

# The Canadian Engineer

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## Waterworks at St. Thomas, Ont.

Supply Is from Creek and Thirty-Two Artesian Wells—Water Is Aerated, Coagulated, Filtered and Chlorinated—Algal Growths in Well Water Avoided by Eliminating Exposure in Open Reservoir—Brief Description of Plant and General Outline of Methods of Treatment

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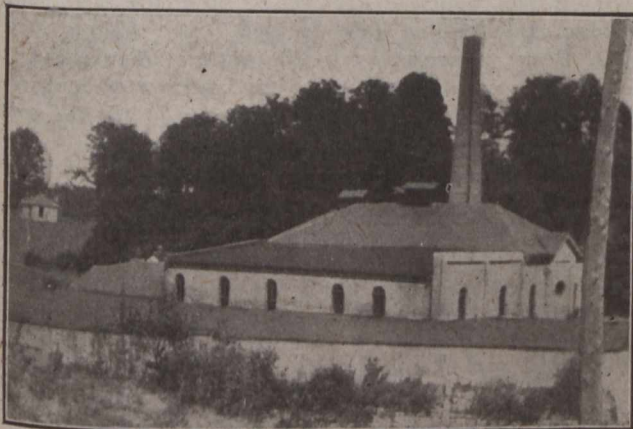
**S**T. THOMAS, Ontario, a city of about 17,000 population, is an important centre which is served by five steam railroads and two electric railways, the London and Lake Erie and the London and Port Stanley. The waterworks are situated about  $1\frac{1}{4}$  miles north of the civic centre, on the Kettle Creek, which meanders along the valley and drains about fifty square miles of catchment.

The first waterworks were constructed in the city in 1874, and in 1890 the present works were erected. A concrete dam, 90 ft. long, with 3-ft. flashboards, crosses Kettle Creek and impounds water, the surface of which extends upstream for a few miles when the dam overflows.

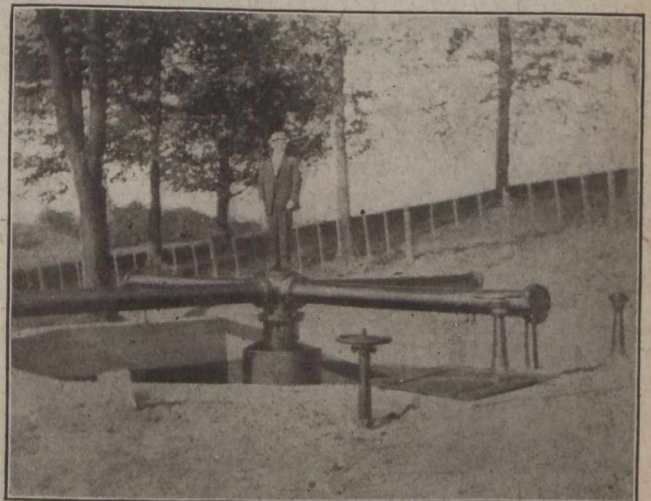
The water gravitates from the creek to a 7,000,000-gallon open reservoir. There are also about thirty-two 5-inch artesian wells sunk to a depth of 135 to 165 feet on both banks of the creek. This water flows through pipes direct to the pump well. The fact that the water from the creek is more or less turbid, according to

exposure the trouble was obviated. Since the change was made in the storage of well water, no algal growth has taken place and penmatella, an organism which depends upon algae for its sustenance, has disappeared.

A few years ago the city mains were found to be coated with crenothrix filaments which, becoming de-



St. Thomas, Ont., Pumping Station



Aerator at St. Thomas, Ont., Waterworks

tached, soon decayed and caused disagreeable conditions. Investigations were made and the remedy was found to be a process of aeration.

The water is drawn from the reservoir, dosed with alum at the average rate of one-half grain per gallon. Hypochlorite of lime is used. The pump raises the water and forces it through the aerator. This aerator consists of four arms, each made of ten-inch iron pipes, 12 feet long, having two rows of  $\frac{7}{8}$ -inch holes drilled along the top centre line and one hole underneath at each of the four ends for drainage purposes. The water is forced up the centre vertical pipe and through the perforations, and in its passage through the air, falling into the basin, it absorbs sufficient atmospheric oxygen. The water then passes into a coagulation basin, where the alum causes the mud to settle, and afterwards gravitates through a 20-in. main into six Hyatt filters, each 8 ft. diameter by 20 ft. long. These were originally installed as pressure filters, but were changed to act as enclosed gravity filters. (As the water leaves the coagulating

the season, the amount of comminuted clay that is carried; and the fact that the water from the wells is practically devoid of dissolved atmospheric oxygen, create a few problems of interest.

The mains from the wells have a scour outlet into the creek for the purpose of flushing out any fungoid growths therein. When well water was exposed in the open reservoir, algal growths were found to occur and the quality of the water was deteriorated, but by eliminating the