

conveniences at these country resorts are vile and unrespectable, and are maintained by people who would be highly offended if one should assail their respectability, but I say that he who is the maintainer of one of these unspeakable privies and makes no attempt to abolish the nuisance, but continues to foster the nauseating pest spot and offers it to the use of others can not lay claim of decency.

To the summer visitor I would say there is something of more vital importance to you when enjoying your summer outing than front verandahs with easy chairs or beautiful shade and restful hammocks. Don't patronize the place that does not provide for the safety of your health, as well as for the conscious comforts of your mind and body. Modern methods of sanitation are available, and the average farmer or summer hotel keeper is abundantly able to possess himself of sanitary conveniences which advanced habits of living demand.

A word regarding the prevalence of flies. The prevalence of flies in either city or country very closely approximates the prevalence or approximate presence of manure piles, where most of the flies are attracted. Available privy vaults or cesspools afford them sporting and feeding grounds some of the time, but the dinner table is a popular resort for them when not at the places above mentioned.

D. D. Jackson's report to the Waters Pollution Committee of New York called that body's attention to the presence of vast numbers of disease germs on the feet and legs of flies which had been caught in fly traps for the purpose of microscopical examination, and makes the statement that "the common fly is one of the most active agents in disseminating certain intestinal diseases."

"There are certain laws of consciousness," says Dr. Sedgwick, "that have for their object the preservation of human life to its appointed maturity, as, for instance, to grasp at a support to prevent a threatened fall. This same consciousness universally arouses an instinctive repugnance toward human excrement or any putrefying animal substance, and instantly warns one through this instructive intellectuality that these repugnant ingredients are baneful to life." No person with ordinary intelligence, after having reflectively contemplated the matter of sewage disposal by building a cesspool, ever dug such a cesspool and used it with a satisfying consciousness that the contrivance would be successful, safe and comforting, but he, on the contrary, must have been conscious that he had not satisfied himself in creating this pest spot. A cesspool is a thing that is untrustworthy, disquieting, noxious, harmful, corrupting and dangerous.

"Back to Nature!" is the present cry of city dwellers, and the city dweller who can afford a country home, even though inexpensive, is moving or laboring to the end of moving to the suburbs or to the country and its loveliness and quiet, and the number is legion. Many thousands of New Yorkers now have their country homes in suburban localities. Thousands upon thousands more spend the greater part of the warm season in country homes in the Berkshire Hills, the Adirondacks or the White Mountains, and yet thousands of others, from all the principal cities of the east and south and great middle west are joining in this one grand, determined, happy exodus back to the country that God made, and away from the cities which man made; but though back to the country, some of the conveniences of city life are too comforting to be left behind. To resort to Mosaic sanitation (Deuteronomy 13: 23) or to dig cesspools as the Indians do, is quite out of keeping with the character of sanitary conveniences some of these would-be country dwellers are used to, and so they are sufficiently wise to employ modern sani-

tation in these country homes, that there also they may have the modern comforts common to the better grade of city dwellers. To the discerning the cesspool is taboo.

We have read somewhere about a "septic cesspool." One of the words, "septic," signifies action, and the other word, "cesspool," from the nature of its derivation, stands for inaction. The logical definition of these two words conjointly used, therefore, would be "active inaction." The absurdity of such a claim is apparent.

I recently read a short article by some writer, who did not sign his name, that the secret of the septic tank was nothing more than that it must be air tight and have a submerged inlet and a submerged outlet, "and that is all there is to it." Just how can this information be harmonized with the fact that for the last ten years or more scores of septic tanks have been built without any cover whatever, and that chemical analysis has shown that the effluent from the open tank is as satisfactory, as that from the closed air-tight tank?

I also saw a published statement that tanks for residences would rarely need to be larger than to hold 24 to 36 hours' flow, and that a tank 3 feet wide by 6 feet deep and 8 or 10 feet long would ordinarily be large enough. I have computed and find such a tank to contain 1,300 gallons, which clearly shows the most lamentable ignorance on the part of the writer of the amount of sewage ordinarily produced by private residences.

Great care should be exercised in giving out such flat statements as these, for those who are not posted on the subject would surely be led seriously away from the truth, and would more than likely construct something that would be a flat failure.

One has to select a sewage disposal plant for his home in just the same way he would buy a heating plant. Proper capacity is one of the fundamental elements to successful operation. A party in Ohio once wrote me that if he could not get a sewage disposal plant for his home that would take care of the sewage of fifteen persons as readily as for two he did not want anything to do with it. I replied, asking him if he would expect a stove that was gauged to burn satisfactorily two scuttles full of coal per day to burn fifteen scuttles of coal with the same satisfactory results. This comparison should be convincing, for sewage disposal plant and stoves are strikingly analogous in their operation.

The laity has been wrongly led to believe that the septic tank purifies sewage. This is positively untrue. The septic tank, settling or reduction tanks, are only a primary means to the end of purifying sewage, the real purification being effected by nitrification or oxidation, which process is accomplished only by bringing sewage or tank liquids into contact with surfaces covered with the aerobic film, and in which the aerobes are kept in active condition by intermittent application of organic wastes and with air.

There are occasional examples where cesspools seem to answer the requirements merely of disposal, but exceptions cannot be held up as an example to follow. Moreover, when a cesspool is able to liquefy the solids that enter it, then it is no longer a cesspool, but a septic tank or hydrolitic tank. But liquefaction in a septic tank is not purification, and moreover, when sewage disposal becomes oversepticized, purification will not take place. It is entirely possible to convert and purify sewage without the tank processes whatever, employing nitrifying bacteria to do all the work. By this means putrefaction does not take place, nor is any fermentative odor produced, for there is no fermentation.

A prominent physician of one of the Southern States remarked in a recent letter, written me, that he did not see the difference between turning sewage loose in the soil and