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# CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF THE PUBLIC WORKS OF CANADA

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.

AUGUST 29, 1895

No. 30.

## THE CANADIAN CONTRACT RECORD;

PUBLISHED EVERY THURSDAY

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## TENDERS

Enclosed in a sealed envelope, addressed to the undersigned and marked "Tender for Walk," will be received by the Corporation of the Town of Cornwall, until noon of MONDAY, THE 2ND DAY OF SEPTEMBER, 1895, for constructing about seven hundred and sixty (260) lineal feet, or about seven thousand three hundred and seventeen (7,317) square feet of

### GRANOLITHIC WALK

on a portion of west side of Pitt Street, according to plans and specifications to be seen at the office of the undersigned.

The work to be completed on or before the 5th day of October, 1895.

A satisfactory guarantee required for the perfect condition of the walk for a fixed period, which period may be terminated by the Corporation at any time after the lapse of one year.

An accepted cheque for ten per cent. of the contract price, payable to the order of the Treasurer of the Town of Cornwall, must accompany each tender as a guarantee for fulfilment of contract; otherwise the tender will not be considered. This cheque will be forfeited if the party whose tender is accepted does not at once sign contract and proceed with the work, but it will be returned in case of non-acceptance of tender.

The lowest or any tender not necessarily accepted.

By order,

GEORGE S. JARVIS,

Clerk Town of Cornwall.

Town Hall, Cornwall, August 20th, 1895.



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

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

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

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

By order,

E. F. E. ROY,

Secretary.

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

### CONTRACTS OPEN.

PICTON, ONT.—Mr. Moyle will erect a new residence.

UDNEY, ONT.—John Mundie will erect a new warehouse.

VALLEYFIELD, QUE.—It is the intention of Mr. Beique to erect a large block.

ALBERNI, B. C.—Child & Baimbridge intend erecting a saw mill on Union Creek.

GATINEAU POINT, QUE.—The sum of \$1,200 is to be expended on improvements to St. Francois de Sales church.

BRANDON, MAN.—Alexander, Kelly & Co. will erect another grain elevator here with a capacity of 40,000 bushels.

ALEXANDRIA, ONT.—Proposals for the purchase of \$28,000 of debentures are invited by the Municipal Clerk until Saturday, the 31st inst.

STRATFORD, ONT.—At a recent mass meeting a resolution was passed asking the Council to submit a by-law to raise \$30,000 for a sewerage system.

QUEBEC, QUE.—The Municipality of St. Ambroise de la Jeune Lorette have granted a bonus to M. B. Barry for the erection of a manufacturing establishment.

ORANGEVILLE, ONT.—The town is offering for sale debentures to the amount of \$2,762.62. Proposals received until September 2nd by A. A. Hughson, Town Clerk.

GANANOQUE, ONT.—A scheme is on foot to erect a large summer hotel here, at a cost of \$100,000. The citizens will be asked to subscribe stock to the amount of \$10,000.

NELSON, B. C.—H. Pim, of Vancouver, representing the Canadian General Electric Co., has under consideration the installation of an electric light plant here. It is proposed to utilize the power of Kaslo Creek.

WELLINGTON, B. C.—The Building Committee of the Methodist church has purchased a lot on which to erect a new church building. The balance of the stock necessary for constructing a water-works system has not yet been taken.

BRANTFORD, ONT.—The Courtland Carriage Co. is negotiating with the Brantford Carriage Co., of this city, to manufacture their bicycles on a large scale, and if the deal is completed the local company will make an addition to their present works of a building 100 x 50 feet.

VICTORIA, B. C.—The Board of Trade is urging the Dominion Government to hasten the work of making improvements to the channel of the Fraser river. It is said that the C. P. R. will at once survey and proceed with the construction of a line of railway from Trail Creek landing, on the Columbia river, to Rossland, to be in running order this year.

ELMVALE, ONT.—The buildings destroyed by the recent fire are being gradually restored, and the following are making preparations to rebuild: Geo. Hunt, hotel; Chris. Nixon, store and dwelling; A. T. Cooper, store; Jno. Tweed, hotel; Mr. Barker, tailor shop; D. J. Callaghan, hardware store; Jno. Crawford, tailor shop, dwelling and block of three stores.

