

Environment**State College water may cause kidney stones**

by Heather Simmons

Some Centre County residents may want to think twice before downing that cold, refreshing glass of tap water: It may cause kidney stones in individuals prone to them.

A *Voices* investigation found that the ratio of magnesium to calcium is extremely low in State College Borough Water Authority water, which may be at least partly responsible for the unusually high prevalence of kidney stones in Centre County.

Kidney stones tend to occur more frequently in the Southeast than in the Northeast, but Centre County appears to be an exception.

"The 'stone belt' is normally in the South," said urologist Jeff Sekula, of State College Urological Associates, "but our area is like a swath of the South up North in that we have a lot of stones."

According to the Center for Disease Control, in 2004, there were 171,000 kidney stone-related inpatient stays nationwide. Given the national average, Centre County would expect to see between 80 and 110 kidney stone-related inpatient stays.

But Mount Nittany Medical Center, which did not release the number of kidney stone-related inpatient stays, reported 190 kidney stone-related surgeries in the 2006/2007 fiscal year, and Geisinger Health System reported 261 kidney stone-related visits in Centre County between January 2007 and May 2008.

It's safe to say that the prevalence of kidney stones in Centre County is significantly higher than the national average. And some county residents are feeling it.

"On a scale of one to 10, it's not even on the page," said Patton Township resident Daryl Sinn when describing the pain of kidney stones. "'Pain' should be spelled in capital letters, with a hyphen between each letter."

Sinn, who lived in Patton Township from 1973 to 1982 and returned for good in 1990, had an episode involving three separate kidney stones about four years ago. His daughter has also had a kidney stone.

Normally, the kidneys remove excess water and waste from the blood, which produces urine that the body then excretes. Urine contains inhibitors that prevent crystals from forming, but in some individuals, the inhibitors don't work well, allowing crystals to separate from the urine and form

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--Jeff Sekula, State College Urological Associates

a hard mass.

Kidney stones are often extremely painful. They can be as small as a grain of sand or as large as a golf ball. Some unlucky people end up with stones too large to be passed through the urinary tract.

The causes of kidney stones are varied and hinge on environmental, dietary, genetic, socioeconomic, metabolic and other factors. The most common type of kidney stone is composed of calcium in combination with oxalate or phosphate.

"My doctor's ideas about how to prevent stones were as nebulous as his ideas as to what causes stones," Sinn said.

Despite the uncertainties, there is one concrete recommendation for the prevention of kidney stones: Drink plenty of water. But what if the water is part of the problem?

Scientists have debated for years the contribution of hard water to kidney stone formation. The study results have been mixed, with some indicating that hard water does cause kidney stones and others suggesting that it doesn't.

Water is considered to be hard if the combined calcium and magnesium content exceeds 100 parts per million. The State College Borough Water Authority—which serves State College Borough and Patton, Ferguson, College, Harris and Benner townships—reported that its water contains between 180 and 240 parts of calcium and magnesium per million.

The controversy surrounding hard water's effect on kidney stones may be due to the fact that although excess calcium may increase kidney stone formation in people predisposed to kidney stones, magnesium actually inhibits kidney stone formation.

That suggests that the ratio of magnesium to calcium determines the water's kidney stone-causing potential. So water with low magnesium and high calcium concentrations may increase the likelihood of stones in people who are predisposed to them.

That's the case in State College and the five townships served by the State College Borough Water Authority. The water authority reported that the magnesium concentration in its water ranges from 14 to 20

parts per million, while the calcium concentration ranges from 180 to 220 parts per million. The low ratio of magnesium to calcium in the water consumed by Sinn and the more than 82,000 other water authority customers is likely at least partially responsible for the high number of kidney stone-related cases at Mount Nittany Medical Center and county Geisinger clinics.

Centre Countians looking for softer water should head over to the Philipsburg area. The Pennsylvanian-American Water Company, which serves the Philipsburg area, reported a combined calcium and magnesium level of between 10 and 48 parts per million, which is significantly less than the 100 parts per million needed to be classified as hard water.

The 2007 Bellefonte Borough water quality report did not include the calcium and magnesium levels in the spring that serves

the Bellefonte area, and the borough did not respond to a request for the information.

The high level of calcium in the State College Borough Water Authority water may be due in part to the geology of the area. According to the water authority, the local bedrock consists primarily of carbonate limestone and dolomite. Limestone (calcium carbonate) is widely used as a calcium supplement.

