
HOME
THE MAGAZINE OF REMODELING & DECORATING
APRIL 1993
GREAT KITCHENS!
THE NEW FAMILY ROOMS
BATHROOMS: SHARED SPACES
SHOULD YOU BE WATER WARY?
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SHOULD YOU BE WATER WARY?

"Thirsty? Pour yourself a glass of water. Uh, just a second. Better use the bottled water, we're not too sure about what comes out of the kitchen faucet."

Sound familiar? This kind of caution in recent years has become more the rule than the exception. Many people have questions and concerns about the water that comes from their taps. They've heard it might contain lead, toxic chemicals, radon, or some other tasteless, odorless, invisible poison.

And that possibility has fueled a multibillion-dollar business in bottled waters and water-treatment products. Nationally, 6 percent of all households now drink bottled water, and more than 50 million water purifiers are in use. In some areas, the numbers are much higher. A survey of 1,550-plus Californians by the *Los Angeles Times*, for example, indicates that 11 percent of those polled drink home-filtered water and 26 percent drink bottled water.

Are there good reasons to turn away from the tap? Nationwide, statistically, few illnesses due to bad water have been reported. During the two-year period from 1989 through 1990, 16 states reported 26 outbreaks estimated 4,288 persons became ill and four died from bacteria-tainted water. Although most people correctly assume that their tap water isn't life threatening, many are concerned.

Chronic illnesses could be caused by long-term exposure to small doses of chemical contaminants. Several links have, in fact, been found and more are expected. "There is genuine concern in the scientific community that prolonged exposure to certain elements, even at levels as low as a few parts per billion or trillion, may be increasing the incidence of cancer and heart disease," according to the U.S. Environmental Protection Agency (EPA).

Is your water safe? And, if not, what can you do about it? To answer these questions, you'll need to determine your water's source and potential pollutants it could contain, and identify specific steps you can take to clear up problems.

SOURCE OF THE PROBLEM

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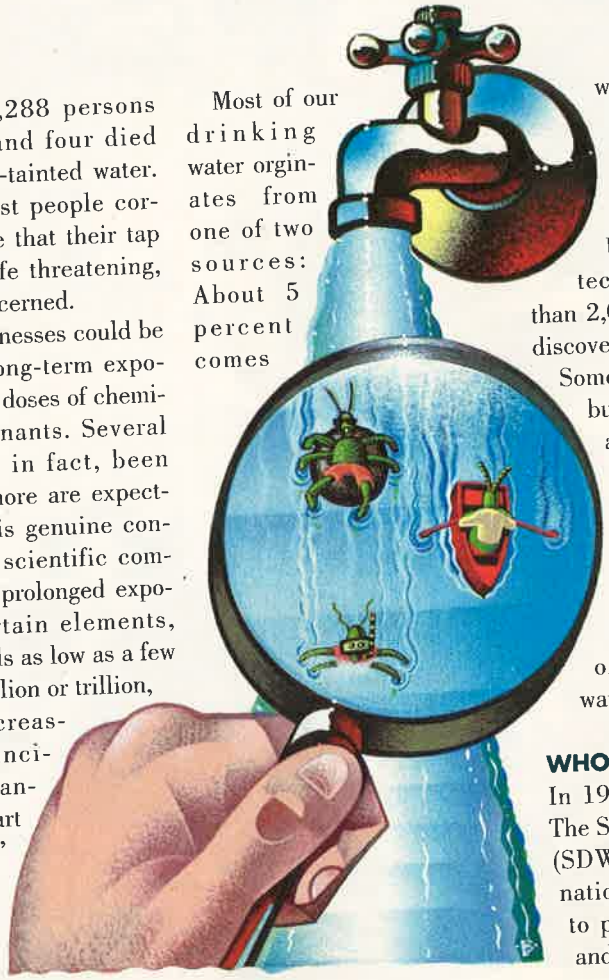

Most of our drinking water orginates from one of two sources: About 5 percent comes from surface supplies, such as rivers; the rest is taken from aquifers. Municipal water systems treat this water to remove certain types of impurities and then send it out to residences. A small percentage of homes, primarily rural ones, pump drinking water from private wells.

