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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL

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.

JULY 1, 1897

No. 22.

THE CANADIAN CONTRACT RECORD,
PUBLISHED EVERY THURSDAY
As an Intermediate Edition of the "Canadian Architect and Builder."
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Information solicited from any part of the Dominion regarding contracts open to tender.
Advertising Rates on application.

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Notice to Contractors

Sealed Tenders will be received by the undersigned up to **NOON ON TUESDAY, JULY 13TH, 1897**, for the construction of a
WOODEN TRUSS BRIDGE
with Pile Abutments over the Mimico Creek, on the town line, between the townships of Etobicoke and Toronto Gore.
Plans and specifications can be seen and all necessary information obtained at the office of the Clerk of the County of Peel, Brampton, or at the office of the undersigned on and after July 6th.
The lowest or any tender will not necessarily be accepted.
By order,
J. McDOUGALL,
County Engineer, County of York.
Court House, Toronto, June 25th, 1897.

\$12,500.00

CITY OF FREDERICTON DEBENTURES

Sealed Tenders will be received at the City Clerk's office, Fredericton, N. B., up to twelve o'clock, noon, on **MONDAY, THE 5TH DAY OF JULY NEXT**, for the purchase of the whole or any of the following debentures:
\$7,500.00 Read Plant and Fire Alarm Debentures, instalment plan, principal paid in fifteen annual payments. Tenders to state offers at 4 per cent and 3 1/2 per cent per annum.
\$4,000.00 City Debt Debentures at 4 per cent per annum, falling due ten years from date of issue being 20th July next.
\$1,000.00 Water Works Extension Debentures bearing interest at 4 per cent per annum, falling due 20th July, 1906, or thirty years.
For further particulars apply to
CHAS. W. BECKWITH,
City Clerk.
Fredericton, N. B., June 21st, 1897.

TENDERS FOR ANNUAL SUPPLIES

Sealed tenders, addressed to **Ald. Ten Eyck, Chairman of the Sewer Committee**, will be received by the undersigned at his office, City Hall, Hamilton, up to 12 o'clock, **NOON, OF FRIDAY, JULY 9TH**, next for supplying and delivering throughout the city, as needed, whatever Brick, Water Lime, Portland Cement, Sand, Sewer Pipe and Castings the Corporation may require for one year. All patterns for the latter will have to be supplied by the party whose tender may be accepted.
Specifications may be seen and forms of tender obtained at the City Engineer's office.
The lowest or any tender not necessarily accepted.
T. BEASLEY,
City Clerk.
Tuesday, June 24th, 1897.

RENFREW, ONT. WATER WORKS AND SEWAGE WORKS

Plans and specifications may be seen at the office of the Town Clerk, Renfrew, or at the office of the Chief Engineer, 103 Bay Street, Toronto, on and after July 6th, 1897.
It is the intention to open tenders for these works about July 20th, 1897. Exact date given later.
WILLIS CHIPMAN,
Chief Engineer.
J. K. ROCHESTER,
Town Clerk.



NOTICE TO CONTRACTORS

TENDERS FOR PILING

Tenders will be received by registered post only, addressed to the Chairman of the Board of Control, City Hall, Toronto, up to **NOON ON THURSDAY, THE 5TH DAY OF JULY NEXT**, for
PILING ON THE ESPIANADE, FOOT OF LORNE STREET.
Specifications may be seen and forms of tender obtained at the office of the City Engineer, City Hall, Toronto.
A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 2 1/2 per cent. on the value of the work tendered for, must accompany each and every tender, otherwise they will not be entertained.
Tenders must bear the bona fide signatures of the contractor and his sureties, or they will be ruled out as informal.
Lowest or any tender not necessarily accepted.
R. J. FLEMING (Mayor),
Chairman Board of Control.
City Hall, Toronto, June 25, 1897.



Notice to Contractors

TENDERS FOR SEWER AND PAVEMENT

Tenders will be received, by registered post only, addressed to the Chairman of the Board of Control, City Hall, Toronto, up to **NOON ON THURSDAY, THE 5TH DAY OF JULY NEXT**, for the following works
TILE PIPE SEWER
On Peel Avenue and Dufferin Street, from Gladstone Avenue to a connection with Noble Avenue sewer.
CEDAR BLOCK PAVEMENT
On Harbord Street, from Huron Street to Bathurst Street.
Specifications may be seen and forms of tender obtained at the office of the City Engineer, City Hall, Toronto.
A deposit, in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 2 1/2 per cent. on the value of the work tendered for, must accompany each and every tender, otherwise they will not be entertained. Tenders must bear the bona fide signatures of the contractor and his sureties, or they will be ruled out as informal.
Lowest or any tender not necessarily accepted.
R. J. FLEMING (Mayor),
Chairman Board of Control.
City Hall, Toronto, June 25th, 1897.