CHARLOTTETOWN, P. E. I.—E. Franklin Clements, manager for Canada, of the Standard Telephone Company, New York, is endeavoring to get permission from the local government to construct a transcontinental telephone system in this province, operations to be commenced next spring. The company are also considering the construction of an electric street railway here.

CALGARY, N. W. T.—The Hudson Bay Co.'s stores here are to be remodelled and extended.—Mr. Joseph Nelson, civil engineer, of London, England, was in town recently in connection with the promotion of the Hudson Bay and Pacific railway project from Calgary to Port Churchill. The intention is to apply at the next session of parliament for a charter incorporating the company to carry out the work.

KINGSTON, ONT.—The Kingston Electric Railway Co. will ask the city for permission to build a belt line on the eastern side of the city.—The Thousand Island Real Estate Association have purchased Welcome Island, nearly opposite Alexandria Bay, and propose erecting a modern casino, at an expenditure of \$50,000.—W. Newlands, architect, is preparing plans for extensive improvements to Lieut. Col. Duff's store on Princess street.

ST. JOHN, N. B.—F. Steinhoff, representing a large paper manufacturing firm of London, Eng., recently visited this city in search of a suitable site for a pulp mill, which will probably be erected here.—The Rolling Mills Co., Limited, are about to erect a nail and tack factory on

the Strait Shore road, 125 x 50 feet in size. —The Board of Works have decided to erect a warehouse on the city pier, at a cost of \$5,000. The City Engineer has prepared the plans.

OTTAWA, ONT.—A petition is being circulated in St. George's ward asking the City Council to build a bridge across the canal at Somerset street.—The Ottawa, Arnprior and Parry Sound Railway Company have submitted to the Department of Railways and Canada, plans for the central station which the company propose to build on the canal reserve in this city. The design shows a substantial as well as ornamental structure.—The City Council has given notice of its intention to construct a number of artificial stone sidewalks.

MONTREAL, QUE.—The Road Committee is receiving tenders this week for the construction of a large number of sewers.—The Catholic School Commissioners have received a report from W. E. Doran, architect, approved by Dr. Beaudry, of the Provincial Board of Health, and J. E. Dore, sanitary inspector, recommending alterations and improvements in Montcalm and Sarsfield schools, and the work is likely to be carried out at an early date.—The Town Council of St. Henri have decided to urge upon the Grand Trunk Railway the necessity of erecting a large station at that place.—J. A. Chausse, architect, is preparing plans for a Catholic church and parsonage to be erected at St. Lambert.

WINNIPEG, MAN.—Work has commenced on a new bakery building and store for J. T. Spiers. It will be solid brick, with stone foundations, and will cost \$5,000.—Mr. Chesterton, architect, has prepared plans for improvements to the Winnipeg hotel, owned by Mr. Montgomery. These will include a substantial stone foundation, cellar with concrete and tile floor, a front of red brick and cut stone, and various interior improvements, including steam heating apparatus and the work is estimated to cost \$10,000.—The erection of a disinfecting room in connection with the general hospital is agitated.—A committee of the Board of Trade has been appointed to interview the Premier of Canada in respect to the improvement of navigation on the Red River and at St. Andrew's Rapids.—The Selkirk-Winnipeg electric railway scheme is said to have been abandoned for the present.

HAMILTON, ONT.—The Board of Education will shortly consider the question of a new Collegiate Institute and home for the School of Pedagogy. The board will likely ask the City Council to issue debentures for \$75,000 to build the new building.—A movement is on foot to dispose of the Hamilton Ladies College and erect a new building on another site.—A largely signed petition will be presented to the President of the Grand Trunk Railway Company, asking him to recommend to the Board the erection of a large up-town station at the corner of King street and Ferguson avenue. It is said the president is favorable to the project.—The directors of the International Radial Railway Company have ordered a survey of the proposed route from Hamilton to Guelph, and the prospects for building the road are said to be good. The various localities through which the line will pass will be asked for financial assistance. The new sewer to be laid on Main street will be of eighteen-inch pipe and will extend 1,250 feet east of Sanford avenue.

