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# CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF THE CONTRACT RECORD

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. 6.

JULY 4, 1895

No. 22.

## 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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Are invited to submit plans and estimates for a new building to be erected by the Young Men's Christian Association of London, Ont.

For particulars as to premiums and requirements, address, Chas. R. Sayer, Secretary.

## TO CONTRACTORS

Tenders will be received by the Secretary of the Board of Trustees up to noon of the 15th inst. for the several works required in the erection and completion of a

### HIGH SCHOOL BUILDING IN THE TOWN OF GANANOQUE.

Plans and specifications may be seen on and after the 5th inst. at our offices, Kingston and Gananoque. Lowest or any tender not necessarily accepted.

POWER & SON, Architects,



## Notice to Contractors

Tenders will be received by registered post, addressed to the City Engineer, Toronto, up to 11 o'clock a.m. on SATURDAY, JULY 13th, 1895, for the following works:

### CEDAR BLOCK PAVEMENT

on Northcote avenue, from Queen street to Aston avenue; on Sullivan street, from Spadina avenue to Beverley street.

### ASPHALT PAVEMENT

on Avenue road, both sides of street, from Bloor street to Davenport road.

Plans can be seen and forms of tender obtained at the City Engineer's office, on and after Saturday, July 6, 1895.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 5 per cent. on the value of the work tendered for under \$1000, and 2½ per cent. for the value of the work tendered for over that amount, must accompany each and every tender, otherwise it will not be entertained.

All tenders must bear the bona fide signatures of the contractor and his sureties, (see specifications), or they will be ruled out as informal.

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

DANIEL LAMB,  
Chairman Committee on Works.

Committee Room, Toronto, June 28th, 1895.

## TENDERS WANTED

Sealed tenders for the erection of the St. Andrews Presbyterian church of Windsor, Ont., will be received until MONDAY, JULY 8th.

Plans, etc., may be seen at the architect's office.

WM. C. ROHNS,  
Room No. 5, Fleming Block,  
Windsor, Ont.

## THE TOWN OF WINGHAM

will receive offers for the purchase of \$5,000 Consolidated Debentures up till the 6th day of July next. Copy of by-law and other information will be forwarded on application. Address

J. B. FERGUSON, Clerk,  
Drawer 252, Wingham, Ont.



Sealed Tenders addressed to the undersigned, and endorsed "Tender for Coal, Public Buildings," will be received until THURSDAY, 18th JULY, for Coal supply for all or any of the Dominion Public Buildings.

Specification, form of tender and all necessary information can be obtained at this Department on and after Thursday, 27th June.

Persons tendering are notified that tenders will not be considered unless made in the printed form supplied, and signed with their actual signatures.

Each tender must be accompanied by an accepted bank cheque, made payable to the order of the Honourable the Minister of Public Works, equal to five per cent. of the amount of tender, which will be forfeited if the party decline to enter into a contract when called upon to do so, or if he fail to supply the coal contracted for. If the tender be not accepted, the cheque will be returned.

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, 26th June, 1895.



## Notice to Contractors

Tenders will be received by registered post, addressed to the City Engineer, Toronto, up to 11 a.m. on SATURDAY, JULY 13th, 1895, for the following work:

### CEDAR BLOCK PAVEMENT

On D'Arcy Street, from Spadina Avenue to McCaul Street.

Plans can be seen and forms of tender obtained at the City Engineer's office on and after Saturday, July 6th, 1895.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 5 per cent. on the value of the work tendered for under \$1,000, and 2½ per cent. for the value of the work tendered for over that amount, must accompany each and every tender, otherwise it will not be entertained.

All tenders must bear the bona fide signatures of the contractor and his sureties (see specifications) or they will be ruled out as informal.

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

DANIEL LAMB,  
Chairman of Committee on Works.

Committee Room, Toronto, July 2, 1895.

## TENDERS

Tenders will be received up to 5 p.m. on MONDAY, THE 8th INST., for the erection of a Four-Roomed School on Winchester Street, and also for a Two-Roomed School on Bolton Ave.

Each tender must be accompanied by a marked cheque equal to 10 per cent. of its amount, payable to the order of the Secretary-Treasurer of the Separate School Board, which cheque shall be forfeited if the parties tendering fail to carry out the contract when called upon to do so.

Tenders to be addressed to the Chairman of the Sites and Buildings Committee, 28 Duke Street. Plans and specifications for the Winchester Street School can be seen at the office of Post & Holmes, Architects, Manning Arcade, and those of the Bolton Ave. School at the office of J. P. Hynes, Architect, Canada Life Building. The lowest or any tender will not necessarily be accepted.

