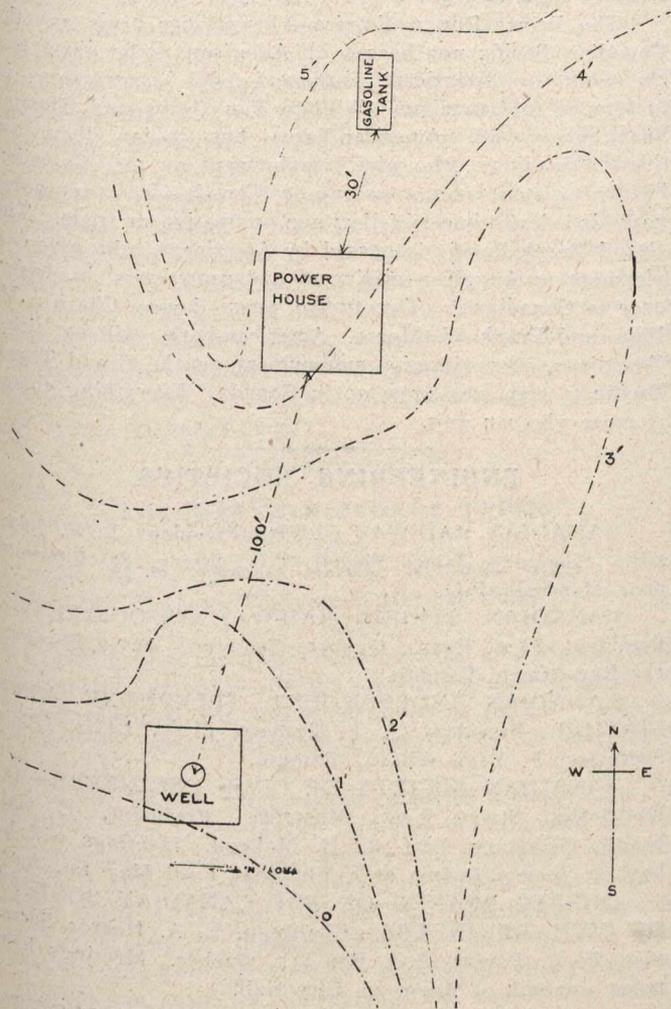


signs of rusting in the rods, but that all those allowed to set in the air show some rusting regardless of the make-up of the concrete, although the smaller aggregate silica sand and fresh water seem to be a nearly perfect protection.

PECULIAR INSTANCE OF CONTAMINATION OF A WELL WATER.*

Dr. W. P. Mason.

The Anti-Tuberculosis Association of Wellingford, Conn., possesses a six-inch well drilled through red sand-rock to the depth of sixty-six feet and water raised therefrom by windmill was formerly of excellent quality. During the summer of 1904 an electric light plant was erected, which was sup-



plied with power from a gasoline engine. The necessary store of gasoline was contained in a cylindrical tank of riveted steel, three feet in diameter and ten feet long. This tank was buried just under the ground surface at a point 130 feet distant from the well, and two gasoline engines were installed in a power house nearer the well by thirty feet.

About one month after the starting of the engines, a very decided taste and smell of gasoline developed in the water of the well and has continued, although with diminished intensity, to the present day, nearly three years after its first being observed.

The contour map indicates the relative positions of the well and the gasoline tank, and shows the general slope of the surface towards the well. The dip of the sand-rock is practically in the same direction.

A suit for damages having been inaugurated, I was requested to examine the property and to advise as to the probability of the well being able to recover its original purity within a reasonable length of time.

The information furnished me showed that whether from the exhaust of the engines, from a faulty connection or from a leak in the tank itself, several hundred gallons of gasoline

Read before American Waterworks Association.

had run on to or into the soil within about 100 feet of the well. My opinion was that the injury done was beyond repair and that the well should be abandoned for drinking purposes. When one bears in mind the minute quantity of kerosene which remains upon the hands after handling a lamp and with what certainty a pitcher of ice-water is caused to taste of the oil if the ice be touched by the hands so soiled, it is easy to appreciate how very far several hundred gallons of gasoline would go towards contaminating a ground water.

The correctness of the opinion as expressed above has been borne out by the persistence of the gasoline taste in the water until the present time.

Of course the day will come when the last trace of oil shall have been washed away, but who would venture to fix the date for its accomplishment?

Discussion.

Dr. W. P. Mason: There are one or two little side matters that came up which might possibly be interesting to you. The well was contaminated by gasoline leaking from a tank which had been shown capable of standing at least five pounds air pressure. The amount of pressure coming from the gasoline was surely much less than five pounds, because the tank was only three feet in diameter. Let us call it a pound and a half. The opposing side attempted to show that a tank which would stand five pounds air pressure without leaking would leak under a pound and a half liquid pressure. That I doubted, and I ask the attention of the Court to that time-worn experiment, where we pass gas through a porous plate through which water will not pass. As another illustration I asked his Honor's attention to the fact that when beer is to be pumped from the cellar to a spigot by the ordinary beer pump, in a certain number of cases the barrel will not hold the necessary pressure which the bar-tender couples on his air pump. Now, in such a case, the barrel, although it holds the beer will not hold the necessary amount of air pressure to carry the beer to the faucet, up stairs. His Honor was pleased to state that I showed a very considerable amount of familiarity with the illustration.

I think I have covered the only points of interest which are worth mentioning in reference to this small case which I have reported because of its oddity. I invite your attention to this further point, viz.: the hopeless character of the contamination. If you get ground water contaminated with a mineral product such as petroleum oil, you cannot hope for speedy relief, and you would do better to abandon the source of supply for a new one.

Mr. Maury: In the State of Illinois there once flourished a health officer who was afterward mayor of the town in which he lived. He wanted to get a waterworks plant and a sewer system put in. His shrewd common sense and other virtues have resulted in his promotion to the responsible charge of one of the largest charitable institutions in the State. Just after the close of his term as mayor in describing his troubles in installing water supply and sewers, he said that the citizens objected to the improvements because they were perfectly satisfied with their cisterns and believed that they would not leak. He was equally convinced that the cess pools did leak into and contaminate the cisterns. He thought it was useless to try and convince the objectors by words, and so, one night he sent a man around and had him dump a gallon of kerosene in every cess pool and the next morning everybody was tasting kerosene in the cistern water.

One of the most prominent exhibits at the annual meeting of the Michigan Electrical Association held in Grand Rapids, August 18th to 21st, was that of the Nernst Lamp Company of Pittsburg. The exhibit included a full line of the new Westinghouse-Nernst units, multiple and single glower, for alternating and direct current. The many new features of these lamps, especially the screw burners and the wafer beaters, made the exhibit one of unusual interest to the lighting man present. The exhibit was beautifully illuminated by Westinghouse-Nernst 110 watt units. The company was represented at the Convention by Mr. H. A. Browne, manager of the Detroit Office, and Mr. J. O. Little, manager of the Publicity Department.