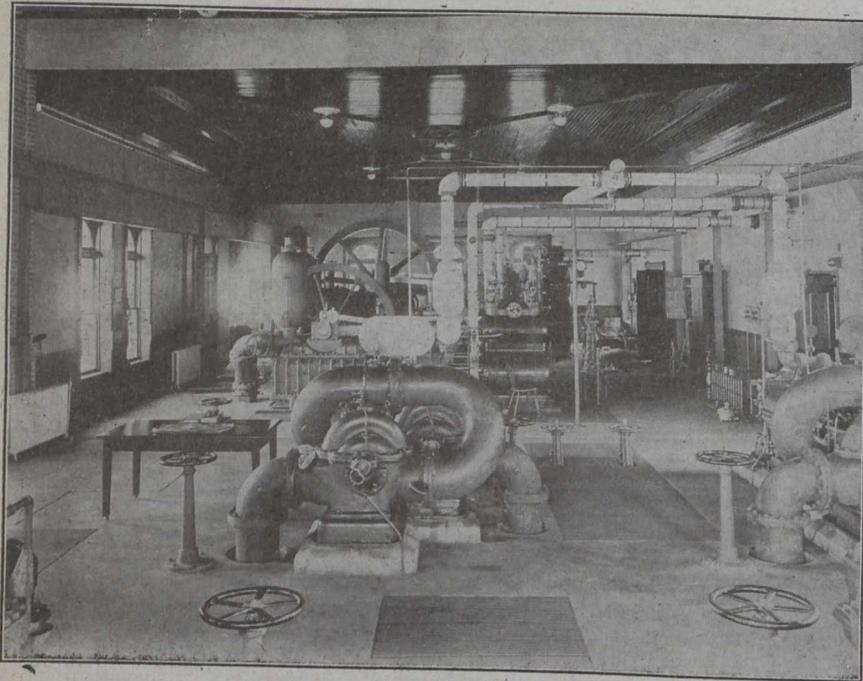


in 1889. These pumps draw water from the old pump well which is situated under the pump-house floor, and are ordinarily used as emergency pumps.

There is also a new installation of pumps in an extension of the pump-house. These consist of two De



View of Engine Room.

Laval domestic supply pumps and two De Laval booster pumps for fire purposes. The two domestic supply pumps are three-stage centrifugals operated by synchronous motors. These pumps are rated to deliver 3,360 gallons per minute under a head of 200 feet when running at 750 r.p.m. The motors are Canadian Westinghouse 250-h.p. at 4,000 volts, 25 cycles, 3 phase, 29 amp., 750 r.p.m. The direct current exciters are 6-kw., 125 volts, 48 amp. These pumps have connections to a 16-inch suction line from the new well and 12-inch deliveries. Each booster pump consists of two De Laval single-stage centrifugals worked in series at 1,250 r.p.m. connected to a De Laval steam turbine by a reduction gear. The domestic supply pump delivers water into an 18-inch header at about 85 lbs. pressure, but in case of fire this connection is shut and the water is passed through an intermediate header to the booster pumps to increase the pressure to about 120 lbs. per square inch, returned to the main header and thence to the city through various connections ranging from 10 inches to 20 inches in diameter. These pumps were supplied by the Turbine Equipment Company, Toronto, and have been in operation for a few months.

The steam is supplied by any two of three John Inglis & Co.'s return tubular boilers, each 16 feet long 72 inches diameter. The fires are banked and the steam pressure is maintained at 100 pounds. The feed-water passes through a 125-h.p. Hoppes feed-water purifier to reduce the temporary hardness of the water.

The De Laval steam turbines are connected to C. H. Wheeler's surface condensers and provided with a Mullan's air pump. The older engines are fitted with jet condensers.

The venturi meter is a M type, 9-inch throat, with an 18-inch inlet and a 20-inch outlet.

The pump-house is heated by Webster's vacuum-steam heating plant.

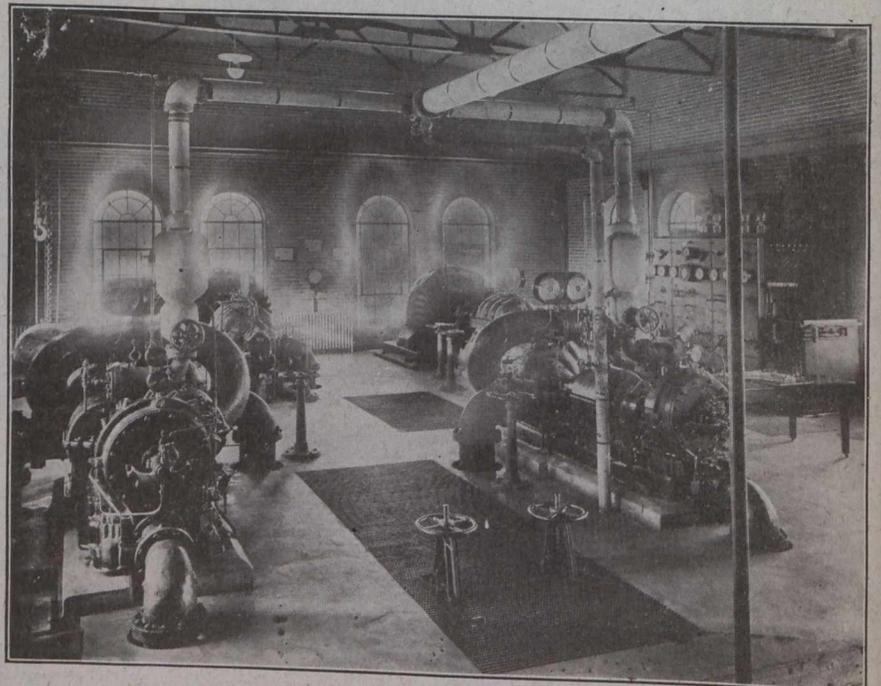
There is an overhead travelling crane with a runway extending the whole length of the pump-house.

A new screen-house, 32 feet by 40 feet is now being built near the river intake where an electrically driven submerged pump will lift the water about 10 feet into the distributing mains to feed the infiltration area. At present the water is raised 25 feet by a temporary pumping outfit and is discharged into the distributing system.

There is a 1,500,000-gallon open trapezoidal reservoir in the lower part of the infiltration area and near the pump-house to receive the excess yield of the infiltration galleries.

A small slow sand filter has been constructed adjoining the canal to treat water taken therefrom. This filter is 20 feet by 40 feet and 9 feet deep with 3 feet of sand. The water, after passing through the filter, is allowed to percolate into the ground to saturate the infiltration area and then re-collected by the galleries and conveyed to the pump wells.

During 1915 about 952,800,000 Imperial gallons of water were pumped against a head of about 200 feet. The cost of fuel and energy was \$11,538.30, which is equiva-



Another View of Pumping Equipment.

lent to \$12.15 per million gallons and 6.08 cents per million foot-gallons—that is, one million gallons raised one foot high.

(Continued on page 28.)