## TENDERS FOR SCHOOL BUILDINGS AND REPAIRS.

The Toronto Public School Board will in all probability invite tenders this week for the erection of a new school in Rosedale, for the enlargement of two schools, and for another lot of midsummer repairs. The two schools to be enlarged are the Bordon street school and the Palmerston avenue school, the additions being six and four rooms respectively, in rear of the present buildings. A meeting of the School Board takes place this (Thursday) evening, at which the work will likely be authorized. Further information may be obtained at the office of the Superintendent of School Buildings, which is kept open during this season from 7 a.m. until 10 p.m. for the convenience of contractors.

## CONTRACTS OPEN.

HUDSON, QUE.—A new Catholic church will be erected here.

WESTPORT, ONT.—William Garrett in view the erection of a large store.

GRENFELL, ONT.—A new school building will be built here, to cost \$7,000.

HUNTSVILLE, ONT.—W. Chaddock, of Warton, is about to erect a building here 30 x 100 feet.

ST. THOMAS, ONT.—W. B. Jennings is about to commence the erection of a brick furniture wareroom.

CARBERRY, MAN.—The voting on a by-law to raise \$11,000 for erecting a new school takes place on the 16th inst.

GUELPH, ONT.—The by-law to raise \$9,500 for a new water main was voted down by the ratepayers on the 26th June.

GRANBY, QUE.—The Village Council has voted \$10,000 to the Empire Tobacco Company towards erecting new buildings.

COVERDALE, B. C.—A. A. Richmond, Clerk, is asking for tenders until the 6th inst. for the erection of a bridge over the Nicomekl river.

VICTORIA, B. C.—The City Engineer has reported to the City Council that the cost to provide sewers for the new Government buildings would be about \$5,800.

QUEBEC, QUE.—It is reported that the Boston and Maine Railway Company will purchase the Quebec Central railway and

undertake the construction of a bridge here.

WINGHAM, ONT.—The stockholders of the Union furniture factory, recently burned, have offered to rebuild on the old site providing the town would extend the payment of \$8,000 to ten years.

ORILLIA, ONT.—The Tudhope Carriage Company are asking for tenders until the 9th inst. for the erection of a four-story addition to their factory on Colborne street, according to plans prepared by W. H. Croker, architect.

PORT HOPE, ONT.—At a recent meeting of the Township Council of Hope, P. R. Randall gave notice of a motion to introduce a by-law granting a franchise for an electric railway on Rice Lake, Gravel Rope, in Hope Township.

HAMILTON, ONT.—W. A. Edwards, architect, is asking for tenders for the erection of a brick residence on Wentworth street north.—The City Clerk has invited tenders for constructing sewers on Napier, Peter and Cannon streets.

PRINCE ALBERT, N. W. T.—Messrs. St. Witteman and Hoffman, who recently settled at St. Louis de Langevin, contemplate the erection of a \$60,000 brewery in town. They have had plans prepared for the building and are now negotiating for a suitable site.

WOODSTOCK, ONT.—A committee of the town Council has been authorized to engage an engineer to make a survey and report on a sewerage system.—A by-law to expend the sum of \$9,000 on the erection of a market building has been carried by the taxpayers, and operations will be commenced at once. Wm. B. Ford, architect, will prepare plans.

SARNIA, ONT.—At a recent meeting of the townspeople, the building of a railway from Sarnia to Florence was discussed. Mr. Campbell, the promoter of the road, stated that \$10,000 per mile would build the road, and suggested that a government grant of \$3,200 per mile could be obtained. Judge Mackenzie and Mr. James King spoke in favor of the project, which, it seems probable, will be carried out.

RENFREW, ONT.—A scheme is being advanced by A. A. Wright, of this town, to build a railway from Renfrew to Portage du Fort, a distance of about 50 miles, crossing the Ottawa river at the latter place by an iron or steel bridge. A subsidy of \$50,000 has already been granted for a railway from Portage du Fort to Thorne. It is understood that Mr. J. R. Booth, Mr. Gildersleeve, and other prominent railway men are interested in the undertaking.

LISTOWEL, ONT.—Binning & Baxter, architects, have prepared plans for the following works: Flax mill building at Wallaceburg, Ont., with barns, storehouse, office, etc., for J. M. Bright. Estimated cost \$4,500; brick block, south side main street, Listowel, containing four stores and a society hall, cost \$8,000; house for H. Bishop, Exeter, cost \$2,000; house for Alexander McNair, Cranbook, cost \$1,300; house for William Lynch, Palmerston, cost \$1,200.

WINNIPEG, MAN.—The Parsons Produce Co. are having plans prepared to transfer half of their building into a cold storage warehouse.—The Canadian Pacific stockyards will be enlarged and improved.—The contract for the erection of the Northern Elevator Company's large elevator in the C. P. R. yards has not yet been let. The foundation work will be done by Kelly Bros.—The City Engineer has recommended the purchase of a 15-ton steam roller, at a cost of \$4,000.