CONTRACTS OPEN.

KILWORTH, ONT.—A new bridge is to be built here.
BRUSSELS, ONT.—An electric light station will be built here.
CHATHAM, N. B.—James McLeod purposes building a residence.
AYLMER, QUE.—Ritchie Bros. will put in a new band saw in their mill.
ST. MARYS, ONT.—An automatic fire alarm will be put in by the town.
HULL, QUE.—The council has decided to expend \$3,200 in improving the streets.
COLCHESTER SOUTH, ONT.—James Johnston is preparing to erect a dwelling.
EXETER, ONT.—R. C. Tremaine, of Toronto, will put in an electric light plant here.
NORTH BAY, ONT. Robert Thompson, of Chelmsford, will probably erect a saw mill here.
OXFORD MILLS, ONT.—The erection of a new Methodist church here has been commenced.
CUMBERLAND, ONT.—D. McCallum asks tenders for erecting a brick-veneered school house.
LEAMINGTON, ONT.—It is proposed to expend the sum of \$5,500 on waterworks improvements.
MCKAY'S CORNERS, ONT.—Subscriptions are being taken for the erection of a Presbyterian church.
CALGARY, N. W. T.—Bridges and residences in this vicinity have been destroyed by recent floods.

BELLEVILLE, ONT.—Tenders are wanted for building an addition to the Corbyville hop house.

WATERLOO, ONT.—W. Winter, of Preston, is about to commence the erection of two brick houses in this town.

REVELSTOKE, B. C.—Mr. T. H. DeCew, late of Essex Centre, Ont., purposes erecting a saw mill here.

MONCTON, N. B.—The ratepayers last week sanctioned an expenditure of \$40,000 for a new school building.

WATERFORD, ONT.—H. F. Teeter is getting out plans for a new hotel, 40 x 60 feet and three stories high.

ALMONTE, ONT.—A movement has been commenced to secure the construction of a waterworks system.

ALEXANDRIA, ONT.—The Dominion government has decided to abandon the project of erecting a reformatory here.

DUTTON, ONT.—A new Presbyterian manse will be built here for Rev. Mr. Stephens. Subscriptions are now being taken.

WINDSOR, ONT.—An association has been organized to build a bicycle path from this town to Amherstburg, at a cost of \$5,000.

MERLIN, ONT.—Tenders are invited for a school house in S. S. No. 4, Tilbury East, from plans by J. L. Wilson, architect, Chatham.

WOODSTOCK, ONT.—The Dominion government has placed the sum of \$5,000 in the estimates for the purchase of a site for a post-office.

KINGSTON, ONT.—Wm. Harty, Commissioner of Public Works, will receive tenders until July 3rd for additions to the Dairy school building.

HAMILTON, ONT.—A building permit has been granted to W. A. Edwards, for a brick building on Walnut street north, for Joseph Ross, to cost \$1,000.

BELWOOD, ONT.—A steel bridge will be built over the Grand river at this place, at a cost of \$1,750. Mr. Hutcheon, of Guelph, will superintend the work.

GRISWOLD, MAN.—The erection of a brick school is shortly to be commenced, the plans for which were prepared by W. H. Shillinghaw, architect, of Brandon.

PICTON, ONT.—By-laws to provide \$9,000 to increase the electric light and waterworks systems, and \$6,000 to rebuild and remodel the town hall, were defeated on Monday last.

RAT PORTAGE, ONT.—The Citizens Telephone and Electric Co. will build an office block.—The Burley Gold Mining Company of Ottawa propose to construct certain works here.

GRAND FORKS, B. C.—Arrangements are being made by the City Council to borrow \$20,000 for improvements, including a waterworks system, an electric light plant, and a fire system.

ST. JOHN, N. B.—Tenders for earth and rock excavations, pile driving and masonry are asked until July 10th, by T. B. Robinson, secretary St. John Bridge & Railway Extension Company.

PEMBROKE, ONT.—The Pembroke Southern Railway Co. have been granted a subsidy of \$3,200 a mile by the Dominion government for 20 miles of road from Pembroke to Golden Lake.

RICHMOND HILL, ONT.—Tenders are invited until July 10th for the erection of a High School building, from plans by Mr. J. F. Brown, architect, Toronto. Address, Joseph Switzer, secretary Board of Education.

