Precious

Crusader airs water woes to homefront

Editor's note — Next week, *Sunday Spectrum* will take another look at the water we drink in the second-part of a two-part series on this precious necessity.

By Maryalice Yakutchik
Staff Writer

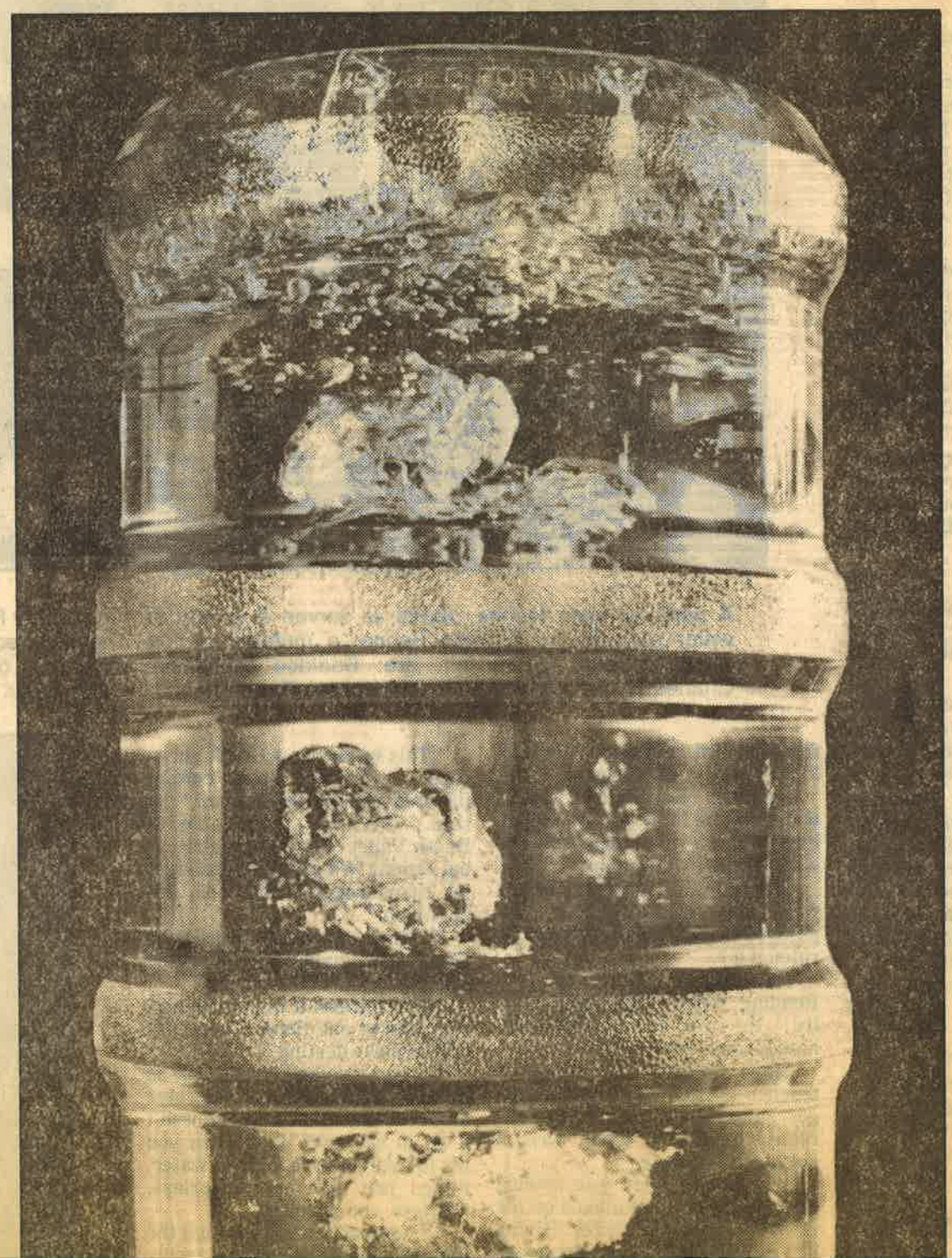
Turn on the faucet, and out streams H2O. Right? Wrong, says Walter Clough, analytical chemist and water consultant. He is attempting to alert people all over the country that their tap water often is much more than two-parts hydrogen and one-part oxygen. In fact, he contends, tap water usually has any number of poisonous parts and is not fit to drink.