For decades, municipal suppliers have successfully used chlorination and other related water treatments to rid drinking water of some impurities, particularly bacteria that cause waterborne diseases such as typhoid

water has been found to contain a host of hazards that these treatment procedures don't remedy. Using advanced detection methods, more than 2,000 toxins have been discovered in drinking water. Some do occur naturally, but most of these toxins are among the plethora of chemicals produced by 20th-century industry. Traces of these chemicals eventually trickle through ground water or streams into our water supplies.

WHO'S IN CHARGE?

In 1974, Congress enacted The Safe Drinking Water Act (SDWA), a comprehensive national program intended to protect drinking water and insure its safety. This act set minimum water quality standards for more than 250,000 water utilities—all that serve at least 25 people or 15 service connections. These standards limited the permissible amounts of certain substances found in drinking water, measured in maximum contaminant levels (MCLs). Congress gave the EPA the responsibility to watchdog these standards, and individual states the power to enforce them if and when they adopted standards at least as strict as the national guidelines.

The Safe Drinking Water

ILLUSTRATOR: JOHN BREAKEY

HOME ECOLOGY

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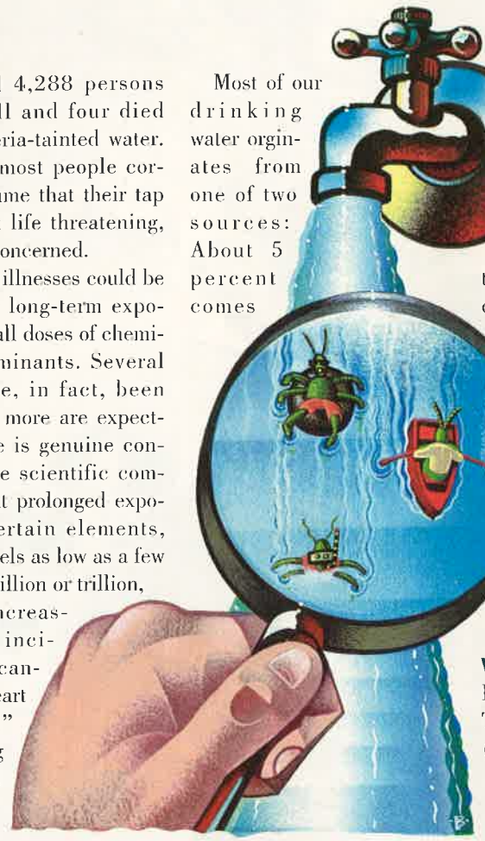
Are there good reasons to turn away from the tap? Nationwide, statistically, few illnesses due to bad water have been reported. During the two-year period from 1989 through 1990, 16 states reported 26 outbreaks of waterborne disease, according to the Centers for Disease Control. And, an estimated 4,288 persons became ill and four died from bacteria-tainted water. Although most people correctly assume that their tap water isn't life threatening, many are concerned.

Chronic illnesses could be caused by long-term exposure to small doses of chemical contaminants. Several links have, in fact, been found and more are expected. "There is genuine concern in the scientific community that prolonged exposure to certain elements, even at levels as low as a few parts per billion or trillion, may be increasing the incidence of cancer and heart disease," according to the U.S. Environmental Protection Agency (EPA).



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Most of our drinking water orginates from one of two sources: About 5 percent comes from surface supplies, such as rivers; the rest is taken from aquifers. Municipal water systems treat this water to remove certain types of impurities and then send it out to residences. A small percentage of homes, primarily rural ones, pump drinking water from private wells.

For decades, municipal suppliers have successfully used chlorination and other related water treatments to rid drinking water of some impurities, particularly bacteria that cause waterborne diseases such as typhoid and cholera.