It has been shown that taking calcium supplements can cause kidney stones in people predisposed to forming stones. But people need calcium and magnesium in their diets to maintain basic bodily functions, and individuals who are not prone to kidney stones will probably not experience any problems associated with excess calcium in the water.

"Whether or not I would personally recommend avoiding drinking tap water would depend on the underlying metabolic cause of the stone," Sekula said.

So anyone who has had a kidney stone should consult a physician to determine the cause and type of the stone before doling out \$6 for a case of bottled water.

Bellefonte by Boat

Photo provided by Tussey Mountain Outfitters
The Dog Day Slalom drew nearly 100 participants of all ages last year, including this daredevil. This year's slalom is scheduled for Aug. 17, 2008, at Sunnyside Paddling Park, below Lamb's Crossing in Bellefonte. Olympic kayakers have been known to make appearances at the event, which includes trophies, prizes and paddling workshops. For more information, call (814) 355-5690.

Stop rushing and start listening to the sounds of nature

by Christopher Uhl

Our
World

You have probably heard that our brains filter out much of the sensory stimulation we receive. This keeps us from falling into information overload, but it also means that we humans miss a lot of what is going on.

Colorado State professor Temple Grandin points out in her book *Animals in Translation* that at the cellular level, both humans and animals have essentially the same brain cells. We humans just use our neurons differently. But that is not true for all of us.

Grandin describes a dyslexic student, Holly, who “has such acute auditory perception that she can actually hear radios that aren’t turned on. ... She’ll say, ‘NPR is doing a show on lions,’ and we’ll turn the radio on and sure enough NPR is doing a show on lions. Holly can hear it. She can hear the hum of electric wires in the wall. ... I think the potential to be able to hear the radio when it’s turned off is already there inside everyone’s brains; we just can’t access it. Somehow a person with sensory problems (like Holly) figures out how to get to it.”

In a related vein, neurologist Oliver Sacks, author of *The Man Who Mistook His Wife for a Hat*, describes the case of a medical student who dreamed one night that he was a dog and then woke up with his capacities of sensory perception, especially smell, dramatically heightened. He could recognize all the streets and shops in New York by smell, and when he did his hospital rounds, he was able to recognize all 20 of his patients simply by smell; he could even smell their emotions.

And consider this: Larry Dossey, author of *The Extraordinary Healing Power of Ordinary Things*, reports that healers in

Madagascar, when asked how they know which of the some 15,000 species of native plants is the best for treating a certain disease, reply that they wait for the plants to tell them. In practice, they walk about in the forest with an open mind, humbly asking the plants for assistance. Eventually, a certain plant captures their attention—in effect, calling out to greet them—declaring itself to be the proper remedy. Although this seems bizarre from a Western scientific perspective, many of these indigenous practitioners are successful healers.

Some noteworthy Western scientists also owe their success, in part, to their capacity to listen to the denizens of the plant world. Barbara McClintock, who was awarded the Nobel Prize for her discovery that bits of genes in corn plants actually “jump” from place to place along chromosomes, did not hold her beloved corn plants at a distance; rather she was in a relationship with them.

Her biographer, Evelyn Fox Keller, relates that “Over and over again (McClintock) tells us one must have the time to look, the patience to hear what the material has to say to you” and the openness to “let it come to you.” Above all, one must have “a feeling for the organism.” McClintock, in her relation to corn plants, achieved “the highest form of love, love that allows for intimacy without the annihilation of difference.”

I am especially intrigued by McClintock’s story. It awakens my longing to experience life as fully as possible—not simply as an autonomous individual striv-

ing single-mindedly for worldly success, but as a flesh-and-blood, vulnerable and awake subject in the community of life.

Right here in Centre County, it is possible for each of us, like McClintock, to be in a genuine relationship with the wild plants and animals that we live among. Rather than being largely oblivious to the sounds of birds on these summer mornings, we can really stop and pay attention, recognizing that what we are really hearing are voices! Though the sounds aren’t words that we can understand, we are witnessing a form of meaningful speech. By simply acknowledging this, our capacity to hear the world will expand and deepen.

We can awaken our senses by pausing to remember that everything on this glorious planet is alive; everything moves! Some things, like rocks, move more slowly, but everything has its movement, and as such, everything has the potential to move us, provided we are open to a relationship.