LONDON, ONT.—The Barber Asphalt Co., of Buffalo, who were recently given a paving contract in this city, are said to have decided to build a factory here for refining asphalt.—W. J. Lashbrooke has taken out a building permit for a brick veneer cottage on Richmond street north,

to cost \$1,000.—Herbert Matthews, architect, has in hand a brick dwelling and shop for W. D. Thomas, to be built at the corner of Colborne and Piccadilly streets.—The Electric Street Railway Co. have not yet decided upon definite plans for Victoria bridge. Under the charter, the company have the option of building an entirely new superstructure to be used jointly, or of building an independent bridge of their own.—At a meeting of the Board of Directors held on Monday last, various improvements to the London and Port Stanley railway, involving an outlay of \$17,000, were asked for by Engineer DeGurse, on behalf of the Lake Erie and Detroit River Railway Company, lessee of the road. The proposal was referred to a committee. The Lake Erie Company also want a new freight station, round-house and turntable.

TORONTO, ONT.—It is the intention of the Canada Cork Company, which has recently been incorporated, to erect in this city a large brick building 60 x 100 feet, with solid stone foundation and a glass roof. The directors of the company are: L. V. Dusseau, J. A. Gendron, J. E. Howard and C. R. Rochereau de la Seblere.—The City Council has given notice that it is proposed to construct the following works: asphalt roadway on Wellesley place, from Wellesley crescent to Wellesley lane, cost \$3,315; macadam roadways on Adelaide street, from Spadina avenue to Bathurst street, cost \$2,500; on Elizabeth street, from Queen street to College street, cost \$3,460; on Sheppard street, from Adelaide street to Richmond street, cost \$520; on Anderson street, from Simcoe street to McCaul street, cost \$400.—The Property Committee has decided to advertise for tenders for hot water heating apparatus for the addition to Lombard street fire hall.—The City Engineer has returned from Montreal where he interviewed the Grand Trunk and Canadian Pacific railway authorities regarding the John street and York street bridges. The Grand Trunk Railway Company has promised to have the plans of the York street bridge prepared by Sept. 9, and the company will proceed with the work as soon as the plans have been approved of by the City Engineer.—Building permits have been granted as follows: Atlas Loan Co., St. Thomas, pr. 2 story and attic bk. dwellings, Nos. 11 and 13 Cowan ave., cost \$4,000; Dr. John Hoskin, 21 Dale ave., 2 story bk. add., cost \$2050.

#### FIRES.

The Askin residence at Windsor, Ont., was burned on the 23rd inst. Loss over \$1,000.—The dwelling house of Mr. Tilton, near Tilsonburg, Ont., was destroyed by fire last week.—The sheds at the agricultural grounds, Belleville, Ont., owned by the Freehold Loan Co., of Toronto, were burned on Monday last. Loss, \$2,500; covered by insurance.—Patterson's planing mill at Winnipeg, Man., was damaged by fire on the 25th inst. to the extent of \$5,000.—At Florence, Ont., last week, fire destroyed Wm. Milton's tailor shop, Webster & Gordon's general store, the I. O. O. F. lodge rooms and Wm. Thompson's store. The loss is placed at \$12,000, partially covered by insurance.—The Agricultural hall at Galt, Ont., owned by the South Waterloo Agricultural Society was destroyed by fire on Tuesday last. The building was 80 x 135 feet in size, and the loss will be about \$8,000.

#### CONTRACTS AWARDED.

OTTAWA, ONT.—The Electric Railway Co. have awarded the contract for building the Cedar street bridge to Mr. Hibbard, C. E.

LONDON, ONT.—The contract for widening the York street bridge has been

awarded to the Central Bridge and Engineering Co., of Peterboro'.

NEW WESTMINSTER, B. C.—J. B. Elliott will rebuild the Aberdeen cannery on Skeena river. The main building will be 400 x 40 feet, and two stories high.

WINDSOR, ONT.—The tender of Hume, Brown & Co., of Toronto, for \$100,000 of waterworks debentures has been accepted by the Finance Committee. The premium offered is \$605.25.

