Features
He researched myriad root diseases and a jungle of soil life—all with two feet planted firmly in the soil.

Big data is sending everyone back to school—and that’s a good thing for our healthcare industry.

Essay
Chronicling the Arctic’s loss and its future with science—and art.

Upfront
The National Park Service solved the unsolvable with just a phone call.

He did not want the rest of his life to be like his past. Enter education.

“Come in Houston. And cue the Cougar fight song.”

It’s up to storytellers, not machines, to decide how to act on data.

Cover: Sure sign of spring—skunk cabbage. Return to Lummi Island. (Photo Edmund Lowe)

Left: Skunk cabbage emerges along Mercer Slough Nature Park Trail. (Photo Nathan Harrenstein)
Inside outside  Reconnecting our children to the natural world UPFRONT

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Okay, maybe a baby is too young, however, if you have a baby, now may be the best time for you to call the Gift Planning Office at the WSU Foundation to talk about estate planning. We can help you set up a tax-smart way to ensure a solid financial future for your family while supporting the causes you love.

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Even Stephensons

Scoot over Stephenson South! Stephenson East opened in 1969 when a number of us met on the sixth floor and enjoyed similar activities and experiences as you. We too have shared life’s milestones in similar fashion over the years in large groups, in small combinations, and throughout the years in several locations.

We will be twelve strong when we return to Pullman in August 2019 to celebrate the 50th anniversary of Stephenson East’s opening and 50 years of friendship. We have already made arrangements to return to the Stephenson complex and the sixth floor for a tour.

We have you beat when it comes to the longest-running continuous alumni meetup!

BEV SHEELEY ’73

A leg up on equality

It was the fall of 1967 at WSU, and I was in my first semester of classes. As I trudged up the famous Pullman hills to my Tuesday 8 a.m. class, I could feel the tightness in my right leg. When my Appaloosa Arab filly unceremoniously dumped me five weeks ago, it resulted in a walking cast until the day before I left for college, and even then the doctor was reluctant to remove the cast so soon. The doctor cautioned me to elevate the foot at night and keep it warm at all times.

Thus, I now climbed the hills in pants and knee-high boots—definitely not the required campus female wear which did not allow pants and usually consisted of a sweater set and skirt generally accompanied by nylons and flimsy pumps or ankle-height snow boots depending on the weather. I had been given a special dispensation that allowed me to wear pants all fall and winter.

At three o’clock, classes over for the day, I began my descent toward the dorm and two hours of study time before I would clean up and put on the required dress for dinner; my dispensation did not include dinner. I was always exhausted when I returned to the dorm on Tuesdays and so at first did not see the notice attached to my door—but others had already seen it, including my good friend across the hall, Sharon.

“Well, what have we here?” Sharon asked with a big grin as she sauntered into my open doorway. I was just emptying my bag to get it ready for Wednesday and so still did not see the notice.

“What is it?”

The gist of it: I was to be in detention for the next two weekends—never mind that one of those was homecoming and I would be having company—for my failure to adhere to the dress code.

“But . . . but . . . I have a dispensation letter from admin . . . and a doctor’s note . . .” I spluttered.

Several people began to speak at once as the crowd in the doorway grew and oozed into my dorm room. I tried to sort out the plethora of comments but, in my state of anxiety, had trouble focusing.

A firm grip on my arm caught my attention.

“Fight it!” stated the person who clasped my arm.

“Fight it . . . how?”

“Get a petition going and get everyone to sign it—which won’t be hard as we all hate the no pants on campus rule. Then go before the dorm board and present the petition,” said the resident advisor.

“The boys don’t have a dress code just like they don’t have curfew hours—it’s unfair . . .”

“You got that right! We need to abolish both rules!”

“One step at time,” stated the resident advisor.

Three days later, I stood before the board with my petition in a trembling hand and looked out over the crowded audience. Many floor members plus more students from other rooms were tightly packed into the meeting room. All of us wanted expectantly while the regular business of the agenda was discussed.

Finally, it was our turn—and I say our as it had been a team effort all along, from the resident advisor who suggested it to the petition name-gatherers to the many students who helped formulate the wording for the petition and the board presentation.

And we won! The no pants on campus rule was abolished.

JEANNIE BARTLETT ’71 ENGLISH

Do you have any thoughts on magazine articles? Reunions, weddings, births, retirements, anniversaries, or other announcements you want to share? Let us know at magazine.wsu.edu/contact or email wsm@wsu.edu.

Higher education is affordable and achievable for Washington students. possiblewa.org

Higher education is affordable and achievable for Washington students. possiblewa.org
LISTEN. THERE’S SOMETHING PADDING DOWN THE WOODED TRAILS, BUBBLING OVER WATERFALLS, AND RUSTLING IN THE PINES. NO, NOT YOUR MEDITATION APP. IT’S AN INTERNATIONAL MOVEMENT CALLED BIOPHILIA AND YOU CAN HEAR IT BLOOMING IN THE VOICE OF A BUSY LITTLE GIRL AT THE INTO THE FOREST OUTDOOR LEARNING CENTER AND PRESCHOOL IN SPOKANE VALLEY.

“I’m making peanut butter,” she says as she wields a spatula in the aptly-named mud kitchen. A small boy beside her fills muffin cups with dirt while another adds water to the “batter.”

The three are playing in a big fenced yard, complete with vegetable garden, where a dozen or so other children scanner on tree stumps, roll tiny pumpkins, and scavenger hunt for colors. There’s not a cry or whimper among them.

“I’ve worked at a lot of daycares and I feel like kids are significantly calmer here and overall better behaved,” says preschool teacher Jordan Himigardner. “I feel that’s because they get so much outside time—at least two hours in the morning and afternoon.”

Co-owners Megan Benedict and Chelsey Converse opened the center—Spokane’s first outdoor preschool—in August 2017 and within a year, classes were full with a waiting list. A second preschool will open this March.

Similar stories are unfolding all over the world, as children leave desks behind to spend days outdoors interacting with nature, running, playing, and studying science in the wild.

Biophilia, our innate affinity for and connection to nature, is not only for children—parents, too, are taking time from hectic schedules to unwind with meditative forest bathing, and many doctors now prescribe visits to the park instead of pills.

Much of the credit goes to Richard Louv, whose 2005 breakout book, Last Child In The Woods: Saving Our Children from Nature-Deficit Disorder, detailed the costs of alienating ourselves from the natural world, especially with today’s pervasive use of technology.

Though nature deficit disorder is not a true medical diagnosis, restoring our connection to a living green biosphere has been shown to enhance health, well-being, mental acuity, and creativity, while also reducing stress, depression, and obesity.

“Nature is often overlooked as a healing balm for the emotional hardships in a child’s life,” Louv writes. “You’ll likely never see a Dickensian antidepressant pharmaceutical. But parents, educators, and health workers need to know what a useful antidote to emotional and physical stress nature can be.”

It’s a idea that Washington State University 4-H adventure education director Scott VanderWey has embraced for years as part of his mission: “to get as many kids outside as possible.” Stationed at the Puyallup Research and Extension Center, VanderWey helps county 4-H leaders develop ropes courses as well as programs in rock climbing, boating, skiing, and rite of passage wilderness training. He says it was Louv’s work that led to the 2008 creation of Washington state’s pioneering No Child Left Inside (NCLI) grant program, which is managed by the state recreation and conservation office.

As one of the founding NCLI board members, VanderWey reports that the program has already provided $5 million in funds to get kids outside for unstructured play. Organizations in every part of the state have benefited from the grants including the Tiny Trees Preschool in Seattle, Waskowitz Environmental Leadership Service in Burien, and the Spokane Parks Rx Outdoor Adventure Camp.

VanderWey says NCLI has also inspired a tremendous growth in outdoor schools with at least half of Washington counties now offering some form of outdoor preschool.