LONDON, ONT.—McBride & Farncombe, architects, are receiving tenders until the 6th inst. for a brick residence on Richmond street.—The Board of Education is considering offers of property on

which to erect new school buildings.—The City Council has decided to pave Richmond and Dundas streets with asphalt, and the Board of Works has recommended that a water main be laid before the work is carried out.—Building permits have been issued as follows:—Thomas Tapp, for \$1,200 brick cottage at corner of Pall Mall street; Thomas Knott, for two brick veneer houses on York st., near Thames; E. Sanders, for \$700 addition to residence at 580 King street.—Tenders for concrete and masonry at Mill Creek and Kettle Creek bridges are invited by A. O. Graydon, C. E., on Tuesday, the 9th inst.—The question of constructing a station and round-house in this city for the London and Port Stanley railway will probably be considered by the directors at an early date.

MONTREAL, QUE.—Tenders are invited by the Chateaugay and Northern Railway Company, addressed to J. P. Mullarkey, secretary, until the 8th inst., for the construction of that part of their railway extending from Montreal to Bout de l'Isle in the parish of Pointe-aux-Tremblas, a distance of about 12 miles. Plans, etc., may be seen at the company's offices.—The property owners on St. Peter street, below Commissioners street, have petitioned for an asphalt pavement and a stone sidewalk.—The following building permits have been granted: The Cannelite Sisters, Monastery, corner Robin street and Av. du Carmel, 2 storeys high, in stone, cost \$50,000; P. Deslauriers, three storey brick temple building on St. Hubert st., cost \$3,500; Mrs. N. Deslauriers, three storey brick tenement building on St. Hubert street, cost \$4,000.

TORONTO, ONT.—The City Council has given notice of its intention to construct the following local improvements: granite sett pavement on Simcoe street, from Front street to Station street, cost \$4,640; granite sett pavement on York street, from Front street to the railway tracks, cost \$7,400; cement concrete sidewalk on Adelaide street, north side, from Yonge street to Bay street, cost \$2,155.—The Court of Revision have confirmed the following assessments, subject to petition: asphalt, Huntley street, Berkeley street, Harbord street, Victoria street, Huron street and Charles street; brick, Division street, Selby street, Buchanan street, McCaul street and Amelia street; cedar block, Gladstone avenue, Brookfield street, Henry street and Argyle street.—The City Engineer has recommended the extension of Dufferin street sewer about 75 feet into the lake.—The report of the City Engineer presented to the Board of Works on Tuesday, recommends the construction of macadam roadways on the following streets: Beverley street, Queen to College, cost \$16,800; St. Albans, Yonge to Queen's Park Crescent, cost \$1,670; Elizabeth street, Queen to College, cost \$3,460; Agnes street, Yonge to University street, cost \$2,020; Wilton avenue, Sherbourne to Parliament, cost \$1,450; Wilton avenue, Yonge to Jarvis, cost \$2,435; Power street, King to Queen, cost \$1,250. An asphalt pavement was recommended on Brunswick avenue, from College to Ulster street, and an overhead bridge across the Grand Trunk track at Brock street.—The following building permits have been granted: Davis Packing Co., 3 storey bk. addition and alterations to packing house, Beachell st., cost \$11,000; Newspaper Publishing Co., 3 storey bk. addition, 83 Yonge st., cost \$3,500; Corporation of Toronto, bk. stable, 1116 King st. w., cost \$5,000; Toronto Steel-Clad Bath Co., 3 storey bk. addition to factory, 125 Queen st. e., cost \$4,700.

OTTAWA, ONT.—The International Radial railway bill has been passed by the Railway Committee. The company propose to construct a railway from

Hamilton to Galt, Preston and Berlin, with branches to Guelph, St. Mary's and to a point on the shore of Lake Erie.—G. F. Stalker, architect, is preparing plans for a large hotel to be erected on Bank street in this city for Mr. H. Cluff. The building will cover an area of 112 feet on Bank street by 107 feet on Gilmour st. Excavating for the basement has been commenced.—A private company is being organized to construct a system of waterworks for Ottawa East to cost between \$15,000 and \$20,000.—The City Engineer has been instructed to prepare plans for an enlarged sewer for draining Dalhousie ward, and also to prepare an estimate of cost of increased sewerage. It is estimated the cost will reach \$350,000.—Dr. W. C. Cousens and Mr. Jas. Davidson propose erecting a four-story brick structure at the north-west corner of Bank and Albert streets, costing about \$20,000.—A permanent pavement will be constructed on Rideau street, between the Rideau canal and Waller street.—The following bills last week received the assent of the Dominion Parliament and have become law: To incorporate the Langenburg and Southern Railway Company; to incorporate the St. John River Bridge Company; to incorporate the Deschenes Bridge Company; respecting the Red Mountain Railway Company; to incorporate the Trail Creek and Columbia Railway Company; respecting the St. Lawrence and Adirondack Railway Company; respecting the Canada Southern Railway Company; respecting the Temiscouata Railway Company; to incorporate the Ottawa and Aylmer Railway and Bridge Company; respecting the Alberta Railway and Coal Company; to amend the act incorporating the Canada and Michigan Tunnel Company, and to change the name of the Company to the Canada and Michigan Bridge and Tunnel Company; respecting the Ottawa, Arnprior and Parry Sound Railway Company; respecting the Manitoba and South-Eastern Railway Company.

