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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.

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OCTOBER 3, 1895

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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, OCTOBER 12TH, 1895, for the following work:

A BRICK PAVEMENT ON CONCRETE (TRACK ALLOWANCE)

On Dovercourt Road, from Bloor street to Union street.

Specifications may be seen and forms of tender obtained on and after Saturday, 5th October, 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 tendered for over that amount, must accompany each and every tender, otherwise it will not be entertained.

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

The lowest or any tender not necessarily accepted.

DANIEL LAMB,
Chairman Committee on Works.
Committee Room, Toronto, Sept. 25, 1895.

ESTIMATES WANTED

by NOON, SATURDAY, 12TH INST. for factory and offices for THE METALLIC ROOFING CO., OF CANADA, LTD., to be built at corner of King and Dufferin streets, Toronto.

Plans, etc., may be seen Monday, 7th inst. at office of

HENRY SIMPSON, Architect,
9½ Adelaide St. E.

No tender may be accepted.

ESTIMATES

Wanted by NOON, SATURDAY, THE 12TH INST. for an

Hotel on Adelaide Street, Toronto,

for Mr. Jethro Worden. Plans, etc., now at office of

HENRY SIMPSON, Architect,
9½ Adelaide St. East.

No tender may be accepted.



NOTICE TO CONTRACTORS

Tenders for Fence

Tenders will be received by registered post addressed to the City Engineer, Toronto, up to 11 o'clock a.m., on SATURDAY, OCT. 12TH, 1895, for the construction of a

FENCE ON THE ROSEDALE RAVINE

Specifications may be seen and forms of tender obtained at the office of the City Engineer, Toronto, on and after the 5th day of October, 1895.

A marked cheque, payable to the order of the City Treasurer, for the sum of 2½ per cent. on the amount tendered for, must accompany each and every tender, otherwise it shall be ruled out as informal.

The lowest or any tender not necessarily accepted.

DANIEL LAMB,
Chairman of Committee on Works.

Committee Room, Toronto, Sept 30, 1895.

The following makes a good coating for damp walls: Thirty parts of tin are dissolved in 40 parts of muriatic acid, and 30 parts of sal-ammoniac are added. A powder composed of freestone, 50 parts; zinc oxide, 20 parts; pounded glass, 15 parts; powdered marble, 10 parts; calcined magnesia, 5 parts, is prepared and made into a paste with the liquid above mentioned. Colouring matter may be added. The composition may be used as a damp proof coating for walls, or for repairing stonework, or for moulding statues or ornaments.

W. J. Thompson, builder, of Simcoe, is reported to have called a meeting of his creditors.

CONTRACTS OPEN.

GRANTON, ONT.—Mr. Bam is erecting a new house on Front street.

STIRLING, ONT.—A large steel bridge will be built here by the County.

ORILLIA, ONT.—The G. T. R. will build a new bridge at the Narrows.

GEORGETOWN, ONT.—The construction of cement sidewalks is agitated.

WOODSTOCK, ONT.—The sum of \$10,000 will be expended on schools this year.

BOLINGBROKE, ONT.—The Presbyterians of this place propose building a new church.

NORTH BAY, ONT.—The extension of the waterworks system is to be proceeded with at once.

LINDSAY, ONT.—Mr. W. A. White, architect, has prepared plans for the proposed hospital.

ST. ANDREWS, N. B.—T. R. Wheelock, of Boston, has purchased land here and intends to build a summer residence.

VALLEYFIELD, QUE.—The property owners have rejected a by-law to spend \$80,000 on the construction of sewers.

ROSSLAND, B. C.—Tenders are asked for the construction of a system of water works. Mr. Riblet, of Spokane, is consulting engineer.

BEAUHARNOIS, QUE.—Engineers are surveying the line for the proposed extension by the C. P. R. from the Lachine bridge westward.

NEW WESTMINSTER, B. C. It is expected that work will shortly be commenced on the rebuilding of the Brunette saw mill recently burned.

CARLETON PLACE, ONT.—The citizens will be asked to sanction the expenditure of a larger sum of money for the erection of their new town hall and fire hall.

EGANVILLE, ONT.—The corner stone of the new R. C. Church, Eganville, was laid last week. It is estimated that the church, when completed, will cost \$40,000.

AMULREE, ONT.—Tenders, addressed to A. M. Fisher, Clerk, are invited until noon on Friday, the 4th inst., for repairing and extending the western drain in the township of North Easthope. Plans at the clerk's office.

ORANGEVILLE, ONT.—In his address to the grand jury at the recent assizes, Mr. Justice Robertson stated that the county should take advantage of the aid offered by the Provincial Government for the erection of a poor house.