ST. THOMAS, ONT.—The School Board are offering prizes of \$50, \$30 and \$20 for plans and estimates of a twenty class-room school, to be built of pressed brick, with stone facings and slate roof. For particulars address D. D. McKenzie.

INGERSOLL, ONT.—Offers are being received this week for improving and tiling

Cody and Huggins drains, in the township of West Zorra. For particulars address G. S. McLeod, Embro, or W. H. Sutherland, Ingersoll.

PORT ARTHUR, ONT.—The Ontario Rainy River Railway has been purchased by Mr. Wm. MacKenzie, president of the Toronto Street Railway Company, and his brother, Mr. Ronald MacKenzie, who propose to complete the construction of the railway.

BARRIE, ONT.—The County Council have resolved to erect a House of Refuge, to cost probably \$50,000. A committee, composed of Messrs. John Ross, H. Hamilton, R. Jupp, D. Quinlan, C. E. Henson and Warden Sneath, has been appointed to ascertain suitable sites.

NELSON, B. C.—Mr. Ewart, architect, is preparing plans for an hotel building, 100 x 100 feet, to be built for J. F. Hume, H. D. Hume and J. A. Kirkpatrick. It will be three stories, stone basement, cost \$25,000.—The new jail will be 30 x 30 ft., two stories high, cost \$10,000. The sketch plans have been prepared at Victoria, but they are to be modified and completed by a local architect.

LONDON, ONT.—Tenders for the construction of stone or concrete abutments and piers of King street bridge are asked until July 8th. Address, A. O. Graydon, city engineer.—Building permits have been granted as follows: W. Lannin, brick veneer residence, north side King street, cost \$1,000; George E. Carrothers, brick veneer residence, west side Adelaide street, cost \$1,000.

QUEBEC, QUE.—D. Ouellet, architect, is receiving tenders this week for a private residence for Rev. M. A. Cote, curate of Limoilou, to be 44 ft. x 38 ft. 6 in., with annex 28 x 18 ft., two stories, built of granite from Lake St. John quarries, galvanized iron roof, asbestos plaster, ornamental glass in main entrance door, Doric hot water furnace, Richeheu w. c., basins, enamelled sinks, etc.—V. A. Emond & Son have offered to build two filters at the waterworks at Lorette, one for each pipe, for the price of \$29,500.

WINNIPEG, MAN.—Subscriptions are being received liberally for the Victoria Jubilee hospital addition.—The Lake of the Woods Milling Co. will erect elevators this year at Bagot, Qu'Appelle, Beresford, Forrest, Launder, Whitewater, Pierson and Stockton.—The electors have voted the sum of \$27,500 for the purpose of erecting a new steel superstructure to the Main st. bridge over the Assiniboine, and to convert the present superstructure into an overhead bridge across the C. P. R. track at Salter st.

MONTREAL, QUE.—The Fire Committee has decided to call for tenders for the purchase of a new steam engine, cost not to exceed \$8,000.—Gamelin & Huot, architects, are preparing plans for six houses to be erected on Victoria street, Westmount, for J. B. Brouillette.—G. A. Monette is preparing plans for two houses, stone front, to be built on St. Antoine st., St. Henri, for A. Mongeau. Tenders will be called shortly for the above works.—Chas. Chausse, architect, has called for tenders for reparations of Joubert's residence, corner of Drolet and Ernest streets, St. Louis square.—W. E. Doran, architect, is calling for tenders for a double tenement house, to be built on Rozel street for M. Mullin.

OTTAWA, ONT.—Mr. T. C. Keefer is preparing plans for drain improvements at Victoria Island.—G. M. Bayly, architect, is taking tenders this week for the erection of a double residence. Work will be commenced next week on the improvements to the Russell House, estimated cost, \$10,000. M. C. Edey, architect.—The Dominion government will probably install an electric light plant at the parliament buildings. A sum of \$75,000 has been placed in the estimates for

the purpose.—Ex-Ald. Morris has purchased property in Lower town, and will probably erect a business building.—The by-law granting \$75,000 to the Ottawa & Cornwall Railway was defeated by the ratepayers last week.—Further estimates brought down by the Dominion government include a subsidy of 25 miles to the Great Northern Railway, from St. Jerome, Que., to Hawkesbury, Ont.; to the Drummond Counties Railway, for 42½ miles; to the Irondale, Bancroft & Ottawa Railway, for 5 miles of road; to the Great Northern Railway, for construction of a bridge across the Ottawa at Hawkesbury, 15 per cent., but not to exceed \$2,500; for an interprovincial bridge between Ottawa and Hull, 15 per cent. on an expenditure of \$750,000, not to exceed \$112,500.—Hon. Mr. Tarte has announced his intention to visit England, France and Belgium, with an engineer, to examine harbor improvements with a view to extending the Montreal harbor.

