THE DISPOSAL OF SEWAGE OF ISOLATED COUNTRY HOUSES

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WM. PAUL GERHARD

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1890.

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SEWAGE OF ISOLATED COUNTRY HOUSES,

BY

WM. PAUL GERHARD, C. E.

CONSULTING ENGINEER FOR SANITARY WORKS,

NEW YORK CITY.

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A serious and all-important problem presents itself to all builders or occupiers of suburban and country residences, not located within reach of sewers. I refer to the question what method should be adopted by architects or householders to get rid of the liquid wastes from the household in a manner calculated to avoid at once all nuisance to sight or smell, all danger to health arising from the pollution of the soil, the water and the air, and all causes of contamination of water courses, whether flowing streams, or ponds, lakes, estuaries and harbors. The problem is not at all a novel one, for nearly two thousand years ago Hippocrates discussed the same subject of the relation existing between health and soil, air and water, yet, if we contemplate, for a moment, the numberless filth-reeking and disease breeding privies and barbarous leaching cesspools which we still encounter everywhere, and which apparently are accepted as necessary adjuncts to farm houses, summer residences, mechanics' dwellings, etc., we hope to be considered justified in again calling attention to the evil results of improper methods of sewage disposal, and in discussing briefly the proper remedies.

Let us begin with a consideration of the smaller farm houses, mechanics' cottages and laborers' dwellings. The crude methods usually adopted to get rid of all filth from these are the discharge of the liquids into some open ditch, or into some neighboring water-course, brook or pond, and the accummulation of the excreta in privy-vaults. In other cases, slops are retained on the premises by pouring them directly in front of the kitchen window on to the surface of the ground, which is thus kept continually wet, and quickly becomes saturated with filth, or else the liquid sewage is stored in leaching

cesspools or poured into disused wells. It seems unnecessary to explain at length the disadvantages and dangers of privies, vaults and stagnant pools of slops, from a health point of view. The objections against them are well recognized, and hence such devices are now utterly condemned by all sanitarians as relics of primitive stages of civilization. The proper disposal of the slop-water of such small houses is so easily accomplished, wherever, as is almost always the case, a small vegetable garden, or lawn, or grape vine trellis, or an apple orchard adjoin the house, as to make us wonder why better methods than those indicated above are adopted as yet in comparatively rare instances. In all such cases, the sewage may, with advantage, be used to feed plants and fruit trees, or to irrigate the soil. The ruling principle should be to keep solid and liquid waste matters, as much as possible, apart, for this will facilitate the disposal of both. The kitchen water, soapsuds from washing, chamber slops, urine, and other fouled water, are easily disposed of, by a daily distribution in the garden, either by irrigation, or by subsurface irrigation. The slop-water should be collected every day in a tight tank and carried by hand, or carted in a wheelbarrow, to the garden, and there used to water plants, shrubbery and fruit trees, or to cultivate garden vegetables. Instead of by surface irrigation, the slop-water may be discharged into one or more lines of absorption drains, laid with open joints under the surface. For the smallest cottage, fifty feet of absorption tiles are sufficient, and in proportion, as the quantity of household sewage increases, the amount of tiles should be increased. The principal points of importance are that the sewage be applied to the soil while *fresh*, and before decomposition sets in, that it should be applied in moderate quantities only, to prevent oversaturation of the soil, that the sewage be applied on or near the surface of the soil, within reach of the oxidizing influence of the air and of the bacteria in the soil, and, finally, that the application be made intermittent, so as to give the soil, after each discharge, a chance to breathe, as it were, and to allow the finer solid particles to be oxidized and destroyed. An easy method of accomplishing the disposal of slop-water, where the house contains no plumbing fixtures, is to have near the house a hopper or receiver of wood or rustless iron, or, better, of earthenware, and provided with a strainer and a proper cover. From this a pipe may be carried underground to the absorption tiles, while the house sewage may be carried to and discharged into the hopper by means of a pail, thus sending rapidly a full volume of slops at proper intervals into the absorption tiles.

The solid excrements are taken care of in the case of small cottages quite as readily and inoffensively by adopting an earth or ash closet, in place of the usual privy, still so much *en vogue*, although long ago unanimously condemned by practical sanitarians. In the application of the dry earth system sufficient dried earth, garden loam, or sometimes coal ashes are mixed with the excreta to absorb all foulness, keep down all odor, and prevent putrefaction. Such earth closets work quite satisfactorily with only a little attention, and form a simple and cleanly substitute for the privy nuisance. They are manufactured in various grades, and with more or less complicated mechanism. As a rule, the simpler the arrangement, the better. If placed out of doors, the earth closet should not be located too far away from the house. The outer structure should be strong, substantial, with a good roof to protect it against rain or dampness, well lighted, well ventilated, not too much exposed to the rays of the sun, and preferably plastered on the inside as a protection in cold weather. A carefully kept dry walk should lead to it from the house, and it is better to have the walk and the closet shed screened from view and from the prevailing winds. The excreta should be received in a movable wooden box, well tarred, or else in a galvanized iron pail, not too large, and of such shape and construction that it can easily be carried. The box or pail should fit close up under the seat, and each time the closet is used, ashes or dry earth should be used as deodorizers, being thrown down either by a handscoop or by a mechanical apparatus. There can be scarcely any doubt about the economy, efficiency, and convenience of such apparatus in the case of small houses. The property of dry earth, of not only deodorizing, but also absorbing, and rendering harmless excreta of animals has long been well known. Some difficulty has been experienced in cases where the earth was kept too damp. According to recent observations a much smaller quantity of earth is required for earth closets, if the separation of the liquids and solids is at once effected. This may be accomplished by intercepting the urine under the seat, and removing it by a waste pipe. The closet is thereby more easily kept free from smell, and if properly used and well taken care of, it can be located in an extension of a dwelling without becoming a nuisance. The dry earth manure ought to be removed at frequent intervals, and in summer time used and dug under the soil in the garden attached to the cottage. In winter time it may be dried in out-house and can then be applied over and over again. Ashes are sometimes used in place of earth, or else finely powdered charcoal, which latter is a well known deodorizer.