

In plants where other methods of treatment are adopted it is probable that odor will be produced. It has been estimated that at such a plant capable of treating the sewage of 50,000 people, with good management no odors should ever be apparent beyond 1,000 to 1,200 ft. from the works, even when sludge is being discharged upon the drying beds or in the spring when the filters are in bad condition, due to the past winter interfering with work being done on them.

With smaller plants this distance should be less, and with larger plants possibly more. By diffusion, of course, the odor becomes more faint as the above-named distances are reached, and beyond these distances no odor should be noticeable. What might be termed odors, strong enough to be disturbingly disagreeable to a person whose nasal sensitiveness is not affected by his knowledge of the source of the odor, should, perhaps, never be found at a distance more than one-third of those mentioned. It should, however, be noted that an odor from a sewage plant which, if from a farm would never be noticed or would be accepted as simply natural and reasonable, will generally develop complaints of nuisance. Sentiment, regardless of facts, frequently blames on an inoffensive sewage-disposal plant bad odors from other sources. In short, sewage-treatment works should be as isolated as is economically possible.

For the avoidance of odors, the fundamental considerations are the delivery of the sewage as fresh as possible at the plant, the application of the liquid portion to filters before the sewage has become stale, and the proper treatment of the sludge so as to render it comparatively odorless and easily handled.

Sewage-Works' Attractiveness. — Disposal plants should be made attractive by planting and parking, and no money can be better spent than this. The trees to some degree prevent the spreading of the odors, and in the planting of trees and shrubs the direction of the prevailing wind should be taken into account.

Local authorities, when they first take up sewage-treatment for consideration, frequently look upon the plant as a dump for municipal waste, and it never occurs to them that it is good policy to spend money to make the works so attractive that people will voluntarily make it the objective point of their Sunday afternoon strolls.

Such beautification and the proper maintenance of the appearance of the plant are the surest and best means of preventing complaints of odors or nuisance; this because of the psychological effect on those living near the plant, and also on the attendants, who unconsciously adopt a higher standard of cleanliness and care of the works.

Another notable report was that presented by the committee on sewage works operation and analytical methods. This committee consisted of Messrs. W. L. Stevenson, chairman; C. B. Hoover, H. C. McRae, Langdon Pearse, Geo. C. Whipple, and F. E. Daniels. One interesting feature of the report is its recommendation to the laboratory section of the association that it take up for consideration the improvement of the test for suspended matter in sewage. In respect to this test, to which it refers as a test for not only the amount but also the condition and physical characteristics of this suspended matter, the committee states:—

Suspended matter was first determined by the difference in the weight of the residue upon evaporation of a portion of the sample filtered through paper and another unfiltered. At the present time, the Gooch Crucible is generally used to obtain the weight direct. In both pro-

cedures the organic portion of the suspended matter was estimated by determining the loss of weight upon ignition. The Royal Commission on Sewage Disposal attempted to devise a method for determining the amount of suspended matter by means of the centrifuge. In the works of the Emschergerossenschaft a simple field method is in use for determining the bulk of the settleable matter by subsidence in graduated conical glasses.

None of these methods, however, furnish information concerning the size, physical condition or other characteristics so essential to know in the preliminary treatment of sewage. One of the reasons for this is the small size of the sample examined and the difficulties of obtaining a representative portion for analysis; for the inclusion or exclusion of a large size piece of suspended matter in a small sized sample will cause large variation in the result obtained.

The efficiency of all preliminary processes depends upon the removal of the settleable solids and, therefore, a test to measure them is of great importance.

It is, therefore, recommended that in sewage works operation some procedure for the determination of suspended matter be used and that analysts be urged to devise a technique to supply the information required.

Another recommendation of the committee urged that during the coming year analysts direct their attention to the simplification and standardization of the test for avidity for oxygen, or, in other words, a test for measuring by incubation the avidity of the sample of sewage or effluent for dissolved oxygen or its equivalent. The Royal Commission on Sewage Disposal developed a technique for such a test. Another method was developed by Mr. C. B. Hoover and is in use at the sewage treatment works at Columbus, Ohio, and still another has been devised by Dr. Arthur Lederer and is in use in the laboratories of the Sanitary District of Chicago. At present, a committee of the laboratory section of the association was about to propose a provisional procedure for such a test.

A NEW MANGANESE STEEL.

An improvement in manganese steel alloys is announced in a recent United States patent. Commercial manganese steel contains from 11 to 14 per cent. of manganese, and hitherto any attempt to produce a steel lower in manganese than 10 to 11 per cent. has tended to make a metal nearly as brittle as glass and unfit for commercial use. The invention is based on the discovery, made by the inventors, that a certain critical relation exists between the percentage of manganese and the percentage of carbon employed with it in the alloy, and that by proportioning the carbon ingredients in accordance with this relation, a steel may be obtained containing from 6 to 9 per cent. of manganese, or as low as 5 per cent., and "possessing to a very valuable degree the characteristic combination of ductility with hardness and the other important properties of the richer alloys." It is believed that there is a practical limit, around 5 per cent., for the diminution of the manganese, according to the invention. The ingredients of the product are perfectly brought together in a molten state, as is usually the custom with manganese steel alloys. After casting, the metal is properly water-toughened. The new alloy is a poor conductor of heat and practically non-magnetic.

LARGE EGYPTIAN PUMPING PLANT.

One of the largest installations of pumps in the world is being made for the Egyptian government, to drain Lake Mareotis, near Alexandria. The plant will consist of eighteen pumps of the Humphrey type, each capable of delivering 100,000,000 gallons of water a day through a lift of twenty feet. Each pump is eight feet eight inches in diameter.