TORONTO, ONT.—Tenders are being received this week for a four-room school in East Toronto. J. A. Ellis, architect.—Petitions have been received by the City Clerk against the following works: Brick pavement on Boswell ave., between Avenue road and Bedford road; brick pavement on north side Commercial street, from Jarvis to Francis street; brick sidewalk on west side Jarvis street, between King and Adelaide streets.—The University College Women's Residence Association has received several large subscriptions towards the proposed residence for women.—Building permits have been granted as follows: J. A. McKee, dwelling on Wamer road, cost \$7,000; Trust and Loan Company of Canada, alterations, 214 Jarvis street, cost \$6,000; Mrs. J. Baxter, alterations to 22 St. Andrew street, cost \$900; R. J. Orr, alterations to 156 Crawford street, cost \$1,800; J. M. Purvis, 3-story bk. warehouse, 666 Queen st. e., cost \$2,000; Lawlor Estate, 5-story office building, n.w. cor. King and Yonge sts., cost \$45,000; Elias Rogers & Co., 2-story coal shed, Esplanade, near Berkeley st., covered with iron, cost \$1,800.—Mr. Jas. McDougall, York county engineer, has been instructed by the York and Peel county councils to prepare plans and invite tenders for a 45-ft. span bridge over the Mimico creek, between Etobicoke and Toronto Junction.—A bridge will probably be built at Race street, Woodbridge.—The City Council has given notice that the following works will be constructed: Brick sidewalks—east side Parliament st., Carlton to Winchester; north side Queen st. west, opposite Nos. 1190 and 1192; Yonge st., both sides, Bloor st. to Davenport road; south side Oxford st., Augusta to Bellevue ave. Cedar block pavements—Charles st., Church to Jarvis sts.; Walmer road, Bloor st. to Lowther ave., running westerly from Walmer road; Wellesley st., Parliament to Sumach sts. Gravel roadways—Cowan ave., King to Queen sts.; Close ave., Queen st. to Springhurst ave.; Gwynne ave., King to Queen sts.—The plans and specifications for the new Telegram building are now about ready and can be seen at the office of M. Sheard, architect, 423½ Yonge st.

FIRES.

The saw and flour mills of Simon Magnan, at Point aux Trembles, Que., were burned recently. No insurance.—Fire destroyed the Hodgins House and Boswell House stables and barns on King street, London, last week.—The sulphur building of the match factory of Hardy & Dubord, at Beauport, Que., was burned recently. Loss, several thousand dollars.—A block of stores and dwellings at Ottawa were burned last week. The Capital Hotel, a brick building, was also destroyed.—A summer cottage at Windermere, Ont., owned by Miss H. Inglis, was burned on Monday last, at a loss of \$1,000.

CONTRACTS AWARDED.

WINDSOR, ONT.—Wm. Lyons has secured the contract for building two sewers.

FREDERICTON, N. B.—The contract for city hall repairs has been given to A. S. Fleming; price, \$2,325.

ST. LAMBERT, QUE.—T. J. Drummond has been awarded the contract for water-works and drainage systems.

WINNIPEG, MAN.—The tender of Mr. Meldrum, of Toronto, has been accepted for the purchase of \$20,000 of debentures.

PORTAGE LA PRAIRIE, MAN.—S. B. Ritchie has secured the contract for building the new wing to the Home for Incurables.

NEWMARKET, ONT.—The tender of the Pease Furnace Co., of Toronto, has been accepted for heating and ventilating the new school building.

WINDHAM CENTRE, ONT.—The contract for the erection of the Presbyterian church has been let to Mr. Secord, of Brantford; price, \$1,548.

NELSON, B. C.—The contract for the north half of the Columbia and Kootenay railway branch has been let to J. G. McLean & Co., of this place.

QUEBEC, QUE.—The contract for the extension and finishing of Cedar Hall church has been awarded to Alphonse Rioux, of Trois-Pistoles, for the sum of \$9,800. David Ouellet, architect.

PETERBORO', ONT.—The Peterboro' Bridge Company have been awarded the contract for the construction of a steel bridge, 100 feet long, over the Madawaska river at Calabogie, for the Kingston and Pembroke Railway Company.

AMHERST, N. S.—A contract has been let to Roderick L. and James McDonald, of Pugwash, for work required in the reclamation of a marsh at the source of the Missiquash river, which forms the boundary between Nova Scotia and New Brunswick. A canal will be built seven miles in length, from 15 to 35 feet deep. The plans for the work, which will cost over \$50,000, were prepared by Mr. Stewart Howard, C.E., of Montreal, while Hiram Donkin, of the Dominion Coal Co., is consulting engineer.

