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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. 6.

SEPTEMBER 5, 1895

No. 31.

THE CANADIAN CONTRACT RECORD,

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

Subscription price of "Canadian Architect and Builder" (including "Canadian Contract Record"), \$2 per annum, payable in advance.

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Notice to Contractors CANADIAN CONTRACTORS HAND-BOOK

A new and thoroughly revised edition of the Canadian Contractor's Hand-Book, consisting of 150 pages of the most carefully selected material, is now ready, and will be sent post-paid to any address in Canada on receipt of price. This book should be in the hands of every architect, builder and contractor who desires to have readily accessible and properly authenticated information on a wide variety of subjects adapted to his daily requirements.

Price, \$1.50; to subscribers of the CANADIAN ARCHITECT AND BUILDER, \$1.03. Address

C. H. MORTIME/?, Publisher, Confederation Life Building, TORONTO.



Scaled Tenders addressed to the undersigned, and endorsed "Tender for Alterations and Additions, Heating Apparatus, Stratford," will be received at this office until WEDNESDAY, 11TH SEPTEMBER, for the works required in the alteration of and additions to the heating apparatus at Stratford, Ont., Post Office.

Plans and specifications can be seen at the Department of Public Works, Ottawa, and at the caretaker's quarters, Stratford, Ont., Post Office, on and after Wednesday, 28th inst., and tenders will not be considered unless made on form supplied, and signed with the actual signatures of tenderers.

An accepted bank cheque, payable to the order of the Minister of Public Works, equal to five per cent. of amount of tender, must accompany each tender. This cheque will be forfeited if the party decline the contract or fail to complete the work contracted for, and will be retuned in case of non-acceptance of tender.

The Department does not bind itself to accept the lowest or any tender.

By order,

E. F. E. ROY,

Secretary.

Department of Public Works, Ottawa, August 26th, 1895.

A. J. Houghton. decorative painter, Montreal, is said to have made an assignment.

Y.M.C.A. TENDERS

Bulk or separate tenders will be received at our office until 5 p.m.

Wednesday, Sept. 18th, 1895,

for all the works required in the erection of a new

Young Men's Christian Association Building at London, Ontario.

Lowest or any tender not necessarily accepted.

MOORE & HENRY, Architects, London, Ont.



TENDERS FOR PAINTING

Tenders will be received by registered post only, up to the hour of cleven o'clock a.m. on SATURDAY, THE 14TH DAY OF SEPTEMBER, 1895, for

Painting the Pumping House and Engines

at the Main Pumping Station of the Teronto Waterworks. All tenders must be made upon the proper for trached to the specifications, which may be obtained at the office of the City Engineer. Each tender must be accompanied by a deposit (cash or marked cheque) equal to 5 per cent. of the amount of the tender. The lowest or any tender not necessarily accepted.

DANIEL LAMB,
Chairman Works Committee.

Toronto, 3rd Sept., 1895.



Tenders will be received by registered post, addressed to the City Engineer, Toronto, up to 11 o'clock a.m. on SATURDAY, SEPTEMBER 14TH, 1895, for the following works:

CEDAR BLOCK PAVEMENT

On Baldwin Street, from Beverley Street to Spadina

On St. Patrick Street, from Beverley Street to Spadina Avenue.

MACADAM ROADWAY

On Beverley Street, from Queen Street to College

Specifications may be seen and forms of tender obtained on and after Monday, September 9th, 1895, at the office of the City Engineer, Toronto.

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 up to \$1000, and 2½ per cent. on the value of the work over that amount, must accompany each and every tender, otherwise it will not be entertaired.

The tenders must bear the bona fide signatures of the contractor and his sureties, or they will be ruled out as informal

contractor and any success, informal

The lowest or any tender not necessarily accepted.

DANIEL LAMB, Chairman Committee on Works.

Committee Room, Toronto, Sept. 4th, 1895.

CONTRACTS OPEN.

LANARK, ONT .- Thos. Playfair intends

to erect a new dwelling.

TAMWORTH, ONT.—S. Shields is erecting a three-story hotel here.

MAL BAY, QUE.—A company is being formed to build a summer hotel here.

