

mission experiments were carried out with sewage in producing grass, making hay, feeding milch cows and bullocks, many hundreds of experiments being made, and recorded in the Blue-book report then produced as to the composition of sewage, and proving the wholesomeness of the milk and butter produced and the beneficial results in bullock feeding.

In addition to these exhaustive experiments, there have been analyses and reports on town sewage by the most eminent chemists in Europe with one result—namely, that sewage containing excreta holds in suspension and solution manurial ingredients of agricultural value when applied to lands, but that when precipitated by chemicals the process is costly and the sewage is not purified, the abstracted sludge having no commercial value. The Metropolitan Board has paid more money to chemists and engineers for advice as to the best and cheapest means of dealing with sewage, and deliberately adopts the most costly and the worst. The only consolation about it being that with time the costs will be found so great and the results so inefficient that the arrangements must be abandoned, and then works approved and sanctioned by experience must be carried out. The river must in fact be purified. To precipitate the solids of sewage there must be tanks and machinery, and when the solids have been removed, the clarified sewage retains about $\frac{7}{8}$ ths of the salts of sewage, plus some of the salts of the chemicals used, so that however costly and complete the process may have been, the clarified sewage, in summer weather, will ferment and become a source of nuisance so as not to be permissible to pass into any stream.

The only practicable way, therefore, to free sewage from the manure it contains is to put it in a thin film on to land over which it may flow and through which it may filter, when the surface-soil and vegetation at once combine with the manurial ingredients, the water passing away by evaporation and absorption, or along open carriers. In one hundred tons of fluid sewage there will not be more than from one to two tons of solids which will deposit, and this will be in a finely divided state, so that spread over one acre of land it at once disappears. In some of the first formed sewage-farms it was thought necessary to allow the crude sewage to rest in tanks so as to separate the heavier solids, but this was soon abandoned, as it was proved that tanks so used became putrid, and then imparted this property to the sewage, experiment and practice showing that the sooner the sewage could be passed to the land the better, as then there was, under judicious management, no offensive exhalations.

I have not time in this paper to go into fuller detail, and can only again remark that the Metropolitan Board will have to abandon the costly works which they are establishing for subsidence and treatment by chemicals, and cease to barge the abstracted solids to the sea . . .

The Royal Commission, of which Sir J. B. Lawes was a member, came to the conclusion that town sewage might be worth to a farmer, if compelled to take it all the year round, about one