ST. CATHARINES, ONT.—The following tenders were received for concrete walks: Nicholson & Patrick, 88,000 sq. ft., at 18½ cts., \$16,500; Dawson, 88,000 sq. ft., at 15¼, \$13,480; Boyd, 88,000 sq. ft., at 15, \$13,200; Hastings, 88,000 sq. ft., at 14½, \$12,760; Bennett, 88,000 sq. ft., at 13½, \$11,880; Newman Bros., 88,000 sq. ft., at 13, \$11,440; Silica-Barytic Co., Ingersoll, 88,000 sq. ft., lake gravel, at 12½, \$11,000; Silica Co., Ingersoll, 88,000 sq. ft., pit gravel, at 11½, \$10,121; Cadwell Silix Co., Windsor, 88,000 sq. ft., at 11, \$9,580. The two last tenders were not according to specifications, and the contract has been awarded to Newman Bros.

MONTREAL, QUE.—The Pedlar Metal Roofing Co., of Oshawa, have the contract for the interior work of Immaculated Congregational church. Tanguay & Vallee, of Quebec, architects.—Contracts have been awarded as follows: Roy & Content, architects, one house on Macdonald street, for the Estate Duncan Macdonald—carpentry and joiner's work, Soucisse & Brouillette; roofing, plumbing and heating, Jos. Lamarche, brick, J. Morache. Charles Chausse, architect, four residences on Cherrier street, for the Estate Hon. L. Tourville—masonry, Fournier & Son; carpenter and joiner's work, Grohé Bros.; painting, L. N. Denis; plastering, E. Morache.

OTTAWA, ONT.—A contract has been let to the Sicily Asphalt Company of Montreal for paving the walks in the Parliament grounds. The cost will be about \$16,000.—A return has been presented to the Dominion government showing the tenders submitted for public works, as

follows: North channel of the St. Lawrence river—M. A. Cleveland, \$393,080; Weddell, McAuliffe & Co., \$433,038; M. J. Haney, \$466,050; Gilbert Blasting and Dredging Company, \$555,380; Allan & Fleming, \$650,367; R. Bickerdike & Co., \$1,897,940. Iroquois section of the Galops canal—Larkin & Sangster, \$791,940; W. Davis & Son, \$839,437; James Bourque, \$861,470; Canadian Construction Company, \$954,025; McKinnon & Garland, \$1,011,795; McNamee & Bickerdike, \$1,022,565; Dawson & Symmes, \$1,025,813; Brown, Love & Aylmer, \$1,160,930; Andrew Onderdonk, \$1,229,640; William Buckner, \$1,287,707; R. Weddell & Co., \$1,381,420; M. J. Haney, \$1,886,425; M. A. Cleveland, \$2,455,770. Cardinal section of the Galops canal—W. Davis & Son, \$1,128,010; McKinnon & Garland, \$1,237,107; O'Neil & Ferguson, \$1,364,975; Bickerdike, McNamee & Co., \$1,442,701; Andrew Onderdonk, \$1,472,652; Canadian Construction Company, \$1,495,540; Hugh Ryan & Co., \$1,567,807; Weddell, McAuliffe & Co., \$1,725,426; M. A. Cleveland, \$1,767,019.

TORONTO, ONT.—The following tenders in connection with Exhibition buildings have been recommended for acceptance: Alterations to Machinery Hall—Carpenter work, Nicholson & Pettigrew, \$2,068; painting, G. T. Faircloth, \$510; felt roofing, \$389; galvanized iron work, A. B. Ormsby & Co., \$389; shafting, Westman & Baker, \$172. New horse stables—Carpenter work, Nicholson & Pettigrew, \$2,664; painting, F. E. Phillips, \$207; roofing, A. B. Ormsby & Co., \$789.90. Pig pens—Carpenter work, Nicholson & Pettigrew, Nos. 1 and 2, \$1,386; Nos. 3 and 4, \$1,272; No. 5, \$579; No. 6, \$552; painting, F. E. Phillips, Nos. 1 and 2, \$80; Nos. 3 and 4, \$7; No. 5, \$32; No. 6, \$29; roofing, A. B. Ormsby & Co., Nos. 1 and 2, \$450; Nos. 3 and 4, \$394; No. 5, \$171; No. 6, \$48. Medlar & Arnot submitted a bulk tender for pig pens at \$4,835.—