RENFREW, ONT.—The Board of Education have given the contract for building the new High School to Moffat & Hilliard, at the tender of \$5,042, exclusive of heating apparatus.

HAMILTON, ONT.—The contract for the masonry of the Burlington bridge has been awarded by the Dominion Government to Geo. F. Webb, of this city. The structure will cost between \$30,000 and \$40,000.

WINNIPEG, MAN.—The Dominion Bridge Co., Montreal, and the Hamilton Bridge Works Co., Hamilton, were the only tenderers for the superstructure of the Osborne street bridge in this city, the former securing the contract at the price of \$8,749.

KINGSTON, ONT.—Tenders for the erection of a stone house and stable on Bagot street, 20 x 66 feet, have been accepted as follows: masonry, A. Newlands; carpentry, A. Williamson; painting, Savage Bros. The architect is W. Newlands.

MONTREAL, QUE.—A. C. Hutchison architect, has awarded contracts for a residence at Westmount, Que., for Robt. Mitchell, as follows: carpenter and joiners' work, Jas. Shearer; brick work, Wm. Lavers; plumbing and heating, R. Mitchell & Co.; roofing, Montreal Roofing Co.; plastering, J. Morrison & Son; painting, Geo. Dezonche & Sons.

OSNABRUCK CENTRE, ONT.—Tenders for drainage in the 5th, 6th, 7th and 8th concessions, Township of Osnabruk, were opened on Monday last, the contract being awarded to Clarke & Connolly, Toronto, at the following prices: earth excavation, 14 3/4 cents per cubic yard; loose rock, 60 cents per cubic yard; solid rock, \$1.45 per cubic yard; stone culverts, \$200.

TORONTO, ONT.—The Board of Works last week awarded contracts as follows: scoria stone set pavement on track allowance on Station street, from Simcoe to York street; on Simcoe street from Front to Station street, and on York street, from Front to Station street, to the construction and Paving Company, at \$2,697; the concrete sidewalk on both sides of Isabella street, from Jarvis to Sherbourne street, to J. H. McKnight, at 85 cents per lineal foot; concrete sidewalk on both sides of Adelaide street, from Yonge to Bay street, to A. Gardner & Co., at \$2.75 per lineal foot.

The Carrara marble quarries, which are 400 or 500 in number, are situated far above the town, and in the midst of the grandest and most savage scenery. The soft aerial hues which distance lends to the mountains disappear on nearer approach. The great peaks stand up against the sky in fantastic forms. No trees or verdure clothe their naked sides, no flowers grow, no water flows to fertilize that soil. The 6,000 quarrymen who are busy there appear as ants crawling on the vast hill-sides. The marble is quarried by dynamite. Every moment explosions rend the air, and huge fragments fly up as if expelled from a volcano. Often the mine has to be placed in the perpendicular face of a precipice. Then the workman is lowered by a rope and hangs suspended "like the sapphire gatherer, 'twixt earth and heaven—dreadful trade." About 160,000 tons of marble are annually exported, of which most goes to England. The quantity is inexhaustible.

**AIR AS A TIMBER PRESERVATIVE.**

Probably no better illustration can be had, even at the present time, of the great importance of free access of air to wood-work as a means of protection against premature decay, than the results of an investigation, conducted a few years ago, into the causes of an accident in an expensive apartment house in one of the principal cities of the United States, in which a portion of one of the upper floors gave way, and, in falling, carried along corresponding sections of the several floors below, landing the whole mass of wreckage in the cellar. It was found that a fortunately unusual system of floor construction had been adopted in the building in question, the spaces between the wooden beams having been filled with ashes, presumably with the view of making a comparatively fire-proof structure. Whatever its merits in this respect may have been, there was no question whatever that the mixture of ashes formed a most efficient barrier against the access of air to the timbers, and any moisture that was inherent in them, or afterwards found its way to them through the tiling above, had little opportunity of being carried away by any ventilating air currents. The beams simply had to rot, and that comparatively quickly. In the subsequent work of reconstruction of the floors, however, good care was taken that they should not again suffer in the same way.

