TO YOUR HEALTH

West Virginia spring waters deliver refreshment and local pride—and maybe salubrity, too.

WRITTEN BY PAM KASEY
Water, they say, is the "universal solvent"—not because it dissolves everything, which would be a muddy disaster, but because it dissolves more substances than any other liquid. It’s a property that makes biological processes possible.

It also means that, when water goes underground and comes back up, it has taken on an aroma and a taste that are specific to that place. Just like wine, groundwater has a "terroir"—a chemistry that expresses its location’s particular environment.

Among groundwaters, none inspire more pride and mystique than spring water: groundwater that comes to the surface of its own accord. West Virginia has world-class spring water for drinking and a colorful history of tapping its sources.

**Medicine water? Snake oil?**

Cultures around the world revere spring waters as therapeutic—not just through a good soak, but also as a healthful tonic. "If we look at which European countries cover healing mineral spring water as part of your health insurance, it sort of matches the footprint of the Holy Roman Empire," says West Virginia University geochemist Dorothy Vesper, who’s had a lifelong fascination with nature’s fountains. "They loved springs. But the culture in this country stepped away from that."

The history of Capon Springs in the Potomac Highlands illustrates that stepping-away. Its reputation as a healing spring might be most due to the savvy late-19th century proprietor William H. Sale. He managed the expansive, 500-guest Mountain House resort at Capon that ended up on the West Virginia side of the border when the state separated from Virginia during the Civil War. Capon’s spring had been known for healthful effects even to the Shawnee, who called it something like “cape-cape-pe-hon,” for “medicine waters.” So to revive war-damaged business at the resort, the energetic postbellum marketer solicited testimonials, particularly from doctors.

"The alkaline waters of Capon—mild and specifically light—are possessed of inestimable virtue and remedial power in derangements of the stomach and liver," wrote A.M. Fauntleroy, a one-time president of the Medical Society of Virginia, in 1877. Dr. Louis Mackall of Washington, D.C., prescribed retreat at Capon for a variety of maladies: "A sufferer myself from Dyspepsia, I have visited many of the watering-places of this country, but have never derived more benefit than from my short visit to Capon the past summer," Mackall enthused in his 1878 letter. The water James A. Boyd of Montgomery County, Maryland took during his stay in 1879 did him more good for an unspecified ailment than all the medicine he’d ever taken—"and that," he assured Sale, "has been no small
quantity.” Correspondents entreated Sale to fill and return accompanying barrels, claiming relief they’d come to believe was unattainable, and even that their lives had been saved.

After the Mountain House burned in 1911, Capon water was bottled and sold as healing water, with home and office deliveries up and down the East Coast. It had serious cachet: The 1924 and 1928 U.S. Olympic teams trained exclusively on it. And in 1932, Louis Austin bought the Capon property with plans to distribute the water as widely as possible.

But larger forces stirred against Austin. The growing medical and pharmaceutical establishment had begun taking exception to claims of therapeutic benefit, and it used the provisions of the 1906 Food and Drugs Act to apply federal pressure against Capon’s labeling. After two decades of legal battles—during which Capon water was even the official office supply for the U.S. Congress—Austin pulled his water off the market. He’d decided it would be less stressful to revive the resort instead.

Available only at the source
Capon water burbles out of the ground at a continuous 65 degrees and about 100 gallons a minute, says Jonathan Bellingham, grandson of Austin and third-generation host at today’s Capon Springs and Farms. It’s a 4th magnitude spring, in hydrologic terms. Compared with well-known Berkeley Springs, a 3rd magnitude spring at 2,000 gallons a minute, it’s about 5 percent as much, but more than enough to supply the resort’s rooms, kitchen, bathhouses, spa, pool, and continuous fountains. Flavor-wise, Capon Springs water is neutral. “It’s coming from about 1,600 feet underground. The last 300 feet it passes through a sandstone formation that acts as a natural filter, so it has almost a sweet, clean taste to it,” Bellingham says. “It’s very low in minerals—it wouldn’t meet the qualifications for mineral water.” It’s also free of modern-world pollutants, shown through United States Geological Survey testing to have rested underground for at least 70 years. “Just clean, pure water,” he says.

If Capon water has medicinal value, that’s said to come from its slight alkalinity—just a little above
neutral, at pH 7.2 or 7.3. “What’s the leading cause of disease? It’s stress and tension on the body because of everyday life, but also because of the acidic nature of some of our foods,” Bellingham says in explanation of the hypothesis. “We’re mostly made up of water, especially the brain, which is 75 to 80 percent water. If you have a water that’s alkaline, it neutralizes the acid that denigrates the body.”

Historically, cures for everything from a hangnail to cancer has been attributed to Capon water. “Couples who’ve tried for years and years to conceive come here and get pregnant,” Bellingham says. If Capon Springs is responsible, he thinks it’s probably due to the stress reduction and hydration vacationers experience at a springs resort. But he speaks more seriously about the relief people find there from the “itis”es: inflammations of the muscles and joints.

“This past year, a woman who had severe pain from rheumatoid arthritis was here for the first time,” he says. “The medicine she was taking was giving her horrible side effects, and she wanted to go off of it while she was here. She brought a ton of Motrin to deal with the pain she expected, but she didn’t have to take any. It was like a miracle that this water could do that for her.”

Capon water flows freely at the resort but is no longer bottled. “We’re satisfied just running the resort,” Bellingham says. “A lot of people believe that spring water should still be available on the market to provide health for people, but it’s been literally flooded with so many imposters that it’s hard to know what’s manufactured. People who come here for the real deal, I think it’s important to them. Some day, if water is the new oil, Capon water will be a commodity once again.”

