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BRUSHWOOD AS A MEDIUM FOR SEWAGE FILTERS

EXPERIMENTS AT NORTH TORONTO USING BRUSHWOOD AND SLAG AS FILTER MEDIA SHOW FORMER TO BE PARTICULARLY SUITABLE FOR INDUCING SLIMY GROWTH AND GIVING PROPER VENTILATION.

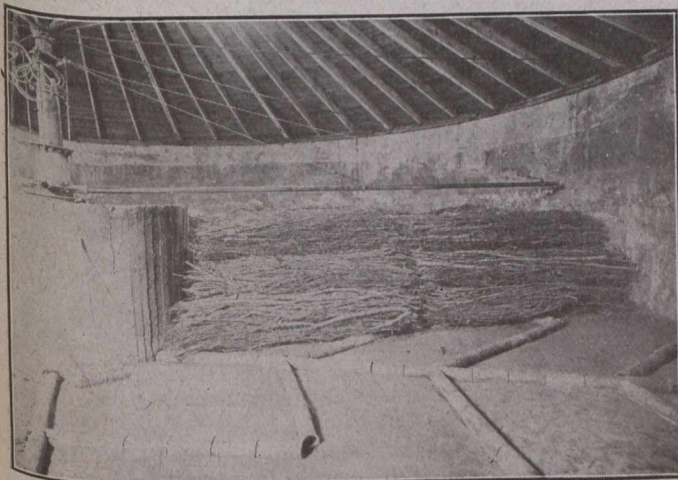
By **GEORGE PHELPS, A.M.Can.Soc.C.E.,**

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WITHIN the last two or three years, with the activated sludge process of sewage treatment coming so quickly to the front, engineers are beginning to look on the treatment of sewage by filtration as a somewhat slow process, and it seems probable that the filter will eventually be almost entirely discarded as new processes become perfected. In the meantime, filters are doing much good work, and any improvement in their efficiency is a step towards a solution of the sewage treatment problem. That there is room for considerable improvement in the character of medium ordinarily used is shown by the results obtained with an experimental filter, which has been in operation for 2½ years at the North Toronto sewage disposal works.

The sewage of that portion of the city, which was originally the town of North Toronto, is treated separately by disposal works, constructed before the annexation of this district to the city; it is a domestic sewage with practically no trade wastes, roof water being admitted to the sewers, but no other surface drainage.

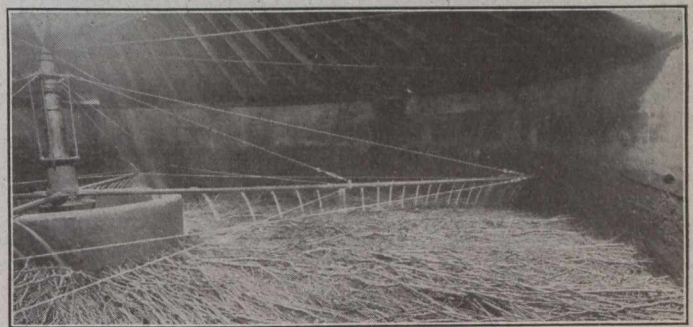
It was found necessary in the early part of 1914 to clean out and refill some of the filters, and as an experi-



Brushwood Filter Under Construction.

ment, it was decided to use brushwood as a medium in one case, and for a second filter, screened, washed and graded slag, so that the two could be run under similar conditions and a fair comparison made between the results obtained. The depth of the medium in each case was 5 ft.

6 ins., both filters being 50 ft. in diameter, and roofed over. The distributors are of the Adams rotary type. Before reaching the filters, the sewage passes through a coarse screen, detritus tanks and sedimentation tanks, the



Brushwood Filter in Operation.

retention period in the tanks averaging about three hours.

The brushwood filter was started on June 3rd, 1914, at an average rate of flow of two million gallons per acre per day, and has been run continuously at varying rates up to the present time, with only a few short stoppages for alterations to the plant, the longest stop being for three days. There is a continuous and fairly constant flow to the filter, the maximum and minimum rate for any day being about 10% above and below the average.

After two months' working, the brushwood had become thickly coated with gray slime and a very satisfactory effluent was obtained, and from that time on, the flow to the filter has been periodically increased up to the present average rate of 7,250,000 gallons per acre per day. The following table shows the average daily rates from the time of starting the filter, viz. :—

June to August, 1914	2,000,000	gallons per acre
August to October, 1914	3,000,000	" "
October to November, 1914..	4,000,000	" "
November to December, 1914	4,500,000	" "
December to February, 1915.	5,000,000	" "
February to April, 1915	5,500,000	" "
April to September, 1915 ...	6,000,000	" "
September to July, 1916	6,500,000	" "
July to December, 1916	6,900,000	" "
December, 1916, to date	7,250,000	" "