

SEWAGE PURIFICATION BY ELECTRICITY.

Is electricity to include in the list of its marvelous achievements the solution of the great problem of sewage purification? A great deal has been heard, especially since the appointment of the Royal Commission on Sewage Disposal, says an English paper, as to the bacteriological treatment of sewage, and electrical methods have given results so encouraging that no surprise will be felt that it is an electrical process which has produced what seems to be a perfect purifier, cleanser and sterilizer. The opinion expressed by a number of sanitary scientists and others, less skilled, perhaps, although not less interested in the problem, who visited the Guildford Sewage Works the other day, was that the solution which is the agent employed in the oxychloride sewage process is a potent deodorant and germicide, adaptable with equal success for sewage purification, for household disinfection, and for general cleansing and bleaching purposes.

The process by which this purifying agent is produced is simple, and the necessary plant inexpensive. It consists in the electrical decomposition of salt and water, or, where easily obtainable, sea water in a specially designed electrolyzer having a large superficial area of electrical surface, which permits of the use of a large volume of current at a very low voltage, thus securing economy of operation. The solution thus obtained is added to the effluent in quantities varying according to its nature and the water into which it has to be discharged.

To demonstrate the commercial application of the process to sewage purification, Dr. Rideal, the well known expert, has made a series of experiments, extending over several months, in specially constructed tanks at the Guildford Sewage Works, the authorities having given facility for the most thorough tests. To the visitors Dr. Rideal explained that at Guildford every kind of effluent could be dealt with, and tests had been carried out with raw sewage septic tank effluents and those from primary, secondary, and tertiary filters, and the efficiency of the solution in removing putrefactive organisms, the organisms which are comparable in origin and vitality with those which cause typhoid fever and cholera, and organic matter in solution had been demonstrated. To the public the interest lies not in the process, but in its results, and these suggest that in the treatment of raw sewage, or that which had undergone preliminary treatment in a

septic tank, the solution has an effect, immediate and potent. To produce a purity from bacteria equal to or better than that generally allowed for drinking water was found not to be a difficult matter. With a primary effluent, $7\frac{1}{2}$ gallons of oxychloride per 1,000 gallons of effluent reduced the bacillus coli—present in all sewages, and allied to the typhoid bacillus—and the enteritis spores from over 100,000 and 100 respectively, so that none could be found in one cubic centimeter in 1 hour 20 minutes after treat-

ment. In raw sewage, $18\frac{1}{2}$ gallons per 1,000 reduced the coli from over 1,000,000, so that none were found in one cubic centimeter, and the enteritis spores from over 1,000 to less than 10 in 5 hours, and the total number of organisms from 23,200,000 to 540.

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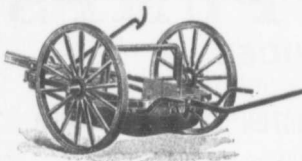
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