ST. THOMAS, ONT.—The construction of an electric railway is to be commenced shortly, and the aldermen are visiting other cities in search of information. The London and Port Stanley railway will build a new steel bridge here.

BROCKVILLE, ONT.—W. H. Comstock will build a new residence on the H. F. J. Jackson property on the river front.—A company is being formed here to build an electric railway, and work will be commenced next season. Among the pro-

motors are W. H. Comstock, C. S. Cossitt, and D. S. Booth and the capital stock is placed at \$200,000.

BELLEISLE CREEK, N. B.—The Methodist congregation have decided to commence the erection of a parsonage at once. The building committee consists of G. M. Gunter, H. Northrup and J. A. Northrup.

VANCOUVER, B. C.—The Vancouver Marine Railway, Dry Dock and Manufacturing Company, is seeking incorporation, with a capital stock of \$100,000. It is proposed to erect a marine railway and conduct a general shipyard.

OTTAWA, ONT.—The question of erecting an operating theatre in connection with the Protestant hospital is meeting with favor, and a draft of the plans will be presented at the meeting of the directors to be held this week. Work will be commenced early in the spring.—The Central Fair directors have decided to enlarge the exhibition grounds, and on the new ground will be erected large cattle sheds. The work may begin this fall but will not be completed until next summer.

LONDON, ONT.—George T. Hiscox has purchased property and will erect a four-storey building on the corner of Richmond and King streets, to be occupied by the Bank of Toronto.—It is probable that the Western Fair Board, in erecting the new poultry and carriage buildings, will also call for tenders for new and more commodious grand stands.—It is stated on good authority that the Grand Trunk Railway Company will rebuild their car shops in this city, which were destroyed by fire some time ago.

WINNIPEG, MAN.—The Public School Board are asking for tenders until 4 p. m. of the 4th inst. for plumbing required at the Mulvey, Argyle and Dufferin schools and for laying a concrete floor in the Mulvey school. The work at the Mulvey school is in the hands of Geo. Browne, architect, and that at the other schools is under the superintendence of C. H. Wheeler, architect.—Tenders are invited by Mr. George Browne, architect, until Saturday, the 5th inst., for putting in steam heating apparatus and a system of electric and gas lighting in the Masonic Temple.

MONCTON, N. B.—The City Engineer has prepared a report on the water system giving several schemes for the improvement of the supply. To extend and improve the present system, would, it is estimated, cost \$98,801. Other available sources of supply are reported on as follows: Humphrey brook, 60 feet elevation above city level, 330,775,000 gallons, cost \$114,544; Humphrey brook reservoir, elevation 133.81 feet, capacity, 84,840,000 gallons, cost \$105,418; Extending and improving present system with Humphrey brook, cost \$126,939.

HAMILTON, ONT.—The Application of the Board of Education for a grant of \$50,000 from the City Council towards building a new Collegiate Institute will in all probability be passed by the Council. It is proposed to erect a building, estimated to cost \$100,000.—A new infirmary is being built at the Hamilton insane asylum. It will cost between \$20,000 and \$25,000, and will accommodate 70 patients.—The City Council has granted to the Board of Education the \$50,000 asked for towards the erection of a new Collegiate Institute and School of Pedagogy.

KINGSTON, ONT.—The Finance Committee has recommended to Council that a by-law be submitted to the electors in January next, for the purpose of raising \$20,000 to build a new school house.—Mr. C. F. Gildersleeve, one of the leading promoters of the Kingston, Smith's Falls and Ottawa Railway, states that preparations are being made to commence operations early next spring. The line is now surveyed into Smith's Falls. If possible, the

road between Kingston and Smith's Falls will be completed next summer, and the line may be extended to Ottawa by the fall of 1897.—The Grand Trunk will build a large tank here for water supply, with a capacity of 150,000 gallons. Arthur Ellis, architect, is receiving tenders until Friday at 4 p. m. for additions to a house on Queen street for Capt. T. F. Taylor.

QUEBEC, QUE.—It is understood that H. J. Beemer contemplates starting work at once on the construction of the electric railway, and some tracklaying will be done this fall.—Construction is soon to be commenced upon the property at the corner of St. Paul and Ramsay streets, to be utilized as the passenger station of the Quebec, Montmorenci and Charlevoix railway. The old building is to be raised several feet and completely transformed, with suitable ticket offices, waiting rooms, offices, vaults, etc., also other works of construction that have been entered upon here are the new factory building of Mr. Pattey, boot and shoe manufacturer, on St. Valier street, which is to cost \$10,000, and an addition of 64 feet square to the brewery of Messrs. Roswell Bros.—Several plans have been received for the new Jeffery Hale Hospital to be erected near the Q. A. A. grounds, at a cost of \$150,000.