In recent years, however, water has been found to contain a host of hazards that these treatment procedures don't remedy. Using advanced detection methods, more than 2,000 toxins have been discovered in drinking water. Some do occur naturally, but most of these toxins are among the plethora of chemicals produced by 20th-century industry. Traces of these chemicals eventually trickle through ground water or streams into our water supplies.

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The Safe Drinking Water Act was amended in 1986 to identify more contaminants,

ILLUSTRATOR: JOHN BREAKEY

strengthen and schedule regulation of key contaminants, protect ground-water sources, and streamline enforcement of the regulations. In addition, the EPA established a secondary set of regulations that cover the aesthetics—taste, smell, and appearance—of drinking water, though these are not enforceable standards.

Unfortunately, EPA regulations don't ensure clean water. Pollutants must be studied and regulated one by one. Although levels of 83 contaminants have been targeted, there could be many more—present and future—that are yet unknown. In some cases, current measuring methods could be inaccurate. And the effects of most contaminants are still unclear.

Another big problem: enforcement of legislation. At the Federal level, the EPA doesn't have the funding or manpower to oversee its regulations. States, too, often lack the resources for proper management. Locally, utility companies can lack the equipment and/or manpower to comply. Each year, thousands of national standards are violated.

A CLOSER LOOK AT POLLUTANTS

The EPA divides pollutants into categories: organic chemicals, inorganic chemicals, radio nuclides, and microbiological organisms.

• *Organic Chemicals.* This list is the longest, including volatile organic chemicals (VOCs) such as solvents, pesticides, synthetics, resins, and other man-made chemicals that seep into water supplies through leaking fuel storage tanks, faulty disposal methods, surface runoff, acid rain, and other improper handling and use. Most of the organic chemicals on the EPA's list are linked to cancer and/or nervous system, liver, and kidney disorders.

Trihalomethanes (THMs) are organic compounds created when chlorine reacts with leaves and other decaying animal and plant matter. This can occur after water has left a treatment plant. Chloroform, a suspected carcinogen, is one of the resulting pollutants.

• *Inorganic Chemicals.* These include sodium, nitrates and nitrites, asbestos, fluoride, and metals such as arsenic, mercury, and lead. Many of these substances occur as natural mineral deposits. Some, such as copper and lead, turn up in drinking water due to pipe corrosion. Others, such as chromium, nitrates, and nitrites, are industry or farming by-products.

Lead, the most notorious of this type of pollutant, can cause brain damage and is highly toxic—even in minute doses—to infants and the fetuses of pregnant women. In 1986, the EPA estimated that 40 million Americans could be exposed to water with unsafe lead levels. Most comes from lead water pipes or lead solder. (Standing water in lead pipes or solder pipes can pick up trace amounts). Before 1930, lead pipes were used in certain parts of the country for both public water systems and household plumbing; some are still in place. Solder, the material commonly used for joining copper pipe fittings in many newer homes, was about 50 percent lead before the lead content was outlawed in 1986.

• *Radio Nuclides.* These substances are produced by naturally occurring radon, uranium, and radioactive waste, and increase cancer risk. You don't have to drink these pollutants to be endangered. They also enter the air you breathe via showers and steam. Radon gas occurs naturally in a number of regions, including Western mountain states and parts of the Northeast. According to EPA estimates, as many as 17 million people could have water with excessive radon levels.

• *Micro Biological Organisms.* These include protozoa, bacteria, and viruses. They have been the chief concern in the past and continue to cause 50 times more acute, immediate illnesses than any other pollutant of untreated water. The most infamous and common of these is Giardia Lamblia, a cyst-forming microbe that comes from human and animal waste and causes intestinal distress. Microbes are killed by normal chlorination or other water-treatment procedures such as filtration and ultraviolet light. But, problems can occur when water treatment breaks down or if a home's waste system "back flows" into the clean-water supply system. Wells are sometimes tainted by septic tank seepage and related sources.