NORTH RIVER, N. S. -- Steps are being taken to erect a Presbyterian church here.

TOTTENHAM, ONT.—The Council is asking for plans and estimates of a waterworks system.

NELSON, B. C .- The Methodist authorities are calling for tenders for the erection of a new church.

CHATHAM, ONT.—Mr. McLean, architect, is preparing plans for the new central school to be built here.

SALMON CREEK, N. B .- The Macdonald & Case Woodworking Co. are building a new saw mill at Humphrey's Landing.

METHVEN, MAN.—Rev. Mr. Kenner, of Stocton, intends building another store here to replace the one recently burned.

ASHCROFT, B. C.—The formation of a company is spoken of to supply the town with a system of waterworks and electric

light.
UDORA, ONT.—The planing mill of
Wm. Gordon was wrecked recently by a
boiler explosion. The loss is about \$2,000.

NEW WESTMINSTER, B. C.—The Brunette Saw Mill Co. are asking for tenders for clearing the site of their saw mill recently burned.

ST. JEROME, QUE.—Smith, Fischel & Co., cigar manufacturers, will build a factory here. The town has voted them a bonus of \$20,000.

HULL, QUE.—It is probable the electric railway will not be commenced this fall, owing to the difficulty in securing the necessary capital.

GRAND MERE, QUE.—The Laurentine Pulp company will erect a Protestant Chapel on their property here, and probably a new paper mill.

SARNIA, ONT .- The date for the reception of tenders for the purchase of \$15,384 of debentures is extended until the 7th

inst. J. D. Lowrie, Clerk.

OTTAWA, ONT.—The City Engineer has submitted a plan for a main drainage scheme for the whole city, which will involve the expenditure of \$500,000.

THREE FORKS, B. C.—The C. P. R. company has decided to proceed with the extension of the line to Sandon Creek at once, and the work will shortly be let to

YARKER, ONT.—Messrs. O'Laughlin, of New York, will build a church here as a memorial to their father. The building will be of pressed brick, with all modern improvements.

WILKESPORT, ONT .- Tenders for the construction of the Green drain will be received by Orra Bishop, Clerk of Sombra, until 2 p. m. on Saturday, the 7th inst. Plans at Clerk's office.

AMHERST, N. S.—The Town Council is taking steps to construct a complete sewerage system for the town. A public meeting to discuss the question is announced for the 6th inst.

LONDON, ONT.—A subscription list is being circulated among the citizens for the construction of a bridge at the foot of Richmond street. The list is headed with a subscription of \$1,000.

YARMOUTH, N. S.—The Nova Scotia Development Co. are asking for tenders until the 7th inst. for tracklaying and ballasting of a portion of the Coast Railway Co.'s line, in ten mile sections.

RENFREW, ONT.—Negotiations are in progress for the construction of an electric railway between Renfrew and Portage du Fort, a distance of eight miles. A. A. Wright, of this town, is one of the promoters.

CORNWALL, ONT.—The Town Clerk has given notice that it is proposed to construct a nine-inch tile sewer on Augusta street and Third street. The estimated cost of the Augusta street sewer is \$1,170.54.

GANANOQUE, ONT.—At a recent public meeting, a scheme submitted by G. H. Burrows, of Cleveland, to erect a summer hotel here was endorsed by the citizens. A stock company with a capital of \$100,000 will be formed.

CRANBROOK, ONT.—Mr. McDonald, contractor, has purchased the Tuck hotel property in this village, on part of which he will build a dwelling this fall and the balance will be reserved for building purposes next season.

HALIFAX, N. S.—The Provincial Commissioner of Public Works and Mines invites tenders until the 5th inst. for the construction of an iron bridge over the river at Middle Stewaicke, to replace the wooden one, the work to be completed by October 31st.

KINGSTON, ONT.—The survey of the Kingston, Smith's Falls and Ottawa railway, under the superintendence of Mr. Hamilton Lindsay, has been completed as far as Smith's Falls. It is expected that the work of construction will be commenced next spring.

WINDSOR, ONT.—The Kings Daughters have obtained subscriptions to the amount of \$3,000 for the erection of a Childrens' Home. This is to be supplemented by a donation from H. Walker & Sons, and the erection of a building will be commenced at once.

