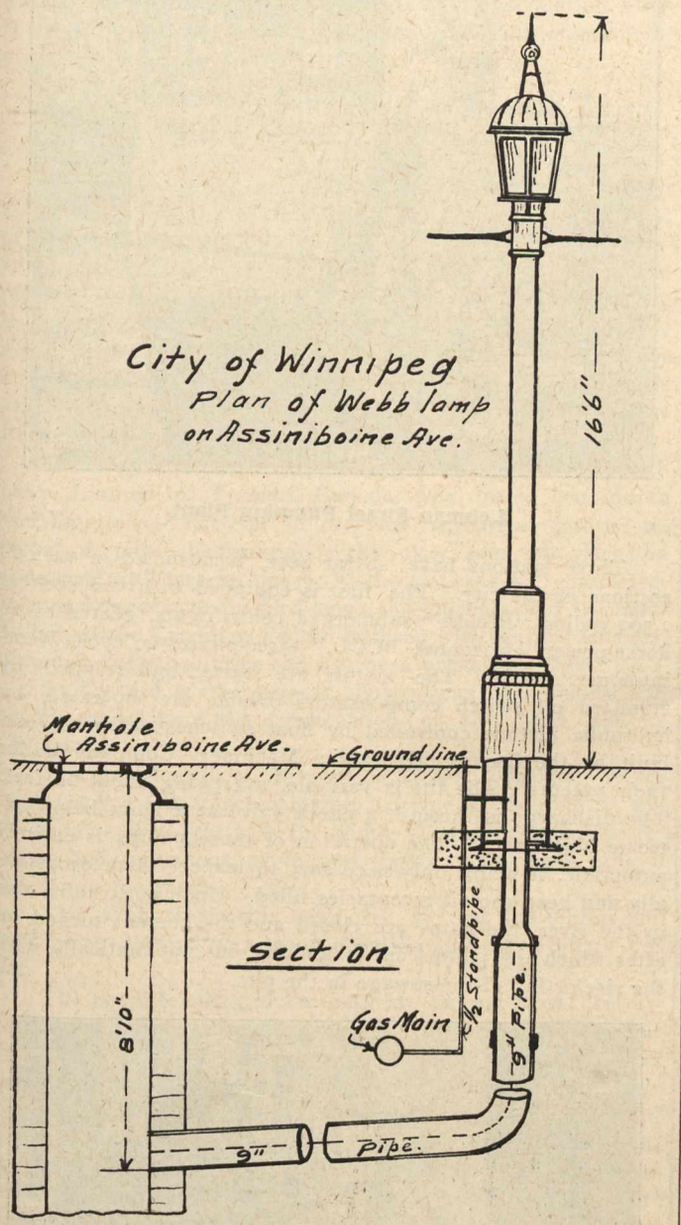
WINNIPEG'S EXPERIMENT WITH SEWER VENTILATION PLANTS.

The ventilation of sewers has long been a vexed question with sanitary engineers. Sewer gas is constantly forming in the sewers, and escaping at the manholes it becomes a public nuisance. Various methods of preventing the contamination of the air at street level have been suggested such as forcing the gas through beds of charcoal; placing air-tight covers on the manholes and extending the manhole as a shaft taking in air at the ground line, hoping that the admission of fresh air would purify the gas by the time it escapes at the top of the shaft.



The engineering staff of the city of Winnipeg have been experimenting with sewer ventilation lamps, and as to efficiency, the report of both the City Engineer and City Bacteriologist appear favorable. City Engineer H. N. Ruttan, in reporting to the Mayor and Board of Control on April 10th, 1908, says:—

"As instructed, I beg to enclose report on Webb Sewer Ventilation Lamps, with statement as follows:—

"(1) First cost.

"(2) Maintenance and repairs.

"(3) Record of observations.

"(4) Day to Day reports covering first 59 days' observation.

"From the observations, it would appear that the gas and sewer connections were frequently frozen, notwithstanding the comparatively mild winter.

"On 5 and 6 days respectively, there was no ventilation through the lamps; probably due to unfavorable atmospheric conditions. When the lamps were working most effectively, the velocities in the sewers were only 4.22 and 3.60 feet per minute, or supposing that the air came both sides of the lamps, as no doubt was the case, half the velocity, or 2.11 and 1.80 feet per minute.

"In order to make this system of ventilation effective, (supposing the expense of installation and operation to be satisfactory), I should think that lamps would be required, at least one on each 500 feet of sewer.

"There appears to be no doubt that the lamp effectively burns and disinfects what air goes through it.

"This being the case, the gas jet would be as effective if placed in the top of the manhole, allowing the products of combustion to escape at street level, and the cost, as compared with the lamp arrangement, would be trifling.

"The cost of operation would be much reduced, and the effectiveness increased, as the lamp and gas pipes would be protected from frost.

"Also the friction loss in the long sewer connections and lamp posts would be saved.

"For the above reasons, the manhole ventilation would have double the efficiency of the lamps, and might therefore be placed at 1,000 feet intervals, as compared with 500 feet for the lamps."

Record of Observation.

	Lamp on Assiniboine Avenue.	Lamp on Main and Bannatyne.
No. of days observed	59	48
No. of times out	7	2
No. times vent on sewer frozen	10	10
No. times gas pipe frozen	18	14
No. of times no air passing (other cause than freezing)	5	6
Date of maximum efficiency, 4th March, 1908; 7th March, 1908.		
Max. cu, ft. per hour	3,175	4,233
Date of maximum efficiency, 12th March, 1908; 16th March, 1908.		
Min. cu. ft. per hour	52	17
Min. velocity in sewer ft. per min.	0.07	0.015
Max. velocity in sewer ft. per min.	4.22	3.60
Diameter of sewer	4′	5′

First Cost.

Cost of Lamps	$219 15
Freight	32 46
Duty	43 20
Erection	98 35
Teaming	10 00
Superintending and timekeeping	4 00
Stores	46 67
Total for 2 lamps	$453 83

Maintenance and Repairs.

Repair labor	$ 6 00
Teaming	10 00
Frostproof covering	18 00
Thawing out main sewer vent	40 00
Alcohol	2 00
Illuminating gas	8 30
Superintending and timekeeping	1 62
	$85 92

or 82 cents per day per lamp

The City Bacteriologist, Dr. J. H. Leeming, reports to the Civic Health Committee on February 20th, 1908, as follows:—

"I beg to submit herewith the results of the tests which I made in connection with the 'Webb Ventilating Lamps.' I experimented with only one of the lamps, the one which is placed at the corner of Carlton Street and Assiniboine Avenue, and the tests were made on the afternoon of February 3rd.

"Plates containing culture-media of blood-serum, agar and gelatin were exposed to the sewer-air both before and