MONTREAL, QUE.—It is stated that the Government contemplates making improvements to the jail in this city.—Mr. A. F. Gault has donated \$100,000 to establish a Church of England college, including dormitories and recreation grounds in this city.—Sir Charles Rivers-Wilson, President of the Grand Trunk Railway Company, is said to have decided to raise half a million dollars for the purpose of thoroughly equipping the Chicago and Grand Trunk division of the railway, and the work of improvement will be entered upon in the near future.—Mr. Charles N. Armstrong has recently returned from New York. In connection with the Atlantic & Lake Superior Railway, he states that there can be no doubt but that the road will be started without delay, and the issue of debentures made in London later on.—Tenders are invited by J. A. Chaussé, architect, until noon, October 7th, for the necessary works for the erection of a stone front dwelling house on Rachel street, cor. Panet, for Miss Picotte. The same architect has prepared plans for an extension to a store at St. Hyacinthe for Papneulo Bros.—Brown & McVicar, architects, have completed plans for a new Presbyterian church to be erected at Cornwall, Ont.—Building permits have been granted as follows: J. Aumond, two story brick tenement building, St. Catherine street, cost \$2,000; F. B. Wheeler, three storey brick tenement building, Ontario st., cost \$4,000; F. B. Lytle, store and tenement building, Congregation st., cost \$2,400.

TORONTO, ONT.—A by-law was passed by the York Township Council on the 2nd of September, providing for the issue of debentures to the amount of \$2,000 for constructing a bridge and approaches with culverts and sidewalks on Berkeley ave.—Plans are being prepared for the new factory to be erected by the Metallic Roofing Co. at the corner of King and Dufferin streets.—Armstrong & Elliot, of this city, give notice of application to Parliament for incorporation of a company to construct an electric or steam railway from a point on the northern division of the Grand Trunk Railway between King and Newmarket, to the village of Schomberg.—The committee of the York County Council has extended the agreement with the Metropolitan Street Railway Co., re the extension of the system to Richmond Hill, till the council's meeting in November.—In the presentment of the Grand Jury at the recent General Sessions, the erection of a new wing and an elevator for the old people's section of the House of Provi-

dence was strongly recommended.—Judge McDougall has stated that he intended to make strong representations to the Government with regard to the overcrowding of the Central prison. He considers that the building should be enlarged.—It is understood that an interview will take place shortly between Hon. John Haggart, Minister of Railways, and a delegation from the towns and villages to be affected by the projected Collingwood and Toronto air line. The City Engineer has recommended the construction of a macadam roadway on Temperance street, at a cost of \$715.—E. J. Lennox, architect, is receiving tenders until Saturday of this week for excavation and pile foundation work necessary in the construction of a brick factory building on the Esplanade for the Cobban Mfg. Co.—Building permits have been granted as follows: Wm. Murray, 2 det. 2 story and attic bk. dwellings, 97 Dowling ave., cost \$5,000; Wm. Scott, 232 King st. w., det. 2 story and attic bk. dwelling, 143 Dunn ave., cost \$3,500.

FIRES.

Bloom's saw mill at Holmesdale, Ont., on the Michigan Central Railway near St. Thomas, was burned to the ground on the 26th September. A report from Arthabaska Station, Que., states that nearly 100 houses were burned down from Stamford to St. Celinin from forest fires last week. At Brault's Mills every house has been burned.—Fire at North Gower, Ont., recently destroyed Geo. Ferguson's hotel, Wm. Murphy's two dwellings, Hiram Scott's store and dwelling, and James Johnston's dwellings. A portion of the loss is covered by insurance.—William Partlo's grist mill at Ingersoll, Ont., was destroyed by fire last week. Loss, \$20,000; insurance, \$12,000.—The cheese factory at Vanessa, Ont., has been burned. The residence of J. J. Cowan, near Chatham, Ont., was burned on the 27th inst. Loss, \$2,500; no insurance.—A new brick house at Barrie, Ont., owned by Henry Martin, was burned recently.—On the 25th ultimo fire destroyed the shingle mill of John Dovey, Lindsay, Ont. The mill and contents were insured for \$4,000.—John B. Smith & Sons saw mill at Calender, Ont., was destroyed by fire on Saturday last. It was insured and will be rebuilt at once.—The Commercial hotel and two general stores at Comber, Ont., owned by A. M. Aubin and A. Dupins, were burned recently. Loss \$6,000; partially covered by insurance.—On the 30th September fire destroyed the grist mill at Manitowaning, Ont., owned by J. V. Burns, together with the storehouse of the Indian Department. The mill was valued at \$6,000.—A tannery and dwelling at Joliette, Que., owned by Mr. Henrichen, was burned on Monday last. Loss, \$15,000.—Jackson & Co.'s steam saw mill at the mouth of the Tidnish river, St. John, N. B., was consumed by fire last week.