#### FIRES.

A report from Musquodoboit, N. S., states that the bridge between that place and Ship Harbor has been burned, also a mill owned by Geo. Dean, with valuable machinery.—The cheese factory of Messrs. Desjardins & Marquis, of St. André, Que., was destroyed by fire recently. Loss \$3,000; no insurance.—McArthur & Son's saw mill at Monklands, Ont., was burned last week. Insurance, \$1,200.—The residence of David Clifton at Mission City, B. C., is among the burned buildings of the past week. Loss, \$1,000; insured.—Fire at Tweed, Ont., on the 28th ultimo, destroyed among other buildings, the Albion hotel, owned by P. L. Clairmont, loss \$5,000; Thos. McCain's livery stable, loss \$4,000; A. Turcott's shoe store, and H. Cotter's harness shop.—The Iroquois hotel at St. Hilaire, Que., was completely destroyed by fire a few days ago. The building was valued at about \$50,000, and was erected by Bruce F. Campbell, who is a large shareholder. Insurance, \$20,000.—The Globe cigar manufactory at Levis, Que., owned by Mr. Turgeon, was burned recently. Loss \$5,000; insurance \$4,000.—J. B. Cressman's tailor shop at Lethbridge, Man., has been burned.—A. E. Williamson's dwelling at Midland, Ont., has been destroyed by fire.

#### CONTRACTS AWARDED.

TILSONBURG, ONT.—The town has sold \$12,800 5% twenty year bonds at 112 to G. A. Stimson, Toronto.

NEW WESTMINSTER, B. C.—The tender of D. Bain, a local contractor, has been accepted for the proposed drill shed. The amount of tender is about \$7,000.

ST. JOHN, N. B.—Contracts for steel bridges over Salmon and Tusket rivers

have been awarded to the Central Bridge and Engineering Co., of Peterboro, Ont.

HAMILTON, ONT.—H. R. Barber, architect, has let contracts for a brick residence for G. W. Gage to cost about \$2,000.

HALIFAX, N. S.—The tender of H. H. Fuller & Co., to supply a Babcock chemical fire engine at \$2,250 has been accepted by the City Council.

PRESTON, ONT.—At a special meeting of the Village Council the tender of A. Jarvis & Co., of Toronto, at \$10,441 for \$10,000 5% ten year bonds was accepted.

BELLEVILLE, ONT.—Thomas Hanley, of this city, has been awarded the contract for the erection of an addition to Albert College, and work will be commenced immediately.

ST. ANNE DE LA PERADE, QUE.—The contracts for the erection of a steel bridge here were awarded as follows: masonry, George Beaucage; steel work, Imperial Bridge Co.; both of Montreal.

VICTORIA, B. C.—The contract for the construction of the filter beds and cofferdam at Beaver Lake, has been awarded to Walkley, King & Casey, at \$83,500. The other tenders were: John Haggerty, \$66,943, and John Dean, \$88,000.

GUELPH, ONT.—Contracts were last week awarded as follows for the erection of Ald. Hewer's new block on Macdonnell street: stonework, H. Benalick & Co.; carpentering, Geo. Steven; tinsmithing and roofing, D. E. Rudd; painting and plate glass, Wm. Scriven; plastering, P. Martin. Operations will be commenced at once.

LONDON, ONT.—Six tenders were received for the construction of two steel bridges over Kettle Creek and Mill Creek for the London and Port Stanley railway, the tender of the Hamilton Bridge Works, at \$38,241 being the lowest, but owing to their tender not being in accordance with specifications, the engineers recommended the acceptance of the tender of the Dominion Bridge Company, of Montreal, at \$39,660, to whom the contract has been awarded.—The contract for supplying ties and trolley poles for the electric street railway extension has been awarded to Kernahan, (Continued on page 4.)