GETTING KIDS OUTSIDE is nothing new to Jeff Sanders, WSU associate professor and environmental historian. He says the idea of a nature deficit goes back at least 150 years to the Industrial Revolution, when many Americans left rural areas for work in Chicago or New York along with a large influx of immigrants. If the children weren’t helping in factories, they were often left to fend for themselves on the streets.

Feared for the youth’s health as well as the future of our nation, social reformers advocated for changes that led to the playground movement of the late 1800s. Around the same time, summer camps reached their heyday, and the Boy Scouts of America was established.

The first “streetcar suburbs” also took root, where people with means could escape gritty cities for more leafy areas like Brookline, Massachusetts.

Sanders says people today are still trying to escape cities for an idyllic respite in nature. “But, if we always focus on nature as being somewhere else, we’ll keep defouling the places we live in,” he says. “Many historians are looking at it more like a garden—we should be tending to the places we actually live in, our backyard, cities, and streets—that’s all a part of nature.”

The contented little fellow playing in the vegetable garden at Into the Forest Preschool would certainly agree. Though a single frost-blackened sunflower now remains, the children had grown and eaten potatoes, carrots, tomatoes, and squash throughout the summer. For them, nature has become an integral part of their daily lives whether they’re digging in the sand box or rolling a big wooden spool under the open sky.

Unfortunately for many children, carefree days playing outside are a thing of the past, says WSU clinical assistant professor of human development Bobby Cooper. Today, a child seen walking to the park alone might well trigger a call to police and a warning to parents.

Cooper says Richard Louv blames this phenomenon on an increasingly fear-based society. Although statistics show crimes
against children have dropped to their lowest rates ever, social media and 24-hour news cycles can make it feel like every abduction is happening in our backyards. So now, instead of exploring, making up games, or riding bikes to local parks, kids spend much of their free time indoors using tech devices and staring at screens.

Cooper says all this screen time may affect attention span and leave little room for imagination and creativity. Things research suggests are important for brain development and learning.

As a teacher, it’s a challenge now to get people to slow down and notice things,” he says. “To be ok with uncertainty and flexible in their thinking.”

GETTING THEM OUTDOORS is a good place to start. “Studies show that just bring out in nature can provide benefits for ADHD, mood, and well-being,” Cooper says. “I’ve taken college students on backpacking trips where, without access to phones or internet, they can be mindful and less distracted. You see barriers break down more quickly and social connections happen faster.”

He also notices the effect on his toddler, who, says “Ohhhhhhh” when he goes outside and sees the moon or ruffling leaves. “He doesn’t do that with the TV,” says Cooper. “I don’t see that wonder in his face when he looks at a screen.”

Today, children worldwide are more likely to experience the sense of wonder as urban planners bring natural elements and green spaces into modern designs for cities, schools, and playgrounds. The biophilic spaces they create provide access to nature through green streets, wildlife refuges, parks, trails, bike paths, and more. Some architects take playground design a step further by incorporating hills, valleys, mountains, and hideouts. “Once kids get outside, there’s a way in which nature calms the body,” says VanderWey, who struggled with dyslexia in high school. It was through a NSF-sponsored challenge course that he developed self-confidence and found his professional calling. Now, his efforts with 4-H and No Child Left Inside enrich the lives of thousands of other Washington children, many of whom are low income and would never otherwise experience outdoor adventure.

VanderWey also credits Washington Governor Jay Inslee, who says, “Getting kids outdoors can nourish the mind, body, and soul. I’ve fought hard for budgets that have increased funding for state parks, outdoor recreation, preservation, and earth sciences education.”

VanderWey says Inslee’s strong commitment to NCLI not only makes Washington a national trailblazer, but ensures that our kids outdoors can nourish the mind, body, and soul. “He also notices the effect on our toddler, who is just two years old,” he says. “She often has a look of wonder on her face.”

With the help of local liaisons, Le and the NPS are reaching out to community groups such as churches and colleges to develop ideas. The liaisons then create programs designed to promote cultural exchange and draw people to the monument. Last September, for example, they hosted a very successful Hispanic Heritage event that included traditional dancing, music, and history presentations. They also offer special Junior Ranger programs meant to ease the children’s fear of park ranger uniforms.

SURVEYS showed that the majority of visitors are white,” Le says. “So, our study asked why are people not going to the park, and what might motivate them to visit?”

With the help of local liaisons, Le and the NPS are reaching out to community groups such as churches and colleges to develop ideas. The liaisons then create programs designed to promote cultural exchange and draw people to the monument. Last September, for example, they hosted a very successful Hispanic Heritage event that included traditional dancing, music, and history presentations. They also offer special Junior Ranger programs meant to ease the children’s fear of park ranger uniforms.

Le says that with ongoing federal funding cuts, the survival of a national park could well depend upon the details in economic studies and visitor profiles. As SESRC continues its quest to develop the best possible survey methods, those parks can rest assured—they see secret partner remains just a phone call away.”
No holds barred  
education

Halfway through his prison sentence, Noel Vest realized he did not want the rest of his life to be like his past.

Inhumane conditions, windowless cells, and violence. For many people, movies and television shows portray an overwhelming sense of hopelessness in prisons. However, through programs that offer college courses on the inside, hope can be found.

Vest (13, MS Psych.), now a psychology doctoral student at Washington State University, knows this first hand. He was a member at WSU, has also taught in prisons and still teaches courses, such as narrative nonfiction and introductory English courses, through the Lake Tahoe Community College. Vest later had the opportunity to teach at Coyote Ridge Correctional Facility in Connell through Walla Walla Community College. He says seeing people like him, eager to learn, inspired him.

“My life just isn’t complete unless I’m giving back to the community,” he says. Despite the complexities and underlying issues of the prison industrial complex, education programs are a factor in reducing recidivism, as well as violence within the prison, says Faith Luraz, a professor in the Department of Criminal Justice and Criminology at WSU.

“The more mindful we are about creating environments and opportunities for people to advance their own wellbeing,” Luraz says, “we’ll reduce recidivism and have positive outcomes for our communities.” Anna Plemmons (’19 Speech & Hearing Sci., ’24 PhD English), an English faculty member at WSU, has also taught in prisons and still teaches courses, such as narrative nonfiction and introductory English courses, through the Lake Tahoe Community College incarcerated student program.

Plemmons says she works with highly motivated and serious students who volunteer to take classes. However, as much as she thinks the programs are valuable, Plemmons says she does not forget the context of why prisons grow so fast.

“There absolutely are issues of equity and justice that need to be addressed in the prison system, and I’m not confused about that at all,” she says. There are also issues with the environment and architecture of the classrooms, says Plemmons.

She recalls when she was teaching in a relatively new building with moving chains, no echoes, and a small observation window. Then, at one point during the class, they had to move to a room that felt more confined.

“It was the same students, same curriculum, and we just moved mid-class,” Plemmons says. “It just died.”

Taking courses can offer more than an education. It also helps with prisoners’ understanding of society and can reduce their biases, says Wesley Maier (12 MA, 18 PhD Crim. Just.), criminal justice instructor at Walla Walla Community College.

Maier has taught several criminal law and criminology classes at Coyote Ridge. He says it was compelling to see the students learn about and reflect on the criminal justice system. Maier says his wife, who also taught at Coyote Ridge, led a class where social issues were discussed. A student from the class, an inmate who was a white supremacist thanked her for the class and said his perspective of race had changed. The student said prior to the class, he did not see how biased and blind he was, and he realized his views were wrong.

A study from The Prison Journal found that 47 out of 50 states have at least one institution that offers a postsecondary education program for credit to incarcerated individuals. Vest believes education is one of the only definite resources people have after they are released. They can take away your right to live where you want to live. They can take away your right to work. They can take away your right to volunteer at your kids’ school,” Vest says. “But they cannot take your education away from you. It is a tangible asset that you can use to better yourself when you get out.”