BROCKVILLE, ONT.—Mr. T. A. Bird, Manager of the Bank of Toronto, is the chief promoter of a scheme to build a large summer hotel on the river front. The capital stock has been placed at \$100,000. It is thought the construction of an electric railway will also be carried out shortly.

QUEBEC, QUE-It is said that no work of any importance will be accomplished on the new electric railway this summer but active operations will commence next spring.—The Dominion Cold Storage Co., of Montreal, is considering the erection of suitable buildings in this city.—A new four-storey wing, 80 × 60 feet, is to be added to the Levis college.

PERTH, ONT.—It is stated than an agreement has been reached by which the Stadacona Waterworks Company will at once commence the construction of a system of waterworks, estimated to cost \$30,000. The water tower will be 115 feet high, to hold 150,000 gallons, and the boiler and pumping house will be of fire-proof brick or stone construction.

WINNIPEG, MAN. — Mr. Chesterton, architect, has prepared plans for a new hospital to be built at Indian Head.—J. Y. Griffin & Co., pork packers, are having

plans prepared for the enlargement of their packing houses to about double their present capacity. The additions will include a fine cold storage apartment.—The City Council and Street Railway Company ratified an agreement relative to paving Main street.—The Council has decided to invite tenders for a 15 ton steam road roller, the date limit being the 12th inst.

VICTORIA, B. C.—The City Engineer has reported on the cost of street paving with wooden blocks on concrete foundation as follows: View street, from Broad to Douglas streets, \$2,724.60; Government street, from Broughton to Johnson streets, \$16,728.25; Broad street, from Fort to Yates streets, \$6,336.05; Yates street, from Wharf to Government street, Government to Broad street and Broad to Douglas street, \$18,354; Fort street, from Government to Douglas street, \$6,739.60. Only part of the work will be carried out this year.

Hamilton, Ont.—The Gaol Committee of the County Council have approved of an agreement for the sale of the gaol to the city, and the erection of a new gaol by the city is likely to be abandoned.—A building permit has been granted to Charles Magen, for a two story brick dwelling on Main street east, cost \$1,100.—The Board of Education have accepted the proposition of the Ontario Government to transfer the School of Pedagogy from Toronto to Hamilton, and the erection of a new building will be proceeded with immediately. An architect has been appointed to prepare plans.

Montreal, Que.—It is understood that the plumbing and heating contract for the Canada Life Insurance Company's new building, corner St. James and St. Peter streets, has not yet been let. The architect is Mr. Waite.—The Jesuit fathers of this city are considering a proposal to establish a large observatory in connection with St. Mary's College. Foundations are to be placed at a great depth, in order to avoid all vibrations, and the observatory proper will rise to a considerable height in the centre of the building. It is understood that the Federal and Provincial Governments will be asked to make grants towards the work.

TORONTO, ONT.—A Court of Revision will be held on the 10th inst. for the hearing of appeals against the assessment for a proposed cedar block roadway on Baldwin street, from Beverley street to Spadina avenue, estimated to cost \$2,360.—The Dominion Cold Storage Company has applied to the City Council for exemption on premises proposed to be erected on the Esplanade, estimated to cost \$40,000. -The Council will request the Grand Trunk Railway Co. to erect stations at the foot of Bathurst and Jarvis streets.-The plans for the John street bridge have been signed by the chief engineer of the Grand Trunk, and Mr. Thomas Tait, assistant general manager of the Canadian Pacific railway. An arrangement has been entered into by which the Canadian Pacific railway will complete the share of the work which belongs to the Grand Trunk railway, and an agreement between the two railways will shortly be drawn up. The Manufacturers' Committee of the Toronto City Council has granted to the Metallic Roofing Co. a ten years' lease of the property at the corner of King and Dufferin streets, having 100 feet frontage, on which it is proposed to erect a factory costing \$6,000.

FIRES.