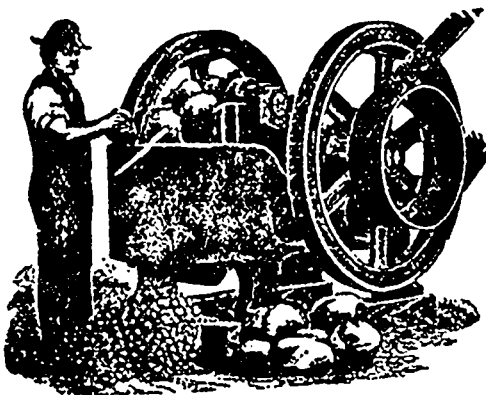
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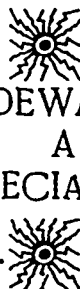
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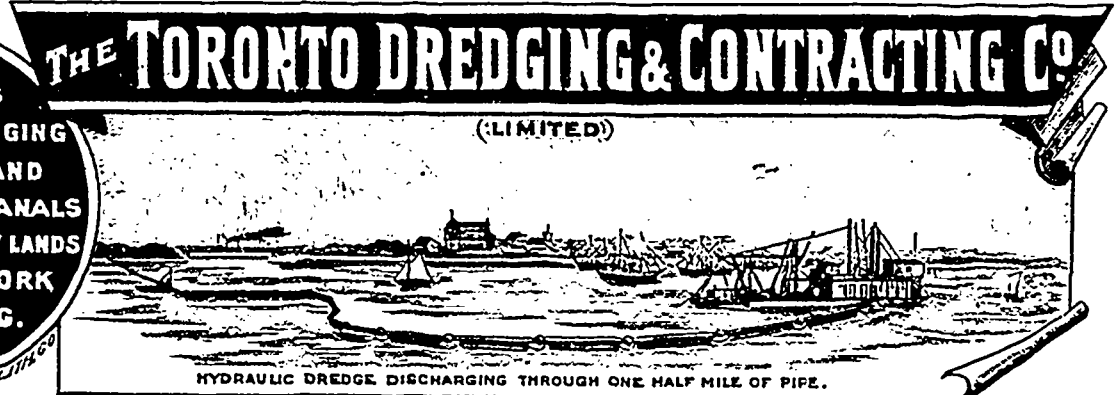
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## MUNICIPAL ENGINEERS, CONTRACTORS AND MATERIALS

Webster & Ferguson, of this city. About 40,000 ties and 1,500 trolley poles will be required.

WINNIPEG, MAN.—\$54,203 57 seven year bonds have been sold to Hanson Bros., of Montreal, at \$103.55 and \$37,315 5% 15 year bonds to H. O'Hara & Co., of Toronto, at \$107.36 for each \$100 of bonds. J. Greenfield, architect, has let contracts for the several works in connection with a cold storage warehouse on Elgin avenue for J. J. Philp. The building will be 38 x 48 feet, two stories and a basement, the latter of stone with timber superstructure. — The tender of Rourke & Cass, at \$14,400, is likely to be accepted for the erection of the proposed Masonic temple. — The offer of Osler, Hammond & Nanton, Toronto, to purchase school debentures at 98½ cents on the dollar, has been accepted by the School Board.

MONTREAL, QUE.—Theodore Daoust has been awarded the contract for a college building to be erected in the new parish of Ste Elizabeth, Notre Dame street west. It will be built of stone and pressed brick, and will cost about \$70,000. — Robert Findlay, architect, has awarded contracts for a school house at Lachine, P. Q., for the Protestant Dissident school, as follows: masonry, brickwork, plastering, roofing, painting and glazing, and iron work, J. B. Delorimier; plumbing, heating and ventilation, Jas. Ballantyne. — A. C. Hutchison, architect, has awarded contracts for alterations and additions to two tenement houses on Manse street for Macduff Lamb as follows: masonry and brickwork, Amos Cowen; carpenter and joiner's work, H. Marsan; roofing, Montreal Roofing Co.; plastering, J. S. Dow; plumbing and heating, Gibeault & Bros.; painting, John Murphy.

TORONTO, ONT.—The Public School Board awarded tenders on Tuesday evening last for midsummer repairs and for additions to Morse street and Queen Victoria schools. — Tenders for an addition to Jarvis street Collegiate Institute have been awarded as follows: masonry, H. Lucas, \$4,235; carpentering, Wm. Crone & Son, \$3,482; plastering, John M. Gandy, \$407; painting and glazing, R. J. Hovenden, \$380; tinsmithing, A. S. Ormsby & Company, \$87; slating, M. D. Hutson & Son, \$292; heating, plumbing, and gas fitting, Purdy, Mansell and Company and Washington, \$1,384; total, \$10,267. — For the construction of a public lavatory on Victoria street, the Board of Works have accepted the following tenders: excavation, concrete and brickwork, J. S. Shields & Co., \$1,108; galvanized iron work, W. H. Hudson & Son, \$271; cast iron work, St. Lawrence Foundry, \$390; plumbing, Keith & Fitz-

simmons, \$370; marble work, J. G. Gibson, \$267; painting, J. M. McCausland, \$25. M. Warnock was given the contract for water meters at the following prices: ¾ inch, \$16 each; 1 inch, \$23; 2 inch, \$49; 3 inch, \$76; 4 inch, \$108; 5 inch, \$145; 6 inch, \$176; 8 inch, \$256; 10 inch, \$346.