Giving rust a rest

Anron Carter and his breeding program provide the first line of defense in the high-stakes battle against stripe rust—the number one threat to wheat.

The fungal pathogen that causes stripe rust is ubiquitous in wheat-growing regions. Its airborne spores can ride the winds for miles upon miles. When conditions are right, it grows quickly, sucking water and nutrients out of the leaves and crippling plant’s ability to produce healthy seeds.

Stripe rust takes a heavy economic toll. Tainting infected crops with fungicide is expensive—but if not treated in time, it can cause up to 80 percent crop loss for the world’s third largest crop.

To make matters worse, it frequently mutates. There’s no way to tell how long it will last. Unfortunately, there is no cure—yet. While Rayapati and his colleagues are working on that, they offer growers practical management advice. First and foremost, know where your planting material comes from. Make sure it is tested virus-free—and then work with your neighboring growers to keep plants healthy.

This sometimes means the admittance expensive act of pulling out infected vines and planting new ones.

WSU runs a Clean Plant Center to help the nursery industry produce virus-free planting material for growers. But, says Rayapati, plant health is a community effort. One deppy neighbor can ruin things for those around them. We are all, the virologist emphasizes, “equal partners.”

BY YASMEEN WAFAI ’18

BY BRAD PRITCHARD

BY BRIAN CHARLES CLARK

BY DALLE ROSE

BY KAHRIS MCINNEE

BY KAHRIS MCINNEE

BY CALEB JOHNSON

BY DHARNA DAVIES

BY BRIAN CHARLES CLARK

BY KAHRIS MCINNEE

BY KAHRIS MCINNEE
A voracious predator has stormed over Northwest apple and pear orchards over the last few years, leaving crooked and oozing branches that require orchardists to sever limbs and sometimes whole trees. Fire blight has plagued fruit trees for years, but the combination of weather conditions has worsened the severity of infestations from the bacteria since 2015.

Sarah Kostick, a horticulture doctoral student at Washington State University, is tackling the disease that costs apple growers millions of dollars every year.

Working in WSU apple breeder Kate Evans’ program at the Wenatchee-based Tree Fruit Research and Extension Center, Kostick is experimenting with hundreds of apple cultivars in the search for genetic resistance to the bacterial disease.

Kostick says fire blight strikes younger trees harder than older trees. Many newer varieties are also more susceptible than older varieties like Red Delicious. “We need new apple cultivars that resist fire blight but keep that high fruit quality,” she says.

She spent the last two years inoculating more than 1,600 trees with the bacteria. Dipping scissors in a suspension of fire blight pathogens, she cut the tops of shoots on young trees, then measured the resulting infection.

Kostick is now analyzing the results to find areas of the genome that are associated with resistance to the disease.

Once we find them, we can develop DNA tests so that breeders can test for resistance with a simple tissue sample,” she says. “If we’re successful, breeders will know years earlier if a promising new apple variety will be tolerant of fire blight, or susceptible to it.”

Meanwhile, WSU Extension specialists have worked with orchardists for years to manage fire blight.

Extension regional specialist Tianna DuPont notes that fire blight is a very real economic threat, even when managing the disease. “It can cost $800 an acre to cut out the blight, not counting removing trees or cost of spraying to prevent the infections,” she says. “And the number of acres having to be removed is higher than it’s ever been.”

One key fire blight management tool developed over the last 20 years by Extension specialist emeritus Tim Smith is “CougarBlight,” which incorporates temperature and moisture data from WSU’s AgWeatherNet to predict infection risk during bloom.

Growers use the WSU Decision Aid website to find information on their risks at any given time, as well as projections for the following week, says DuPont. She also does a number of direct consultations, with over 205 farm visits or phone calls this last year with orchardists and field staff. And, says DuPont, “It goes both ways. We’re also learning from them what research needs to be done.”

Many growers use the CougarBlight model to determine when, where, and how to spray most efficiently. There are also tools for organic orchardists.

In concert with Oregon State University over the last 15 years, Extension developed integrated non-antibiotic management strategies. Growers can use a yeast to guard the flowers in early bloom, followed with either biological controls or a soluble copper. “Every year we test 20–40 new products and we hope to find more tools to make fire blight management easier for growers,” DuPont says.

All of the fruit tree industry, and WSU researchers and specialists, hope for a cool, dry spring to reduce the fire blight risk. But the race to find resistant cultivars and products to manage the disease is just gaining speed.
Art and science

English major Matthew Jockers wasn’t always a computer whiz. The new dean of the Washington State University College of Arts and Sciences recalls a class in high school in which he struggled to program a mainframe to print out his name. “It was that tricky,” he says.

A love of reading, writing, and literature led him to become a very good coder indeed. Jockers is an expert in R, a programming language he uses to extract the pattern-detecting algorithms at the heart of his research. Jockers uses it to analyze texts—lots and lots of text. One way wrote that Jockers may be the only literature professor to assign 1,200 novels in a single class.

A powerful tool, text mining is used by pharmaceutical companies to analyze patents and journal articles to accelerate drug discovery. Public health researchers, including some at WSU, mine social media text to detect disease outbreaks. Businesses use it to improve competitiveness by analyzing customer and consumer data. Scientists, daunted by a global scholarly output of two million papers a year, use text mining to make their work more efficient. And text mining helps us understand that most human acts, storytelling.

So important is storytelling that Jockers, not one to go too far out on a limb, is willing to make a prediction. “If you look at the historical data, English majors have declined. My prediction is that the dip is going to reverse. There is constant new evidence coming in of the value of storytelling to every industry out there.”

When Jockers was a computer engineer at Apple, he says they needed people who could translate technical innovations into something the company could use and sell. “The mantra has been ‘STEM, that’s where the jobs are.’ But the jobs are changing as tech industries mature, and now we need leadership, communications, and those are developed in the arts, humanities, and social sciences.”

Matthew Jockers has a doctorate in literature and is an expert in the computer programming language R. He became dean of WSU College of Arts and Sciences in 2018. Courtesy University of Nebraska-Lincoln
The crimson flag finally arrived home.

After 15 years of faithfully waving the Cougar flag on ESPN’s College GameDay, the whole nation saw the symbol of Cougar pride at the first airing of the popular football program’s TV show in Pullman on October 20, 2018.

It was a long time coming. On October 4, 2003, when Tom Pounds ’81 headed from Albuquerque to Austin, Texas, and before noon, he wanted to arrive early at the set of College GameDay to get a good spot in the crowd. That was the first waving of the flag that would eventually be named “Ol’ Crimson.”

Pounds’s motivation for displaying the hand-sewn flag was simple: to display his school spirit.

His infectious joy was picked up by other WSU alumni and fans who kept displaying the flag week after week. The stunt became a tradition and an integral part of the show.

Now the Ol’ Crimson Booster Club and flag manager C. McCoy ’86 keep up that tradition, ensuring that a Cougar flag makes it to every airing of College GameDay.

That included WSU’s home debut on the show last October, as the football team had cracked the top ten and faced the University of Oregon Ducks at sold-out Martin Stadium, behind the leadership of Gardner Minshew II, “the Mississippi Mustache.” The Cougs took the win, on their way to a school record 11-win season.

Some may think the Ol’ Crimson tradition is a little crazy. But any Coug fan will tell you it’s no surprise that alumni and fans across the country picked up Pounds’s idea and ran with it.

“There’s a deep sense of joy in being a Cougar,” explains Pounds.

The Daily Evergreen
**French fries**

Hot, golden, and lightly salted, fries have appeared on the menu at White House state dinners, they are a staple at diners and drive-ins, and a former first lady even ordered some on a visit to Buckingham Palace. From the palace to Pullman, the beloved French fry knows few bounds.

