



HISTORY OF URBAN WATER SYSTEMS IN CANADA

It is not often we stop to consider the essential role that sewers and water delivery systems play in urban life. It is very difficult to imagine life without them; no running water, no indoor toilets, waste deposited on the street or directly into rivers or lakes, flooded streets and basements. But this is the condition in which the majority of urban Canadians existed until well into the second half of the nineteenth century. Prior to 1850, only four public water supply systems existed in what is now Canada. Although the city of Saint John, New Brunswick, is credited with having built the first public water system in 1837, Montreal had a series of partial systems under private ownership dating from 1801, which were purchased by the city in 1845. Other early examples of public water systems include Toronto's, built in 1841, and Halifax's, which was constructed in 1848.

Initially, the main impetus for investing public funds in water supply systems was the recognition that central water supply systems could greatly reduce the damage caused by fire. Although the health benefits related to urban water systems were suspected as early as the 1790's, many early North American public systems pumped water into urban centres expressly for use in fighting fires. It is no coincidence that Canada's first public water supply system, in Saint John, NB, was constructed less than a year after the city had been devastated by fire.

The ascendancy of the contagion theory of disease in the 1850's coincided with a boom in the construction of public urban water systems throughout North America. As waves of cholera and typhoid swept North American cities, public support for water delivery systems and sewers grew. In response to the 1854 cholera epidemic in Hamilton, Ontario, which killed 552 of the city's 14,000 inhabitants, the city commissioned Canadian civil engineer Thomas Keefer to design and build a waterworks and pumping station. One of his innovative additions to the Hamilton pumping station, the steam-driven water pump, is now thought to have saved thousands of lives by permitting faster and more widespread access to a pure water source. By the beginning of the 20th century almost every major urban centre in Canada had a publicly operated urban water system, effectively eliminating cholera and typhoid epidemics.

The first wave of water delivery system construction was focused mainly in the largest urban centres, where the ever-growing demand for fresh water and waste removal necessitated continuous alterations and revisions to the systems. The first pipes used in North America were made of wood, which was inexpensive and in abundance in 19th century North America, but had a fairly short life span and were prone to leaks. The very high repair and maintenance costs of the wooden pipes initially acted as a deterrent for the development of water systems in smaller communities. Innovations in pipe construction and material in the 19th century greatly improved performance and lowered operating costs: As the market for the new technology expanded and costs began to decrease, smaller and smaller communities began to invest in water systems.

The health, safety and aesthetic benefits that resulted from the construction of urban water systems throughout the 19th and early 20th century changed the face of urban life in this country forever. We cannot under-estimate the important role that the evolution of urban water systems during this time played in making Canadian cities and towns the healthy and prosperous communities that they are today.

For More Information:

Ball, N.R. (Editor). 1988. Building Canada - A History of Public Works. Univ. of Toronto Press.

“W. James Historical Perspective on the Development of Urban Water Systems”
www.soe.uoguelph.ca/webfiles/wjames/homepage/Teaching/437/wj437hi.htm#intro

Environmental Science and Engineering Magazine
<http://www.esemag.com/0100/editorial.html>

Sewer History
<http://www.sewerhistory.org>