

# MUNICIPAL DEPARTMENT

## TAR MACADAM ROADWAYS.

The city engineer of Hamilton, Ont., has just completed a tar macadam roadway, which it is expected will prove a strong rival of asphalt, and which costs only 75 cents per square yard. In making a tar macadam roadway all earth or other material above the sub-grade must be excavated so as to conform to the level of the sub-grade, which is 12 inches below the finished surface of the roadway. After the sub-grade is formed to the proper number of the road, it must be thoroughly rolled with a steam roller. The first six inches of the pavement is then placed upon the base as in constructing an ordinary macadam roadway, rolled smooth and finished to the proper number of the road. Upon this is placed the tarred stones. The first layer of these, four inches thick, is composed of stones capable of being passed through a two inch ring. On this, again, is placed a layer of stone capable of passing through a three-quarter inch ring, which is well rolled in to fill all the interstices. Before finishing a dressing of screenings is scattered broadcast to be worked in by the traffic.

The stone to be tarred is heated in an iron floor—under which are flues from a fire—until all the moisture is driven out. The material in its heated state is then thoroughly mixed with a sufficient quantity of tar. The tar is first boiled in an iron kettle holding fifty imperial gallons, to which is added a bucket-full of pitch. Eight imperial gallons are added to each cubic yard of the courser material, and ten or twelve to the finer kind of stone.

The process of construction is only pursued during the summer months, and all work is suspended on wet days.

Speaking upon the subject of this new species of roadway, an Ottawa alderman said: "It struck me as being just the style of roadway for this country, and its cost is well within the reach of any street of any pretensions in this city. I cannot, of course, speak of its resisting qualities from below—it does not have the same expensive foundation as asphalt—but it is a model roadway on the surface. For any street other than one upon which the traffic is excessive it is better than asphalt, because it has not the same slippery surface in wet weather, and, I think, is not as inclined to be dusty. It is a mistake to think that the tar-macadam will become soft in summer. The tar only supplies, as does asphalt, the cohesive properties to the pavement. There is only five per cent. of tar in this style of pavement, just as there is only five per cent. of asphalt in the so-called asphalt pavement. The tar, as does asphalt, only serves to fill up the interstices and to shed the water."

## CHEAP WATER SUPPLY

Windsor, Ont., may practically have free water before the next twelve or fourteen years have passed over. The water-works system was established in 1874. Since that date more than \$300,000 has been expended upon capital account. This, together with the interest, is being paid off at the rate of \$21,000 per year. The cost of operation and maintenance averages about \$11,000 per annum. This latter, however, is practically provided for by the revenue from hydrant rentals and from water supplied for commercial purposes. The annual payment of \$21,000 continues until 1910, when there will be a reduction of \$2,500. In 1911 another re-

duction of \$5,500 occurs. In 1912 \$9,200 more is clipped off the annual indebtedness, and in 1913 the requirements of the Department will be lessened by another \$1,600, so that in the year 1914 the total amount to be raised will amount to a little less than \$2,200. As the cost of operation and maintenance of the plant will not materially increase during that time (at least not to a greater extent than will be provided for by increased consumption for commercial purposes), and as these may fairly be allowed an expenditure of \$50,000 on capital account for renewals, enlargements and extensions, the revenue to be raised by the imposition of a water rate will be well within \$5,000. This will easily be met by a yearly charge not exceeding \$1 on the average householder. If that will not be virtually a free water supply, such a thing can never be met with.

## FIRE PROTECTION IN CITIES.

American cities lead the world in the number of paid firemen, while British cities bring up the rear, and besides, even in exceptional instances, fall far below the per capita fire protection expenditures in other European cities of, or about the same, size. In some British cities or towns, such as Liverpool, Bristol, Bromley, Norwich and Cardiff, the work of extinguishing fires is in the hands of the police, of whom a certain number are trained to do the work of firemen. London's Metropolitan fire brigade shows a roll of about 800 men—a number which Berlin, with about one-quarter of the population, about equals, and Paris doubles. Glasgow, with a population of 800,000 has only 100 firemen; Leeds, 33 for 600,000 people, and Sheffield 22 for 350,000 persons. As to the expenditures, Glasgow and Liverpool spend on their fire departments about \$75,000—ten cents per capita—annually, while Edinburgh, Dublin, Belfast and Salford are equally liberal in proportion to their population. London's yearly expenditure is about \$950,000—something like twenty cents per capita, while Sheffield spends less

than \$10,000 a year; Norwich, with a population of 100,000, only \$750; Preston, with 113,000 people, only \$1,500; and Leeds, less than \$5,000 to protect nearly half a million people and its many big factories.

## LEGAL DECISIONS AFFECTING MUNICIPALITIES.

Justice Street gave judgment at Toronto recently in the case of McLean against the city of Ottawa, which is of great importance to municipal corporations. The action was tried at Ottawa, and was to recover damages for injuries sustained by plaintiff when walking north on the east side of Bank street, Ottawa. He slipped upon a small ridge of ice and fell. Judge Street held that defendant had not been shown to have exercised any control or made any claim on the strip of land to the east of the street upon which the ice had accumulated, but that, having regard to the decision in Adams vs. city of Toronto, defendant's liability was the same as if the ice had been upon the pavement within its jurisdiction. However, in view of the circumstances of the case and climatic conditions, the defendant could not be said to have been guilty of gross negligence within the terms of R.S.O., chapter 222, section 606, sub-section 2. The action was therefore dismissed with costs.

A new system of laying Trinidad asphalt was employed by Bellhouse, Dillon & Co. in Ottawa. Instead of the asphalt being spread and rolled directly on the concrete bed, City Engineer Galt says a binder or cushion of about half an inch in thickness is first put on top of the concrete. This consists of coarse gravel soaked and dipped in asphaltum. This is spread evenly and rolled lightly, after which the fine lake asphalt is put on to the thickness of two inches, rolled evenly and made firm. The cushion on top of the concrete prevents any possibility of the asphalt getting wavy or uneven, especially in grades.



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