**Trying to see underground**
Spring water serves nearly the entire population of about 13,000 in Monroe County, at the southeastern edge of the state. There, mountain-building thrust faults and karst geology create a complex groundwater network that has shaped the local culture. “They’ve got springs everywhere there,” says WVU’s Vesper.

They might be everywhere, but they’re not all the same. Some of the springs come up under pressure from deep down, and some of those are warm. “Those springs are historic and spectacular, with really interesting chemistry,” Vesper says. “They have to be deep because that’s the only way to get the water warm. They can also hold dissolved gases that emerge as bubbles as the pressure is released—like opening a can of soda, she says. And while most of us don’t think of water as having an age—if anything, it seems eternal—geologists call water from deep aquifers “old” because it last fell from the sky decades or even, in some places, millennia ago. Springs of old water have consistent temperature and flow.

Spring water can also be young. Young spring waters run colder or warmer depending on the temperature outside and their tenure in the ground, and their flow and chemistry vary over time. All across Monroe County, “there are warm springs in little pockets,” Vesper says. “There are lots of karst springs, cold water, very nice quality. They tend to be in the valley, And then there are ridge springs, which we think may be younger water.” Those flow out of the side of the 52-mile-long, 4,000-foot Peters Mountain, which forms much of the border between West Virginia and Virginia there, and their drinking quality is a source of local pride.

Understanding the range of rock and water dynamics, it’s easy to see that just because water comes from a spring doesn’t mean it’s good to drink. “Springs can be fabulous water, and they can be really bad water. If you don’t know the spring, you don’t know,” Vesper says. What’s dissolved in the water is
function of rocks and time. “For example, anything that flows through limestone is going to get a lot of calcium and magnesium, so you get hard waters,” she says. Springs can also pick up natural elements it’s better not to drink, like arsenic or radon. Some of West Virginia’s well-known springs resorts, like White Sulphur or Blue Sulphur, have waters that are great for bathing but not at all palatable. And chemistry can be highly localized—two springs within easy sight of each other can have very different characteristics.

In 2015, petrochemical contamination in a sinkhole tainted one of the springs that supplied a Monroe County public service district. Luckily, the PSD had alternate sources. But incidents like that have energized residents to learn about their water and geology—as people everywhere who rely on groundwater need to do. “How vulnerable is your spring water?” Vesper asks. “If it’s old and deep with a constant chemistry, it’s not vulnerable. But if fresh rain water propagates through the system with a rainstorm and the temperature and chemistry change dramatically over short time windows, then it’s vulnerable to spills on the surface. Understanding that is important for understanding water resources and the sustainability and vulnerability of water.”

Vesper and WVU geology graduate student Emily Bausher are working with Monroe County residents to map springs along Peters Mountain. They’ve mapped around 175 so far, according to resident Howdy Henritz. “We’re trying to figure out if they’re interconnected,” Henritz says. Documenting flow patterns and chemistries will help residents understand the movement underground of waters they rely on.

**World-class water, right here**

On one Saturday every February, a dozen people line up on a stage in the West Virginia town of Bath. For an entire afternoon and evening, they do nothing but drink water. Given guidance—a water should have no aroma, for example, and taste clean and feel light in the mouth—the tasters sample and rate up to 80 entries in four categories that encompass still, sparkling, municipal, and purified waters. “It’s a completely blind test,” explains Jill Klein Rone, producer of the Berkeley Springs International Water Tasting she co-founded in 1991. “It’s the largest and longest-running water tasting in the world.” In the competition’s 26 years, spring waters from places as far away as Scotland, Israel, and China have vied for top honors. But only one has taken gold in the still water category more than twice: four-time winner Sweet Springs Natural Mountain Water.

Sweet Springs comes from those Peters Mountain springs that Monroe County residents enjoy straight from
the tap and brag about to visitors. “Our water comes out at about 2,650 feet, through limestone, and I think that imparts a little bit of a sweet taste to it,” says Henritz, who co-founded Sweet Springs Valley Water Company in 1989 and served as plant manager until 2014. “The main spring puts out 80,000 to 100,000 gallons per day”—a 5th magnitude spring—“and it gravity-feeds into the bottling plant.” The U.S. Food and Drug Administration requires sellers of spring water to filter and disinfect. “We use a 1 micron absolute filter and we run it through six of them. We then use ultraviolet light and ozone to disinfect—most bottled water companies use ozone because it doesn’t leave an odor or taste. So it’s a multiple-barrier approach.” Sweet Springs employs about 13 people and distributes nearly 1 million gallons of Monroe County spring water a year across much of West Virginia and southwestern Virginia.

Honored most often in the top five at the water tasting competition is Berkeley Springs' own famed local water, bottled by Berkeley Club Beverages. “You can taste the character of the water,” says General Manager Michael Morris, when asked about the flavor. “To me, it tastes better when it’s cold. It kind of leaves you wanting more. And it’s got good minerals: calcium, magnesium, potassium, manganese, a little bit of iron.” He also touts a high pH, higher still than Capon’s, at 7.8. The company sells some 5 million gallons a year regionally, the largest distributor of West Virginia spring water and growing.

Morris says he always encourages West Virginians to keep their water consumption in the state. “Why buy bottled water from out of state when you have such excellent water right here?” And in 2016, Berkeley Club scored the contract with the West Virginia Division of Natural Resources. “We take pride in the fact that the state parks are selling our West Virginia spring water,” he says.

Berkeley Springs is home to the largest and longest-running water tasting competition in the world. And now, Berkeley Springs water will be sold at West Virginia state parks.