CONTRACTS AWARDED.

CASTLETON, ONT.—The Dominion Stained Glass Co., of Toronto, have been given the contract for glass for the Methodist church here.

SCHOMBERG, ONT.—The Dominion Stained Glass Co., of Toronto, have been awarded the glass contract for the new Baptist church here.

WALKERVILLE, ONT.—The Globe Furniture Co., of this town, are supplying oak furniture for the office of C. M. Counsell, broker, of Hamilton.

SANDWICH, ONT.—The contract for the improvement and repairs of the Essex County jail and court house has been awarded to John Whertley, of Essex. Contract price, \$18,340.

WINNIPEG, MAN.—The tender of W. F. Lee for the construction of twenty-four catch basins, at \$1,428, and that of Dob-

son & Jackson for a sewer on Garry street, at \$1,594, have been recommended for acceptance by the Committee on Works.

GUELPH, ONT.—The Guelph Curling and Skating Rink Co. have closed contracts for the addition to Victoria rink as follows: carpenter work, Geo. Stevens; mason work, John Kennedy; tinsmith work, J. R. Jackson; painting and glazing, R. H. Barber.

TORONTO, ONT.—Purdy, Mansell & Mashinter have been awarded the contracts for plumbing and heating for the new Globe building, the Simpson building and S. F. McKinnon & Co.'s warehouse. —The tender of the Toronto Furnace & Crematory Co. has been accepted for heating the addition to the Lombard street fire hall and the new Dundas street fire hall, at the price of \$430 and \$338 respectively.

MONTREAL, QUE.—Brown & McVicar, architects, have awarded the contract for the erection of a factory at Granby for the Empire Tobacco Co., to Neil & Kent, also for a factory at Point St. Charles for Cunningham & Co., as follows: masonry John Matheson; brick, Thos Wand & Co.; carpenter work, Jas. Shearer; plumbing, J. W. Hughes; painting, R. H. Bartholomew; roofing, Montreal Roofing Co., also for a French Presbyterian church at Point St. Charles as follows: masonry, J. Matheson; brick, Amos Cowen; carpenter work, T. & D. Kneen; roofing, Geo. W. Reed; plumbing and heating, Jas. Ballantyne; plastering, Geo. Cook; painting, G. S. Kimber; steel work, Canadian Bridge Co.

NEW COMPANIES.

TILBURY CENTRE, ONT.—Tilbury Peninsular Oil and Gas Co., incorporated; capital \$20,000; to bore wells for the production of oil.

BEDFORD, QUE.—Bedford Manufacturing Co., seeking incorporation; capital \$65,000; to manufacture edge tools. Applicants, Edward Coslett, F. C. Saunders and others.

TORONTO, ONT.—Credit Forks Mining & Manufacturing Co., seeking incorporation; capital \$200,000; applicants, Robert Carrol, J. B. Vick, J. H. McKnight and F. J. Beharnell, all of Toronto.

ST. CATHARINES, ONT.—Lincoln Railway Traction and Light Co., Ltd., applying for incorporation; capital \$90,000. The promoters are William Wilson, Geo. Palmer, R. H. Hill and Henry A. King, of Toronto; John S. Campbell, Lucius Sterne Oille and George E. Patterson, of St. Catharines.

BUSINESS NOTES.

A. T. A. Chagnon and L. T. Frigon, contractors, Montreal, have dissolved.

Dion, Poitras & Larin have registered a partnership in Montreal as plumbers and roofers.

Weir & Young, of Millbank, Ont., have recently commenced the manufacture of white brick.

A demand of assignment is said to have been made upon McCrae & Watson, plumbers, Montreal.

F. McGibbon & Sons, lumber merchants, Sarnia, Ont., are reported to have called a meeting of their creditors.

G. T. & W. F. Phillips have formed a partnership in Montreal as plumbers, under the style of G. T. Phillips & Son.

The Office Specialty Mfg. Co., Toronto, are applying for incorporation, with a capital stock of \$75,000 to manufacture furniture, office, church and school furnishings, etc.

Messrs. Connolly, of Kingston, have brought action against the city of St. John to recover \$44,000 on the contract for building wharves in 1893 and 1894 and

\$22,224 more for extra towage and dredging. The city denies the Connollys' right of action, claiming they have been fully paid.