The dwelling house and office of J. M. Dorion, railway ticket agent, at Lachute, Que., was destroyed by fire recently.—W. G. Sutton's shoe store at St. Catharines, Ont., was burned on the 29th of August. The building was owned by Mrs. Taylor and was insured for \$1,000.—J. R. Booth's

log-hauling station near Calendar, Ont., consisting of large store houses, offices, sleeping houses, etc., was destroyed by fire last week. Loss, \$12,000; insurance, \$11,000.—The lumber yards and mill of A. L. Hurtubise & Bro., at the village of Hurtubise, Ont., were completely wiped out by fire recently. The loss is placed at \$35,000, half of which is covered by insurance.—The floar and grist mill at Watford, Ont., owned by A. Dunlop, was destroyed by fire on Sunday morning last. Loss about \$12,000; partially insured.—The residences of S. Yelland and Henry Geiger, at I.ondon South, Ont., have been burned. Loss heavy.—At the village of Mechanicsville, Ont., on the 30th August, fire destroyed seventeen dwellings, mostly wooden buildings. The loss is placed at \$8,000.—At Greenfield, Ont., last week, the Township hall, Cameron's hotel, the post-office and several other buildings were burned.—Lewis' warehouses at Truro, N. S., were destroyed by fire on the 3rd inst.

CONTRACTS AWARDED.

BRIGG'S CORNERS, N. B.—The contract for a bridge over the river has been awarded to Hugh McLean.

ORILLIA, ONT.—The town has sold to Aemilius Jarvis & Co., of Toronto, \$5,000 of twenty year 5% debentures.

CHARLOTTETOWN, P. E. I.—The Royal Electric Co. have received the contract to supply the city with 65 arc lights of 1,200 c. p. each, at the price of \$73 per lamp per annum.

OTTAWA, ONT.—The Board of Works have awarded the contract for drains to Patrick Burns, at the following prices: Metcalfe street, \$3.26 for earth and \$18 for rock; Beard street, \$4 for earth and \$25 for rock.

WINNIPEG, MAN.—Brown & Rutherford have let the contract for the excavation for a large brick and stone warehouse which they intend to erect on Market street. The basement only will be com-pleted this fall.—Messrs. Rourke & Cass have received the contract for the new stone foundation and excavation work in connection with improvements to the Winnipeg hotel. A new red brick and cut stone front is to be put in the hotel.-Tenders for macadamizing of Higgins ave. were received by the Board of Works as follows: Strevel & Scott, \$19,854.60, (accepted); Kelly Bros. & Co., \$25,706.96; N. Keith, \$26,317.30; C. H. McNaughton \$33,528.40. For the supply of cement the tender of Miller, Morse & Co., at \$3.50 per barrel, has been accepted, and for the supply of sewer pipe J. H. Ashdown is the successful tenderer, at \$1,895,95. Lee's tender for 19 catchbasins, at \$834.10. has also been accepted.

Montreal, Que.—The Road Committee last week awarded the contracts for the construction of sewers as follows: R. Belhumeur, Archambault street, from Morin lane for St. Jean lane, \$4.48 per square yard and \$4 for rock excavation; Dufferin street, from north of Gilford street to about one hundred yards, \$4.59 and \$3.49 for rock; Harmony street, from Lariviere to Amity street, \$4.97 and \$4 for rock; Iroquois street, from Delerimier westwards, sixty-five yards, \$4.99 and \$4 for rock; Labelle street, from Dorchester to St. Catherine street, \$5.09 and \$4 for rock; Logan street, from west of Dufresne to near Fullum street, \$4.97 and \$4 for rock; Moreau street, from Ontario to Forsyth street, \$4.37 and \$4 for rock; Shaw street, from north of Kent to Notre Dame street, at \$5.17 and \$4 for rock. George Henault, Capital street, from St. Sulpice street to Place Royal, \$6.27 and \$3 for rock; Champlain street, from Logan to Lafontaine streets, \$5.34 and \$3.25 for rock; St. Elizabeth street, from Craig to St. Catherine streets, \$5.19 and \$3.09 for rock; Lagauchetiere street,

from Windsor to Cathedral streets, \$6.09 and \$3.40 for rock; Marianne street, from Fullum to Parthenais street, \$5.17 and \$3.84 for rock. Durocher & Campeau, Drolet street, from St. Ignace street to Carmel avenue, \$4.23 and \$3.13 for rock; Lagauchetiere street, from Amherst to Jacques Cartier streets, \$5.93 and \$3 for rock; St. Hubert street, from Rachel to Marianne streets, for cross section 3x2 marianne streets, for cross section 3x2 internal diameter, price per lineal yard, exclusive of excavation, \$3.50; excavation for cross section, \$1.50 per lineal yard and 23 cents per lineal yard for refilling cross section.—Auclair & Pepin, of this city, have been assured the contract by Lee have been awarded the contract by Les Cleres de St. Viateur for a See system floor to be built at Bordeaux, Back River, in their noviciati. C. St. Jean, architect.