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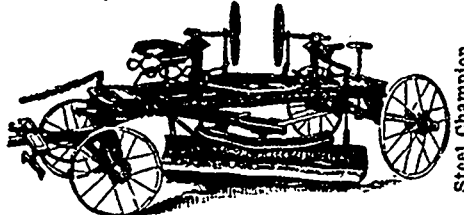
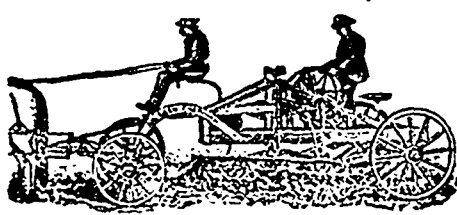
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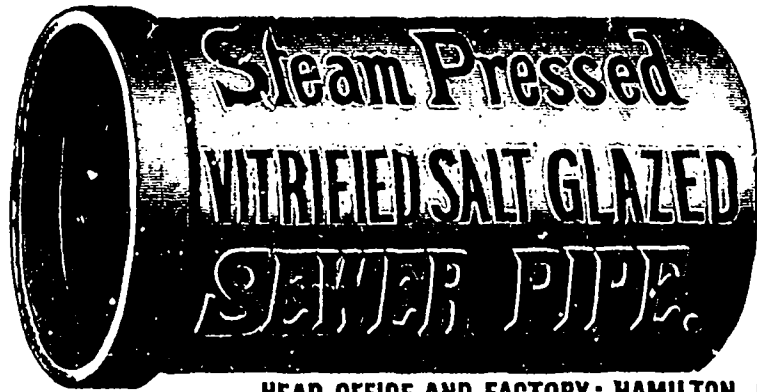
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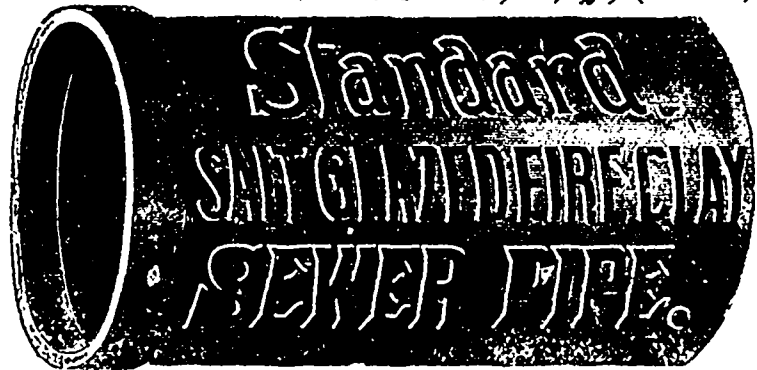
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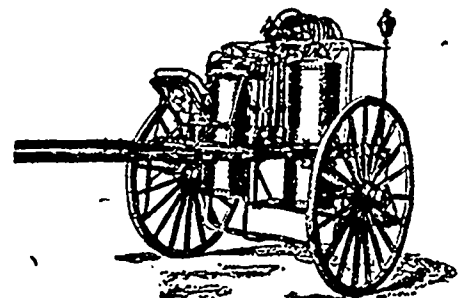
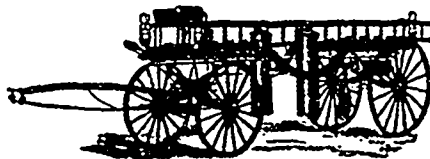
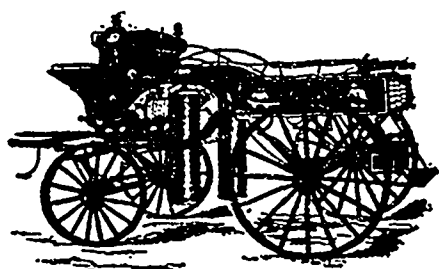
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# MUNICIPAL DEPARTMENT

## THE PROBLEM OF PURE WATER SUPPLIES.\*

After a source of supply has been selected, and storage, if necessary, provided, it then behooves the officials to see that the water is distributed throughout the city by means of suitable pipes at suitable pressures, and in the least expensive manner. The uneven rate of water consumption throughout the day and night, and the sudden demand for large quantities in one locality in case of a conflagration, make it desirable in most cases to have a distributing reservoir near or in the city, into which the water is uniformly delivered by gravity, or by pumping, and from which it is drawn through the distributing pipes in accordance with the demand. Sometimes such reservoirs are impracticable for topographical reasons, as in Chicago, and then ample means for pumping directly into the mains, with facilities for quickly responding to the changes in the draft, must take their place.

