THE

Sanitary Review

SEWERAGE, SEWAGE DISPOSAL, WATER SUPPLY AND WATER PURIFICATION

PROPER CHARGING OF WATER RATES.

One of the most difficult departments of municipal affairs to properly charge in finance has been the waterworks system.

Public water supplies may be divided into four classes:—

(1) Water used for domestic purposes.

(2) Water used for manufacturing and mechanical purposes.

(3) Water used for street sprinkling and fire protection.

(4) Water wasted.

In the early days of waterworks systems flat rates were charged. The district served was small, and a flat rate gave a fairly uniform method of assessment. With the growth of the city conditions changed; certain sections became manufacturing districts and called for exceptionally large water consumption. Usually, the manufacturer paid by the meter rate, but the different residential sections, irrespective of the cost of distribution in each section, continues to pay the same rate.

The introducing of meters on private services in a measure equalizes the charges, but in many municipalities of any size a uniform meter rate is very little fairer than a flat rate.

The water for some sections of the city requires pumping two or three times. The ratepayer in the first section frequently pays in a higher assessment, and yet his water rate is as high as the man who secures the water after the second or third pumping.

We expect to see, in the matter of water rates, a revision that will recognize the difference in cost of delivery because of location.

REDUCING SEEPAGE.

The United States Department of Agriculture have recently conducted a very interesting series of experiments on small earth reservoirs, having in view the idea of reducing seepage. These experiments were conducted at Cheyenne, Wyo., where a reservoir constructed of porous, sandy soil, which would not puddle readily, was divided into three compartments.

In the first compartment, nine sacks of cement were spread over the surface with a view to sealing the voids in the soil, but very little gain in tightness was noticed.

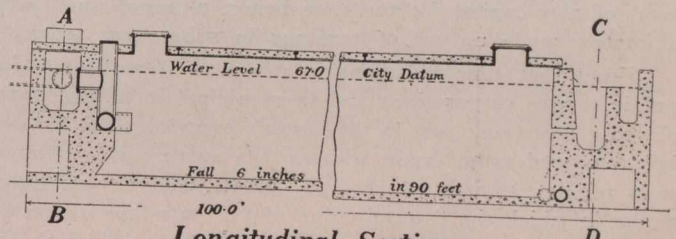
The second compartment was treated with tar. About 0.121 gallons per square foot was applied and then sprinkled with about two inches of sand. This treatment was not any more effective than the cement.

The third compartment was well packed, the reservoir filled and the water allowed to seep away, and after the material had dried, tar was added in two coats, using altogether one gallon per square foot. This greatly reduced the loss.

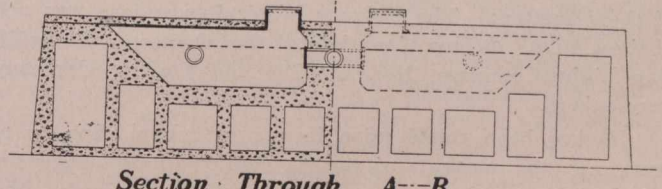
SEPTIC TANK, OTTAWA, ONT.

In 1909 Mr. N. J. Ker, City Engineer, Ottawa, Ont., formed for the purpose of installing a sewerage system what is now known as the south drainage system. This system, in which are used reinforced concrete, brick and tile sewers, drains an area of 150 acres with an outlet into the Rideau River. As the Provincial authorities would not allow untreated house sewage to be discharged into the river it was decided to provide septic tanks, and construction on these was begun September 1, 1909.

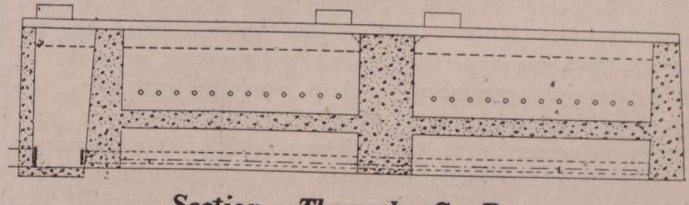
Slow progress was made at first with the excavation, as water was found one foot below the surface of the ground, necessitating continuous pumping to allow the men to work. The tanks are 90 feet long, 14 feet wide and have an average



Longitudinal Section



Section Through A—B



Section Through C—D

depth of 7 feet, with a grit chamber at one end and an aerating weir and effluent channel at the other. The tanks were constructed entirely of concrete, the mixture being 1 cement, 3 of sand and 6 of stone. For the reinforcement of the roof standard 56-pound railroad rails were used as cross-beams, the intermediate spans being reinforced with expanded metal. The general construction of the tanks is shown in the accompanying sections.

Access to the tanks is obtained by six standard manholes. As the sewers are on the combined system, a storm overflow