Mill architects generally appreciate the preserving influence of free air circulation so thoroughly that they carefully guard against even the painting of any floor beams which are open to the suspicion of imperfect seasoning. Where any moisture is still present in the wood, a coat of paint or tar, or anything else impervious to air, ordinarily looked upon as a protective agent, simply prevents this moisture from escaping, and thus, instead of guarding against rapid decay, really promotes it to a very material degree. Happily this circumstance is becoming properly recognized, and is beginning to receive a due share of attention.—Cassier.

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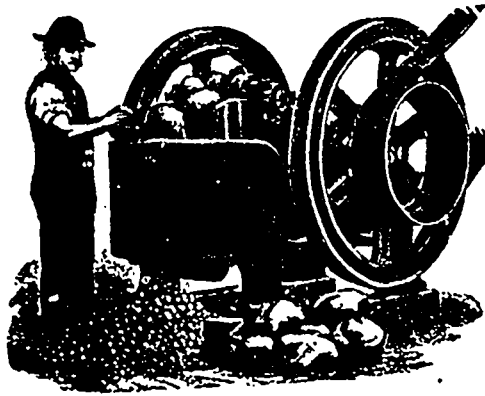
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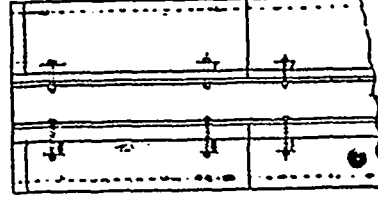
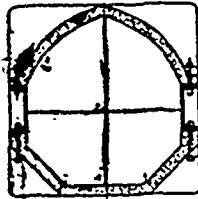
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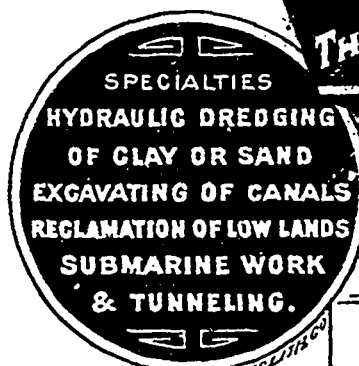
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## MUNICIPAL ENGINEERS, CONTRACTORS AND MATERIALS

## VARIETIES OF CLAY.

When clays are formed from granite rocks they are usually white or yellowish white, and are very adhesive or plastic; when resulting from the decomposition of slaty rocks they are more or less colored and sandy, and when limestone mud gets intermingled their plasticity is greatly diminished. The plastic element consists of some combination of silica (quartz or flint in a peculiar condition) and alumina (one of the constituents of alum), with more or less water; but a perfectly pure combination of this kind rarely occurs in nature, there being always present various quantities of sand, iron, lime, magnesia, potash, &c. The less of these substances present the richer or fatter the clay, whilst clay containing a great deal is called poor. These substances not only exert an influence upon the plasticity of a clay, but also upon its relation to fire; the nearer a clay is in composition to a pure silicate of alumina, and the more silica it contains, the more infusible it is, but an admixture of iron or lime will give it the character possessed by a mixture for making bottle-glass, for when subjected to a heat depending upon the amount of these foreign substances it will melt. The finer clays, or such as are infusible and white, are very rare, while those which contain lime, such as ordinary clay marls, and those rich in iron, such as brick clays, are common. A clay may contain so very little foreign substances as to be infusible, and yet have sufficient iron to give it a color; for we may remark here that the color which a clay assumes on being burned depends upon the iron which it contains. The fine white clays (kaolin) are used in the manufacture of porcelain and are found usually in granitic countries; the inferior white clays (pipe-clay) are usually found in coal districts and are used in the manufacture of earthenware and pipes; at present we shall confine ourselves to the colored clays. These we conveniently divide into the infusible or fire-clays, which burn either of a buff or of a dark color, and the fusible or ordinary brick clays, which burn of various colors, especially of a pale yellow and bright red. The fire-clays are chiefly obtained from beds associated with coal, very frequently forming the underlying stratum, and hence called coal-seat, though they are also found under many other circumstances, and even on the surface. They are generally of a bluish black color and of a hard slaty texture, a good example of which is afforded by the well-known Stourbridge clay. The fusible clays are derived from various sources, but are very often superficial deposits, constituting the subsoils of large tracts of country. They usually contain a certain amount of carbonate of lime, and in some cases so much as to be true marls. They also frequently contain sand and pebbles; when, however, the proportion of sand amounts to one-fourth of the entire mass, it is not considered as clay in the strict sense of the word, although that substance may be separated from it by washing. Indeed there are few loose superficial deposits, such as soils and sub-soils, that could not be thus made to yield clay. The economical use of the fire-clays are chiefly for the manufacture of brick designed to withstand great heat, the construction of furnaces of various kinds, pots for fusing glass, retorts, &c. The fusible or common clays constitute the materials from which our usual building bricks, roofing and flooring tiles, araining pipes, garden pots, common

