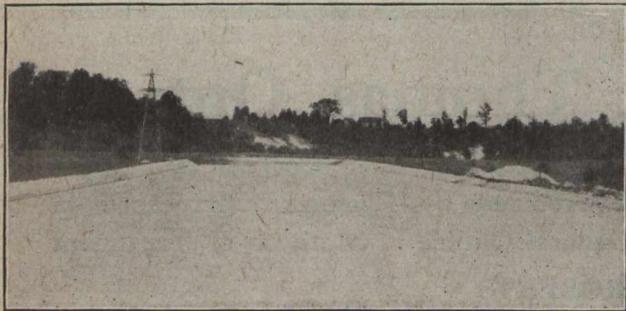


basin, a further dose of one-half grain of alum per gallon is added.)

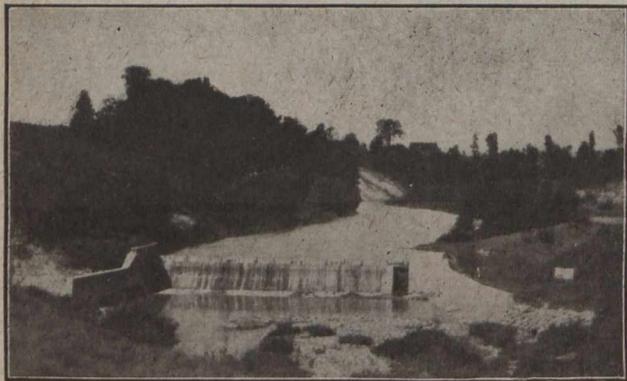
After being filtered, the water gravitates into a 900,000-gallon clean-water tank, which adjoins the pump-house. The pumps draw the water here and deliver it to the city through 14-inch and 18-inch mains at 80 lbs. normal and 120 lbs. fire pressure.



Settling Basin, 7,000,000 Gallons Capacity

There is an elevated steel water tank, having a capacity of 500,000 gallons, built by the Des Moines Steel Co. This tank is 46 feet in diameter, 58 feet deep to the hemispherical bottom, and the top water level is 144 feet above the street. The standpipe connecting the mains to this tank has an electrically-controlled altitude valve, which can be thrown out of or into commission by an ordinary switch at the pumping station. This valve can be operated to permit the tank to supply water when the pumps are not working and to cut off the tank when the fire pressure is on.

There are three Goldie-McCullough steam boilers, one of which is held in reserve, each 72 inches diameter and 16 feet long, with one hundred and four $3\frac{1}{2}$ -inch tubes; and one 5-m.g.d. Allis-Chalmers compound condensing steam-driven pump, working against 150 ft.



Dam in Creek. Affording 25,000,000 Gallons Storage Capacity

head. The plungers of the pump are $13\frac{3}{8}$ inches; the high-pressure cylinder, 18 inches; the low-pressure, 34 inches; the stroke, 24 inches; the suction, 20 inches; and the discharge, 18 inches. There are also two 2-m.g.d. auxiliary pumps built by Worthington Co. An Ingersoll-Rand air compressor, belt-driven by an Alley & McLellan high speed vertical compound steam engine, furnishes compressed air for the purpose of cleaning out the wells when they are plugged with sand. A Canadian Boving Co.'s pump, driven by a 60 h.p. motor, is used to raise the water from the suction well to the aerator.

The hypochlorite of lime is dissolved in a concrete tank, the quantity that is prescribed by the chemist being

put into the upper tank and thoroughly mixed. The solution is then discharged into a lower tank and its contents are decanted into the suction main each day. The alum is dissolved and decanted in a similar manner, but this solution is tested for strength by means of a hydrometer.

There were 1,816 metered services on December 31st, 1917, and 2,222 unmetered, or a total of 4,038 services. The annual consumption (1917) was 662,285,000 gallons, which averages about 106 gallons per capita per diem.

During the recent dry spell the consumption increased considerably, causing the storage to be somewhat reduced and necessitating precautions being taken to prevent inordinate consumption of water. The cost of fuel has increased from \$4.69 per million gallons in 1912 to \$13.68 in 1917, whilst the total cost of pumping was \$19.24 and \$26.42, respectively. The cost of fuel alone has increased over \$5 per ton during the last two years, and the quality is now inferior.

A. F. McLachlin, the chemist, conducts the chemical analyses and bacteriological examinations, and he has found that the water investigations involve a series of problems, because the solution of one problem apparently affords nature an opportunity to create another. This does not imply that the treatment of water is ineffectual, but it makes the study full of interest to those who are imbued with a desire for fuller knowledge of the subject.

T. Allan, the superintendent of the pumping station, has been in the employ of the St. Thomas waterworks department for nearly forty years, and the waterworks foreman, L. Bowlby, has served over twenty years. S. O. Perry is secretary to the water commission, and Mellis Ferguson, B.A.Sc., is city and water engineer. To these gentlemen the writer is indebted for the above information.



One of the Largest Elevated Steel Water Tanks in Canada

More than one-quarter of the urban population of the United States and Canada, or about 12,000,000 out of some 41,000,000 people, is now paying more than the "standard" 5-cent fare for its street car rides, according to American Electric Railway Association.

Nine thousand people witnessed the keel-laying ceremonies this week at the Foundation Company's shipyards at Victoria, B.C., the commencement of a contract for twenty ships for the French Government being celebrated in the city by a half-holiday. Premier Oliver officiated at the laying of the first keel. Subsequently the last of the previous lot of vessels being constructed by the Foundation Company was launched.

Upon request of the Hamilton-Guelph-Owen Sound Good Roads Association, the Public Highways Department of the Province of Ontario sent one of its engineers, Mr. Huber, over the proposed route last Tuesday, with representatives of the various municipalities through which the road will pass. One of the biggest problems between Guelph and Hamilton is the mountain, where some time was spent in discussing the possibility of straightening the road by means of a fill, thus eliminating all the dangerous curves and reducing the grade very materially. It was estimated that this work would cost about \$500,000.