It may contain inorganic chemicals and metallic elements, he said. It could have in it organic chemicals such as trihalomethanes; and radionuclides such as radium. Biological contaminants could inhabit it: Coliform bacteria, and microscopic protozoa known as Giardia lamblia.

"I've been a food chemist all my life and I never found the degree of poison in food that I've found in water, said Clough who recently presented "Don't Drink the Water," at the 1985 Pennsylvania Natural Living Convention in Gettysburg.

SOMETIMES, the harmful contents of water will not have any noticeable effect on humans for decades; but its carcinogens may contribute to cancer years later. Other times, said Clough, debilitating sickness will result fairly soon after drinking water that is contaminated — as is the case with Giardia lamblia.

When he's not lecturing throughout the country and testing the various waters in a mini water-analysis lab he has set up in his motor home, Clough is based in Sulpher Spring, Ark., where he operates the Ozark Air and Water Service.



Citizen's Utilities is top drop

By Bruce R. Posten
Daily Spectrum editor

Water, even though it is supposed to be odorless, colorless, and tasteless (compared to, say, a snack of Limberger cheese, hard cider, and Chinese Sweet and Sour Pork), is the type of thing that arouses reactions in people — reactions that could not be characterized as bland by any stretch of the imagination.

There are a lot of folks out there who proclaim in self-righteous earnestness that they know good water when they taste it, see it, smell it, or hear it falling over rocks.

Some people will even go so far as to boast that in a blind test of water from a variety of areas, they will be able to select the water they are used to drinking.

WATER IS such a necessity of life that it was probably inevitable that it would have its share of zealots. After all, man cannot live by bread alone. He needs — at the very least — an entree of bread and water.

Ask any captive.

Better yet, if you happen to have the clout of a newspaper behind you, capture your own panel of so-called water experts and get them to tell you what they think they're drinking.

As it turns out, we did just that. Fortunately, we were lucky enough to have them volunteer — no coercion or Chinese water torture was needed.

FOR A BLIND water taste test, our panel was composed of a good-natured, motley crew, whose professions happened to give them an aura of expertise when it came to water.

We had a pool manager who swims in water, a waitress who serves water, a fire chief who sprays water, a city health officer who inspects water, a water plant operations manager who manages

have to stop thinking that it's pure; they have to realize that it's no longer a safe procedure."

His distressing warning is extreme, he realizes, and he knows it will not serve to stop the billions of people worldwide who do drink tap water. But Clough is "willing to take a little razzing for being too radical," he said, if he can get people interested enough to motivate them toward change.

PEOPLE HAVE BEGUN altering their water habits somewhat, noted Clough. The evidence he cited is bottled water's increased popularity; it has grown into a billion dollar industry, he said.

"It is a good sign that people are aware of what they are drinking," Clough said. "But for the most part, they are drinking bottled water because they don't like the flavor of tap water .... Taste is a poor indicator (as to the quality of water), but it is one thing that water companies will go to extremes about."

Generally speaking, taste and odor are not good indicators as to the safety quality of water, confirmed Thomas D. Grubb, supervising sanitarian, Department of Environmental Resources.

"Complaints regarding public water suppliers pertain not so much to bacteria (a primary contaminant which can cause health-related problems) as they do to taste and smell," said Grubb. "We hear about it when a secondary contaminant, such as iron, is in the water, causing problems with the wash, or taste and odor problems."

MAXIMUM CONTAMINANT LEVELS, standards set by the federal government which indicate ceiling amounts of substances allowed to be present in water, do not necessarily represent healthy standards for all individuals, Clough warned.

