and a De Laval centrifugal pump working under 35 feet head at 2,200 r.p.m. and discharging about 700 gallons per minute, and driven by a steam turbine of type T.A.

The pump-house is equipped with an overhead travelling crane carrying a hand-operated 10-ton block tackle.

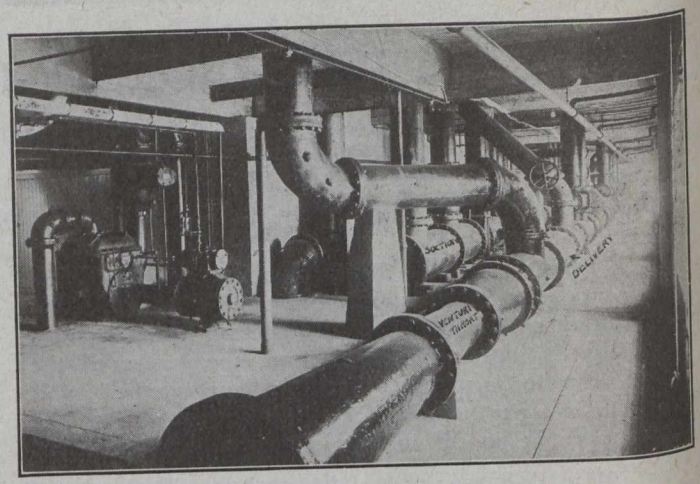
The water-driven triplex pumps and water turbines were made by William Hamilton Co., Peterborough. The Worthington turbine pump was built by John McDougal Caledonian Iron Works Co., Montreal, and the De Laval steam turbine and pumps were supplied by the Turbine Equipment Co., Toronto.

There are two 100-h.p. horizontal return tube boilers each 66 inches in diameter and 16 feet long, fitted with Cyclone shaking grates of 34 square feet in area. A fan to induce draft is belt-driven by a 6-h.p. vertical steam engine, and a 6-h.p. Foos gasoline engine is installed to operate the fan when the boiler furnaces are being started. The boilers are not heated until necessity arises. A Cochrane feed water heater and feed pump are installed. The boilers are placed in a separate adjoining building,

Another View of Pump-house, Showing Worthington Vertical Pump and De Laval Auxiliary Pump.

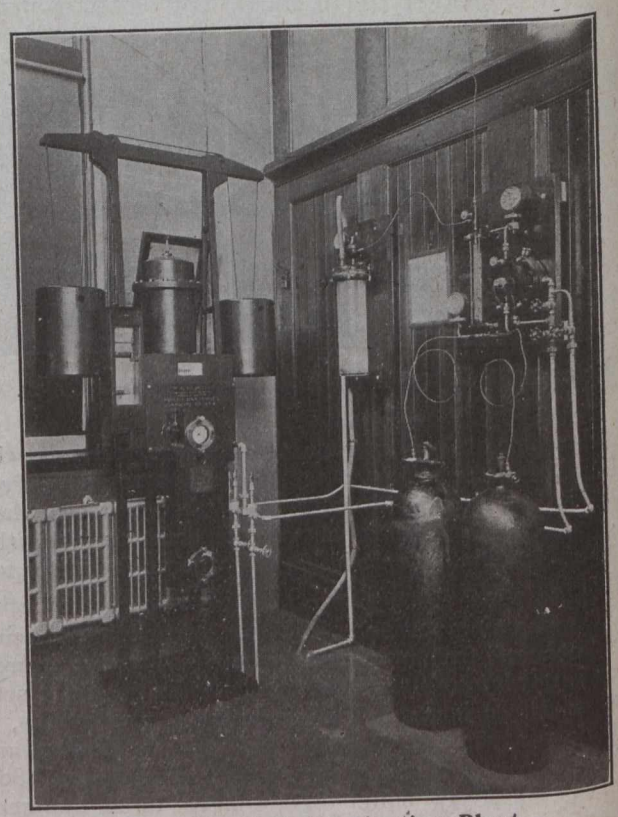
the base of which is reinforced concrete with a brick superstructure, and a laminated wood roof covered with 5-ply Barrett roofing.

The water is pumped from the river through a 30-inch suction header and discharged from the pumps through individual connections controlled by valves into a 24-inch delivery main, in which is inserted a 10-inch Venturi throat to measure the quantity pumped. The Venturi meter recording apparatus is in the office on the main floor, together with a self-recording Bristol pressure gauge and Wallace & Tiernan's chlorinating plant. The meter is type M Builders' Iron Foundry Co. make and needs no description, but it is interesting to note that the Venturi throat referred to not only measures the volume of water pumped but also controls the operation of the chlorinating plant. The differential pressures in the inlet and throat of the Venturi meter are transmitted to the Venturi meter recorder and also to the diaphragm which controls the admission of liquid chlorine according to the varying quantity of water that is supplied. The liquid chlorine is supplied in steel cylinders under considerable pressure and when it is decided what quantity of it must be used to sterilize the water it can be done easily by means of a glass gauge set against a graduated scale. Having noted the volume of water that is being registered by the meter and adjusting the chlorinator scale to suit the required proportion of chlorine to be added, the differential pressures at the Venturi throat automatically regulate the chlorinator for other rates of flow. The liquid chlorine meets with a small quantity of water in a glass vessel and the resulting



Showing Venturi Meter.

mixture is conveyed by a rubber pipe to the suction connection in the pipe gallery. The maximum quantity of liquid chlorine used, is stated to be about 3 lbs. per million gallons but the average in 1916 was 1½ lbs. The chlorine



View Showing Chlorinating Plant.

costs about 25 cents per pound delivered at the pump-house inclusive of all charges.

The pump-house, etc., are steam heated by means of a 30-h.p. horizontal return-tube boiler.

The force mains to the city consist of one 16-inch and one 18-inch cast-iron pipe. These continue well within the city boundaries. The normal pressure at the pumps