

*The Chloride of Lime Process—*

Here I may outline a most satisfactory method where only small supplies are needed, or in camp, or travelling, that is not costly nor difficult in technique. About .3 to .5 parts in a million (3 to 5 parts in 10,000,000) is the amount of chloride of lime required. It can be obtained by this method: Put an evenly filled teaspoonful of high grade chloride of lime into a teacup of water; dissolve. Then to this add 3 cups of water and bottle up for a stock solution. When needed, put a teaspoonful of the stock solution into two gallons of water (an ordinary pailfull), mix carefully, and it is ready for use, and all germ life destroyed. There is no need here to go into the rationale of the question; it suffices to know of its efficiency. This method can be adopted when or where there is a question of tainted water for domestic purposes.

But the aim of this paper is to indicate how good water can be obtained directly from its source.

There have been volumes, and observations by most skilled scientists, on the treatment of tainted waters, but we do not propose to further discuss it for two reasons.

1st. No generally practicable and reliable system has been devised. 2nd. The urban residents, who are chiefly considered in the discussion of this subject, will not average more than from 20 per cent. to 40 per cent. of the population, and the large balance of 80 per cent. to 60 per cent. of the village and rural population are nearly as much threatened by the dangers of defective potable water as are the urbanites, and demand our attention. We will consider each.

*Detached Dwellings.*

For want of a better distinction, let us class these as being those that have no common public supply or sewerage and generally depend on the well for supply.

The march of progress that has left little of this earth unexplored—on its surface or interior or overhead—has for some unexplained reason passed by the well.

*The Well.*

Let us consider the ordinary well. The two common varieties are:

1st. The surface well—a lined up hole in the ground that collects the seepage

from adjoining territory; and the water in its reservoir must be tainted or not, owing to its source—as a rule tainted.

2nd. The Deep Well, which, it is assumed, taps the deep water courses (underground) and should furnish a good supply unless from faulty construction or care.

The neolithic man may have considered the invention of the well as a great advance. When, mayhap, the spring or water course dried up and the well would likely supply his wants, but since then invention in this line has been very limited.

Let us consider the defects of the well in order that they may be avoided.

Its purpose is to furnish easy access to the water supply that the underground water courses places at our command. To achieve this, a pit is sunk till water is reached, and then it is lined up with stone or brick or wood (cement but rarely). Then all you need do is to drop a bucket with a rope to it or put in a pump, and there you are—no science nor theory is needed and what more would you have?

We want the water as it comes from its underground source, uncontaminated, and this the well rarely gives, and if it be an old well we can rightly assume it has ceased to do so.

The ordinary surface well is so objectionable that we need not discuss it.

The defects of the well are, assuming purity of water:

1. Seepage—The pervious walls of the well allows any water in its vicinity to percolate into it with possibility and too often probability of taint.

2. Storm water—Melting snow and rain floods washing into the well. Though this could be readily avoided it is too rarely done.

3. Filth accumulation in the well—bleached earth worms, frogs, toads, mice, rats, with other less excusable decaying matter I need not mention.

4. Silt Accumulation, that encroaches on and in time may fill up the water storage capacity.

5. Stagnant water—Unless frequently renewed the water in the well is apt to become stagnant and impalatable, if not tainted.

6. Well cleaning—Hence it is evident