

CONDITIONS OF VALLEY WATER

UNSANITARY CONDITIONS SAID TO ABOUND

Many Families of Country Suffer From Ill Health as a Direct Result of Potuted Water Produced by Unsanitary Conditions.

(Written by E. F. Pernot, of Oregon Agricultural College).

The condition in which I find water received from various parts of the state warrants my calling the attention of the public to the unsanitary conditions which must exist surrounding their water supply. Some samples of water taken in sterile bottles under aseptic precautions, contain as high as 63,580 germs per cubic centimeter (a teaspoon holds about five cubic centimeters of water and an ordinary drinking glass about 25 centimeters). A glassful of such water would therefore contain 14,395,000 living germs. While it is true that many varieties of these germs are not directly disease producing, the continued introduction of such large quantities of them into the system lowers vitality and increases susceptibility to the disease producing types when they gain access to the body. Water contains so many organisms carries also, in solution, the ptomaines from putrefaction of organic matter in which they grew. These large number of organisms generally find their way into wells by surface drainage and where they can pass, so may the disease producing types pass also. The waters from driven wells are comparatively free from organisms. An open well is an abomination and is not in keeping with our present understanding of the laws of sanitation.

A Good Well

The question arises, how can we better our conditions? Where a well is the only means of obtaining water, let it be dug to the water bearing stratum, wall it up with brick laid in cement, for ten feet, arch is over, with the pump pipe and arch well cemented in, fill the remainder of the hole, which may be fifteen to twenty

feet, with clay well tramped down, and the result will be a bottomless brick jug, deep under ground, into which no surface water, worms nor animals can penetrate. The water from such a well is as pure as can be obtained from the locality in which it is situated.

Polluting the Water

There are many families living in the country who should enjoy the best of health, but who are always ailing. The cause of ill health may, as a rule, be traced to their use of polluted water produced by the unsanitary conditions of their surroundings. But few homes have proper drainage from sinks and baths; dish water is thrown out of the back door on the ground near the well, garbage is similarly disposed of to decompose and drain into the well. Most of the open wells situated near the house or barn are but cesspools. It is the lowest point into the vicinity into which liquids drain.

Frequently a privy is located within a stone's throw of an open well. When the water table rises to the surface of the ground, as it always does during the winter in Western Oregon, all surface water is contaminated, and, as the water level lowers, the open wells become reservoirs for the drainage.

The ordinary stone or brick wall of an open well only serves the purpose of preventing of the caving-in of the earth, and in no sense acts as a filter.

We have received samples of water from open wells, situated near barnyards or dwellings, which were loaded with organisms that are instrumental in decomposing manure. The samples gave strong reactions of ammonia by chemical analyses and were even tinted with the color of liquid manure. One particular sample was thus polluted from a flower bed near the house, the flower bed having been heavily manured.

Disposal of Sewage

In localities where water is piped into the house and there is no sewer, the toilet should be connected with a properly constructed septic tank and the effluent should be piped a long distance from the well and empty on the surface of the ground, where sun and air may still further purify it. If an open closet must be used, a concrete vault, well cemented, should be constructed, instead of a mere hole in the ground, and lime frequently thrown into it to prevent the breeding of flies. Earth closets have been successful and consists of galvanized

iron trays or tubs that may be emptied away from the premises. Dry earth or ashes should be used in connection with them to absorb moisture and suppress odor.

Danger From Flies

It is well known that flies breed in human and animal manure; for example, the deposits of human excreta are often seen to be a crawling mass of maggots, these are the larvae hatched from the eggs deposited by flies, from this they pass into the pupa stage and again emerge as flies with the return of warm weather. These flies enter our dwellings, walk upon our food and directly transmit the organisms from excreta to our food. Contamination does not cease at that, for we have definitely proven that the organisms which the flies take into their bodies from the excreta are not destroyed by their digestion, and passing through their bodies with the excreta the germs utilize this excreta from food and multiply. Therefore a fly speck containing fifty germs will increase its numbers fiftyfold.

Disease Germs

If perchance the organism happens to be typhoid bacillus, a fly speck upon an apple, or other food will eventually contain thousand of such germs. This we have conclusively demonstrated by hatching flies in a sterile box, then feeding them with bread or sugar, saturated with cultures of the typhoid bacilli, then allowing them to excrete upon apples, cabbage leaves, or other material that gives off moisture. The fly speck after some time, assumes the form of a colony and is found to be loaded with living bacilli, showing that they have passed through the fly uninjured and had multiplied abundantly in the fly's deposit.

It is well known that milk is an ideal food for typhoid bacilli, and for that reason should be well guarded from the invasion of flies. Keep flies out of the house, especially that part where food is kept.

Unsanitary Practice

Attention should be called also to the abominable practice of disposing of dead animals by throwing their carcasses into abandoned wells, or emptying closets into them, for the water bearing strata will be polluted for miles. Typhoid fever is a filth disease and any person who thus pollutes a water supply commits a criminal offense.

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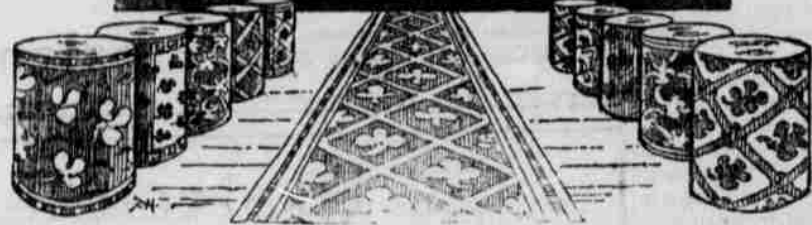


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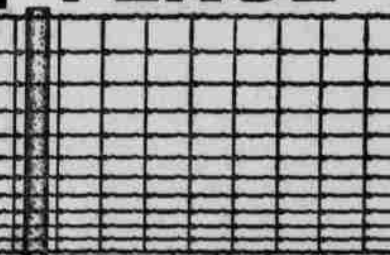
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