Smith Bros. have been awarded the contract for a hook and ladder wagon, at \$498. Chas. Collett secured the contract for a lorry, at \$175, and M. Guy for a delivery wagon, at \$125.—D. L. Van Vlack has secured contracts for brick and gravel roadways as follows: Fenning street, brick pavement, \$2,097; Beaconsfield avenue, gravel road, \$1,583; Elm Grove avenue, gravel road, \$1,098; Gerrard street east, brick pavement, \$6,435; Collier street, brick pavement, \$1,549. The Warren-Scharf Company secured the contract for asphaltting Adelaide street, from Yonge to Bay streets, at \$7,178, and the Construction & Paving Company for asphaltting Berkeley street, from Gerrard to Carlton, their figure being \$5,175.—The York County Commissioners have let contracts as follows for constructing a bridge at York Mills: Piling, Gowanlock & Co., Toronto, earthwork, D. B. Virrell, York Mills.

BUSINESS NOTES.

T. Goulet & Co., contractors, of Montreal, have dissolved partnership.

The Ontario Sewer Pipe and Brick Manufacturing Company's works at Mimico are announced to have been sold to Mr. S. M. Nease, of Pittsburg, Pa., for \$40,000.

PAINTING OF STRUCTURAL IRON.

At the Engineers' Club, Philadelphia, a short time ago, a paper was read on this subject, in which the essayist described the composition of paints for use on wood and metal surfaces, with particular attention to the proper material to use on structural iron work. He said that it is very essential that the iron itself should be absolutely free from rust, as the latter will spread from a point under the paint if there be the slightest chance to do so, flaking off

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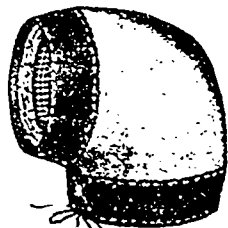
- THE McDONALD BUILDING**, Victoria Square, Montreal.
- THE YOUNG WOMEN'S CHRISTIAN ASSOCIATION BUILDING**, Montreal.
- THE ROYAL VICTORIA COLLEGE**, Montreal.
- THE PROTESTANT INSANE ASYLUM**, Verdun, near Montreal.
- THE GRAND HOTEL**, St. Hyacinthe, Que.
- THE NEW CUSTOMS-APPRAISERS STORES, NEW YORK**, now building, which will consume 5,000 tons.
- THE PARLIAMENT BUILDINGS, OTTAWA**, portion of which was recently destroyed by fire and rebuilt.

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the paint and thus gradually exposing the bare surface of the iron to the destructive action of oxygen in the presence of water.

The iron should be prepared by removing the scale with a stiff wire brush and destroying the rust by a pickle of dilute acid, which must be afterward washed off before applying the paint. For use on iron exposed to changes of temperature, to gases or moisture, a paint was recommended called "anti-rust," which is manufactured especially for this purpose. Sections of iron pipe were shown which had been painted with this material and with other kinds of paint, and exposed to various severe conditions of temperature and oxidizing gases.

The writer considered it very important that specifications for painting engineering constructions should be carefully drawn and strictly adhered to, even to the specification of definite brands or makes of materials. The engineer should experiment, in order to determine the best paint to use under given conditions, or should seek advice on the subject from those who have made its manufacture and its wearing qualities the study of their lives. It is poor economy to use any but the best material obtainable, the saving in the first cost being more than counterbalanced by the labor of renewing the paint in a comparatively short time.

SLAG CEMENT.

In a recent article on slag cements, La Genie Civil states that these cements are made by finely grinding blast furnace slag and mixing it with a suitable proportion of fat lime. The grinding has to be very fine, because as the cement is made by a simple mixture it is necessary that the surface on which the two constituents, the lime and the slag, react on each other should be as large as possible, if proper chemical combination is to ensue. As manufactured in France, the cement leaves only 20 per cent. on a sieve containing upward of 25,000 meshes per square inch, and only 8 to 10 per cent. on a sieve with 4,500 meshes per square inch. The density of slag cement is much less than that of Portland, weighing, bulk for bulk, but from 0.8 to 0.88 times as much. In general, this cement also sets somewhat more slowly than Portland, but when hardened has, in many cases, a greater strength, particularly at early dates after setting. In some experiments still unfinished the following results were attained

with a slag cement from the Department of Isere:

Age.	1 Week.	1 Month.	3 Months.
Breaking load, lb. per sq. inch.....	473.5	568.8	678.3

These are higher than any attained in tests made on Portland cements for the new Croton aqueduct. Experiments have also been made with slag cement mortar mixed with, and allowed to harden in, sea water, and gave the following results, the mortar consisted of six parts by weight of cement to ten of sand:

Age.	8 days	28 days.....	Breaking weight, lb. per square inch.
	252.0	319.9	275.1
	273.0	285.8	
	375.4	327.0	327.0
		248.0	341.2

The main objection to slag cement seems to be that if it is allowed to harden in dry air, its strength is very materially reduced, and it is then liable to crack. In the town of Ville-franche-sur-Saone (Rhône) it has been largely used for paving foot-paths, some 4,800 square yards having been laid there with most satisfactory results.