The standards, set in 1974, represent a middle ground between the demands of two very separate interests, said Clough: the consumer activists who want strict standards for health reasons, and the agriculturalists and industrialists who demand lower standards for economic reasons.

If a water test reading indicates that nitrates, for instance, are under the maximum contaminant level, it does not necessarily mean individuals can tolerate that level of nitrates and remain healthy, according to Clough.

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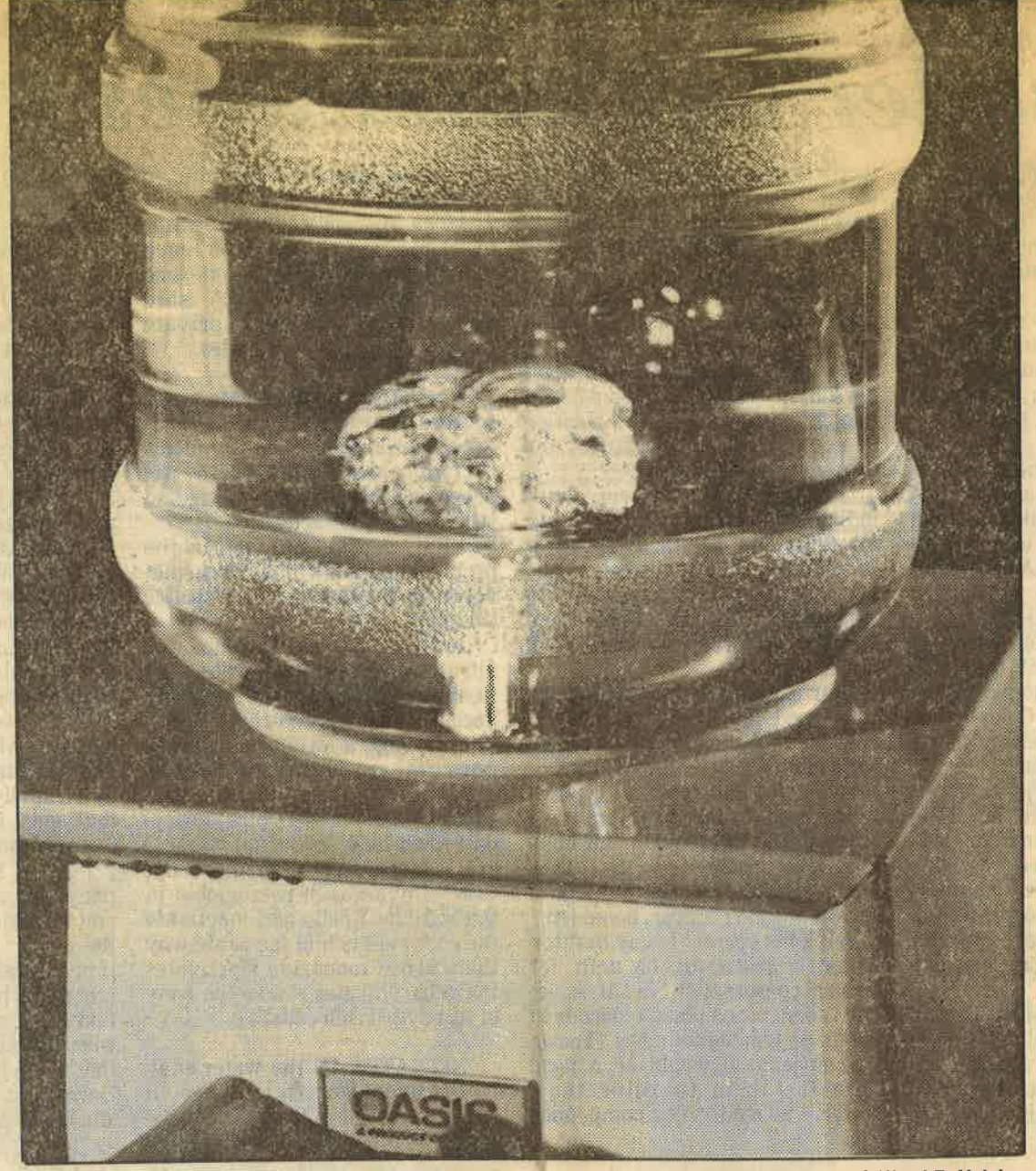