In a large house in one of the nearby New Jersey towns the colors have been chosen with remarkably good taste, and the whole house, surrounded by broad green lawns and standing among dark leaved trees, forms a most agreeable picture. The first storey is built of dark, rough brick, while the second storey,

which is shingled, has been stained a rich leavy green that tones well with the foliage, and contrasts admirably with the dull red of the bricks. The high pitched roof has been stained a dull reddish brown that lightens up by reflection, and hence does not look so heavy as it otherwise might. The trimming colors are rich shades of olive, neither glaring nor incongruous, but harmonizing well with the general mass of the house, and giving the effect of one harmonious and well ordered whole.

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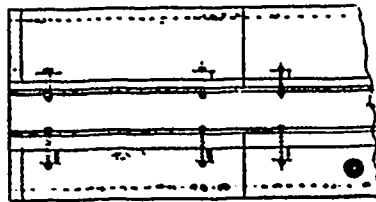
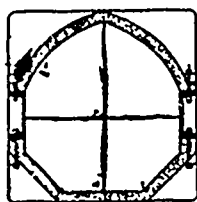
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ROMAN VAULTING.

Want of wood for scaffolding might be the cause why vaulting was so much disregarded by the Egyptians and Greeks. As to the Romans, they, says Winckelman, taking advantage of the solidity which the pouzzolane (a particular sand) acquires in a short time used more cement than stone in vaulting. When the frame was covered with carreaux or planks, they threw over cement, very small stones or bruised bricks, to a certain thickness (5 feet 4 inches in the Therma of Dioclesian). By this means a few men would build a large vault in a day. This construction appears at the Coliseum, the Baths of Titus, Caracalla and Dioclesian and particularly at Adrian's Villa, where are still seen the beds of the planks of the frame. As the ancients made their vaults very strong they endeavored to render them as light as possible. This they did by two methods. One was to fill the vaults with volcanic scoriae, some of which have been found at the Pantheon. The other consisted in using urns or vases of terra cotta, the apertures being placed at top. Within and around them they poured small stones and cement. Denon thus describes arches of this construction which he found at Vianisi, in Sicily. A sort of Phials, 8 inches long by 3 inches wide, without bottoms and filled with mortar, have their necks introduced into each other in a row, covered over again with a general coat of plaster, on which a brick was laid flat, then a fresh bed of mortar and another brick upon this, like the former. It was scarcely possible ever to destroy semi-circular arches fabricated in this manner, and it was with the utmost difficulty that Denon wrenched off a few fragments. Alberti says that this construction of phials was used on purpose to ease the weight, and that they had no bottoms lest water should collect in them and so render them heavy. But this construction must not be confounded with vases used on purpose to augment the sound. Evelyn saw a room covered with

a noble cupola, built purposely for music, the fillings up, or cove between the walls, being of urns and earthen pots for the better sounding.