MEASURING MASONRY.

There are two widely different methods of measuring and estimating the value of masonry, to which we will find it necessary to attend, says the Illus. Carpenter and Builder. By the first of these methods the value of the rough material in cubic feet is added to each successive kind of labour exercised upon it in superficial feet, in order to ascertain the final value of each piece of stone employed. In ashlaring the price of plain work is allowed to face, bed, and joints of each stone, with horizontal bed and one vertical face only for bond stores, unless they are through stones, when two vertical faces are allowed. If labour is not charged on any face of a stone, half sawing is to be allowed for each lower face. Columns are measured by taking first two plain sides of the cube, added to the girth of the column as circular planes, and the two plain faces to each horizontal joint. The material in solid steps is measured by taking the extreme length, including the tailing in the wall, by the width and whole height. Winders in the same, the width being the mean between the extreme and widths. Labour on steps if solid includes plain. Labour on steps, if solid, includes plain, (Continued on page 4.)

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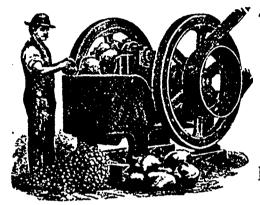
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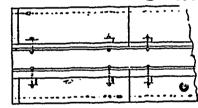
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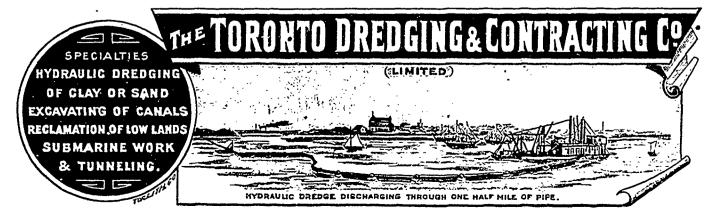


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sunk or moulded work on the face of the trend, riser, and ends only if laid on brickwork. To this half the bed is to be added if the step is laid on stone. For cornices, strings and blocking courses set on brick-work, add the mouided, sunk, or planes in faces and top to the plain work in joints, and allow no beds; but if set on stone half a plain bed to be allowed be-sides, also half plain to the back if worked. For landings, plain to the back it worked. For landings, plain work is to be allowed on top, edges and joints. If the underside be worked, to be charged half plain superficial. Curbs are taken as plain, sunk, or moulded to the three faces, but no bed. For hoisting stone above 10 ft. from the ground level an additional 2d. per cubic foot for 10 ft. in extra height is be understood, unless otherwise specified. The second method of estimating mesonry second method of estimating masonry recognizes only the exact nett cubic quantity of stone used, affixes a definite and total price to this, varying it only to meet cases where vast differences of labour are palpably required, and allowing no extra palpably required, and allowing no extra or additional charges whatever under any circumstances. Thus we may have rubble or ashlar, as the case may be, in walls, including all plinths, grooves, arch stones, reveals to openings, string courses, copings, returns, &c., at so much per cubic foot nett, deducting all openings and backings, if of brickwork, as they may appear in the drawings or in the specifications: in fart tantamount to a lump sum tions; in fact, tantamount to a lump sum for the whole piece of work. While it must be admitted that this wholesale method of measuring facilitates the progress wonderfully, it is equally undeniable that it is as uncertain in results as careless in process; and, indeed, the exact and just measurer, even if driven to adopt this method ostensibly, will take the trouble to work out an average block or two of each kind of work upon the other and

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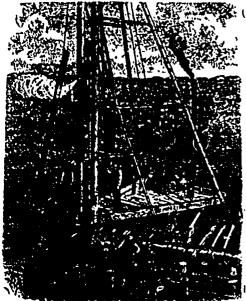


