to the pumps and 86,246,600 gallons, or 2.6 per cent., of the whole used in washing, as follows:—

Coagulant	$ 5,919 27
Coal	2,043 92
Oil and waste	297 39
Supplies	837 95
Repairs	639 89
Laboratory	1,395 76
Labor	8,209 33
Total	$19,343 00

The above amounts to a charge of $5.91 per million gallons. Coagulant cost per million gallons, $1.81; coal, 62 cents; oil and waste, 9 cents; supplies, 26 cents; repairs, 20 cents; laboratory, 42 cents, and labor, $2.51.

sand filtration; they will also compare equally with the best results of slow sand filtration. There is no reason why equally good results may not be obtained by proper attention and care at any mechanical plant installation, granted, of course, a properly designed filter of suitable capacity.

By permission of the Roberts Filter Co., of Philadelphia, U.S.A., we are enabled to produce illustrations showing various types of mechanical filters, with sections showing the working parts. Style "L." for instance, per unit, is capable of treating from 84 to 200 gallons per minute, depending on the diameter of the filter.

Some of the main features in connection with the use of mechanical filters in this country are the ease with which they can be cleaned by reversing the water current, the small space they occupy, allowing them to be easily housed and protected from the influence of frost. There is

Analysis of Raw Water and Filtered Water at Harrisburg for the Year 1908.

Daily Average for the Month of	Bacteria.			Efficiency.		Tur-bidity.		Color.		Alkalinity.			Grains per Gallon Coagulant.			Length of Runs.		% Used in Washing.	Average Rate per Million Gallons per Acre per Day.	Tap Water		
	River.	Sed Basin.	Filtered.	Sed. Basin.	Plant.	River.	Filtered.	River.	Filtered.	River.	Filtered.	Parts Used.	Sed. Basin.	Coag. Basin.	Total	Hours.	Minutes.			Bacteria.	Turbidity.	Color.
January	5,059	2,040	15	59.68	99.71	33	0	11	0	13.2	6.7	6.5	.48	.52	1.00	13	58	2.7	84,492,000	16	0	0
February	22,152	6,610	99	70.15	99.57	93	0	13	0	25.8	19.0	6.8	.82	.45	1.27	16	12	2.3	90,914,400	83	0	0
March	15,894	4,113	23	74.12	99.85	162	0	17	0	13.3	4.3	9.0	.89	.63	1.52	15	50	2.4	87,100,000	22	0	0
April	3,812	1,165	5	69.44	99.87	36	0	12	0	12.2	5.1	7.1	.60	.54	1.14	16	49	2.0	85,487,040	9	0	0
May	5,168	1,283	4	75.17	99.91	96	0	15	0	12.6	4.7	7.9	.73	.56	1.29	16	06	2.2	84,388,000	13	0	0
June	588	299	6	49.92	98.98	11	0	6	0	34.7	29.6	5.1	.11	.61	.72	12	47	2.6	86,676,480	26	0	0
July	2,275	580	8	74.50	99.65	119	0	10	0	60.0	55.6	4.4	.25	.71	.96	13	21	2.6	87,824,320	36	0	0
August	654	333	9	49.08	98.66	21	0	6	0	79.6	73.5	6.1	.15	.68	.83	16	06	2.3	83,147,904	78	0	0
September	997	475	11	52.36	98.99	12	0	4	0	106.9	102.6	4.3	.05	.70	.75	9	52	3.3	87,723,360	60	0	0
October	1,099	873	19	20.53	98.25	16	0	5	0	98.1	92.9	5.2	.20	.71	.91	9	43	3.6	91,470,960	32	0	0
November	306	223	4	27.11	98.86	5	0	3	0	98.3	90.6	7.7	.50	.60	1.10	14	15	2.1	90,400,320	6	0	0
December	2,731	1,473	68	46.06	97.50	17	0	5	0	95.3	85.7	9.6	.62	.77	1.39	12	12	2.6	85,240,000	59	0	0
Daily average for the year	4,949	1,662	19	66.43	99.62	52	0	9	0	54.6	47.6	7.0	.45	.64	1.09	13	29	2.6	87,658,704	36	0	0

The above analysis of a year's working leave nothing to be desired as far as efficiency is concerned, and the results will compare favorably with the averages from slow sand filtration, a distinct tendency being shown to adopt this method of filtration of river or surface water in the Western Provinces, where the question of frost is a great consideration.

SEWAGE DISPOSAL.

REMOVAL OF PUTRESCIBILITY.

Chapter III. (Continued).

Land Intermittent Filtration.

In our last issue we dealt with the question of the removal of putrescibility by discharging settled sewage on to land divided into plots or portions, so that each plot, or portion, would receive a certain dose of sewage intermittently. Certain towns, where this process has been in operation for a considerable time, were quoted, such as Framingham and Brockton, Mass., such being the direct result of the Lawrence experiments; and also at Berlin, Ontario, being the results of experiments carried out by the Ontario Provincial Board of Health. It has been shown that, given a certain quality and quantity of friable soil, satisfactory results may be obtained, as far as the removal of putrescibility is concerned.

In furnishing our readers with the analysis of the effluents from the Framingham and Brockton plants, no mention has been made with reference to removal of bacteria. Referring to the introduction to these articles, several of the experimental tests at the Lawrence Station were quoted, whereby reductions of bacteria were effected amounting to 97 per cent.

Now it must appear obvious, in order to appreciate exactly a comparison between land intermittent filtration and artificial biological filtration, that more issues must be taken into account than the rendering of a more putrescible effluent. A more putrescible effluent may be obtained by either process. There will always remain, however, many who will incline towards land treatment as biologically efficient and as an economical method of utilizing the manurial properties contained in the sewage as against the apparent wasteful process of artificial biological filtration.

The points now to be dealt with in connection with land intermittent filtration are as follows:

	ALTRINGHAM	ALDERSHOT CAMP	CROYDON	CAMBRIDGE	LEICESTER	NOTTINGHAM	RUGBY	SOUTH NORWOOD
Total number of Bacteria ... (Gelatine at 20° C.)	263,400 (99%)	183,266 (99%)	1,413,200 (95%)	711,476 (94%)	532,777 (95%)	Frequently less than 1,000	637,133 (97%)	778,322 (98%)
Total number of Bacteria ... (Agar at 37° C.)	7,275 (99%)	37,308 (99%)	112,000 (97%)	78,327 (94%)	70,500 (95%)	Ditto	81,526 (97%)	35,157 (99%)
B. Coli ..... (Approximate averages)	At least 100, but less than 1,000 per c.c.	At least 1,000, but less than 10,000 per c.c.	At least 1,000, but less than 10,000 per c.c.	At least 1,000, but less than 10,000 per c.c.	At least 1,000, but less than 10,000 per c.c.	Variable, but relatively satisfactory	At least 1,000, but less than 10,000 per c.c.	At least 100, but less than 1,000 per c.c.