Staff photo by Clifford R. Yeich

Water — it may taste OK, but can it harm you?

ately chilled, including well water from the Bernville area, which, by the way, was slightly tainted after being transported in an editor's plastic jug that was previously used for homemade root beer. The testers, to put it mildly, were not amused and unanimously identified this water as "licorice tasting." Your guess is as good as ours as to why they didn't unanimously say the water tasted like root beer.

THE OTHER WATER samples in the test, rated on a scale of 1 to 10, with 10 being an excellent, were Western Berks, Reading, Great Oak bottled spring water, and water from Citizen's Utilities Water Co.

Now, without further ado, we will give you the winning water ... drum roll please ... it wasn't Bernville well water, sticking like melted licorice at the bottom of the scale with a 4.1 score; it wasn't Great Oak or Reading which tied at 6.8 each; and it wasn't Western Berks (from Wyomissing, no less) which scored 7.3 .... No, it was none of the above.

The winner, in all its glory, was Citizen's Utilities water with a score of 8.3.

Yes, Citizen's water it was — the same water that can be found in such places as West Lawn or Wyomissing Hills, where, according to one waggish tester, "the folks on that side of county don't have to worry about buying soap because the calcium-rich water requires the use of water softeners.

"The water softener guys are making a mint over there," said Dr. Jeff Hassel, a Reading health inspector and water tester. "Because of the limestone/clay ground, there is a high degree of calcium in the water. When homes are sold in that area, I bet water softeners are part of the deal."

But enough of this dry humor about water.

IN A TEST that admittedly was not a scientific survey on Berks County water, it's a fact that Citizen's water ranked No. 1, according to our tasters.

And Western Berks, another water company that has had its share of criticism over the years, was No. 2, trailing Citizen's water by only 1 point.

So, what does this tell us about water? Well ... it's hard to say. Maybe it says people who are thirsty drink anything. Or, perhaps, considering the relative closeness of the scores of all the water samples — excluding the licorice-tainted Bernville-area water — it might indicate that people just believe water is water is water.

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Health crusader airs water woes to homefront

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"It merely means the reading is under the maximum contaminant level," he said. "Government standards are one thing. But healthy standards are quite another."

Stump said it is true that government standards are not based strictly upon health concerns. He said MCLs were set after officials weighed "all the factors" — at least one of which was economic.

"IT IS IMPORTANT to realize that only half of 1 percent of all the water a water company handles is used for the purpose of drinking," said Stump.

"MCLs, set by the federal government and adopted by the states, take into account an average person's total contact with an element in the environment," explained Thomas D. Grubb, supervising sanitarian, Department of Environmental Resources. "In setting the MCL for lead, a person's exposure to lead from automobile exhaust might be evaluated. Based on this average person getting X amount of lead from this source, and X amount from that source, the lead limit for water is set."

A person who is not comfortable with that limit for lead allowed in water is not without rights. If he has a problem with it, it is his personal choice not to accept or drink the water.

That is what Clough has chosen to do. He drinks no water unless it is filtered through a reverse osmosis system. He never partakes of fruit juice concentrates, coffee, tea, or soft drinks — all of which are made with water that may be contaminated, he said.

"OF COURSE, many water companies would be appalled to think anyone was seditious enough to suggest the water is not fit to drink," said Clough. "And up until recently, they would have been right — it was relatively safe."

The water companies are not to blame for the current problems that plague the tap water-drinking public, according to Clough, nor can the utilities be held accountable to provide solutions.

"They are conscientious in their jobs as we are in ours," he said. "I have gone to so many official meetings that I see their side of the story. They are sincere in wanting to control the problems, but can't because they may not have the appropriations to modernize their plants.