pottery are made. Both kinds are employed in the production of figures and ornaments in what is called terra-cotta.

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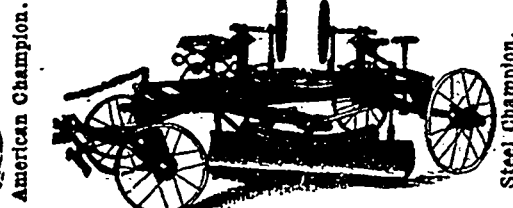
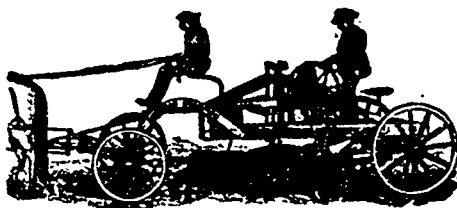
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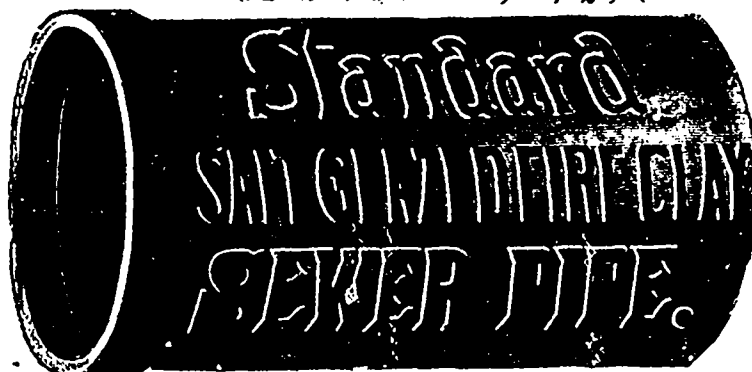
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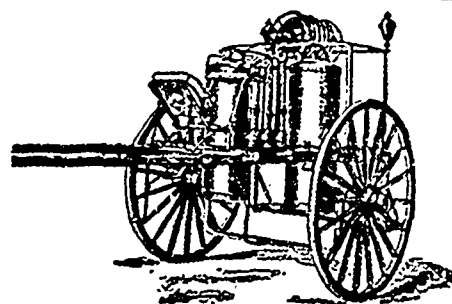
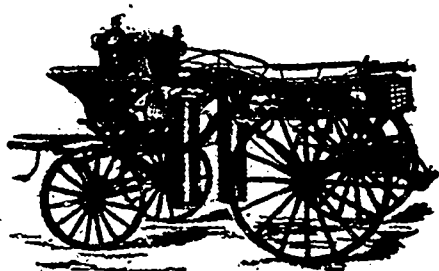
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# MUNICIPAL DEPARTMENT

## BRICK PAVEMENTS.

A paper on "Country Roads," which was prepared for the Engineers' Club, Cincinnati, by Mr. M. D. Burke, C. E., has been brought out in pamphlet form by Messrs. Robert Clarke & Co. The author before recommending the adoption of brick pavements in Avondale, obtained samples of the various paving bricks manufactured in the United States, and submitted them, as well as other materials, to severe tests. The results he obtained are remarkable, and are worth the attention of municipal engineers and road surveyors in this country. The following extract on pavements in general will suggest the author's method of treating his subject:—