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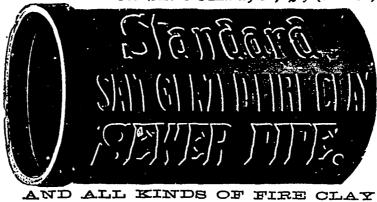
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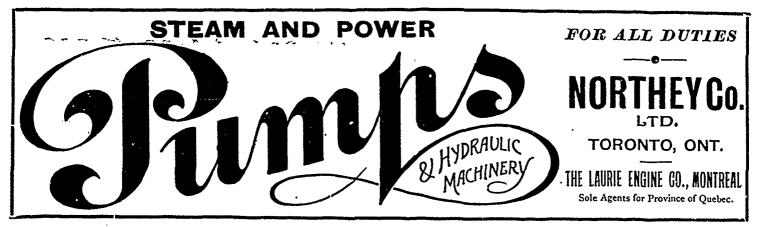
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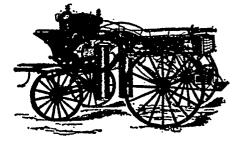
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BRICK PAVEMENTS.

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To those at all familiar with street construction it is obvious that the wearing surface, or pavement proper, cannot, and does not in itself, support the loads brought upon it, but that it more or less successfully resists the impact and abrasion incident to the traffic, and transmits the weight directly to the bed or foundation upon which this surface material has been placed. It follows therefore that the fourth condition can be met by any description of paving material which has sufficient hardness to retain its form under the pressure of street traffic by merely placing it on a properly-prepared foundation; and further, that, unless the pavement shall be placed upon a bed capable of sustaining under all conditions the loads brought upon it, the surface will yield, regardless of the material of which it is composed, and that this condition not being complied with, no essential feature of a good street surface will remain. Failure to meet this condition is the error most commonly committed in the building of pavements. In this latitude the winter frosts penetrate to a depth of from 1 foot to 3 feet, or, when not acted upon by frost, the subsoil drainage is seldom so thoroughly efficient as to prevent the changing of the ground from a firm unyielding soil to one of almost complete saturation, thus materially affecting its sustaining power. It therefore follows that no pavement which is to be subjected to a heavy traffic at all scasons of the year can be relied upon to retain the form originally given it, unless the foundation or bed upon which it is placed shall either be carried below the action of the frost, say 3 feet or more, or be so constructed as to distribute the weights of passing loads over sufficient areas to enable a comparatively weak subsoil to sustain them. The deep foundation is the ancient, and undoubtedly the most durable method, having apparently been the ordinary practice with the Romans, but the distributing coating is far more economical, and hence has become the established modern practice.

Two methods are in vogue. First, to drain the sub-10adway as efficiently as is practicable, grade it to the proper form, compact its surface by rolling, and cover it with a layer of mingled broken stone and gravel, which is made smooth and firm by flooding and rolling with a steam roller, the layer of metal being from 6 to 12 inches in thickness, according to the requirements of the locality or the specifications. On this layer or "foundation" is spread the bed of sand in or upon which the pavement is set. Sometimes broken stone alone, and again gravel only, is used

for the bottom course. This style of "foundation" is used very extensively for all descriptions of pavements excepting asphalt. With brick pavements the practice of placing a layer of bricks flatwise on the bed of sand, covering them with a thin coating of sand and paving on it the wearing surface on edge is quite common, and produces what is called the "two course" pavement. Still another method consists in covering the layer of sand with tarred boards, upon which the sand cushion and brick on edge are paved herring-bone style, producing the "Hale Pavement." In this, however, the broken stone is generally omitted, the boards being separated from the subsoil by from 4 inches to 6 inches of sand only. These expedients tend to better the distribution of the weights brought upon the pavement, and have the merit of economy in first cost, but they are obviously madequate except where the subsoil is exceptionally good and the traffic very moderate. The method of combination is quite defective. When gravel is used that is free from loam it will not compact under the roller, and if it does contain loam, the water which comes from the subsoil and percolates through it is liable to carry the soluble substances with it down the gradients, and leave the pavement unevenly supported. When broken stone and gravel, or broken stone alone. forms the foundation course, it is exexpected to be porous and act to some tent as a subsoil drain. The voids, however, are liable to become the receptacles of the clay from beneath which is brought up, or rather the stones brought down by the pressure upon the pavement, or they will be filled by the sifting down of the bedding course of sand caused by the iar of the travel, and this escape of the sand will leave the blocks unevenly supported. All of the varieties described in the first method are extensively used, and are made more or less expensive and durable, or cheap and temporary, as they are carried to greater or less depths, and as the work is thoroughly or carelessly done. But they are so constructed that natural causes would alone destroy them in a comparatively brief space of time, and when the forces of nature are aided by the disturbances to which the sub-grade of the street is ordinarily subjected and the traffic upon the pavement, it follows that the life of such a foundation seldom exceeds the duration of the wearing surface, and the failure of the former very much accelerates the destruction of the latter.