Each fall, truckloads of harvested potatoes make their way to Pullman and Washington State University where they are washed, peeled, sliced, and fried. A sweet, yet savory, aroma drifts down the hallway from a room where volunteers, like myself, have come for the culinary trials—an annual French fry taste test.

On a long table, ten piles of golden fries sit glowing beneath heat lamps that shine down like spotlights on the contenders. Each pile features a fresh potato variety that was trucked in from Idaho, Oregon, and Washington. WSU plant scientist Rick Knowles and researchers in the Tri-State Potato Breeding program selected the potato varieties for the trial the previous winter.

“We put them through a number of field and storage trials and assess the quality characteristics that will give us the next best French fry,” says Knowles.

One volunteer mentions she’s been coming to the culinary trials for the last 14 years, adding that she now associates fall with French fry season. We note the fry color, rigidity, texture, and overall flavor. There’s no salt or sauce. For now, it’s all about the fried potato and how it tastes.

In the WSU Potato Research Lab, these culinary trials are just one of many evaluations that go into producing a new potato variety for French fries. From the initial crossing of parents with desirable traits, to selection of progeny, to evaluation of performance, developing a new potato can span up to 15 years.

In the last decade, the Tri-State Potato Breeding program has produced 21 new potato varieties. Ranger Russet, Umatilla Russet, Blazer Russet, and Clearwater Russet are the Tri-State varieties used by McDonald’s to make their signature French fry. For Knowles and team, patience pays off when the new varieties reach consumers and are sold in grocery stores or served up at global chains and local restaurants.

Fries can take on many forms—shoe-string, steak cut, curly—and Americans eat a lot of them. In the United States, the average person consumes 34 pounds of fries a year, according to a 2017 study, says Del Krumm ’89, plant manager at Lamb Weston in Connell. He estimates Lamb Weston will produce 2 billion pounds of fries in Washington state this year.

Assuming a 4-ounce serving size, that’s about 8 billion servings of fries produced in the state by one of the biggest frozen potato suppliers in the world. Krumm enjoys being part of an industry that brings so much joy to people, where he can meet the always changing consumer needs and also work with Washington’s potato growers.

Washington produces 23 percent of the nation’s potatoes, according to the Washington State Potato Commission—87 percent of those potatoes are made into mashed potatoes, crunchy potato chips, and other products, like fries.

While the origin of fries remains uncertain, some have argued they had their beginnings in Belgium or France. Whether or not fries actually came from France, some French cookbooks offer different ways to slice up the potatoes before frying.

For pommes frites allumettes, cut the potato into thick pieces like matchsticks. Use the fluted blade of a mandoline for waffle-cut fries, or pommes gaufrettes. Then there are pommes frites pont-neuf, small wedged potatoes, that some say were served in the oldest Parisian fry shops.

Of course, where there are fries or frites, we often find sauce. On a trip to Brussels last summer, a friend and I ate thick, golden fries served up in a paper cone. While fries don’t often require utensils, these came with a small, wooden two-pronged fork for easy dipping into a side of spicy mayo.

There is perhaps nothing more tempting to this fry lover than a side of crinkle fries and fry sauce from Cougar Country Drive-In in Pullman. Whether it’s fry sauce, ketchup, aioli, chili cheese, mustard, brown gravy and cheese curds, or maybe even a milkshake, the variety of ways to dress up fries might be almost as versatile as the French fried potato itself.
R. James Cook has been awarded WSU’s highest honor.
In 1965, when Cook joined about 25 other USDA-ARS scientists at WSU, C. Clement French was president and WSU only had around 15,000 students. Cook moved into Johnson Hall and set right to work on his mission.

Cook consciously uses the word “mission” to describe the work of USDA-ARS scientists. They hold appointments with the University, but their work has a defined focus.

“A new faculty member arriving at the University is usually allowed to take off in any direction they want, pursuing their interests and doing curiosity-driven research,” he explains. “I was hired to do a very specific job, which was to understand and control the root diseases of wheat. The man who hired me said, ‘You can study them if you want, but your job is to control them.’”

That didn’t faze Cook. “It might seem like I was put into a box, doing so-called mission-linked research, but it’s not like I didn’t have any curiosity going about my job. I’m curious about so many different aspects of the root disease problem on wheat.”

Those root diseases and soil-borne pathogens, and their control with beneficial organisms, weren’t very well-known when Cook began. His work at Washington State on maladies such as Fusarium root and soil-borne pathogens. Early in his time at WSU, Cook demonstrated to Vogel that soil pathogens were limiting the yields on semi-dwarf varieties like the famous variety Gaines. Vogel’s response to the fumigated plots: “That’s how my wheat is supposed to look!”

Cook also busted a few myths. For 30 years, there was a belief that straw would become toxic after fumigation. “I had to deal with that diagnosis and it was well established in the scientific literature, but it was wrong,” he says. By proving through a series of experiments that the problems came from root diseases thriving under the wet blanket of straw on the soil surface.

“Now soil can be fumigated the soil and then bring fresh straw back that had not been fumigated,” says Cook. “There was absolutely no increase of toxicity once the soil was rendered free of pathogens with fumigation.”

Still, fumigation is not a sustainable solution for root diseases, Cook explains. “We have an array of chemicals that we can use to protect the crop above ground. Soil fumigation is really the only chemical means by which to truly control root diseases, and that’s not going to be economical except for high value horticultural crops like strawberries.”

He carried a little trowel with him, and he’d dig up some plants and ask, “Now, what’s this?”

Cook himself served as a guide for many researchers and graduate students who came to both WSU and the USDA-ARS. David Weiler and Linda Thomashow were two scientists who joined Cook in the late 1970s to research root diseases like take-all and take-all suppressive soils at the University.

“Jim was an incredible mentor to us, and his work on biological control was groundbreaking,” says Weiler.

Unlike Cook, who was an early advocate of no-till, which uses a drill to plant seeds and place fertilizer with minimal disturbance from tillage, thus reducing the risk of soil erosion. Video here: Postd. Cook with WSU graduate students. Courtesy CAHNRS.

Cook’s research didn’t just stay in the lab. He cultivated strong relationships with wheat growers all across the region. “I got to know some really great farm families doing research in their backyard, where the problems were, rather than just bringing the problems to the lab at WSU,” he says.

The farmers, in turn, respected Cook and his efforts.

“Avioded telling farmers what to do, but rather, set about providing them with enough understanding so they would know what to do,” wrote Cook in his 2017 memoir, Untold Stories: Forty Years of Research on Root Diseases of Wheat.

“Growers really appreciate good science, especially when it’s happening on their own farm,” he adds.

Cook was an early advocate of no-till, which uses a drill to plant seeds and place fertilizer with minimal disturbance from tillage, thus reducing the risk of soil erosion. Video here: Postd. Cook with WSU graduate students. Courtesy CAHNRS.
Cook’s ability to be theoretical and practical at the same time came through to his graduate students, says Inglis. She later became director of the WSU Mount Vernon Research and Extension Center where she applied Cook’s teaching. “Hypothesis-driven research that is field-based, observations that one sees in the field, and the solutions that are attempted to be found through laboratory, greenhouse, and sometimes field research, that’s a winning combination,” she says.

East of the WSU Pullman campus, 160 acres of farmland continues Cook’s soil research. Renamed the R.J. Cook Agronomy Farm in 2006, it had begun six years prior as a place for Cook and his colleagues to test in a realistic setting.

“Growers knew I did field research, but they said, ‘We want you to do research on a scale we can relate to, no more of those little plots,’” says Cook.

That farm featured another area of Cook’s interest since the 1980s: direct seed, also called no-till farming. Direct seed methods use a drill to plant seeds and place fertilizer with minimal disturbance from tillage, thus reducing the risk of soil erosion.