The office of a street pavement is to provide a wearing surface, which shall fulfil the following conditions:—

1. It must present a secure and pleasant footing for animals.
2. It must have sufficient smoothness to render travelling in carriages agreeable and traction easy and as nearly noiseless as is practicable, for all descriptions of wheeled vehicles (excepting those provided with flanged wheels).
3. It must be of such form and material that liquids falling upon it will quickly flow from it into proper conduits, and must furnish no permanent lodgment for street filth of any kind.
4. It must be capable of sustaining without change of form any and all loads usually transported on public highways.
5. It must be reasonably durable, both as against the attrition of street traffic, and the destroying or dissolving action of the elements.
6. It must be economical, that is to say, sufficient comfortable use must be obtained from it to make it worth both the cost of construction and maintenance.
7. It must be capable of removal and replacement, or repair from failure at reasonable cost, and with materials and appliances within the control of the street repairing department.

A study of these conditions at once reveals the reason why the "paving problem" is of such an intricate nature that it has so long remained unsolved, as well as a cause for so many unhappy failures in its attempted solution.

For the first and second conditions, the dirt road in good repair stands without a rival, but it meets no other requirement, hence its use is restricted to race tracks, and country roads, which, like canals, are only navigable when the weather conditions are favourable.

For the second, third, and fourth conditions, the asphalt pavement on proper foundation appears to be better fitted than any other that has come into such general

use; but many persons say that it does not properly meet the first requirement, criticise it severely as to the fifth and sixth, and affirm that it utterly fails to meet the seventh.

Stone block pavements meet the first requirement, but indifferently; utterly fail in the second and third, when properly constructed; are better adapted to comply with the conditions of the fourth, fifth, and seventh than almost any other description of city street, but when a high charge for transportation is to be added to the cost of preparing the material they fail to meet the sixth condition.

Wooden block pavements meet the first, second, fourth and seventh conditions fairly well, when made of suitable materials well combined; but as they have been built in this country, have signally failed to meet the third condition, and have fulfilled the fifth and sixth but very indifferently.

The boulder or cobble-stone pavement has been with us so long, and has been treated so badly that familiarity with it has bred a species of contempt that is hard to overcome. It has become popular to consider it an all-round failure, yet it meets the first and seventh conditions fairly well, and so far as the material is concerned, it stands unrivalled in the fifth. In many of our cities where horse cars have been operated for the past twenty or thirty years, and the street railway companies are required to maintain the pavements within their tracks, the boulder pavements are still retained between the rails, while the residue of the streets have been paved with other materials, because in that position they are said to meet all of the conditions named, excepting possibly the second and third, better than any other substance yet offered for the wearing surface of roadways. This saying, however, does not appear to be anything more than an expression of opinion, which cannot be sustained by any process of reasoning. The cobble-stone can be given no definite bearing on any foundation; it cannot be held in position by any bond that can be given it in construction. It does not present a suitable surface for vehicular travel, or that can by any process be kept free from filth; yet it does not wear out, is easily restored if loosened from its place, and it does answer very well for street car horses to travel upon.

Broken stone or macadam as commonly used, of mingled limestone and shale, meets none of the requirements. If, however, it is clean refractory material, properly prepared and combined by rolling, it fulfils all the conditions except the third (and even that reasonably well), providing the traffic is moderate, and the repairing is promptly and efficiently done. It may be set down as an established fact, however, that when a macadamized street is dug into for any purpose that it is never properly replaced.

No one of these conditions can be entirely ignored, yet it is obvious that no pavement yet devised fully meets all of them. Could the first be ignored, it would be an easy matter to cover street surfaces with iron or steel plates that would fully

meet all the others, but plainly this cannot be done. The surroundings of the pavement and the extent and nature of the traffic to which it is to be subjected, must be considered in order to decide which of the conditions shall be allowed to determine its character. The first, that of furnishing a secure and reasonably comfortable footing for animals, can in no case be ignored, and in many instances must control all other considerations. Wherever the pavement is to be used as a thoroughfare for vehicular traffic at fair rates of speed, or when time, pleasure driving, or quietness become elements of importance, then the first and second conditions must be met, and other features may or may not be caused to yield to their requirements. But the preservation of life and health is the essential cause of business activity, hence the third condition, that of maintaining correct sanitary conditions, should never be neglected.