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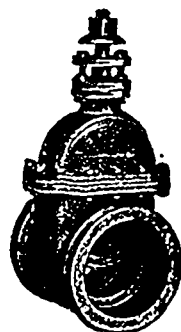
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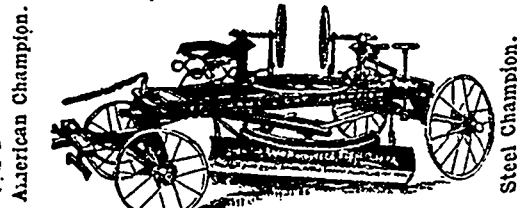
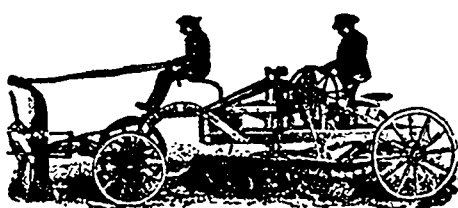
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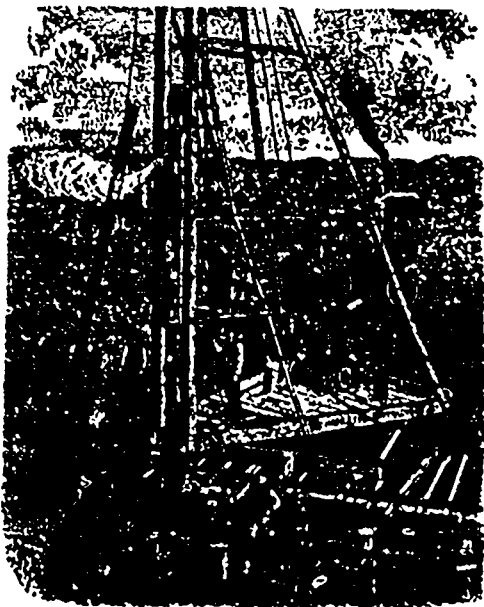
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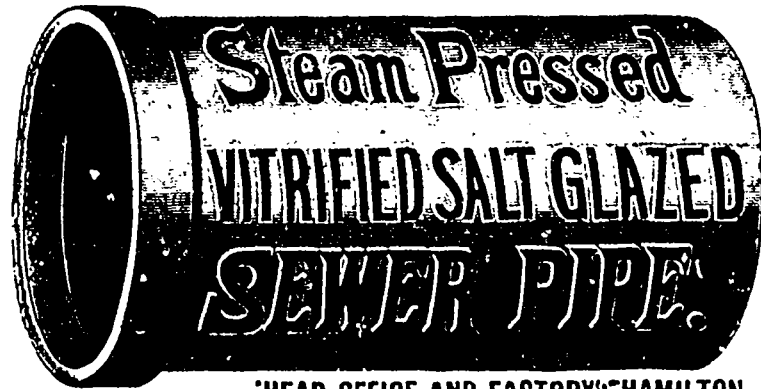
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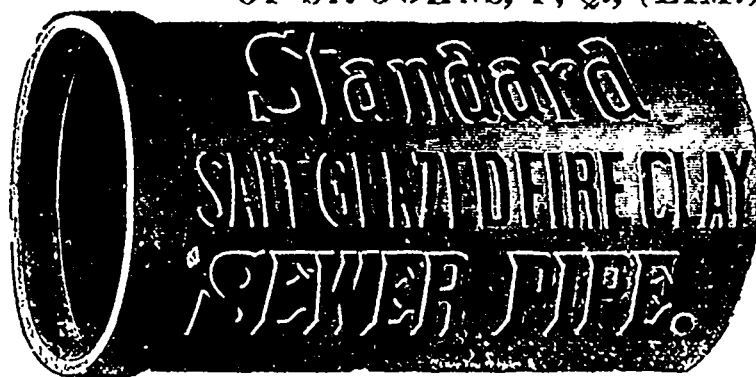
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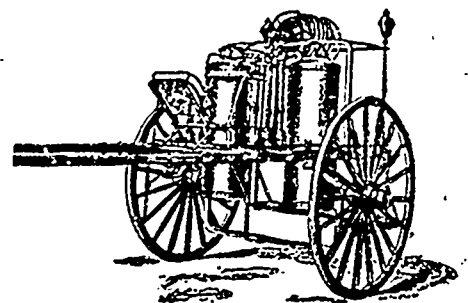
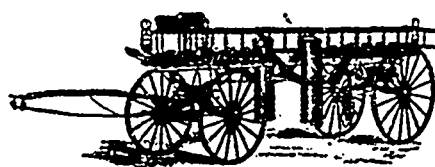
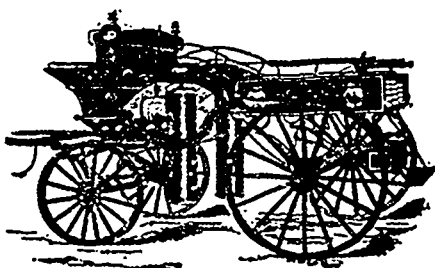
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MUNICIPAL DEPARTMENT

ASPHALT'S AND BITUMENS.*

The production of asphaltum and bituminous rock in the United States for 1893 is given by the United States Geological Survey in "Mineral Resources of the United States for 1893," as 47,779 tons, of which California produced 42,650 tons, Utah 3,200 tons, and Kentucky 1,929 tons. For 1892 the production is given as 87,680 tons.

There remains the practical side of the subject to be noted.

The uses of asphalt may be summarized as follows :

1. As a varnish or paint.
2. As the base of insulating compositions.
3. As a waterproofing material.
4. As a cement in ordinary building construction.
5. As the cement in roofing and paving compositions.

(It is stated that fully ninety-five per cent. of the asphalt used is for the last-named purpose.)

For the manufacture of asphalt varnish or paint, the asphalts rich in bitumen (like gilsonite) are used, the bitumen being partly dissolved by admixture with oil of turpentine and linseed oil. In this way a so-called Japan varnish is obtained for the process of japanning metals. The asphalt varnish may also have other resins (like shellac) added in order to give greater flexibility and toughness.

For the manufacture of insulating compounds the asphalt is usually tempered with wax tailings and other petroleum products to give the mixture the proper consistency; the exact composition of the mixtures being, however, carefully kept secret by the manufacturers.

For waterproofing the foundations of buildings, and as a protection against moisture in cellars, etc., a refined maltha or melted asphaltum is often used, being painted on the masonry or timber, or bricks are dipped in it before being set in position. For lining reservoirs, irrigating canals and ditches, an asphalt cement similar to that used for paving is frequently used. In this case, as has been shown in practice, a natural asphalt with a proper proportion of bitumen and mineral matter or a natural asphalt tempered with a maltha or so-called "liquid asphalt," will yield a more homogeneous and water-resisting coating material than an asphalt tempered with either coal-tar or petroleum residuums.