In addition to the research farm named after him, Cook garnered numerous prestigious honors — including the 2011 Wolf Prize for outstanding scientific contributions to agriculture, election to the National Academy of Sciences in 1993, president of both the American Phytopathological Society and the International Society for Plant Pathology, a founding member and past president of the Washington State Academy of Sciences, among others.

Cook received WSU’s highest award, an honorary doctoral degree, last December, in recognition for his long service to the University and to the cause of healthier plants and soil.

Cook’s direct impacts on crop productivity and disease management were recognized in 1998 by Washington wheat growers with a $1.5 million endowment to establish the R. James Cook Endowed Chair in Wheat Research. Cook served in his namesake endowed chair until 2003, which is now held by plant pathologist Scot Hulbert ’79.

Cook became interim dean of the College of Agricultural, Human, and Natural Resource Sciences in 2003, until his retirement in 2005. Jim and Bev Cook now split their time between the Northwest and Palm Springs, California, as snowbirds. One is more likely to find a grapefruit than a stalk of wheat in Palm Springs, but Cook remains connected to WSU and his research interests. In his retirement, Cook presents at conferences, assists with National Academy of Sciences outreach, and, along with Bev, helps lead the “Cougars of the Desert” group in nearby Palm Desert, which raises money for WSU scholarships.

Inglis says it’s hard to imagine the WSU soil program without Cook’s contributions. “Root diseases, water relations, biological control, tillage practices, fertility and water management practices, breeding for resistance, he’s had his hand in all of those areas,” she says. “And the contributions he has made have really changed how wheat and other cereal grains are growing in our state and our region.”

She also notes how Cook connected so well with farmers and the entire agricultural community. “He has a wonderful way of explaining fairly complex phenomena in ways that people can understand,” says Inglis. “I remember him talking about the jungle of roots beneath the soil, just using metaphors and explanations that people could easily relate to and really acquire his enthusiasm.

Through it all, Cook was most proud that research colleagues and farmers saw him as having “two feet in the furrow,” which allowed him to accomplish his mission, communicate his work, and still satisfy his deep curiosity about root diseases and the jungle of soil life.
Essay like structures that she’ll also use as molds. dreamy it makes light seem unnecessary. rocks, dusted in snow, rising from the sea. I slip into the galley to fill my tea mug and find Caroline sitting at a table. She comes outside with but absent. As soon as he sees the creature he has made, he turns away in horror, a metaphor for what happens when our arrogance and greed of unchecked science and technology. Frankenstein is a classic egomaniac, his thirst for knowledge rapacious, his sense of responsibility all... manuscript of Mary Shelley’s 1818 novel Frankenstein. Most people associate that novel with the mad scientist Victor Frankenstein and his... A few weeks later, the Antigas lands in Longyearbyen, Svalbard’s major city—although it is only one block long—where our journey began. I run into Caroline at the post office mailing large crates full of her wax molds along with jars of meltwater from each glacier where... "I love this one, it’s so clear and beautiful," Caroline says, holding a football-sized piece of ice that looks like a chunk of glass. Her hands are bright red, and I’m surprised that she isn’t wearing gloves. Behind us, Lilliehöökbreen, a large tidewater glacier, glows in stripes of pink, amber, and turquoise under the late October sky. “But this one”—Caroline grabs another piece—“has amazing textures. Look at those ripples.” I squint at the corrugated surface. It’s as if the water has carved its subtle movements onto the ice. She places the ice in a plastic bucket and fills it with blue goo—alginates mold-making material. Caroline and I are on board the Antigas, a traditionally rigged tall ship specially outfitted for sailing in the high Arctic, including a modern diesel engine. We’re part of the Arctic Circle Artists Residency—thirty artists from every part of the world sailing the west coast of Svalbard toward the North Pole while working on individual and collaborative projects. Caroline, a glass sculptor, and I, a writer, have teamed up. I’ve been keeping track of her throughout the voyage, asking questions, making notes. A few days later, we’re moored in front of another glacier, Fjortende Julibukta, in a fjord choked with ice. Caroline and I stand on deck under the forearm, a sharp breeze blowing against our cheeks. By this time, the blue goo has hardened and the ice has melted, leaving a void into which Caroline pours hot wax. When I ask her to explain her process, she says she’ll take these molds back to her glassblowing studio in San Francisco and use them to create replicas. “I’m making archives of the ice,” she says, “because it’s disappearing.” The word catches my attention. I’ve spent a good deal of my professional life in archives, and when Caroline says the word, suddenly I’m twenty years younger and sitting in the Bodleian Library in Oxford under stained glass windows, sifting through the original Arctic chronicles

BY DEBBIE LEE

“I love this one, it’s so clear and beautiful,” Caroline says, holding a football-sized piece of ice that looks like a chunk of glass. Her hands are bright red, and I’m surprised that she isn’t wearing gloves. Behind us, Lilliehöökbreen, a large tidewater glacier, glows in stripes of pink, amber, and turquoise under the late October sky. “But this one”—Caroline grabs another piece—“has amazing textures. Look at those ripples.” I squint at the corrugated surface. It’s as if the water has carved its subtle movements onto the ice. She places the ice in a plastic bucket and fills it with blue goo—alginates mold-making material.

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The word catches my attention. I’ve spent a good deal of my professional life in archives, and when Caroline says the word, suddenly I’m twenty years younger and sitting in the Bodleian Library in Oxford under stained glass windows, sifting through the original manuscript of Mary Shelley’s 1818 novel Frankenstein. Most people associate that novel with the mad scientist Victor Frankenstein and his monster, whom Victor pieces together from random body parts. But I was more interested in how Shelley warns readers about the dangers of unchecked science and technology. Frankenstein is a classic egomaniac, his thirst for knowledge rapacious, his sense of responsibility all but absent. As soon as he sees the creature he has made, he turns away in horror, a metaphor for what happens when our arrogance and greed replaces our care for one another. Frankenstein rejects his creature, and the creature in turn sets off on a murderous rampage.

Over the next few days, Caroline undertakes another archival process: painting wax directly onto other ice pieces to create shell-like structures that she’ll also use as molds.

One morning at six, we’re anchored at Farnbukta near the top of the Svalbard archipelago. I’m on deck marveling at the haystack-like icebergs. I can see the mountain range, shattering her leg and ankle. Multiple surgeries, months of casts and heavy plastic boots, and endless checkups and physical therapy followed. “But the hardest part,” she says, hands wrapped around her mug, “was learning I was never going to get anywhere by racing my way through life. I had to slow down. I had to ask for help. I had to let go of ego and let people see me as broken.”

Frankenstein’s monster starts with a broken body, but his spirit is broken over time as he desperately cries out for human connection and finds no one willing to help him. In the end, Mary Shelley sends him to what must have been to her the most hostile and yet sublime place imaginable, the North Pole, where he sets himself on fire in despair. One reason I was so drawn to Frankenstein twenty years ago, is that the book begins and ends on board a ship sailing toward the icy north. In the late eighteenth century, at the height of those Victorian archives, in fact, are some of the most important tools we have for figuring out climate trends. These archives can tell us that Svalbard is much warmer today than it was when Shelley wrote Frankenstein.

A few weeks later, the Antigas lands in Longyearbyen, Svalbard’s major city—although it is only one block long—where our journey began. I run into Caroline at the post office mailing large crates full of her wax molds along with jars of meltwater from each glacier where she collected ice.

Back home in the United States, Caroline and I are in constant communication. I’m in Washington, and she’s in San Francisco, but she lets me watch via Skype as she flashes a pipe laced with molten glass in the fire, rolls it along a table, folds it between the molds she’s made from the ice, until I see the life of the glacier manifest in the very act of sculpting.

