

In his report to Mr. Gray under date of March 21st, 1917, the roadway engineer, E. M. Whitby, says:—

"It is interesting to note that from 70 to 75% of our asphalt repairs are being made on five streets constructed in 1910-11. These pavements were all laid two inches thick without a binder. They represent approximately 8½% of the total asphalt area."

The report shows that there are 992,905 ft. of water mains of all sizes in Hamilton, 1,835 hydrants and 1,634 valves.

The population of Hamilton on December 31st, 1917, was 107,832; the acreage, 6,450; the assessed value, \$82,704,840.

The engineering staff is as follows:—

E. R. Gray, city engineer; E. M. Whitby, roadway engineer; J. Stodart, sewer engineer; H. J. Clarke, engineering assistant; C. E. Venator, sidewalk and lighting engineer; J. C. Wardrop, architectural engineer; J. R. Heddle, office engineer; A. P. Kapelle, secretary of the works department; C. Pearson and W. Cust, draughtsmen; Thomas Towers, superintendent of waterworks; James Weeden, street commissioner; James Bain, electrical and mechanical engineer; James Boyd, chief engineer of high level pumping station; Campbell Leckie, chief engineer, Ferguson Avenue sewage disposal station; Charles H. Pilgrim, chief engineer, Gage Avenue sewage disposal pumping station; George Dennison, chief engineer Westmount Street sewage disposal station; Edward Baker, chief engineer West End sewage disposal station.

### HAMILTON WATERWORKS STATISTICS

THE accompanying charts are reproduced from the recently issued annual report of E. R. Gray, city engineer of Hamilton, Ont. They show the annual waterworks costs and cost of pipe per ton for each year from 1857 to 1917, and the increase in population and water consumption since 1870.

The source of water supply for Hamilton is Lake Ontario, the water being pumped to reservoirs or directly into the mains. Some water is repumped to high-level reservoirs and mountain water towers.

#### Leaks and Cost of Repairs

Size	Total Mileage	No. Leaks	Leaks per Mile	Cost of Repair per Mile
48-inch ...	0.0240	..	.....	0
36-inch ...	2.4613	1	1 in 2.4613	\$ 17.37
30-inch ...	6.5064	13	1 in 0.5	126.84
24-inch ...	1.5041	1	1 in 1.504	9.34
20-inch ...	9.7174	9	1 in 1.08	28.99
18-inch ...	6.6979	6	1 in 1.116	88.49
16-inch ...	0.8003	..	.....	0.0
12-inch ...	12.7117	4	1 in 3.18	30.32
10-inch ...	2.5452	1	1 in 2.54	2.19
8-inch ...	3.5456	2	1 in 1.772	164.40
6-inch ...	134.3710	38	1 in 3.53	24.82
4-inch ...	2.0808	1	1 in 2.08	42.98
2-inch ...	1.3623	3	1 in 0.454	33.4
1-inch ...	3.7215	3	1 in 2.4	5.02
	188.0495	82	1 in 2.29	\$ 33.06

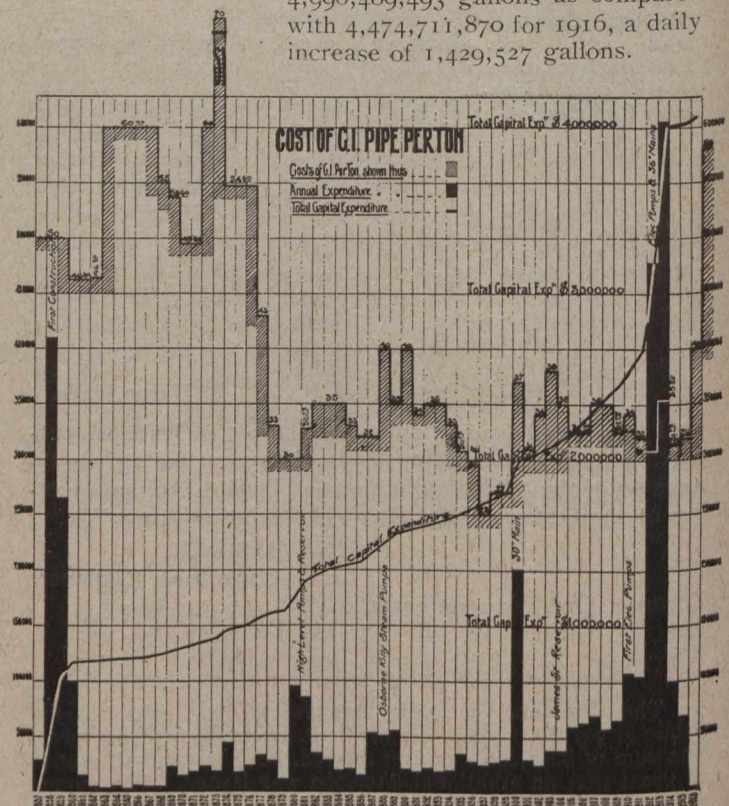


Diagram Showing Increase in Population and Water Consumption, 1870 to 1917

Some statistics regarding the consumption of water are as follows: Average daily consumption, 13,689,012 gallons; gallons per day to each consumer, 127.8.

During the year extensions to the water mains totalled 5,388 feet. The cost of repairs per mile during 1917 was \$33.06.

The average head pumped against during the year 1917 was 260.01 feet, as against 258.52 feet for 1916. The maximum total head for 24 hours was 283.77 feet, on April 18th. The maximum pumpage for 24 hours was 19,112,440 gallons, on July 30th. The minimum pumpage for 24 hours was 9,921,340 gallons, on November 9th. Average pressure on mains was 106.83 lbs. as against 103.29 lbs. in 1916. The total pumpage for 1917 was 4,996,489,493 gallons as compared with 4,474,711,870 for 1916, a daily increase of 1,429,527 gallons.



Annual Waterworks Costs, 1857 to 1917