(To be Continued.)

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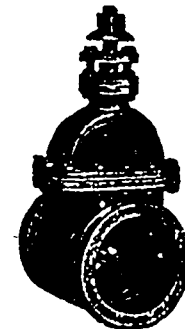
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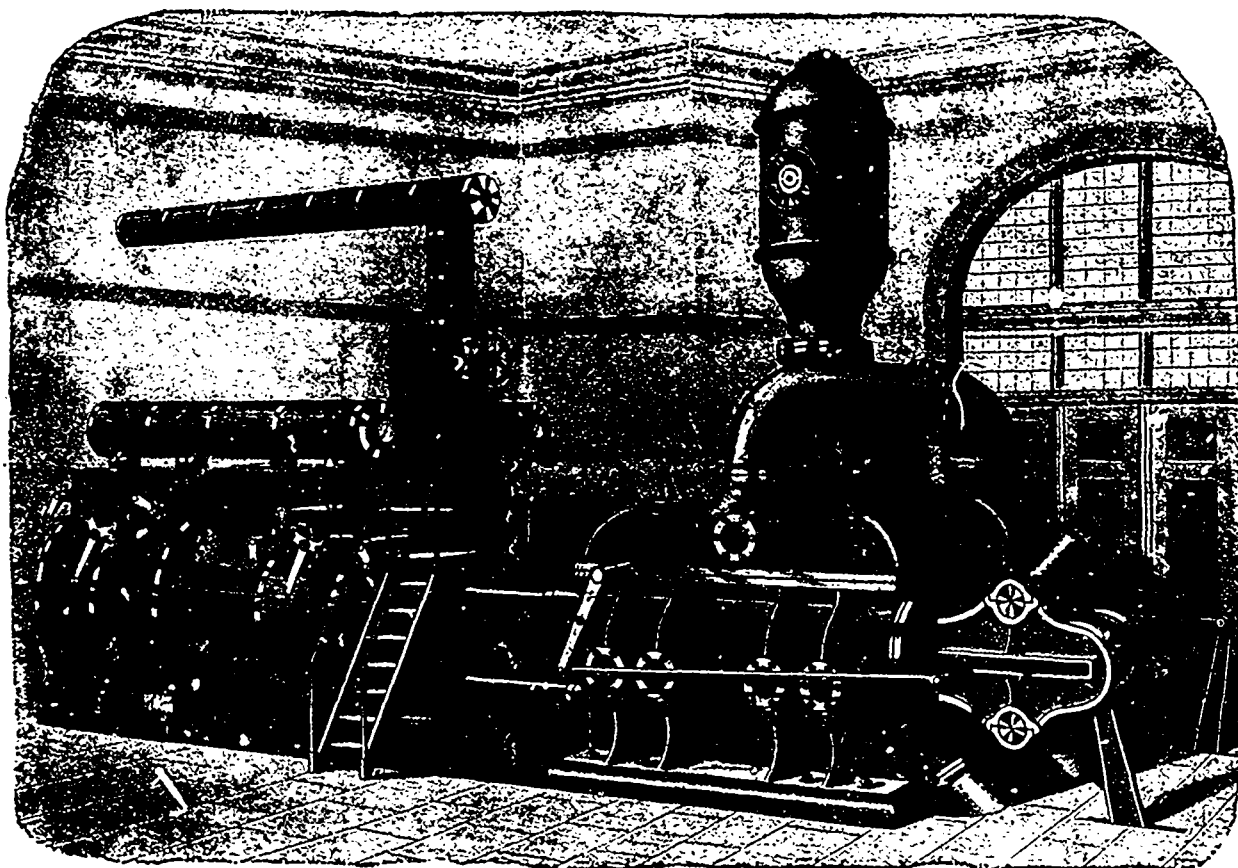
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