

the cake is made into manure in order to dispose of it, and to prevent an accumulation at the works, not because there is any profit in the manufacture.

The enormous extravagance in permitting sewage to be wasted instead of converting it into a valuable manure, has served as a text for many a paper at sanitary conventions, but it will be found that as a rule they have been presented to persons who have had no practical training or experience in such matter, visions that may be realized some day, but at present we must be content with what is practical.

The experiments of the Massachusetts State Board of Health at Lawrence, which have been carried on continuously since 1889, have been studied very carefully in England as in America. These experiments clearly established the fact that the purification of sewage was performed through the agency of bacteria, the necessary conditions being the presence of air and the slow movement of thin films of water over the surfaces of the units of the materials composing the filtering materials.

In the United States and Canada, intermittent downward filtration has been generally adopted as a result of these experiments. In this method the sewage is purified at the rate of about 50,000 gallons per acre per 24 hours, upon specially prepared beds of sand and gravel, no attempt being made to raise crops.

The effluent is satisfactory with proper management, if the beds are not overdosed, and there is practically no sludge to be dealt with.

In Great Britain, filtration beds have been adopted in a few unimportant places. As the purification sewage depends upon the action of bacteria, the term filters, which implies mechanical removal of suspended impurities, should now be abandoned.

Between 1884 and 1896, experiments on sewage treatment were made by the Metropolitan Board of Works and The London County Council, under the direction of Mr. W. J. Dibdin their chemist, which may be considered as a continuation of those of the Massachusetts Board.

When Mr. Dibdin in 1887 propounded the theory of microbial action in a paper read before a convention of Engineers, and suggested that the proper way of treating sewage would probably