c. ft., Kent Freestones Quarries Moncton, N. B., per cu ft., f.o.b., River John, N. S., brown freestone, per cu. ft., f.o.b., Ballochmyle, New York Blue Stone, Granite (Stanstead) Ashlar, 6 in. to 12 in., rise 9 in., per ft., Moat Freestone, Thomson's Gateawbridge, cu. ft., Credit Valley Brown Coursing, up to 10 inch, per sup. yard, at quarry, Credit Valley Brown Dimension, per cu. ft., at quarry, Credit Valley Grey Coursing, per super. yard, at quarry, Credit Valley Grey Dimension, per cu. ft., at quarry, Clark's N. 7 Brown Stone, per cubic ft., f.o.b., Brown Free Stone, Woodpoint, Sackville, N. B., per cub. ft., Madoc Rubble, delivered, per ton, Madoc dimension floating, f. o. b. Toronto, per cubic ft., Cape Bauld, N. B., Brown Freestone, Cocaigne, N. B., Gray Freestone (olive-green).

OHIO FREESTONE, FROM THE GRAFTON STONE CO.'S QUARRIES.

Table listing No. 1 Buff Promiscuous, No. 1 Buff Dimension, No. 1 Blue Promiscuous, No. 1 Blue Dimension, Sawed Ashlar, No. 1 Buff, any thickness, per cub. ft., Sawed Ashlar, No. 1 Blue, any thickness, per cub. ft., Sawed Flagging, per sq. ft., for each inch in thickness, 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, For ornamental work, cu. ft., Granite paving blocks, 8 in. to 12 in. x 6 in. x 4 1/2 in., per M, Granite curbing stone, 6 in. x 20 in., per lineal foot.

LONGFORD STONE.

Table listing Rubble, per 30M car, f.o.b. quarries, Ashlar, per cub. yd. f.o.b. quarries, Dimension, per cub. ft.

SLATE.

Table listing Roofing (3/4 square), red, purple, unglazing green, black, Terra Cotta Tile, per sq., Ornamental Black Slate Roofing.

PAINTS. (In oil, 5 lb.

Table listing White lead, Can., per 100 lbs., zinc, Can., Red lead, Eng., venetian, per 100 lbs., vermilion, Indian, Eng., Yellow ochre, Yellow chrome, Green, chrome, Paris, Black lamp, Blue, ultramarine, Oil, linseed, raw, by bbl., Imp. gal., Oil linseed, b'd, by bbl., Imp. gal., Oil, linseed, refined, Imp. gal., Putty, Whiting, dry, per 100 lbs., Paris white, Eng., dry, Litharge, Eng.

Table listing Sienna, burnt, Umber, Turpentine.

CEMENT, LIME, etc.

Table listing Portland Cements: German, per bbl., London, Newcastle, Belgian, Jossou, artificial, North's "Condor", English, artificial, per bbl., Belgian, natural, per bbl., Canadian, Roman, Parian, Superfine.

Table listing Hydraulic Cements: Thorold, per bbl., Queenston, Napanee, Hull, Ontario, Keeno's Coarse "Whites", Fire Bricks, Newcastle, per M, Lime, Per Barrel, Grey, Plaster, Calcined, N. B., Hair, Plasterers', per bag.

HARDWARE.

Table listing The following are the wholesale selling prices to dealers, and are published only as a guide to builders: Cut nails, 30d & 60d, per keg, Steel, CUT NAILS, FENCE AND CUT SPIKES, 40d, hot cut, per 100 lbs, 30d, 16d and 22d, hot cut, per 100 lbs, 10d, hot cut, per 100 lbs, 8d, 9d, 6d, 7d, 4d to 5d, 3d, 4d to 5d cold cut, not polished or blue, per 100 lbs, 3d to 5d cold cut, not polished or blue, per 100 lbs.

CASING AND BOX, FLOORING, SHOOK AND TOBACCO BOX

Table listing 12d to 30d, per 100 lbs., 10d, 8d and 9d, 6d and 7d, 4d to 5d, FINISHING NAILS, 3 1/2 to 3 3/4 inch, per 100 lbs., 2 1/2 to 2 3/4, 1 1/2 to 1 3/4, 1 1/4.

Table listing SLATING NAILS, 5d, per 100 lbs., 4d, 3d, 2d.

Table listing COMMON BARREL NAILS, 1 inch, per 100 lbs., 3/4, 1/2.

Table listing CLINCH NAILS, 3 1/2 and 3 3/4 inch, per 100 lbs., 2 and 2 1/4, 1 1/2 and 1 3/4, 1 1/4.

Table listing SHARP AND FLAT PRESSED NAILS, 3 1/2 and 3 3/4 inch, per 100 lbs., 2 and 2 1/4, 1 1/2 and 1 3/4, 1 1/4.

STEEL WIRE NAILS, 80% of printed list.

Table listing Iron pipe, 1/2 inch, per foot., 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 6.

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

Table listing Lead pipe, per lb., Waste pipe, per lb., Discount, 30 % off in small lots.

Galvanized Iron: Am's—Mar's Best and Queen's Head:

Table listing 16 to 24 gauge, per lb., 26 gauge, 28, 30, 32, 34, 36, 38.

Note.—Cheaper grades about 1/2 c. per lb. less.

Table listing Structural Iron: Steel Beams, per 100 lbs., channels, angles, tees, plates, Sheared steel bridge plate.