

TORONTO CITY ENGINEER'S REPORT.

THE annual report of the Toronto city engineer for the year 1894 has just been distributed, and forms quite a bulky pamphlet. It contains full and complete information respecting the public works carried out during the year under review. A reference to some of the points brought out will be of interest.

We have had recent evidence of the extent to which the source of our water supply may be affected by the sewerage of such a city as Toronto. Perhaps it is not to be wondered at when we consider that 227¾ miles of sewers are constantly pouring their filth into the bay. It cost \$5,146 to flush 112½ miles of sewer, a rate of \$45.70 per mile, a reduction from \$59.65 per mile the previous year. An extension of 2.67 miles of sewer costs \$12,964.89, nearly all being built by contract. Private drains to the number of 489, making a mileage of 2.06, were also constructed from the main sewers to the property line.

The plumbing department made inspections to the number of 8,000. The number the previous year was 14,605, the falling off being doubtless due, in a large measure, to the restriction in building operations.

The question of roadways is and always will be an important one in Toronto. To find a paving material which will stand the traffic and resist the effect of climate, and at the same time not prove too expensive, has puzzled engineers and city councils everywhere. Asphalt seems to best meet the two first named requirements, but it is an expensive pavement, and has not therefore come into general use. If vitrified brick could be supplied at a cheaper rate it would without question be extensively used, and it will, we think, be one of the principal pavements of the future; but at present it is nearly as expensive as asphalt, and therefore cedar blocks, despite the objection to them on sanitary grounds, continue to be largely employed. The amount of new pavements laid last year was 8.15 miles, divided as follows:

Asphalt	3.067 miles.
Stone Setts on Concrete.....	2.563 "
Cedar Block on Sand and Plank.....	0.852 "
" on Concrete.....	0.826 "
Brick Setts.....	0.787 "
Scoria, Tamarac and Cobble.....	0.060 "

The total length of streets in the city is 253.48 miles, with roadways as follows:

Cedar Block.....	111.16 miles.
Macadam.....	35.95 "
Asphalt.....	13.70 "
Cedar with Asphalt on R. R. track.....	6.35 "
" " Brick " " 	4.50 "
Stone and Scoria.....	0.81 "
Macadam with Stone Setts.....	0.54 "
Wood on Concrete.....	0.49 "
Unpaved.....	79.98 "

It will be observed that cedar blocks, which were put down so extensively a few years ago, still lead by a long way, though rapidly going out of favor. In 1890 there were fifteen and a half miles of cedar block pavement put down; in 1894 less than one mile. There are, however, over 24 miles of cedar blocks on which the time for payment of the local improvement tax has expired, which are in a bad state of repair and require to be renewed. This the engineer recommends should be done. Poor roadways mean a heavy tax for repairs and cleaning, to say nothing of wear and tear of horses, harness and vehicles. The strength required to haul one ton on a smooth pavement is between 16 and 20 lbs., on a broken stone road it is 60 lbs., and on a cedar block pavement in bad condition, from 100 to 150 lbs. That means that four or five horses are required to do the work that should be done by one. This aspect of having bad pavements does not perhaps present itself to the average mind with sufficient force.

As compared with other cities, Toronto's percentage of paved streets to the population shows up well. The following are the figures in a number of the leading cities:

	Per cent.
Toronto.....	68.5
Louisville.....	53.5
Buffalo.....	43.8
Detroit.....	41.8
Rochester.....	35.8
Jersey City.....	35.1
Kansas City.....	31.4
Milwaukee.....	12.6
St. Paul.....	11.9

But although Toronto has 54¼ per cent. of its streets paved, after deducting what is covered with cedar block there is only 10½ per cent. with anything like a durable covering.

As to sidewalks, during the year 1.148 miles of concrete and 18.03 of plank sidewalks were constructed. A small section of brick has been laid down on Gerrard St. East as an experiment. If it proves satisfactory brick will be more largely employed in the future. The mileage of plank sidewalk built has decreased each year since 1890, in which it was nearly 58 miles, showing that wood for sidewalks, as well as roadways, is rapidly going out of favor.

The asphalt pavements are kept clean on what is called the "orderly system," and it is carried on from May 1 till December. The cost is \$1,236 per mile for the season. On the other streets the cost is \$22.76 per mile. 59,172 loads of scrapings were removed.

The disposal of the waste of such a city is a serious matter. 103,333 loads of garbage were collected, of which 26,665 were consumed in the eastern and western crematories. A large quantity was deposited on the extension of the Esplanade on the water front. The removal of ashes and garbage from the outlying sections is now done by trolley car.

On the streets where railway tracks run the track allowance is watered by tanks mounted on trolley cars. Three such cars perform the service, for which the Railway Co. is allowed 65 cents per mile for the double track, sprinkled four times daily. The tanks hold from 2,500 to 2,800 gallons each. The company was paid for this service \$1,972.42.

Mr. Ellis, the assistant engineer in charge of roadways, goes more fully into the question of brick pavements in his part of the report. In deciding on the best brick for the purpose, tests are applied for abrasion, absorption, crushing and transverse strength. Results are satisfactory as to our Canadian bricks, but the price rules them out. The lowest price quoted is \$16 per 1000 for Canadian bricks, while in the United States they are laid down for \$8.50 per 1000, and in some cases for less.

Mr. Ellis also gives some interesting facts as to the effect of water upon asphalt pavement, the latter sometimes rotting if the water is allowed to remain on it for any length of time, to such an extent that a knife may be inserted as far as the concrete. The cause of this is the destruction of the petroline, or bitumen, which becomes changed by oxydation into asphaltine, a substance resembling coke and of no value as a cement. Trinidad asphalt proved itself to be possessed of the greatest tensile strength. The concrete foundations of the asphalt pavements have stood the test well, in some cases having supported the roadway, under heavy traffic, where the earth had washed away below.

A somewhat curious and interesting test was applied to ascertain the effect of good roadways on the traffic. A census of travel had been taken on Yonge street in May, 1890, when it was block paved and in a very indifferent condition. The census was repeated in August, 1894, when it was asphalted. Though the number of street cars had increased from 818 to 1178 daily, the effect of which would be to drive ordinary vehicles to other streets, the average number of tons per day for each foot in width of roadway increased 24 per cent., or from 59.15 tons to 73 tons, and this notwithstanding a considerable decrease in the number of vehicles, proving that good roadways conduce in a very marked degree to economy in transport.

The report, which shows great care on the part of Mr. Keating in all that pertains to his department, contains much valuable information respecting works of construction in such a city as Toronto. The above references will give some idea as to the information it conveys.

PERSONAL.

Mr. James Snoddy, of Snoddy & Bros., plumbers, Hamilton, died last week.

Mr. Samuel Edger, secretary of the Owen Sound Portland Cement Company, died suddenly at that town on Sept. 23rd. He was 50 years of age, and an old resident.

Mr. James Herbert Marling, a talented young architect, who began his professional career in the office of Messrs. Darling & Curry, Toronto, died recently of apoplexy at Buffalo, N. Y.

It is with much regret that we have to record the death of Mr. L. M. Bowman, who was formerly in practice as an architect at Lindsay, Ont., but latterly held a position in the Medical Health Department of Toronto.