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DISPUTED RIGHT OF WAY CASES.

One of the ever-present disputes as to right of way in constructing public works has been decided by Justice Hiscock, of the Supreme Court of New York State, on rather broader grounds than usual. In this particular case a contractor constructing a sewer in a business street used a derrick that blocked one of the two tracks of a street railroad parallel to which the sewer was being built, and the railroad company sought an injunction against the contractor, claiming that he could build the sewer without the derrick. Justice Hiscock held that while the contractor and railroad company each had a pecuniary interest in the matter requiring consideration, the interests of the public both in having the sewer built expeditiously and in having a good street-car service were of more importance. He accordingly refused to delay the construction of the sewer by compelling the contractor to abandon his derrick, but decided that the contractor must not obstruct more than 100 feet of track at one time, must finish his work in eight working days, and also bear one-half the expense of constructing such cross-overs as the street railway company found necessary to put down in order to maintain the efficiency of its system.

THE SUPERIORITY OF STONE PAVEMENTS.

The things that are common and the things that are cheap are seldom accounted worthy of much consideration. Perhaps that is the reason so little consideration has been given here to the merits of basalt block as paving material. Basalt in Spokane is as common as sand at the seashore. It is so plentiful that the raw material has no value. Tons of it may be had for the taking.

Yet in the great cities of Europe where paving has become a science, where they have experience ranging over long periods and covering various materials, stone blocks hold their own against all other paving materials, and cities send hundreds of miles to obtain their supply. Stone remains in favor there because the European mind has been trained to appreciate the value of permanency. In some of the boom cities of the United States, hundreds of miles of cheap wood pavements have been laid. Rival additions wanted to advertise that their streets were paved, and since wooden pavements present an attractive appearance when new, and lots thus improved would sell as if they had been improved with expensive, durable pavement, a craze was developed for the cheap pavement. Now the streets thus paved have fallen into decay and a great clamor arises for something, besides

wood. At St. Paul, the Pioneer Press reports that one street has become so obstructive to traffic from decay of the wooden blocks that the property owners, unable now to bear the expense of new pavement, are urging that the old blocks be torn up and the street reconverted into an earth roadway.

But in Europe the axiom is taught that "economical maintenance and not first cost is the essential factor to be considered in determining the value of a pavement." They go in there for durability and cheapness of maintenance. Since no other pavement equals stone in this respect, the streets of European cities are largely paved with that material. The United States Consul General at Brussels reports that the streets and highways there are almost entirely paved with stone. The Consul General at Paris says the streets there are paved with stone, wood, asphalt and gravel. Nearly all the streets of Saxony are paved with stone. Birmingham has 24 miles of stone pavement. In London many kinds of pavement have been tried, but the conclusion of the engineers is that granite blocks, asphalt or treated wooden blocks are the only pavements that will endure the wearing traffic of a great city. The wooden blocks of London and Paris, however, are a different pavement from the wooden blocks laid in this country. They are chemically treated and are laid at great expense. They are the most costly pavement, as thus laid, in Europe, the expense running from \$4 to \$6 per square yard. In this country, where labor is higher, such pavements would cost \$6 to \$8 per square yard, and the people would not pay it.

In Europe, stone blocks undoubtedly take rank as paving material of the first class, and the judgment of European engineers and officials, based as it is upon long experience, should not be lightly disregarded. For the north and south streets of this city, where the grades are too severe for asphalt, it is doubtful whether a better or more satisfactory material could be found than that which nature has spread here in such abundance.—Spokane Review.

Mr. Michael Flanagan, of Kingston, probably the oldest municipal clerk in Ontario, died last week, at the age of 74 years. He was born in Elphin, Roscommon, Ireland, in 1823, and came to Canada in 1841. He was for 55 years clerk of the city of Kingston.

MACADAMIZED AND TELFORD ROADS.

