

more, certain ferments known as enzymes aid in the work of decomposition, while the solid particles adhere to the filtering material. The sewage is then allowed to flow slowly out of the bed, leaving many impurities upon the filter material. It flows into another similar bed, where further similar action takes place. Now that the bed is empty, aerobic action goes on among the particles of sewage left in the interstices of the material. Before the next flush comes, most of the spongy matter in the bed has been converted into gases. When the bed fills again, the gas is driven out of the bed into the air above.

Such is the method in use at Sutton. It is simple and effective, and has been widely used in systems laid out more recently. After the sewage has been treated in a septic tank, it generally need only be treated in one contact bed to secure the necessary purification.

Most septic tank contact bed systems contain several bacteria beds, so that while one bed is filling, another may be in contact, another emptying, and another resting empty. Four is a favorite number of beds for a small town plant, while six are often used.

The contact bed system involves only a small fall, so that it can be applied in almost any district. It has been in successful operation in many towns both in this country and in England. The secret of its success is the regularity of the time of contact and aeration. Experience has shown that unless such regularity is maintained the bacteria will not remain in healthy condition.

At Manchester, England, is the largest septic tank-contact bed system in the world. The beds are opened and closed at regular intervals by hand. In the more recent contact bed systems installed in this country, the invention of automatic airlock apparatus has made it possible to have the beds fill and empty at regular intervals automatically.

A more recently devised system of filtration, and one that is gaining favor in England, is known as intermittent downward filtration, percolating, or trickling filters. These filters are many feet in depth. The sewage is distributed in intermittent doses—often by means of a large revolving sprinkler. They are filled with material similar to that used in contact beds. At the bottom there is an open space for the circulation of air.

In order that percolating filters work successfully, great care must be taken in their construction. It is essential that air should always be present in all parts of the filter, scum must not be allowed to accumulate; there must be a thorough draining at the base, so that the filtrate may come from the filter easily and force air to come in by

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