The water-pressure must be neither too great, straining the fixtures or leading to waste or inconvenience, or too light, giving insufficient discharge. Water should be expected to flow freely in the upper stories of all ordinary buildings. In hilly cities it is often necessary to have a high and a low pressure service, each requiring a separate system of distributing reservoirs and pipes.

The pressures in the pipes should ordinarily range from 20 to 80 pounds per square inch. Where they are high, and where the loss of property due to fires cannot be very great, it is customary to utilize the pressure in the pipes, instead of fire-engines, for putting out fires. When this is to be done, the designing engineer must see that sufficient pressure exists everywhere for this purpose, so that, with the greatest hose-lengths in use, and under other usual conditions, enough water can be thrown upon the fire.

It is a common mistake, due apparently to motives of supposed economy, to make the pipes or mains too small. It is not unusual to find them only 4 inches in diameter or less, when supplying extensive territories. In case of a large fire, the draft upon such a pipe is so great that the pressure and the supply become seriously deficient. The sizes should be so proportioned that, both for fire and domestic purposes, the quantities and pressures in any part of the city will be ample.

It is a matter of importance, particularly where the water is not of the best quality, to so unite all the pipes that there can be a complete circulation, sometimes in one and sometimes in the other direction. So called "dead ends," or the abrupt

\*From an article by Rudolph Herring, in the Engineering Magazine.

termination of a pipe, should be avoided, because a stagnation of the water is possible. Furthermore, when there is a sudden change and a large draft at one point, a circulatory system will permit the water to be drawn at a given point from both directions, thus more than doubling the quantity available.

The net-work of the distribution requires still further attention. With a main in every street, it sometimes makes a considerable difference in the total cost whether the largest pipes are laid through the middle or along the periphery of a certain district.—the most economical location being, as a rule, through the streets where the greatest draft is expected. Every locality has its own economical problems, which a competent engineer will not overlook.

The distributing mains should be capable of being cut off by valves at suitable points, so that, when repairs or new connections become necessary, only a comparatively small district need be deprived of water. A careful study may make it practicable to economically shut off no more than two or three blocks at a time.

Hydrants should be placed sufficiently often to control a fire occurring at any point. It is customary to have from ten to fifteen to every mile of pipe in residence districts, and from twelve to fifty per mile in business districts where valuable merchandise is concentrated. Yet it must be remembered that a closer grouping of hydrants will not alone suffice to deliver a greater quantity of water. The sizes of the mains must correspond to the frequency of the hydrants.

Space does not permit us to consider the ways in which authorities should control the use of water by the people, and regulate the plumbing so that waste and damage shall be prevented. Suitable ordinances should be adopted to protect the supply from misuse and prevent it from endangering property.

The method of paying for water should likewise receive careful attention. Measurement by meter should be adopted wherever practicable, as the fairest method both for the consumers and for the city, provided there is a fixed minimum rate which permits of an ample amount of water for legitimate use. Instance the city of Atlanta, where over 89 per cent. of the quantity consumed by private parties is metered, with the result that waste is materially reduced, and the *per capita* expense of pumping and purifying the water is kept very low.

When meters are not used, the charges should be governed as nearly as possible by the ratio of the quantities probably consumed. Unfortunately this is not always the case, as the usual water tariff frequently contains rules which favor some consumers and unjustly impose greater charges upon others.

Finally, an important question for city officials to consider is the ownership of the works, whether the city shall own them, or a franchise be awarded to a private corporation to supply the water to the inhabitants. Over one-half of the water-works of the United States belong

to private companies. The largest cities, however, are generally found to own the works, while in the newer sections of the country, or those which develop less rapidly, we find a higher percentage of private works. One reason for this lies in the fact that the larger cities, having better credit, are better able to raise the necessary capital; another lies in the feeling that in large cities the works can be better managed in the public interest. Therefore we find that, of the fifty largest cities of the United States, seventeen have, within the last fifty years, changed from private to public ownership, while but one city\* has sold its works to a company. Nevertheless, it often occurs that for financial reasons, or on account of a prejudice against incurring a greater debt, serious objections are urged against a town owning its works. It is not always realized that by the franchise system the taxpayers generally assume a greater burden than by public ownership. Still there are many cases where private companies are preferred, and are even necessary, to enable the inhabitants to secure the benefits of a supply. It then becomes exceedingly important that the city officials thoroughly inform themselves of the many intricacies of the subject before granting the franchise, so that they can properly guard the interests of the citizens. Before awarding a franchise, the wisdom is apparent of thoroughly investigating the character and claims of the promoters, the extent and full extent of the proposed supply, the storage facilities, the intended distribution system with its appurtenances, and the available pressures and deliveries, with reference to domestic and fire supplies. The proposed pumping machinery and purification plants, if needed, should also be subjected to careful scrutiny, so that they will undoubtedly do the intended work; and, lastly, the estimated cost of the entire system and the proposed tariff charges, both for public and private purposes, should be conscientiously considered, so that not only a reasonable profit may accrue upon the invested capital of the company, but a protection against ill-proportioned or exorbitant rates be guaranteed to the citizens.

