from the new tanks: "It is a clear sparkling water giving rise to no nuisance in the neighborhood."

Berlin has then to be congratulated on its new sewage scheme, of which it can, we think, be safely said, there is none better in Canada.

Berlin has, however, had its trouble, has had to pay something like $16,000 as damages for causing nuisances in the past. So troubled were they by the failure of their early attempts at sewage disposal that in 1902 they waited on the Government, requesting that something might be done to assist them by some sort of reliable experimental work, to get trustworthy data to assist them in choosing a method of sewage disposal. The legislature appropriated $2,000 for the above purpose, and Dr. Amyot was put in charge of the work.

The report contains details of the experiments made, and are interesting, as being practically the first of this nature in Canada. Dr. Amyot says: "The most efficient time for septic tank action was worked out. It was found that when there passed through a tank of 100,000 gallons capacity, 100,000 gallons of sewage per 24 hours." The best results were obtained. Any increase in the rate decreased efficiency. Contact beds of an experimental nature were also tried, the tests proved that such beds were unsuitable for the requirements of Berlin. A continuous filtration method was also tried and showed itself unsuitable for their purposes.

The Experiments.

Septic tanks. There were four of these with a capacity as follows:—

A—capacity, 600 gallons run at rate of 1,200 gallons per 24 hours.

B—capacity, 600 gallons run at rate of 1,200 gallons per 24 hours.

C—capacity, 1,800 gallons run at rate of 1,800 gallons per 24 hours.

D—Capacity, 60,000 gallons run at rate of 100,000 gallons per 24 hours.

In tank C it will be found that the capacity is equal to the daily flow; in the others the rate was approximately double the capacity. Tank C gave the best results. The average analysis of samples from June 26th, 1902, to Sept. 4th, 1902, being as follows:—

Affluent.			Effluent.		
Free Ammonia	Alb. Ammonia	Oxygen Consumed	Free Ammonia	Alb. Ammonia	Oxygen Consumed
2.317	1,835	57.08	1.966	0.860	27.56

Throughout the whole of the experiments with septic tanks no information is given as to the amount of solid matter in suspension either in the affluents or in the effluents. Such would have been of great interest to the engineer at the present time, and might have been reliable data as to the effect of the tanks in keeping back and digesting solids in this particular class of sewage.

Here at Berlin we have an extremely strong sewage partly due to the admixture of trade affluents and mostly due, we think, to the fact that surface and storm water are carried away separately. An analysis of the sewage gives per 100,000 parts: Free ammonia, 2.542; albuminoid ammonia, 2.017; oxygen consumed, 49.05; chlorine, 61.00.

The amount of oxygen consummed, viz., 49.05, points to an abnormal high proportion of organic matter.

The average composition of American sewage in parts of 100,000 is as follows:—Free ammonia, 1.8591; albuminoid ammonia, .6644; oxygen consumed, 3.44; chlorine, 5.73.

In the experiment with Tank C we find that there has been a reduction of organic matter as compared with the affluent and effluent to the extent of 29.52 parts oxygen consumed.

What we would like to know is where is the organic matter gone represented by the parts 29.52? Does it remain as sludge and if so, how much if any has been digested? We know that no oxidation takes place in the septic tank. Therefore, it has not been oxidized. If it remains as sludge it is still sewage to be treated.

At the present time these are important points on which it is unfortunate that the experiments throw no light, or otherwise they might have been of a useful character. The only fact ascertained as far as Berlin is concerned, is to use Dr. Amyot's own statement, that the 24 hours flow capacity is the best. This, however, is no news to the sewage world. This data flow has been acknowledged ever since the slow movement septic tank was first brought to notice at Exeter, Eng. As far as this point is concerned the experiments were unnecessary, and Berlin might have gone ahead safely without the result of the experiments.

Contact Beds.

There were three of these, consisting each of about 3 feet depth of gravel with 3 inches topping of clean sharp sand, and underdrained with tile pipes. The gravel in each of the beds was of different sizes.

The finest gravel gave the best effluent.

The results are as follows:—

CONTACT BED I.

1/200 acre. (Parts per 100,000). Quarter inch gravel.

Averages July 8th to Sept. 4th.

Affluent.			Effluent.		
Free Ammonia	Alb. Ammonia	Oxygen Consumed	Free Ammonia	Alb. Ammonia	Oxygen Consumed
2.306	1.022	33.72	1,383	.678	16.59

Interspace capacity 234,400 gallons per acre. Run at three times this rate for first half of experiment per acre per day. Run at twice this rate for second half.

CONTACT BED II.

1/200 acre. (Parts per 100,000). One-eighth inch gravel.

Averages July 8th to Sept. 4th.

Affluent.			Effluent.		
Free Ammonia	Alb. Ammonia	Oxygen Consumed	Free Ammonia	Alb. Ammonia	Oxygen Consumed
2.247	1.042	34.21	1.562	.596	16.43

Interspace capacity, 187,400 gallons per acre. Run at three times this rate for first half of experiment per acre per day. Run at twice the rate for second half.

CONTACT BED III.

1/200 acre. (Parts per 100,000). One-half inch gravel.

Averages July 8th to Sept. 4th.

Affluent.			Effluent.		
Free Ammonia	Alb. Ammonia	Oxygen Consumed	Free Ammonia	Alb. Ammonia	Oxygen Consumed
2.262	1.041	36.19	1,502	.758	20.07

Interspace capacity 257,800 gallons per acre. Run at three times the rate first half of experiment per acre per day. Run at twice this rate for second half.

There was still another contact bed with coke as the filtering media. This, however, proved as unsatisfactory.

It was run at the rate of 712,000 gallons per acre per day.

Now with a known sewage such as at Berlin it is difficult to understand how any other than the above unsatisfactory results could be expected.

The rate of filtration for a sewage of such abnormal strength is enormous. And the results simply proved this and nothing more. But all this information could readily have been obtained elsewhere. And it is difficult to see that there is anthing gained by simply repeating what is generally and universally accepted by sewage engineers.

Had the sewage been of the ordinary average character such as the above representative American one might have expected good results.

The accounts of the experiments, however, fail to give us just the information which, in any case, would have made them of value, viz., the time of contact of the

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