

# The Canadian Engineer

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## Reconstruction of Water Works at Cobourg, Ont.

Four Electrically-Driven Pumping Units, Each 750 G.P.M. Capacity, on Domestic Service—Gasoline-Engine-Driven Unit Replaces Steam as Standby—Three Mechanical Filter Tanks Operating Under Normal Conditions at Double Rated Capacity

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COBOURG, Ont., a town of about 5,000 inhabitants, obtains its water direct from Lake Ontario. The pumping station was originally an electric power plant, to which was added a belt-driven turbine pump for supply of water to the town, with two steam pumps, of the compound duplex type, for fire service.

The system was bought by the Seymour interests when the Trent river was developed. The electrical section of the plant was then disposed of and a layout made of a motor-driven pumping plant and pressure filter system, located in the old building.

The water entered the suction well through a 12-in. intake laid upon the rock bottom of the lake and anchored thereto, and a 14-in. suction pipe with foot valve supplied the pumps from the well. In addition to this, an auxiliary supply was available from six drilled wells adjacent to the station. This water was highly mineralized, a smell of sulphur being distinctly noticeable, and on account of its corrosive quality this source of supply was only used for

70 to 75 lbs., and for fire 100 lbs. at the pump-house, excess pressure under fire combination with small demand being taken care of by relief valves.

The filter plant consisted of three horizontal units 8 ft. diameter by 20 ft. long, of extra heavy construction, and with the usual connections for simple back wash. The control end of the filters is shown in Fig. 2. The rating of

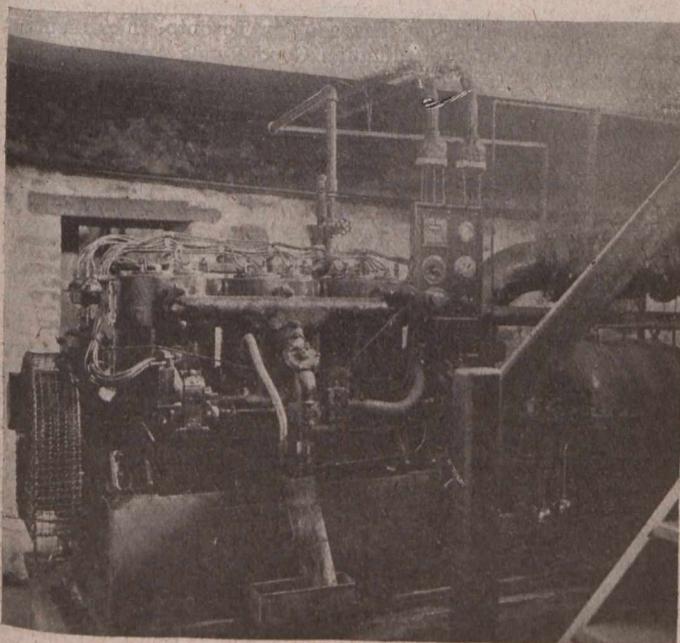


FIG. 1—GASOLINE-ENGINE-DRIVEN FIRE PUMPS

emergency and for clearing the intake of trash and ice which gave trouble in the winter season.

Four pumping units were installed, each of 750 g.p.m. capacity, arranged to operate in parallel for domestic service and in pairs in series for fire service, giving domestic capacity of 1,500 g.p.m. with reserve domestic capacity of the same amount. Pressure for domestic service is from

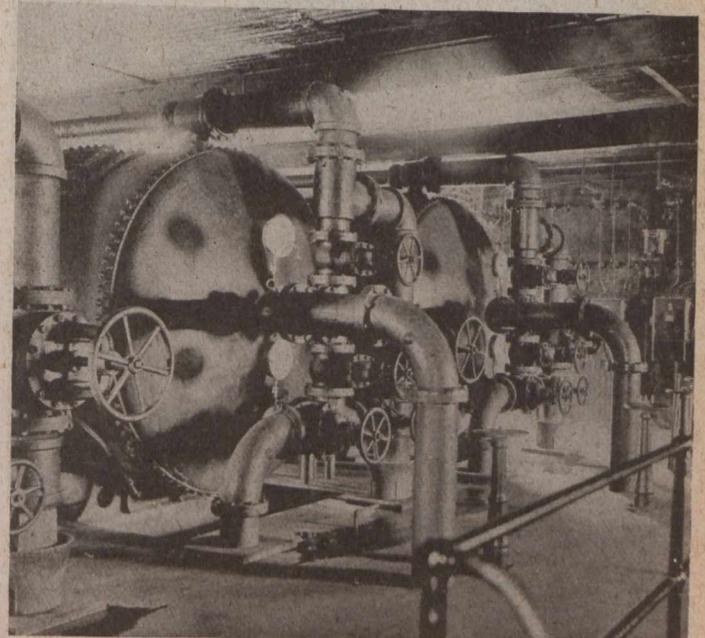


FIG. 2—MECHANICAL FILTER TANKS

each filter is 270 Imp. g.p.m. at 1.67 g.p.m. per sq. ft., which is satisfactory for muddy and contaminated water, but under present conditions, with supply taken off a clean rock bottom over 20 ft. below the surface, the quality of water is so good that the above rate can easily be increased 100%, giving a capacity of 1,600 g.p.m. under normal operation, with further increase during fire demand.

Soon after this installation was made, the town stand-pipe was wrecked by a fall of ice, and the system has been operated to the present time as a direct pumping proposition, without reservoir.

The location of the station is at a point on the lake shore which receives full force of all storms and there is much ice accumulation in the winter, resulting in excessive turbidity of the water near the shore and the breaking away of section of the intake pipe from time to time, so that when the system was acquired by the Hydro-Electric Power Commission of Ontario, a new intake was necessary to ensure against failure of the water supply and to relieve the