I was reminded of this recently when I encountered a box turtle while hiking in Black Moshannon State Park. I sat beside



this sweet being for an hour to watch and listen. For that entire time, the turtle stood motionless, head full extended and eyes wide open. There we were: Man and Turtle—both animals and each

unique in our own way!

I can’t speak for Turtle, but I know that during our encounter, I was experiencing a heightened sense of alertness, humility and kinship, which is to say that I felt more awake and fully alive than usual.

It was deliciously ironic for me to discover through this encounter that I might come more fully alive not by rushing around packing my days chock-full of activities, but instead through the simple act of slowing down. In so doing I give myself the chance to see with new eyes and to hear with fresh ears. What better time for this than summer!



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Indigo bunting's bright plumage rewards patience

by Alice Fuller

BIRD Watch

If Mother Nature has bags full of tricks and surprises, then why cannot one small bird be one of her special magicians?

Very likely you may see this little chap perched on a wire, or perhaps it will fly to the top of a small sapling. At first, it appears to be nothing but a little nondescript and very dark bird. Then it turns or the sun appearing from behind a cloud spotlights it, and suddenly you see a bird of the most exquisite shade of blue. With that marvelous plumage, the male indigo bunting is one bird species with a most appropriate name.

The male bunting in Dorothy Bordner's drawing appears as many of us first see him: a small, darkish bird, singing up a storm. Then, by changing our angle, or with a little patience, the light will fall to transform his plumage into a heavenly shade of blue.

His spouse wisely is not so handsomely garbed. Rather, she is a plain brown bird devoid of wing bars or other distinctive markings.

In late summer, when the male molts, he will don a brown traveling garb, with perhaps some touches of blue in wings and tail.

The male indigo is an indefatigable and incessant singer. He may sing all day long, even on hot summer afternoons, and is one of the few birds that will continue singing until late August.

His is not the most tuneful of melodies. One author described it this way: "Like an irrepressible church-choir tenor, the indigo bunting is joyful but not especially melodic."

A naturalist quoted in the A.C. Bent life history series wrote a vivid description of the indigo's musical attempts: "The song of the indigo bunting consists of a short series of high-pitched notes delivered with a sibilant, wiry, and somewhat strident quality. The notes are grouped together, both by rhythm and pitch, in pairs, with occasional

single notes taking the place of a pair." The notes have been described as "sweet-sweet, chew-chew, where-where, here-here."

Once, on a spring bird count, I heard a bird song that had a familiar quality about it, but I wasn't sure of the performer, so I tracked him down, hoping to add a new bird to my morning list. As I trailed the voice through the trees, I began to suspect my singer was an indigo bunting that had added interesting variations of the family song.

While other incessant singers, such as the scarlet tanager and red-eyed vireo, prefer the tall shade trees of woodlands, the indigo bunting is a bird of brushy borders, old fencerows, shrubby growth at forest edges and thickets bordering lakes and streams.

Power lines that slash along mountain ridges or climb over the tops are good places to seek out this species. Raspberry and blackberry brambles that grow in profusion on these sites provide secure hiding places for their nests. The young aspens and birches that spring up under the wires offer perches for the males to display the rich, deep blue of their plumage and vantage points from which to guard their territories and stages from which they can sing joyously.

In spring, male indigo buntings often turn up at our bird feeders. This concurs with John V. Dennis' observation in his book *A Complete Guide to Bird Feeding*: "The most likely time for indigo buntings to visit feeding stations is during spring migration and again in the fall, as birds start southward. The early spring flocks that consist entirely of males are one of the sights we look forward to each spring." He suggested that the "food preferences of buntings run heavily toward millet; other foods taken include canary seed, peanut hearts and pecan



meats."

According to *The Atlas of Breeding Birds of Pennsylvania*, the indigo bunting is an abundant nesting species over most of the state. Volunteers found it in 95 percent of the surveyed blocks. One conclusion from the study indicates that the indigo bunting seems to be sustaining or possibly expanding its statewide distribution.

We hope that the indigo bunting does as well currently as it did 20 years ago. My daughter just returned from a morning spent in a nearby region of Pennsylvania and reported finding indigos everywhere.

When summer draws to a close, I will miss the songs of indigo buntings coming through heat and haze. After molting, the buntings will head to winter homes in such places as southern Florida, Central America, Panama and the Bahamas, and I hope they will reach such far-flung destinations safely.

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