“You wouldn’t know it,” she says during one of our phone conversations, “but glass is the most reasonable material. It follows gravity. You can elongate it, swing it out, and condense it. Every tool that you use you can leave a mark on the glass, and in that way, glass records history.”

I ask her what kind of history she’s recording. She tells me that she’s chronicling the history of loss but also a possible future. “The empty glass,” she says, “represents the egoless self, transparent and vulnerable.”
Big data is a powerful new tool in the medical bag, and one that can put patients in charge of their own health.

The virtual aura hovering around Kiah Sullivan glows with information, all of it precisely empirical, if not all exactly welcome. The athlete from Port Angeles, who delights in eating a healthy, plant-rich diet, figured her cholesterol would be pitch perfect for a 24-year-old woman. But when she got her labs back, she was shocked to see a number far higher than she expected.

“We assume young equals healthy,” Sullivan says. She’s on a break between classes at Washington State University Spokane, where she’s a second-year medical student in the Elson S. Floyd College of Medicine. She’s also a participant in a scientific wellness program, the product of a partnership between the medical college and Arivale, an innovative healthcare startup that may change the way we think of medicine, what it means to be well, and how we access healthcare.

It all has to do with Sullivan’s cloud—a billion or more data points derived from her sequenced genome; numerous lab tests of blood, saliva, and stool samples; and a seemingly endless supply of personal questions, from her family’s health history to what she eats. That clarifying cloud of data, collected by Arivale and interpreted for her by an ever-inquisitive health coach, “made me think twice,” Sullivan says, about her assumptions of youth, health, and, more importantly for a doctor-to-be, how a genome gets expressed in an actual living, breathing person.

You can’t assume much of anything on just a few data points, such as age and diet, says College of Medicine dean John Tomkowiak, but that’s what doctors have been doing since pretty much forever. It’s not their fault: “We just didn’t have the technology,” Tomkowiak verbally shrugs.

But now we do, and a booming business in big data is driving change. Already, retail and advertising empires—Amazon and Alphabet, Google’s parent company—have been built on data collection nets beyond the dreams of even the most avaricious fisherman. That’s low-hanging fruit, though, compared to deploying massive data sets in healthcare. Far-seeing researchers are bringing together the technologies of data collection, the people who know how to wrangle and make sense of big data sets, and the practitioners of healthcare.

Currently, there is a shortage of data wranglers and analysts. Just in time to meet the needs of what could be a revolution in healthcare, WSU is bringing up to speed one of the few data analytics programs in the country. Under the direction of entrepreneur-scientist Nella Ludlow, the new program is training the bioinformaticists who will be the genetic counselors and consultants at Sullivan’s side when she graduates with her medical degree and enters the world of practicing health-care professionals.

In one sense, data has always played an important role in medical research. As Tomkowiak points out, healthcare has long been premised on the collection of a handful of data points from one person at a time. They’re statistically compared with data collected from other individuals. From there, all sorts of conclusions are derived.

“When you interview a patient, you collect information about their history. We often say that history counts for about 90 percent of diagnosis,” says Tomkowiak. “Your physical exam might offer a few other data points. And that pretty much completes the next five percent. You can order some different tests which might confirm or deny your diagnosis. So you’re dealing with literally a handful of data points on which you’re making diagnostic and treatment decisions.

“Contrast that with the vision of billions of data points” collected from each individual and being used to not just cure disease, but to prevent the transition from wellness to disease in the first place.

BY BRIAN CHARLES CLARK

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DATA UP

BY BRIAN CHARLES CLARK
Researchers across the sciences struggle with data storage and management on unprecedented scales, with issues of data ownership, transparency, privacy and security, as well as how to actually turn all that information into actionable knowledge.

Most of that, Tomkowiak says, is not the problem of future MDs. “We’ve come to the conclusion that we want our physicians of tomorrow to have some of the qualities that are going to persist and be needed. Qualities such as compassion, the ability to communicate clearly with their patients, to be patient-centered and to be great listeners. To appreciate the whole person and understand how factors such as their environment and their socioeconomic status and their education all play into their health and wellness. At the end of the day, we don’t think they can be data analysts.”

WSU’s future docs do get some training in how data is collected and analyzed, but they get a lot more training in teamwork. As Sullivan says, after watching a clinic full of professionals go through their day providing care, “they flow as a unit.” That unit cohesion is critical to the core mission of doctors. Data analysis isn’t—but that’s where Arivale comes in.

THE PRECISION FACTOR

The shift from basing diagnostic decisions on a few dozen to billions of data points was made possible by bringing intense computing power and rapid sequencing of genomes to biology. Lee Hood, a pioneer providing care, “they flow as a unit.” That unit cohesion is critical to the core mission of doctors. Data analysis isn’t—but that’s where Arivale comes in.

That’s why Arivale advocates for the use of health coaches as the main patient-facing member of a health-care team. Jennifer Lovejoy, Arivale’s chief translational science officer, says, “The physician knows what they want their patient to do—lower cholesterol, lose weight—but they don’t have time to be meeting with the patients as regularly to provide the support and information they need, but the Arivale coaches do. The physician continues to do the follow-ups. So it can really be a brilliant collaboration between the physician, the coach, and their patient.”

While adding personnel to a health-care team at first seems like it would add to the cost of care, it’s more likely to improve efficacy through better communication and outcomes. As Lovejoy says, “Shockingly, systems thinking is still new to biology and medicine. Today, if a patient has Type 2 diabetes and cardiovascular disease, which is an extremely common pairing, they’ve probably got at least three doctors. And there may not be great communication between those three doctors in managing this condition because that’s the way training, historically, has been siloed.”

Lovejoy is passionate about transforming the current health-care system. “I think it’s pretty obvious to everybody that we have a broken system,” she says. The United States spends far more on healthcare per person than any other country in the world, and with far fewer positive outcomes. Patients, currently, are passive recipients of cures; a computational and team-based approach to medicine makes the patient a participant who takes an active role in the promotion of their own well-being.

There’s just one hitch: most of us don’t do big data, and wouldn’t know an allele if it reared up and bit us. But it’s in the genome, with its thrones and allelic variations, where the risk factors for long-term disease conditions get their start. What we need, along with a crop of fresh-thinking health-care practitioners, is an influx of big data analysts.

THE PATTERN GAME

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The first part is to find the needle in the haystack, and one uses cross correlation, that could be a clue as to where to search next,” Ludlow says.

Such studies are taking place every day, Ludlow says. Called genome-wide association studies, which look for correlations between a disease and a genetic factor, they produce massive amounts of data. Such studies are only one way of collecting health-related data, though. WSU researchers are pioneering ways of using social media to monitor disease outbreaks, and developing wearable electronic devices that monitor blood pressure, glucose levels, and many other factors that, when they change, signal a possible health problem.

It takes a certain kind of person, Ludlow says, to train a computer to spot potentially significant patterns. Women seem more drawn to data analytics than to computer science, possibly because the job does not begin and end with coding.

“What we’re hearing from students who are drawn to data analytics, a little bit of math, a little business, a little machine learning, but it’s all glued together and I get to be the translator and work with people. That’s really what it is: ‘Look at this cool pattern it found!’ And here’s how you can use it. You have to communicate; you’re not just writing code.”

The field is also dramatically interdisciplinary. Sixty-two faculty members currently have appointments in the data analytics program, Ludlow says, working on fields as disparate as social science, economics, health sciences, biology, physics, computer science, math, business, and “all the AI people who do things with machine learning.”

With all this data floating around, what about security? What about privacy? Tech companies like Google and Facebook commodify and sell user information, so one wonders if we have private lives anymore. That extends to our health and genetic information.

THAT’S PRIVATE!

