

### Subsoil Absorption.

In place of any other type of oxidizing process the tank effluent is sometimes discharged into filter trenches forming a subsoil absorption system. If the soil is unusually porous the sewage is discharged into it by means of small tile or sewer pipe lines, with open joints, laid in trenches over a considerable area, thus allowing the flow to be absorbed by or filtered into the ground. Such area should be properly drained. If the soil is heavy clay, or even partially pervious, this system is not practical, while under the most favorable conditions it is expensive since a large footage of trenches and tile are required in order to prevent clogging.

### Chlorination.

The use of chlorine gas as a disinfectant is coming into frequent use in connection with sewage treatment processes. Its purpose is to prevent an odor nuisance both from the plant and the stream below the outlet. Although its application is not always necessary or advisable it is, under certain conditions, very much worth while. The chlorine is applied either to the raw sewage, to the tank effluent or below the plant.

### Costs.

From the above discussion it is apparent that the cost of the sewage treatment plant for a country club will vary greatly, and will depend upon the quantity of sewage flow and the type of plant constructed. The cost will range from as low as \$1,000 to as high as \$16,000, but will usually fall between \$3,000 and \$8,000 exclusive of sewers or pumping equipment.

### Maintenance and Operation.

No matter how simple the sewage plant, it must not be forgotten or its operation neglected after it is placed in use. This is most important if satisfactory results are to be expected. Too often the plant is considered as just another plumbing fixture, to be buried and left to run itself. This is just as sensible as to neglect a piece of machinery and will result in trouble, cost and nuisance. If the investment in the plant is to be properly capitalized someone must be made responsible for its operation. The tanks should be cleaned out periodically and the filters kept in proper operating condition, including siphons, tipping troughs, and other accessories. Usually not much actual work is required but daily inspection should be made to see that all parts are function-

ing smoothly. Also where possible the daily sewage flow to the plant should be measured, by means of wires or other devices, in order to see that the capacity of the plant is not being overtaxed.

At some clubs, where the plant effluent must be at all times free from organic matter, technical control of the plant is maintained. By this is meant that the designing engineer or a sanitary chemist is retained, at a nominal monthly fee, to make frequent inspections of the plant and take samples of the effluent for chemical analyses.

In most states the engineering bureau of the state department of health not only approves the detail construction plans for sewage treatment plants but makes frequent inspection of their operation. Such service is worth while and is a protection to the club against faulty design or careless operation.

### Conclusions.

In conclusion, and at the risk of repetition, it should be pointed out that clubhouse sewage disposal must not be taken too lightly. Many factors, most of which have been mentioned above, must be taken into consideration if unpleasant sight and odor nuisances are to be avoided and a final effluent obtained which is not detrimental to health and comfort.

## "Another Tank Would Have Done the Job"

NEWS items sometimes point a moral. Here is a good example:

Columbus, Ohio.—Three tall, fire-scarred chimneys and a smouldering pile of ashes were all that remained Monday of the fashionable Elks Country Club, located north of the city, which burned Sunday night, with loss estimated at \$125,000.

Lawrence Huber, greenkeeper, who lives nearby, called firemen and then, with the aid of Ernest T. Timberlake, house manager, emptied a 30-gallon fire extinguisher on the blaze.

"We almost had it out, and another tank would have done the job," Huber said.

The italics are ours. Make sure you have plenty of fire-fighting apparatus readily available around your clubhouse. Drill your employes in fire-fighting technique. Install a warning siren with a code of easily learned signals to tell the employes the location of the blaze.