The site selected is admirably adapted for sewage disposal works, the soil being a sand underlaid by coarse gravel. It is unbuilt upon, comparatively remote, and can doubtless be utilized for sewage treatment when the tributary population has attained 25,000 people.

After inspecting the works at Baltimore, Fitchburg, Atlanta and Columbus, also the experimental plants at Cleveland and Milwaukee, the engineers decided that sedimentation followed by rapid filtration would prove more satisfactory than the activated sludge process, for the following reasons:—

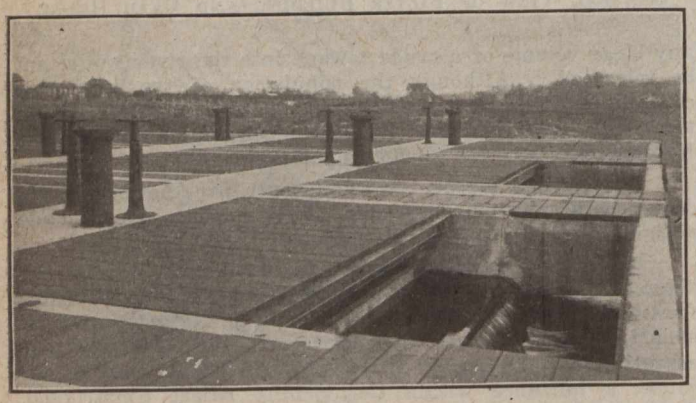
(1) The activated sludge process had not *then* passed the experimental stage.

(2) The costs of operation would be much higher in the latter system, and greater skill would be required in the attendants.

(3) Under ordinary municipal management the activated sludge system might prove a complete failure.

(4) The volume of sludge to be disposed of would be much greater than with the sedimentation tanks and filters, and its disposal would demand expert handling and treatment.

The works as designed and constructed comprise a small screen chamber, three sedimentation tanks, two dosing chambers, two percolating-spraying filters with pipe gallery between, two humus tanks, one small pump house, and two



SEDIMENTATION TANKS—SECTION OF FLOORING REMOVED, SHOWING OPERATION

sludge-drying beds. The main sewer was continued easterly from the end of Price Street to the screen chamber, an overflow being provided for diverting the flow directly to the river if an emergency should arise.

Sedimentation Tanks

As the sewage contains practically no street water, it is free from sand or grit, and the rack or screen only prevents entrance to tanks of large floating cloths, pieces of wood, etc.

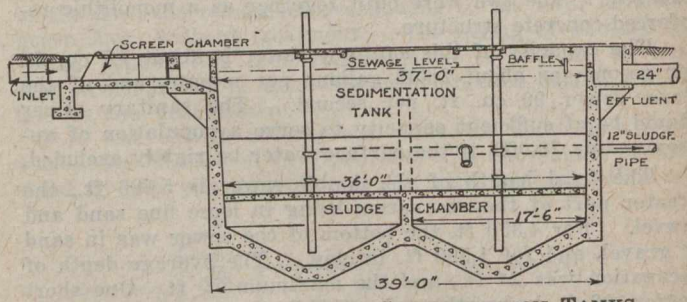
The sedimentation tanks are of the two-storied type, non-reversible. The sewage from the screen chambers flows first into a distributing channel at the north end of tanks, thence to a second distributing channel with submerged openings into the tanks. The tanks are provided with inclined bottoms and as the sewage flows slowly from end to end, the suspended solids drop to the sloping bottoms and slide through a slot into the sludge tanks below, which are also provided with sloping bottoms to facilitate the removal of the sludge.

Each sewage tank is 16½ ft. in width, 36 ft. in length, the depth of sewage above the top of sloping bottom being 7 ft. The maximum velocity of flow through the tanks will be about one-fourth of a foot per minute, giving one and three-fourths hours' detention. The average, however, will be over two hours' detention.

The combined capacity of the three sludge chambers is about 240 cu. yds.

Vent chambers of ample size between the sewage tanks permit the escape of gases and provide for scum or floating sludge. Baffle boards across the tanks near the outlet ends prevent floating scum, etc., from passing, deflect the flow downwards and promote settlement of suspended matter.

The sludge can be removed as desired by simply opening certain gate valves, the head of the sewage in the tanks being sufficient to cause a discharge. After standing stagnant through the winter months, it will probably be necessary to agitate the sludge in the outlet pipes and in the sludge chambers at the base of these outlet pipes before the sludge will flow by gravity.



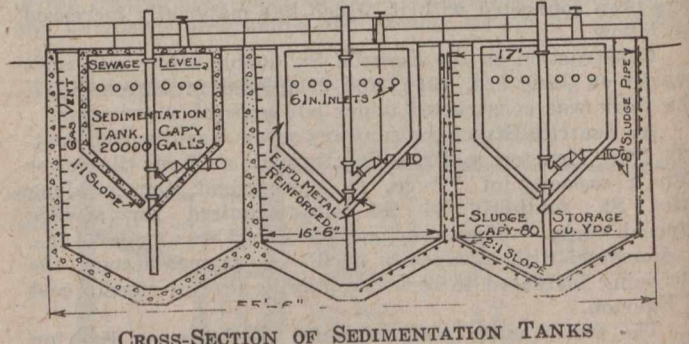
LONGITUDINAL SECTION OF SEDIMENTATION TANKS

Another set of valves permits the discharge of sewage through the sludge pipe.

The effluent from the tanks flows over weirs at the south ends of tanks, these weirs being 11 ft. in length, formed by using steel rails laid carefully to grade. From the tanks the effluent flows through a cast-iron main at grade to the head house.

The sedimentation tanks are covered with planking, removable in sections. Upon two concrete platforms across the tanks are set the operating valve stands, nine in number. Iron ladders extend to the bottoms of the sludge chambers, and provision has been made for readily removing the floating scum in the vent chambers. During cold weather the tanks and channels are completely covered, but during the greater part of the year the influent and effluent channels are left uncovered.

Prior to the introduction of the Cameron septic tank about twenty years ago, practically all sedimentation tanks were open; that is, they were not roofed or covered in any way. In Ontario two or possibly three cities constructed open tanks. With the advent of the septic tank, many cities and some towns constructed enclosed tanks, upon the assumption that the exclusion of light and air would, by the propagation of the growth of anaerobic bacteria, digest the solids in the sewage. It is probable that some of the



CROSS-SECTION OF SEDIMENTATION TANKS

reported improvements in results over open tanks were due to the concrete roof protecting the sewage from frost, also to a bottling up of foul gases.

When the two-storied tanks were introduced, those in Great Britain, Europe and the United States were open, but in this Canadian climate there can be no doubt that they should be covered or closed in the winter months.

Filters

Within the head house, at east end of filter house, which is entirely enclosed, are an inlet chamber, two dosing chambers, and an overflow chamber. The inflow into dosers can be determined almost instantly by noting the depth of flow