Tom May, a medical ethicist who works with the health-care faculty at WSU, Spokane, recently wrote a New England Journal of Medicine paper about the “Wild West” of direct-to-consumer genetic testing. Notoriously, genomic data uploaded to public sites was used to track down the Golden State Killer, a serial murderer and rapist in California. By comparing crime-scene DNA, investigators were able to obtain close matches to the killer’s relatives. From there, it was a matter of working through the family tree. That’s big win for criminal justice, but it’s also a chilling reminder of just how easy it is for strangers to access data. Even if you haven’t shared your data, a relative may have shared theirs. So you are, in a sense, sharing yourself without ever intending to.

Tomkowiak likens it to thinking that with another idea of medical ethicist May. What if data sharing is in fact the way to go? What if we didn’t keep our high-secret and simply shared everything? It’s a provocative idea that’s alien to our culture.

But consider the case of Flint, Michigan, where a cover-up of lethal water quality killed at least 10 people and made many more dangerously ill. If health status had been shared and communicated, that cover-up never could have occurred. “We could make inferences about our environment because it might be easy to see that everyone who lives in a certain geographic area all had the same health-care issue,” Tomkowiak says.

The fact that the Flint disaster occurred at the interface of the environment and human health is significant because environmental scientists are on the front lines when it comes to thinking seriously about how data can and should be shared. And so closely intertwined are the health of the environment and that of humans (and all life) that researchers, at WSU and elsewhere, have adopted the term “one health” to describe their efforts to systematically understand how the one interacts with the other.

Like a lot of medical research, environmental scientists contend with nonreproducibility. That is, they observe something happen—the effect of, say, phosphorus moving off farmland into the water system—and measure and accumulate considerable data. It’s not an “experiment” in the sense that it can be reproduced.

Conclusions drawn from data collected in nonreproducible contexts are often challenged, as they should be. The solution, write WSU environmental scientists Stephanie Hampton and Stephen Powers, is to make the raw data, and the software used to analyze the data, public as part of the publication process.

Hampton, the director of the Center for Environmental Research, Education, and Outreach at WSU, along with researcher Powers, point out that there are concerns with total transparency. If, for instance, the location of an endangered species were revealed, ecotourism might complicate that species’ environment. Or revealing the presence of a valuable resource in a fragile environment might likewise cause irreversible damage.

So, too, with medical information. A malefactor with access to sensitive genomic information might concoct phishing scams to sell snake-oil cures to vulnerable people at risk for any number of diseases.

But there are concerns. Conard, Angela Jolie, May says. After a screening test indicated the actress had the BRCA variant that carries a very high risk of breast cancer, she had a double mastectomy. But what if someone acted on a test for a disease that had a fraction of one percent chance of actually manifesting?

“The prophylactic intervention may actually be more dangerous than the risk of actually manifesting the disease,” he cautions. That’s one reason why he and the genomic family history project team, which includes members of the adoptee community, argue that filling the informational gap should be limited to genetic testing of only very high-risk, highly pathological diseases.

Hampton, Powers, and May all agree that data stewardship, a field undergoing tumultuous change, needs lots of conversation and scenario modeling to answer tough questions about privacy, security, and who owns what data.

PREVENTION IS PRICELESS

Tomkowiak is adamant that patients need to be the owners of their medical data.

“Right now, our health-care system is set up so patients don’t own their data. It’s the providers, the health-care systems, sometimes the insurance companies, that own the data.”

The current health-care system is designed to sell us cures, so that ownership arrangement makes a kind of sense.

But Tomkowiak continues, “I think that’s going to change. As we move into computational medicine, the only way it’s going to work is if patients own their own data. And if they own their own data, it provides the opportunity for those patients to say, ‘I want to share my data.’”

“I think the more patients who share their data, they’re going to see benefits and that could change the way we think about how and why we share data. And it may allow us to build in protections so we can do more of that.”

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So, too, with medical information. A malefactor with access to sensitive genomic information might concoct phishing scams to sell snake-oil cures to vulnerable people at risk for any number of diseases.

But having big data, Tomkowiak agrees, “means we can focus way more on prevention, on scientific wellness, than we ever have before in the history of medicine. Partnering with Arivale and the Institute for Systems Biology is leading us to the future of health-care—the question is, just how fast do we get there?!”

Civilians, from top: Bioethicist Thomas May is a Floyd and Judy Rogers Endowed Professor. Photo Credit: Environmental scientists Stephanie Hampton and colleague Stephen Powers. Photo: Stephen Katz and courtesy: Stephen Powers, respectively.
Whether he’s out searching for vinyl records, at school teaching drawing, or in his living room playing guitar, “I get infatuated by the process of it,” says artist Nathan Orosco ’02 MFA of Gresham, Oregon. For him, the process of making art is an art in itself. From sculpting clays to melting bronze, “you’re collaborating with raw materials. You’re shaking hands with the past and the historic ways humans have traditionally dealt with those materials. And then I add in the content of my own personal identity.”

Cast bronze, fused glass, ceramics, textiles, wood, and other media take shape in Orosco’s art that speaks of his social, political, and cultural “anxieties,” as he calls them. He often addresses issues of ethnicity, economic disparity, social conflict, political protest, and cultural displacement, in an eclectic mix of genres. Now mainly a sculptor and installation artist, he also explores the idea of cultural borders — crossing, shifting, and blurring them.

As a Mexican-American with Aztec, Mayan, and Native American in his bloodline, Orosco knows borders. Born and raised in Odessa, Texas, he saw early on how the human body here was viewed merely as a tool for oil industry profit. As a teen, he worked in his father’s diesel mechanic shop repairing oil trucks and cleaning field equipment. He built lowriders and drove around listening to grunge and hip hop. And he drew a lot, and not just to impress friends.

When Orosco won a local poster design contest for a Hispanic heritage event, “it created a spark,” he says. By age 16, he knew art was it. A high school art course kept him from dropping out. And an art contest best of show award got him into college — the first in his family to earn a degree. He enrolled at the University of Texas of the Permian Basin (UTPB), thanks to encouragement from one
of the judges, an art professor there. Chris Stanley ’91 MFA teaches at UTPB and he pointed Orosco northwestward. ... of their lives.” ¬
DAN PELLE/THE SPOKESMAN-REVIEW
PHOTO BAILEY HARRISON
WASHINGTON STATE MAGAZINE SPRING 2019 3938
businesswoman. She has received an outpouring of support and thanks the newspaper has raised the profile of the Black community in Spokane and empowered people to speak up. As for the future of the newspaper, Williams says she would like to see the younger generation get more involved.

Taking the bull not by the horns
BY REBECCA PHILLIPS
Professional rodeo clown JJ Harrison ’98 is one courageous guy. When not defusing Brahma bulls in the arena, he’s disarming preteen bullies in the classroom.

It’s not the role he imagined for himself while earning his degree in elementary education at Washington State University, but one he seems uniquely born to play. “I love kids and I’ve always been a class clown, even at WSU where Highly Considered being ‘Butch’ says Harrison. “My friends and I were absolutely convinced I was Butch, and I just let them think that.”

After graduation, Harrison taught middle school in Walla Walla before trying some rodeo clowning on the side in 2005. “It was fun and took me back to my roots,” he says. “Pretty soon I had rodeos calling and it just exploded—my career progressed really fast.”

He made the transition to full-time clowning in 2008 and has since performed at rodeos in Florida, Hawaii, and everywhere in between. As one of the nation’s top rodeo clowns, Harrison’s act is booked nearly year-round. Not only does he entertain the audience during lulls in the program, he also protects injured cowboys during bull riding and other events. It’s his job to distract the bull while the fallen contestant limps out of the arena.

“I’ve definitely been hurt a lot,” Harrison says. “I’ve cracked my skull, broken my back twice, had a hip surgery, and three knee surgeries. I also had stem cells put in my back. To be honest, the worst was two-teen just running on uneven dirt in the arena—you roll your ankles 30 times a night, despite wearing cleats.”