"Cincinnati spent $40 million in taxes to build an ideal carbon filtration plant which removes trihalomethanes. What smaller city can do that? And, is it really worth it when the majority of that water is used for industrial purposes, or for bathing, washing cars, and flushing toilets?"

A BETTER SOLUTION, suggested Clough, costing a fraction of the amount used to modernize water systems, would be for each person to take the responsibility upon himself and install a purifier of some kind on his faucet for drinking and cooking water.

Point-of-use treatment, with individuals taking responsibility for their own health, is going to become one of the biggest trends relating to water, according to Richard C. Stump, laboratory director, Suburban Water Testing Labs, Temple.

For instance, many people are concerned about the addition of chlorine to the water. It is a necessary additive, Stump explained — take it away and you have typhoid fever and other problems we encountered in the past. But chlorine can combine with other chemicals and form compounds known to cause cancer, he added.

"It's not correct to say that tap water is poisonous or unfit for human consumption, but if someone is concerned about chloroform levels or trihalomethanes (known carcinogens) it would be a good idea for them to filter their water," he said. "The compounds are easily taken care of with an activated carbon filter.

"The majority of the water problems we see are not so much with public companies like the one that supplies Reading," said Stump, "but are with private wells and smaller companies.

"OF THE 600,000 private water sources in Pennsylvania, 360,000 are contaminated," he estimated.

The prime contaminant, according to Stump, has been, and still is coliform bacteria.

"But coming up fast is the problem with nitrates," he said. "It is in fertilizers and is water soluble."

Iowa is the worst place for nitrates in the drinking water, but nearby Lancaster is quickly becoming a problem area.

"Too high a level of nitrates in consumers' drinking water amounts to them 'taking the (automobile exhaust) pipe' everyday when they drink that water," said Clough. "Once in the body, they combine with hemoglobin in the red blood cells and inactivate the cells — much in the same way that carbon monoxide inactivates the cells. Nitrates starve the body of its oxygen rich cells."

NITRATES IN the water may be the main concern to the south of Reading, but in the east (Birdsboro area) it is industrial chemicals which have caused alarm.

"Trace levels were found in various points in the county," said Stump.

The Colebrookdale area has recently recognized a radon problem and it is affecting the water supply.

Both Stump and Clough agreed that water quality is most precarious for those living in rural communities.

"Pennsylvania is one of the worst states in the country for Giardia lamblia — especially around Wilkes Barre," said Clough. "We are seeing more of it because doctors are recognizing the problem for what it is. They are not mistaking it for food poisoning or intestinal virus."

An intestinal parasite in humans which causes a lengthy and debilitating sickness, Giardia is a rapidly multiplying bacteria that gets into the water supply from animals defecating into it.

"AT A SMALLER water company, sometimes no one is there, and the plant more or less runs on its own," said Stump. "Sometimes, it lacks a filtration system. (Reading has an adequate filtration system, he assured.) That's when problems start. Obviously that's what happened in Wilkes Barre and Scranton where Giardia has been quite a problem."

To talk about the the problems and not explore answers is pointless, said Clough who spends a lot of time analyzing the pros and cons of different kinds of water purification systems used at the domestic level.

A one-micron ceramic filter — a Swiss product newly-marketed (for about $26) in this country — can eliminate a Giardia problem, according to Clough. The openings within the ceramic element are smaller than the Giardia, so it works on a simple size-exclusion principle.

A reverse osmosis system works to purify water through a more complicated process.

The purifier consists of three components — a five-micron prefilter (takes out sand, dirt, and algae); a reverse osmosis membrane (takes out most of the other contaminants including chemicals, metals, bacteria, and parasites) with openings that are 1000-times smaller than the openings of a regular filter; and a carbon filter which takes out gasses such as chlorine.

"I'm really like an evangelist," Clough said, "but instead of talking about salvation, I'm talking about taking care of the bodies that God gave to us. Most people basically want to do that, but often they don't have the information they need and the know how."