

We refer to this matter because it appeared to us that Mr. Robinson and other critics of the Brown's Island scheme held the opinion that the expense factor is of only minor importance. We consider, however, that the Committee and the engineers who have rejected the proposal for the discharge of sewage into the open sea on the ground of excessive cost were not in any way sacrificing public health considerations in the interests of economy. We think that they were satisfied on good grounds that if proper care were taken the discharge of sewage effluent into the channel near Brown's Island would be safe, and they therefore very properly rejected the more expensive proposal. A drainage authority which is entrusted with the responsibility for the expenditure of public funds, like any other similar public authority, has a duty to pay very careful consideration to the saving of unnecessary expense, and if after proper consideration it is satisfied that a method of disposing of sewage is satisfactory, it would not be entitled to reject that method for one that is more expensive.

(4) If the methods of disposal of the sewage on land or by discharge into the open sea are impracticable, we consider that it must follow that the method of discharging the effluent (after the sewage has received whatever treatment is necessary to ensure the safety of public health) into harbour waters must be adopted. We should mention that the proposals submitted to us by the Drainage League as well as those made by the Drainage Board provide for this method of disposal, and it has not been suggested to us by any one that any other method is practicable.

DISPOSAL OF SEWAGE BY DISCHARGE INTO WATER

33. (1) The commonest and usually the most economical method of disposing of sewage is to discharge it into the nearest body of water either without treatment or with sufficient treatment to remove some of the pollution. Every watercourse, lake, or other body of water receives the organic matter draining from the area tributary to it and by the processes of natural purification converts the organic matter into stable non-putrefactive matter. This change involves physical, chemical, bacteriological, and biological processes which depend upon organisms that require a supply of oxygen for their activities.

(2) Both fresh and salt water contain oxygen in solution, and if the volume of water into which sewage is discharged is sufficiently large, enough oxygen will be available to give complete purification. If, on the other hand, the volume of water is inadequate, decomposition will take place without sufficient oxygen to prevent putrefactive conditions being set up, with resulting nuisance. The conditions under which disposal of sewage by dilution can be regarded as satisfactory have been studied by previous Commissions, the most notable being the Royal Commission on Sewage Disposal (United Kingdom), which in 1912 after some fourteen years of investigation reported its conclusions as follows:—

(a) The law should be altered so that a person discharging sewage matter into a stream shall not be deemed to have committed an offence under the Rivers Pollution Prevention Act, 1876, if the sewage matter is discharged in a form which satisfies the requirements of the prescribed standard.

(b) The standard should be either the general standard or a special standard which will be higher or lower than the general standard as local circumstances require or permit.

(c) An effluent in order to comply with the general standard must not contain as discharged more than 3 parts per 100,000 of suspended matter, and with its suspended matters included must not take up at 65° F. (18.3° C.) more than 2.0 parts per 100,000 of dissolved oxygen in 5 days. This general standard should be prescribed either by statute or by order of the Central Authority and should be subject to modifications by that Authority after an interval of not less than 10 years.

(d) In fixing any special standard the dilution afforded by the stream is the chief factor to be considered. If the dilution is very low it may be necessary for the Central Authority, either on their own initiative or on application by the Rivers Board, to prescribe a specially stringent standard which should also remain in force for a period of not less than 10 years.