His athletic high-energy antics have made him a five-time nominee for the Professional Rodeo Cowboys Association (PRCA) Clown of the Year award, which is presented at the National Finals Rodeo in Las Vegas.

In 2012, Harrison was selected to perform at the National Finals Rodeo as the barrelman—a clown who hides inside a barrel to divert charging bulls. “The Nationals are like our Super Bowl,” he says. “It’s a huge feather in any cowboy’s hat, and a big highlight of my career.”

Harrison, who says he doesn’t drink but loves to party, also hosts the MCM Grand Gold Buckle Zone show during National Finals, where he often brings cowboy superstars on stage to meet and interact with the audience.

It all adds up to living a boys’ dream. “Being a rodeo clown is a high—you’ve got 9,000 people screaming and laughing with you, but not everyone there is rodeo savvy,” he says. “As an entertainer, I try to connect them to our sport. Put together that puzzle piece for the fan. I enjoy that.”

Harrison says act is mostly impromptu, off the cuff, and an extension of his goofy personality. It includes things like riding horses, throwing footballs to the crowd, and showing off impressive dance moves while wearing giant inflatable air suits.

“A lot of what I do was learned in classes at WSU on how to manage a classroom,” he says. “Good teachers like Tariq Akmal in the College of Education instilled that ability to adapt to my environment. I attribute a lot of my success to WSU.”

Harrison carries that positive energy into every community he visits. From rodeo skits honoring police officers and first responders to promotion of P11 fund and safety, he uses his time on stage not just for a laugh but to uplift and inspire.

That includes taking kids Don’t be a Bully! Be a Champion! campaign to school assemblies around the country. The lighthearted but serious program teaches the difference between simple teasing and bullying.

“With training, there’s a balance of power,” he says. “When it comes to bullying, there’s no balance; only one person holds the power. We need to teach kids how to report it and buck those bullies out of their lives.”
Making the difference

By Rebecca Phillips

“The fact that I’m a teacher now is just the greatest turn of events—my old high school teachers would be shocked,” says Kerry Clark (’11 Hum., ’14 MA English). He’s sharing his improbable story as we tour Saint George’s School, a private K–12 preparatory institute nestled in the woods along the Little Spokane River.

Clark teaches English and history classes for the International Baccalaureate Diploma program at Saint George’s and is also a college counselor. On top of that, he coaches soccer, basketball, and baseball. The notable achievement is made more impressive when you learn that he never graduated from high school.

An only child, Clark grew up in Centralia, raised by a single mother with a minimum wage job. Regina Clark also served as a Navy reservist, spending two weeks in training every year plus one weekend each month.

Life went fairly smoothly for the two of them, he says, until the September 11, 2001, attack on the United States. “Within six months, my mom left for her first military tour aboard the U.S.S. Nimitz. I was 14 at the time and pretty much left on my own. Understandably, I made some bad choices and hung out with seniors who encouraged me to throw parties.”

He also struggled during her 2003 tour to Kuwait during Operation Desert Storm but felt he had matured when she was called up again in 2005.

“She had a choice whether to go or not,” he says. “I was supportive, but we didn’t know she was going to Fallujah, which was the most dangerous place in Iraq at the time.”

The deadly ambush came on June 23 as Clark and her fellow soldiers were returning home in a cargo truck after a long day of inspections at a dangerous checkpoint. The suicide bomber had waited along the road for the vehicle carrying the women to pass and then rammed into them with deadly precision, according to the New York Times.

“It was the turning point of my life—the before and after,” says Clark. “At only 18, having to make decisions about the funeral, finances, and everything else—it was really tough.”

Within a couple months, he moved to Las Vegas with friends, “I had received a sizable chunk of money from the military and basically spent it all on partying, drugs, and alcohol.

“My attitude was that this was blood money and I can’t keep it. The money was a terrible reminder of what had happened, so the sooner I got rid of it, the better.”

Clark says he lived on the edge for a couple years before waking up one morning to a sudden moment of clarity.

“I looked around and saw all these people passed out and bottles all over the floor,” he says. “There were dirty stinking dishes piled high and no food in the house. Everyone was strung out and making bad choices.

“Realized this is not what I want—this is not what my mom died for. I could be full of hatred toward terrorists and the Iraqi people or I could honor my mother’s memory by doing good to others and sharing something positive.”

Though the transition was rocky, Clark eventually earned his GED, an AA degree, and a bachelor’s degree from WSU Global Campus.

Beyond his wildest dreams, he was then accepted into the WSU master’s in English program.

“The committee gave someone without the standard credentials a chance and it changed my life,” he says. “At first, I stood out like a sore thumb, but by the second year, I’d found my way thanks to some very supportive faculty.”

Today, my goal is to make a difference in someone’s life every day. Being a teacher gives me the most agency possible. I have the ability to shape youthful minds in a way that hopefully encourages them to be open, respectful, and value the ideas of other cultures as much as they value their own.”

“BOLD, YES. COUGS ACHIEVE.*”

“*Well, Cougs overachieve, but you get what we’re saying.
**NEW media**

**Stark Mad Abolitionists**

ROBERT R. SUTTON 88PHD
SKYHORSE PUBLISHING 2017

Anthony Burns was an escaped slave. He was captured in Boston in 1854 and, for the Fugitive Slave Act of 1850, shackled and marched through town to the bay, accompanied by 2,000 federal soldiers. President Franklin Pierce, eager to prove he could make nice with the pro-slave South, delayed the popular will of the radical abolitionists of Boston, and forced Burns’s return to slavery. Abolitionists were understandably incensed at an act they saw as inhumane, vile, and villainous.

Amos Adams Lawrence was one of the 50,000 observers who lined the streets of Boston as Burns was escorted to the bay. Lawrence later wrote that he and his kin went to bed as law and order conservatives but the next morning “woke up stark mad.”

Lawrence put his newfound passion to work, and “combined his fortune and his energy with others in the New England Emigrant Aid Company to encourage abolitionists to emigrate to Kansas.” Newly a territory in 1854, Lawrence finally visited Kansas, and the Battle of Seattle in 1856 is memorialized by at least two markers—both of which recall the service of European Americans in helping back an attack by Indians. While the Duwamish and other Native communities are remembered in place-names, their presence has been largely erased in the long occupation of Seattle.

This is a thorough-going compendium of Seattle history through the hardware of markars, memorials, and statues. Walking tour guides and anyone interested in the history of the city would benefit from this finely researched book.

—Brian Charles Clark

**Monumental Seattle: The Stories behind the City’s Statues, Memorials, and Markers**

ROBERT SPALDING
WSU PRESS 2018

James Casey was a messenger boy in Seattle in the early twentieth century. He and a few of his fellow messengers, including Claude Ryan, gathered their resources—about $300—and started a small delivery company. Now headquartered in Atlanta, United Parcel Service’s founding is commemorated by a small plaque in the sidewalk on the corner of Second Avenue and Main in Seattle.

This is just one of the many surprising stories to be found in Robert Spalding’s delightful Monumental Seattle. While many people, having taken the underground Seattle tour, know that Seattle is a city of trees and a city of water, there’s yet another city buried in the fill under streets and piers. The Ahlaf, for instance, was a steamship built on the Columbia River that worked the cargo routes of Puget Sound for many years. Later, the ship was grounded and converted into a medical clinic that served the poor of Pioneer Square. Still later, the remains of the ship were buried as fill at the foot of Jackson Street.

Seattle is actually the site of many thousands of years’ history. While little remains to remind us of the long history of Native presence, the Battle of Seattle of 1856 is memorialized by at least two markers—both of which recall the service of European Americans in helping back an attack by Indians. While the Duwamish and other Native communities are remembered in place-names, their presence has been largely erased in the long occupation of Seattle.

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**Spike, