CIRCULAR[1]

FROM THE

STATE BOARD OF HEALTH.

Drainage, etc.

Local boards of health are reminded that, at this time of the year particularly, special attention is required to secure cleanliness about dwellings and throughout towns.

No decaying matter should be allowed in cellars. On the contrary, they should be kept sweet and clean, and as much exposed to fresh air and sunlight as possible. They should also be made dry, by draining if necessary. It should be remembered that the air of houses is supplied largely from cellars; so that the common practice of storing all sorts of rubbish there should be condemned. If the air of the cellar is impure, it often gives rise to various ailments in the persons breathing it in the rooms above; and not seldom becomes one predisposing cause of such diseases as typhoid-fever, diarrhœa, dysentery, cholera infantum, diphtheria, scarlet-fever, sore throats, and numberless conditions of ill health which cannot be described under any particular name. If the air in the cellar is damp, neuralgia, rheumatism, and affections of the lungs and other respiratory organs, are very apt to follow.

The air supplied to furnaces should never be from cellars, but from *the outside atmosphere*, and, if possible, on the sunny side of the building. This is a very important matter in schools, where there would generally be no difficulty in

[1] Sent to physicians throughout the State, and to all the local boards of health, April, 1879.

following the best methods. The air-supply should *never* be drawn from shady back-yards, or the vicinity of privies, sink-spouts, &c.

If kept clean, ashes may be used to advantage in filling up low spots of land, making paths, &c.

Garbage should never be allowed to accumulate: all that is not fed to fowls or animals on the place should be kept in tight receptacles, and carried away frequently. Pig-pens should not be permitted in thickly settled places.

There should be no soakage into the ground near wells or houses permitted from stables and barns. It will often be found economical to save all the manure, liquid and solid, by receiving it in water-tight vessels, &c., or mixing it with loam, under cover, and frequently carting it away.

Chamber-slops, and slop-water generally, should never be thrown on the ground near houses. They may be placed directly on the soil of gardens, &c., or pumped up from water-tight cesspools, or be used by distribution under the surface of the soil, in the manner described on p. 334 of the Seventh Annual Report of the State Board of Health,[1] and now introduced in the town of Lenox, Mass. The chamber-slops alone can be easily disposed of by mixing them with ashes or loam, as at the Pittsfield Hospital, by the method shown on p. 87 of the Ninth Annual Report of the State Board of Health. If the kitchen-slops are discharged directly into a cesspool, care should be taken that the pipes do not get clogged with grease.

Earth-closets serve a good purpose, particularly for sick people and invalids, if *carefully attended to*, and if well-dried loam be used for them in sufficient quantity: they are more easily managed if liquid refuse be kept out of them.

The ordinary privy should be abolished. It is dangerous on two grounds. 1st, It must be so far from the dwelling as

[1] These reports may be found in the town libraries, by applying to the selectmen, and in the various public libraries.

to seriously expose children particularly, during bad weather. 2d, It corrupts the air, the soil, and consequently too often the wells. Instead of the common privy-vault, which is not safe even if cemented, it is best to use under the seat some receptacle which can be frequently removed and emptied. Galvanized-iron tubs, barrels sawn through the middle, &c., answer the purpose very well. If kept thoroughly disinfected with dry earth or ashes, they can be near houses, connected by passage-ways, and will not corrupt the wells.

If water-closets are used, and there are no sewers, the best disposal of the sewage is by the flush-tank, and irrigation under the surface of the soil, as described on p. 135 of the Eighth Annual Report of the State Board of Health. If cesspools must be used, they should be tight, and often emptied by the odorless process, or else have their contents pumped out on the surface of the ground for fertilizing purposes, where that can be done without causing a nuisance. If the sewage is placed on the soil in the morning of a dry, clear day, when the sun is shining, and in places where it may be readily absorbed by the earth, the odors from it are the least offensive. In very loose soil, and remote from dwellings, ordinary loose-walled cesspools may be used without danger for a short time; but even then the custom cannot be approved.

The evils arising from want of attention to the suggestions briefly given above are many; and undoubtedly much ill-health can be thus explained. Good water, from deep wells, is much better than rain-water, which is soft, and does not contain the lime, &c., so beneficial to health. If the wells and springs are kept free from contamination, as they may be with some care, until houses and streets become placed closely together, the water furnished by them is of the very best quality. A few illustrations of their baneful effects, when contaminated, are given.

A clergyman living in one of our towns reports as follows: —

"About a year ago, my son, thirteen years old, was taken sick with diphtheria. It was quite a severe case, and was very obstinate, resisting, day after day, all treatment: medicines did not have their usual effect.

By and by we thought of the water [which was found upon chemical examination to be polluted with organic matter like that found in drains and cesspools]. We immediately stopped using the water, concluding that the impure water was the probable *cause* of the boy's sickness, and the probable *reason* why the medicines would not work; for they had been mixed in this water, and he had used it for a gargle.

"With *change of water*, the sick boy at once began to mend, and was soon about the house again. This was the third case of diphtheria in our family within the space of some two years, and they were the only cases in the neighborhood; which led us to suspect something was wrong.

"I had myself been subject to a chronic irritation in my *throat*, often amounting to soreness and serious trouble, and also to frequent attacks of diarrhœa, especially through the warm weather; but, for a year past, or *since we ceased to use that water*, I have had no trouble worth speaking of in either of these ways.

"The well is in the *cellar*, almost directly under the sink, three feet only to the right of it. The top of the well is two feet and a half from the cellar-wall. The drain, originally of plank, was sixteen feet long, so that the cesspool was within seventeen or eighteen feet of the well. But this was not the worst feature of the case. This plank drain, after a time, rotted away, so that the filthy water began to soak into the ground just outside the cellar-wall, and within six or eight feet of the well, and almost directly over it. The earth, when we removed it to lay a new tile-drain, was *good manure* as deep down as we dug, and I know not how much deeper.

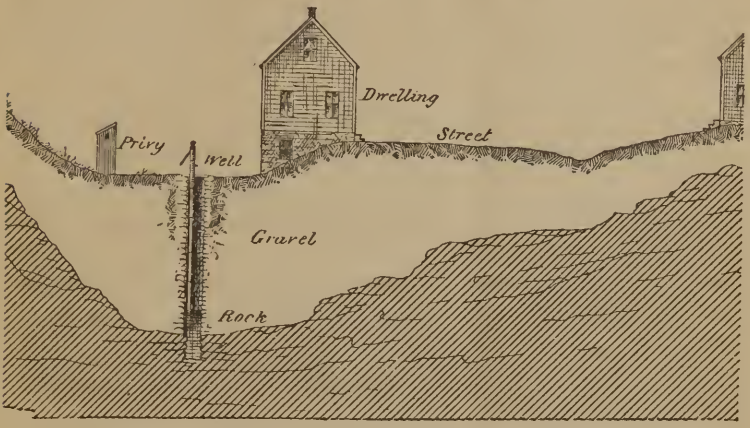
"The water looked clear, except just after heavy rains, and had *no ill smell* or *ill taste* about it. We now use cistern-water, and leave the well untouched."

This case shows what great danger to health may exist unsuspected, when the rules suggested above are not followed out. It is impossible to say that a well is safe at any ordinary distance from a source of *constant* pollution of the neighboring soil, like a privy, cesspool, barnyard, &c. Often the filth goes a long distance, sometimes not very far. *There is always a risk;* and, even if well-marked sickness does not occur as narrated above, more obscure affections are probably not uncommon.

Dr. J. G. Pinkham, in his Report on the Sanitary Condition of Lynn, published in the Eighth Annual Report of the State Board of Health, reports the following two cases, the illustrations in which are most clear and convincing: —

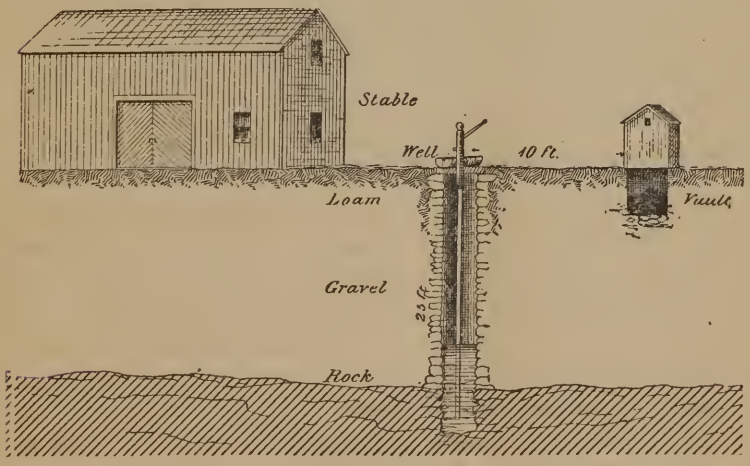
Case No. 1. — The diagram explains the position of the well, and shows the certainty of its pollution. The soil and subsoil are loose; contamination occurs both by surface

drainage and from soakage. Five cases of typhoid-fever occurred in 1875, in the family living in the house, and seven more, with one death, among other persons using the well-



water. This house became the centre of infection for a whole neighborhood.