It was the custom of Macadam, after the engineering work was completed and the sub-grade established, to spread on a layer of stone to a depth of ten inches, and to roll this surface with a heavy roller drawn by horses. These stones were broken by hand with small hammers, frequently a whole family working together, and were broken small enough to pass through a three-inch ring, or were not to have a maximum weight of over six ounces. A family of five people could break several tons per day. Side ditches were excavated where necessary, so that at no season of the year could water penetrate to the substructure of the road.

In 1896 Macadam began the construction and maintenance of 180 miles of turnpike in Bristol district, England. A modification of this system was adopted by Thomas Telford about this time, which substituted a layer, or foundation, of irregular broken stone, set up on edge on the sub-grade. Nine inches was the maximum dimension of these fragments. The rough surface thus made was smoothed down by going over it and breaking off the tops of the blocks with small hammers, and packing the pieces thus obtained between the large blocks. This surface was then rolled as before. Telford built the celebrated Holyhead road, extending from Holyhead through North Wales to Shrewsbury—a road that served as a model at the board of inquiry adopted by Parliament in 1823. Each system had its partisans, and to-day the best features of both methods have been adopted under different conditions, dependent upon the character of the ground over which the road passes.—Charles L. Whittle, in Appletons' Popular Science Monthly.

DEATH OF MR. GEORGE EAKIN.

The death of Mr. George Eakin, who for the last twenty-four years has occupied the position of clerk of the county of York, took place on June 29th, at his residence in Parkdale. The deceased was born in the township of Markham, and resided at Unionville for many years, where, before being appointed clerk, he was the postmaster and storekeeper. In 1860 he was appointed clerk and treasurer of the township, and held office until June, 1873, when he was appointed clerk of the county, which office he filled with ability and general acceptance. Mr. Eakin was one of the best known men in the county. The County Council will to-day attend the funeral in a body.

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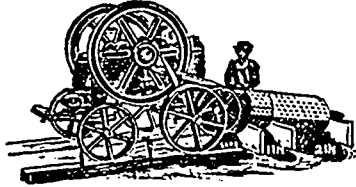
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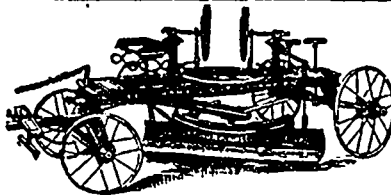
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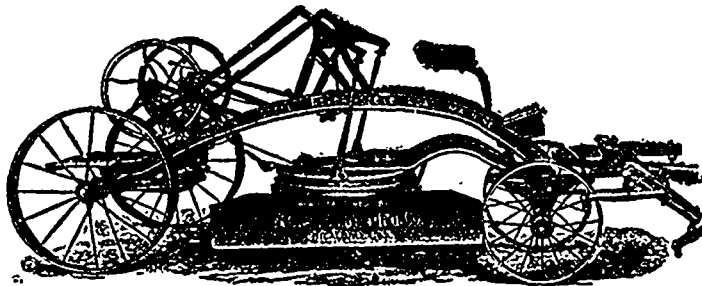
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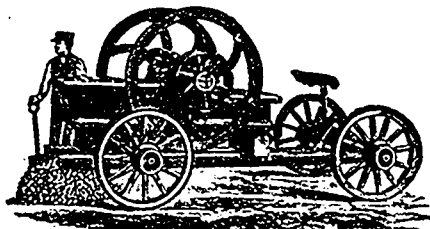
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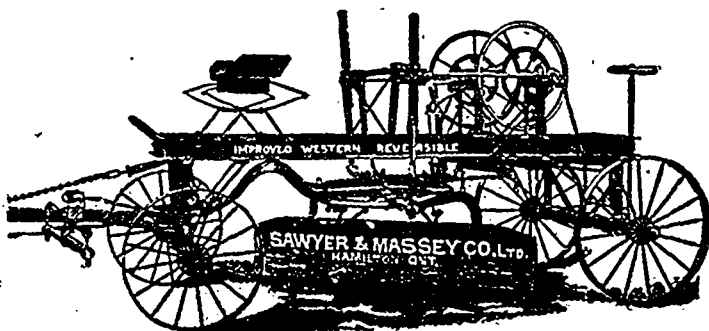
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INDEX TO ADVERTISEMENTS

In the "Canadian Architect and Builder."

Large index table listing various construction services and materials such as Architects, Cement, Lime, Iron, Paints, etc., with associated company names and page numbers.

Table for Kent Free stone Quarries Moncton, N.B., listing prices for various stone types like River John, Quebec, etc.

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Table for SLATE prices, listing items like Roofing, Terra Cotta Tile, Ornamental Black Slate, etc.

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Table for PAINTS prices, listing items like White lead, Red lead, Yellow ochre, etc.

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