The second method consists in preparing the subsoil by grading and rolling as before described, and placing upon it a layer of hydraulic cement concrete to serve as a foundation for the pavement. For equal volumes the cost of the concrete is about three times that of the broken stone or gravel; but from one-half to two-thirds of the amount is required, hence the expense of the concrete foundation is one and a half to twice that of the broken stone or gravel. When properly made and undisturbed, it will not yield to the action of the weather, and the renewal of the pavement need extend to the wear-

ing surface only. The expense of cutting through and replacing the concrete when the street must be opened for any purpose is much greater (perhaps two to three times) than in the other forms of foundation, but such work can be done without serious injury to the remainder of the street; and when repairs 'are properly made, the opening of the pavement and its foundation is less injurious to the street, having a concrete foundation than the one that has not, because the concrete base will support the pavement over small cavities, while the broken stone or gravel will sink into them.

The thickness of the concrete varies with the requirements of the traffic and other conditions, from 4 to 8 or more inches. The ordinary practice is to use natural cement in its composition, and make the coating 6 inches in thickness for roadways of medium traffic without car tracks. The condition of the subsoil should, however, be considered in determining the depth of concrete, for where it is soft or spongy or trenches are to be spanned, a greater amount will be required. A concrete foundation is an absolutely necessary beginning for any really good or durable street pavement, and even for work of medium character and price it is economical. Pavements of sheet asphalt are always placed on concrete foundations, the wearing surface being separated from the cement by a cushion coat, ordinarily about half an inch in thickness.

Stone, asphalt, wooden block, or brick pavements are usually placed on a layer of sand from 1 to 2 inches in thickness over the concrete, but the practice regarding the cushion coat is by no means uniform, varying from an actual bedding of the blocks in the cement mortar to two or even three inches of sand; but the generalcustom in this country appears to be in favor of the sand cushion, convenience in construction and repairs, and the theoretical elasticity of surface being in favour of that combination. The choice of the sand to be used is of more than ordinary importance, since if it contains a considerable percentage of soluble substances, or is alternately coarse and fine in different places, displacement is likely to occur, and the pavement will become uneven.

All block pavements, whether of stone, wood, asphalt, or brick, should be as closely placed as is practicable, and the interstices filled with a non-absorbent material. Possibly a narrow spacing may be required on gradients paved with sawed wooden blocks to furnish footing for animals, but the wide spacing ostensibly for this purpose so frequently seen in all these varieties of pavements is undoubtedly bad practice, since it materially reduces the resistance of the material composing the wearing surface, facilitates the chipping from the angles, and produces an uneven, noisy street, with cavities to receive and retain filth.

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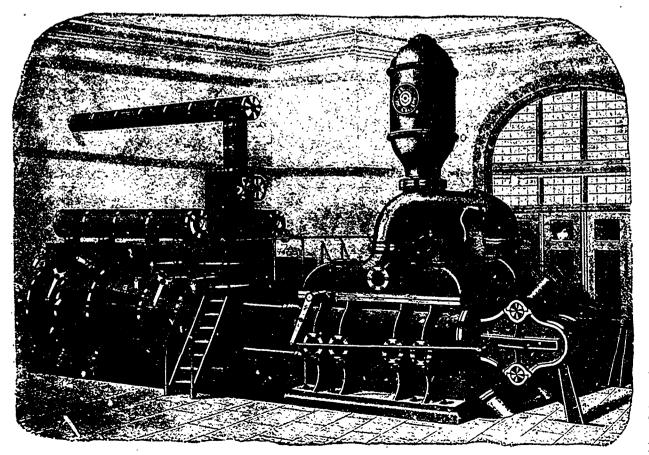
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TORONTO: Plumbers' supplies are still active, and manufacturers are behind with their orders. Cement has declined slight'y in price, and dealers report the market as quiet. No changes in quotations are reported.