Case No. 2. — The well is twenty-five feet in depth, a portion of it being dug into the rock. The vault is ten



feet distant on the same level. There is a cesspool in the garden below, and a stable on the left. The buildings and well are on a side-hill. The premises are kept clean, and the water, which is clear and of good taste, has been used for

many years. The occurrence of typhoid-fever in the family led the physician in attendance to suspect the water, which, upon chemical examination, proved to be very much contaminated. There were five cases of typhoid-fever in the family, and several others, with one death, among neighboring persons using the water.

Where wells are not in use, the corruption of the air from foul privies, and by the emanations from the soil of the products of decomposition of filth, becomes a prominent factor in the spread of such diseases as typhoid-fever, dysentery, diarrhœa, diphtheria, &c. In towns, sources of filth on some premises may be more injurious to the health or more offensive to neighbors than to the occupants of the place itself. Different people are differently susceptible to disease, too, so that the filthiest places are not always necessarily those where there is most sickness.

A marked illustration of disease *due to polluted air*, when the drinking-water was pure, occurred in a school in this State, in 1864, where fifty-one out of seventy-seven young ladies in the institution were attacked with typhoid-fever, of whom thirteen died; three servants also died of the fever. The vaults of the privies were shallow, filled to overflowing, and emitted a very offensive odor, which at times pervaded the whole building. The kitchen-drain discharged its contents on the surface of the ground, and a few rods from the school there was a foul barnyard.

Where filth has accumulated, and it is necessary to use a disinfectant, or if for other reasons it is desirable to do so, earth, lime, or chloride of lime will serve a good purpose. If it is wanted in liquid form, it may be made by adding to a pailful of water three pounds of copperas (sulphate of iron), with a pint of Calvert's carbolic acid; one pound of chloride of lime, or one-half pound of lime.

For use inside of houses, a solution of nitrate[1] of lead or chloride of zinc[2] (Burnett's Disinfecting Fluid) is recom-

[1] One part in one hundred of water. Cloth soaked in such a solution, and hung up in a foul air, quickly destroys bad odors.

[2] One part in two hundred of water for foul liquids, &c. This is used by order in the German navy for *bilge-water*. Labarraque's Disinfecting Fluid (chlorinated soda), one part to four of water, may be used with soap in washing floors, &c.

mended. *Whitewashing* in cellars, sheds, &c., is a most excellent means of purifying the air. *Prevention of the accumulation of filth*, however, is better than the use of disinfectants. "To chemically disinfect (in the true sense of that word) the filth of any neglected district, to follow the body and branchings of the filth with really effective chemical treatment, to thoroughly destroy or counteract it in muck-heaps and cesspools, and ashpits and sewers and drains, and where soaking into wells, and where exhaling into houses, cannot be proposed as physically possible; and the utmost which disinfection can do in this sense is apparently not likely to be more than in a certain class of cases to contribute something collateral and supplementary to efforts which mainly must be of the other sort" [*prevention* of filth].

Directions for soil-pipes, drains, &c., will be issued in a succeeding circular. At present, it need only be said that *sewers* are of the first importance where the water-carriage system is generally used for removal of sewage. Where for any reason they cannot be introduced, the greatest consideration should be used before it is decided to introduce water-closets, if the result must be to drench the soil with filth and water by means of cesspools.

It is in the highest degree important that each town should have *an independent board of health* to devote their attention to these matters. It is desirable that *at least* two-thirds of such a board should be composed of persons not otherwise connected with the town government, and that there should be at least one physician on the board.

Boards of health and selectmen of towns are particularly requested to direct the attention of proprietors of country hotels and boarding-houses to this circular, for which purpose extra copies will be sent upon application to the Secretary of the State Board of Health.