

DEATHS FROM SUMMER DIARRHŒA AND ENTERITIS IN  
DEPTFORD FROM 1914 TO 1918.

			1914	1915	1916	1917	1918
Diarrhœa	...	...	34	29	13	8	4
Enteritis	...	...	42	44	27	21	16

TABLE SHOWING DECREASE IN COST OF SLOPPING SINCE THE  
ADOPTION OF TAR SPRAYING.

Year	Total loads.	No. of loads given for manurial purposes, allotments etc.	No. of loads barged away.	Cost of barging per load.	Total cost of disposal.
1914	6,469	271	3,758	3/2	£595
1915	5,402	1,722	3,680	3/9	£690
1916	4,975	2,681	2,294	4/11	£564
1917	4,343	2,420	1,923	5/8	£545
1918	2,959	999	960	6/8	£320

**“ Small Sewage Disposal Works.”**

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(ABSTRACT).

IN opening, the writer generally explains the points for consideration in designing any system of sewage disposal, and gives some very useful experiences in connection therewith, emphasizing the leading points for consideration as :—

- (1) The nature of the sewage.
- (2) The average rainfall.
- (3) Surface or storm water (if separately provided for).
- (4) The subsoil of the District and site of the works.
- (5) The stream or outfall for the effluent ; and
- (6) The water supply for all purposes.

After further preliminary notes, he describes a scheme for 7,000 persons, which he completed as follows :—

The sewage enters the detritus chamber through screens properly provided with a system of cleaning rakes, by means of which the rags, etc., from the screens are raised and deposited on to a table, where they drain and are easily removed. The screened sewage then passes into the tanks, which are con-

structed in the form of inverted cones, providing an easy means of removing the sludge without displacing the supernatant water. The tanks are fitted with scum boards, which rise and fall according to the flow of sewage passing over a weir into a channel, and thence into dosing chambers with a capacity of about 300 gallons. These latter are governed by timed syphons, and deliver the tank effluent on to the primary filters, each 60 feet in diameter, fitted with revolving distributing apparatus. These filters are in duplicate and work alternately, the filtering medium being furnace clinker in three grades, an 18" bottom layer of 2" broken clinker, a 12" layer of 1", and a 12" layer of  $\frac{3}{4}$ ", making the total depth of the filter 3ft. 6in. The effluent then passes into the humus tanks (also in duplicate) and then flows on to the secondary filter, which is similar in every respect to the primary filter just described. The whole of the effluent gravitates to the centre, which is shaped into a well, and this forms a second humus tank, after which the final effluent flows direct into the water course, which, in this instance, is practically dry above the outfall, except in heavy rainfall. It is, therefore, necessary to secure an effluent which will not become a nuisance when passing through the adjoining properties and alongside the highway.

Another system has been adopted in a scheme for a population of about 10,000. The sewage flows by gravitation to the works, discharging into the screening chamber and detritus tank, thence along a channel to the tanks (three in number) which are fitted with separate valves to permit closing down for cleaning purposes. The tank effluent is conveyed to a chamber fitted with a governing or regulating valve, which has proved most useful in preventing flooding of the filters, as it is regulated to permit of an amount of tank effluent not exceeding three times the D.W.F. to pass on to the filters. The filters, three in number, are 75 feet in diameter and 5ft. 3ins. in depth, the floor of the filters being constructed with perforated half pipes on concrete, the fall being from the centre. The effluent is collected by a channel 12" in width outside each filter, and it then passes through humus tanks before being discharged into the brook. The sludge from the detritus chamber and tanks flows by gravitation to the lowest part of the land, where it is dried in lagoons and carted away. In this instance there is a large infiltration of subsoil water, owing to many of the sewers being laid with clay jointed pipes, and in some instances the water from roofs and yards has been connected with the soil sewers. It was, therefore, necessary to make provision for dealing with same by constructing a fixed device at the screening chamber at such a level that it came into operation when the flow of sewage was in excess of three times the normal D.W.F., the surplus then flowing into "lay-by" tanks in duplicate, where similar provision is made for removing the sludge after the supernatant water has been drained off and discharged on to the land or filters. As

the amount of discharge from the sewers is very great in times of heavy rainfall, a further weir has been provided, calculated to take all sewage exceeding six times the D.W.F., which is treated in a similar manner to that described by collecting in an open carrier or channel and discharging directly into the brook.

He then describes briefly three other works which he designed and which are still working satisfactorily after 20 years' continuous use :—

(1) The area of land is about 13 acres for a population of 9,000, and the subsoil is heavy clay. The sewage is discharged from the outfall sewer into screening chambers, passes into closed septic tanks three in number, and thence into one large open tank with submerged inlet and outlet ; it then flows on to the filters, 80 feet in diameter and 4 feet in depth, the effluent being delivered on a prepared aëration area before being discharged into the humus tank and thence to a brook.

NOTE.—The writer does not recommend closed septic tanks owing to the great difficulty in cleansing and removal of scum, which accumulates in large quantities.

(2) This is a small scheme for a population of 3,500, and is composed of open septic tanks, rectangular filters, and land treatment.

The area of land (about 8 acres) is principally used for treatment of storm water.

The sewage passes through the usual screening chamber, tanks, etc., and is then discharged on to ordinary filters (rectangular), and in consequence of the difficulty in dealing with yeast from Brewery waste, the writer constructed a filter with downward and upward filtration, which was a great improvement, but the filtering medium being submerged the aëration is not good.

(3) This is a scheme similar in many respects to the previous one, except that the tank effluent is discharged into two filters composed of burnt ballast, and thence flows on to the land for aëration, and is collected and conveyed in open (earth) carriers to the filters (rectangular in shape) before being discharged into the brook.

In this instance the writer constructed one of the filters with a wire netting covering the outfall, and for some years several fish (ordinary carp) were living in the open space provided at the outlet.

The writer concludes by some general notes on small sewerage schemes, and the several examples were illustrated by fully dimensioned contract and detailed drawings.