\*New Orleans, La., bought its works from a company in 1868 and sold them to a company in 1878. *Manual of American Water Works for the year 1891.*

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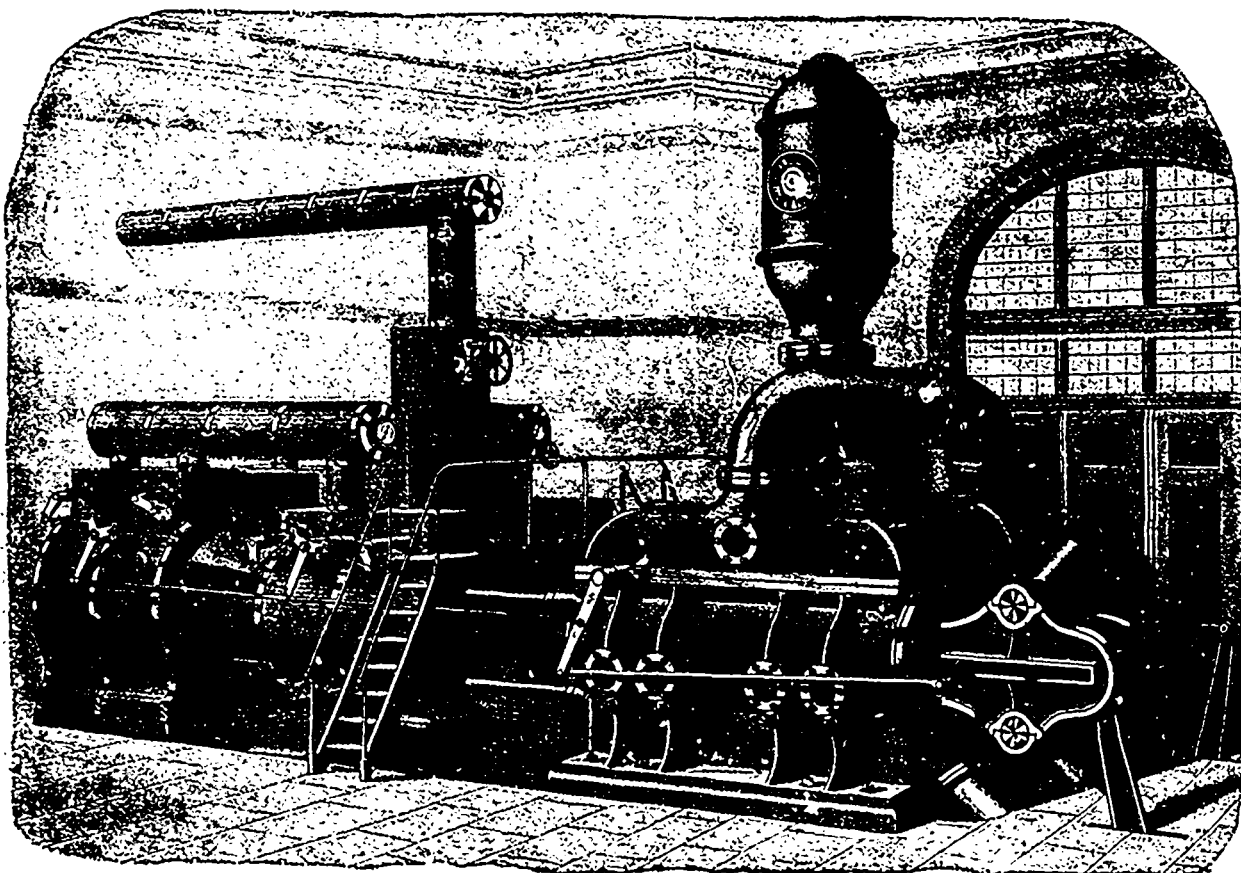
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Toronto. Montreal.

CONDITION OF THE MARKET.

TORONTO: Real estate brokers report an increase of business and some inquiry is made for building sites. Builders' supplies generally are moving freely, and an advance is looked for in bar iron and cut nails at an early date. Iron pipe has advanced slightly. Plumbers' supplies are reported as brisk, while paints and oils are quieter.

MONTREAL: The iron market gives signs of pronounced strength, and buyers are purchasing in advance of present requirements. A firmer feeling is also noted in cement, and prices are expected to move upwards in the near future. The stock at present on hand at this port is small, but arrivals are expected. Firebricks are active at \$19 to \$21 per M. Iron pipe is brisk.

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Table listing prices for slating nails.

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