For other forms of construction, especially for paving sidewalks, stable-yards, open areas and flooring in exposed positions, as upon flat enclosed roofs of large

buildings, asphalt mastic is used. The basis of this is usually one of the natural asphaltic limestones, such as Seyssel or Neufchatel asphalt.

The rock, having been powdered, is put in round kettles in which about eight per cent. of its weight of refined Trinidad asphalt has been previously melted. It is thoroughly mixed with this at about 280° Fahr. for several hours, and is then run into moulds, where it is formed into square, hexagonal or round blocks, of about fifty to sixty pounds weight. When the mastic is to be used, it is again melted with refined Trinidad asphalt, in the proportions of about seven pounds of asphalt to one hundred pounds of the mastic, and sand or fine gravel is added gradually up to sixty pounds, according to the use to which the mixture is to be put. This mixture, known as "gritted mastic," is spread while hot, rubbed smooth and allowed to cool. When cold it is slightly pliable and thoroughly waterproof.

The last-named application of asphalt, viz., for roofing and paving construction, as before stated, is by far the most important of all the others. As applied to roadway or street paving, we have two entirely distinct methods to note. The asphaltic limestones such as are found in Europe, and asphaltic sandstone such as is found in California, require merely to be crushed, heated to from 275° to 300° Fahr., and hauled to the streets and spread uniformly while still hot. It is then tamped and rolled with hot instruments. Asphalt pavements of this kind are in general use in Paris, London, Berlin and other European cities. Roadways made from bituminous limestones are said to become polished by wear, and to become slippery in foggy and drizzling weather. In California, where bituminous sandstone is used, they are said to wear well, except that they soften too much in warm weather.

The other form of asphalt paving construction, used most largely in this country, is that in which an asphalt cement is first made by taking a hard but relatively pure asphalt and tempering it with some oily or bituminous liquid. This cement, in the proportion of ten to sixteen parts, is then mixed at a temperature of about 300° Fahr., with from eighty-four to ninety parts of clean sand and powdered limestone, and the mixture applied with no more loss of heat than necessarily follows its transportation to the streets in covered carts.

While this general statement as to the nature of an asphalt paving composition may be taken as covering the subject broadly, many points of the greatest importance come in to determine whether a given composition will be a satisfactory one or otherwise. The asphalt should be one with a high percentage of so-called petroleum as compared with asphaltene; the oily or bituminous liquid above referred to should be one that will make a satisfactory and durable blending with the asphalt, and the proportions of tempering liquid and asphalt which go to make up the cement should be chosen with reference to climate and the character of the

traffic that is likely to pass over the street.

The analyses quoted in this lecture will show how asphalts may differ in the first respect. With regard to the nature of the tempering liquid, I may say that coal tar was at one time used, but has been almost universally rejected, as not making a satisfactory or durable blending material, the mixture having been found to disintegrate under atmospheric influences. Petroleum residuums are now almost universally used in the Eastern States, while malthas, or natural "liquid asphalts," so-called, are used on the Pacific Coast and in Western States. I am satisfied, on both theoretical and experimental grounds, that the last-named tempering materials are to be preferred.

STREET PAVING AND CLEANING.

The president of the British Institute of Public Health speaks as follows on this subject: The condition of private streets, especially in our small towns, is one that commands our serious attention, as so many authorities are extremely lax in exercising the statutory powers dealing with these streets. The care of the public health is the first duty of a council regardless entirely of private interests, which are so often protruded too prominently when any question dealing with private streets has to be discussed. In our towns, and especially in those neighborhoods where the poor live, the streets are always the playgrounds of the very little children, and it is nothing short of a scandal to see as one does so very often, year after year, street after street simply formed of ashes, rubbish and litter, full of holes and hollows, and in winter a perfect quagmire of accumulated filth, a sure and certain source of disease, not only for children, but for adult persons. I have had a long experience as a municipal engineer, and am perfectly satisfied of the necessity and value of clean, dry, and impervious pavements. This class of work need not be costly, and where sett pavements are objected to a most efficient and cleanly substitute can be had in the use of macadam combined with hot tar properly prepared and finished with the steam roller, which ought also to be liberally used in forming the foundation. Here we have at once a surface which is suitable for the class of traffic, sufficiently durable, and one that can easily be cleaned.

The scavenging and watering of streets are important factors in the cost of maintenance, and of still more importance to the public convenience, and to the cleanliness of our homes and the health of the occupants. In our large towns this branch of sanitary service is generally well done, and the constant system of street orderlies leaves nothing to be desired; but in small towns systems of any sort are unknown, and a weekly or fortnightly sweeping is considered sufficient, and £40 per mile per annum quite enough to spend on this class of work.

