A report on the subject was submitted in December, 1901, to the State Sewerage Commission by Messrs. R. Hering, J. J. R. Croes and W. M. Brown. Two methods only are available; its discharge into tidal waters as crude sewage or after partial purification.

If discharged into Newark Bay, it must be first purified; if in a crude state, the alternative is to discharge through an outfall sewer into 70 feet of water in the centre of New York Bay.

This would involve pumping the sewage collected through two 5-foot cast-iron mains crossing under Newark Bay to Bayonne, thence through a gravity sewer, 11½ feet in diameter and 13,000 feet long, into New York Bay, north of Robbins Reef Ledge.

The only alternative to the discharge into New York Bay is the purification on the Newark Meadows.

It is stated by the consulting engineers that the method by septic tanks and contact beds is feasible, provided a sufficiently large plant is installed; but, in the words of the report, "The cost of this method, particularly when applied to large quantities of sewage, is still a matter of doubt, arising from a lack of sufficient experience with operations on a large scale. We are somewhat uncertain as to the quantity of sludge which will be deposited in the present case and require mechanical removal. There is also still some doubt as to the best preparation of the tank effluent for the contact beds, the life of the latter, and the best details of operation."

The consulting engineers, accompanied by Mr. H. W. Clark, for a number of years in charge of the Lawrence Experiment Station of the Massachusetts Board of Health, visited several cities affording information on the subject, and finally recommended the discharge of the crude sewage into New York Bay at an estimated cost of $2,500,000.

It would appear from the foregoing—

1. That not more than 40 per cent. of the solids in suspension can be expected to be disposed of by the anærobic action of the septic tank, and that a certain amount of gradually accumulating sludge will remain to be removed. In the case of Pawtucket we have seen that this sludge amounted to 53 per cent of the suspended matter entering the tank.

Where the plant is worked systematically and carefully supervised, Mr. Roechling states that, generally speaking, 35 per cent. of the suspended matters entering the tank will remain as sludge, 25 per cent. will be destroyed or liquefied and 40 per cent. will escape in the effluent. It would seem that under such circumstances the effluent would be turbid and probably very offensive.

2. That the effluent from the septic tank requires treatment by at least primary and secondary contact beds, or irrigation, before becoming fit to enter a water-course as an innocuous liquid.

3. That sedimentation and chemical precipitation tanks will probably produce a larger percentage of sludge than septic tanks.

4. That as long as the scum on the surface is protected from the wind and is not allowed to be disturbed, the close covering of the tank is not essential.

5. That the principal object being to render the sewage innocuous, the question as to whether a sewage farm can be rendered remunerative is one of secondary importance.

6. That if sewage is to be discharged into a land-locked harbour, it should first pass through a septic tank, and no contact beds would be required.

7. That the septic or other tanks, however useful under certain conditions, should never be employed in places where the open sea offers itself as a vast purification tank.

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