MONTREAL: The arrivals of cement last week were 1,200 barrels English and 4 700 Belgian. A more active business in this line is reported, among the sales being 2,500 barrels Belgian for the Teat Villey and 1,500 barrels English for barrels English.

among the sales being 2,500 b the Trent Valley canal, and 50 on western account, at \$1.95 ex	arreis o bar	Belgia: rels En	n for glish	Trojan and C Pompelian Athenian and Tyrian
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up to 18 ft	14 00		-	No. 1 Buff P No. 1 Buff T
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Cutting up planks, 11/4 and thicker, dry25 00	ىد 82	25 00	30 00	20 in., per
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Roof Tiles	22 00	
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Red A		24 00
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Roman	. 35∞	40 00
Ca: thaginian		45 00
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Per Load of 11/4 Cubic Yard		1 25
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" vermillion	90 100	90 100
" Indian, Eng		10 13
Yellow chrome	15 20	3 5 15 20
Green, chrome		7 12
Black lamp	t5 25	12 25
Blue, ultramarine	15 20	2 18 58 59
Oil, linseed, raw, & Imp. z. boiled	57 63	62 63
Putty	78 85	75 75 2% 2%
Whiting, dry, per 100 lbs Paris white, Eng., dry	75 100	60 75
Paris white, Eng., dry Litharge, Eng	90 125	90 1 co 450 5 co
Sienna, burnt	1 15	12 15
Umber, "	81/4 12	12 15
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4d, " "	•	3 5		2 95 3 35				
2d, " "	• RRRL NA	3 95		3 65	74.50			
t inch, per to lbs		3 45 3 70		3 35 3 60	,			
× " " ·······		4 45		4 3*	,			
GLINCH 3 inch, per 10 lb		2 95		2 93	A PARA			
2 and 2 " " " " " " " " " " " " " " " " " "		3 10 3 25 3 45		3 25	• 1			
11/4 11 11		4 10	,	3 45 4 10 4 60				
SHARP AND FLAT		D NAII	LS.		-			
3 inch, per 100 lb 21/4 and 21/4 " " " "	•	3 45 3 60 3 75		3 45 3 75 3 75	٠,			
1½ and 1½ " " " "		3 93 4 00		3 .5 4 60				
STEEL WI				5,17	1			
Steel Wire Nails, 75, printed list.	o and	5 % d	iscoun	t from				
Iron pipe. 1/2 inch. per foot.	Pipe :	. 60	ı.	6c.				
Iron pipe, 1/2 inch, per foot	•	7	4	834	. }			
1 11 74 11 11 11 11 11 11 11 11 11 11 11 11 11	•	17		17	į			
n n 135 n n .	• •	24 39 43		24 30 43	1			
Toronto, 6 1/4 per cent. o Montreal, 60 10 65 per	liscount.			43 ,	4			
	Pipe:							
Waste pipe, per 15 Discount, 30 % off in sm	• •	79 79	2	ζoff iπ				
ton lots. Galvani	-	-	,		,			
Adam's—Mur's Best and C	ueen's I	lead:	c.	-				
20 guage,	474	- 1/4 5%		*				
Gordon Crown— 16 o 24 guage, per lb	4%	4%						
26 guage, " 28 " Note.—Cheaper grades ab	4 1/2 4 1/4	4¾ 5 ner lh.	lec	٠.				
Structu								
Steel Beams, per 100 lbs		2 75 2 85	-	2 50 2 60	9			
angles,		2 50 2 80	· •	2 3	5			
Sheared steel bridge plate.		2 55 2 25		23				
<i>_</i>				,				