Streets where food is exposed for sale should be swept at least once a day and that should be completed before business commences, and there should always be a service for dealing almost immediately with manure and litter. Street watering is always of much greater value when done in the very early morning, when the atmosphere is cool and there is likely to be little loss by evaporation.

*Extract from a lecture by Samuel P. Sadler, Ph. D., delivered before the Mineralogical Section of the Brooklyn Institute and published in the Journal of the Franklin Institute.

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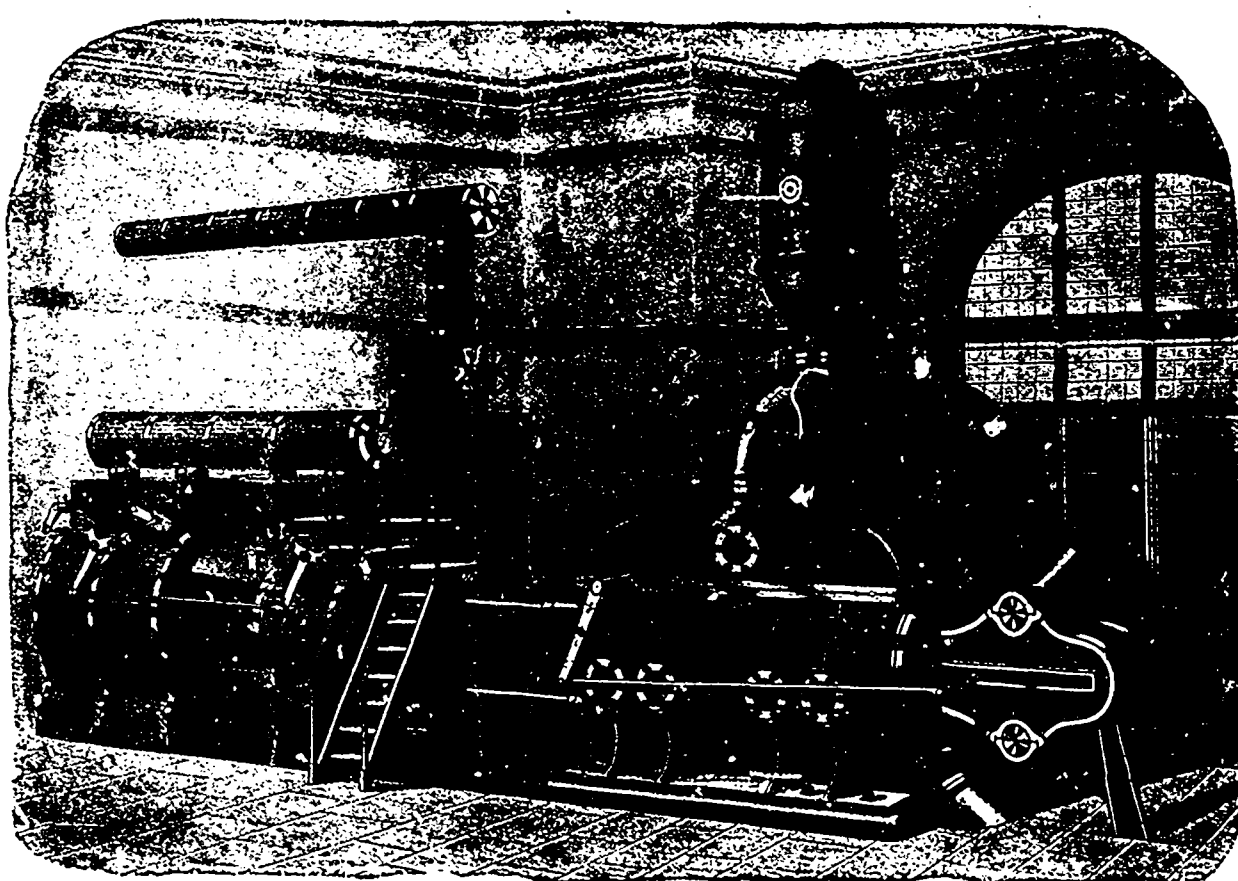
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TORONTO: Trade for the past week in general hardware has been active with quotations about the same. As a result of the approach of fall, glass, paints and oils are active. The heavy metal trade also maintains the activity recently noted.

MONTREAL: Galvanized iron and iron pipe are in most demand, with prices firm. General hardware is quiet. The arrivals of cement last week were 2,450 barrels English and 5,200 barrels Belgian. There have been no sales of importance to note, but dealers report the demand for small lots to be good. Firebricks are moving freely.

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