TESTING YOUR WATER

The reliability of your drinking water is directly linked to the quality of supervision, treatment, and testing done by your water company or the owner of your well. Most urban water supplies are relatively safe, thanks to sophisticated treatment and hourly testing. If isolated problems crop up, the utility is required to notify its customers.

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The following are a few important tips to prevent backflow.

• Don't leave a spout-mounted personal shower dangling in tub water or allow the water level to reach the tub, sink, or lavatory spout (unless the spout is equipped with a backflow prevention valve). All toilets should be equipped with approved ballcocks.

• Be sure hoses are never left with the end submerged in a swimming pool, laundry tub, or other body of water—and never submerge a hose in a pesticide or herbicide tank. Always disconnect garden chemical sprayers. Be sure all threaded hose connections are fitted with hose bib vacuum breakers and all outdoor irrigation systems are properly connected to anti-siphon valves.

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Most water problems, however, occur with small water utilities or wells. Small suppliers don't test as frequently as large ones, and can have less-experienced employees and utilize substandard equipment and practices.

To find out what's in your water, you'll have to do some research and have your water tested by an independent lab. You can find one by contacting your water utility or the state health department, or by looking under "Laboratories" in the phone book. Or you can contact one of the national laboratories that specialize in safe affordable drinking water analysis, such as National Testing Labs (800-458-3330), their subsidiary WaterTest (800-426-8378), or Suburban Water Testing (800-433-6595). These companies will mail you proper testing supplies and instructions; you mail back the water to be tested. They follow up with the results and a written explanation.

If you get your water from a municipal water company, it's a good idea to test for lead. Some experts, however, suggest you save money and forgo the other tests. That's because a municipal system's water quality can change from day to day. Water can come from more than one source and chlorine levels—which affect the amounts of bacteria and some other toxins such as THMs—can fluctuate hourly.

Instead, call your health department or water supplier and request copies of water treatment reports. Find out how often the water is tested, what it is tested for, and if any violations are on report. Ask whether your area is known for any special hazards that might enter water between the treatment plant and your tap, such as lead. You can compare the results with the MCLs listed in the "Manual for Evaluating Public Drinking Water Supplies," available through the EPA printing office.

People who rely on well water should learn which contaminants might be in the local water: pesticides, industrial chemicals, and others. Talk with neighbors about sharing the responsibility of testing annually. A well should be tested once for lead and—if it's a threat in the area—radon. It's also wise to test yearly for bacteria.

How much does testing cost? On-site analysis by lab representatives can run several hundred dollars. Test-by-mail firms are more affordable. For example, National Testing offers a lead-only test for $29 or a comprehensive test for bacteria, organics, and inorganics for $129. Before hiring a lab, find out whether your local health department will provide any free testing. Also make sure you've eliminated the possibility of backflow.

HOME REMEDIES

If your water is substandard, contact the plant manager of your water-treatment facility and express your concern. If you want to implement change, you can speak with city council members and attend meetings. Contact the local newspaper if these efforts fail.

Or, take matters into your own hands and buy a water purifier, (See "Homenclature," page 111), or switch to bottled water. Bottled waters are sold in a variety of forms, from "bulk" 5-gallon jugs to single-serving bottles.

Bottled waters come from many of the same sources as tap water: springs, underground aquifers, or even directly from public water systems. The FDA sets the MCLs for bottled water. These are basically the same as EPA regulations for tap water, according to Lisa Prats of the International Bottled Water Association. In some cases, the FDA standards and those of individual states exceed the EPA's. The bottled water industry is also self-regulated. Eighty-five percent of U.S. producers belong to the International Bottled Water Association, which promotes tougher limits for some contaminants.

Club sodas, seltzers, carbonated waters, and waters that have 1 percent of their volume as flavoring (juice-based and flavored waters, also called "new-age beverages") are regulated as soft drinks. Some can contain levels of contaminants naturally present in spring water or related water supplies that are higher than acceptable limits for drinking water.

by Don Vandervort

For more about safe drinking water, contact the EPA's National Safe Drinking Water Hotline at 800-426-4791.

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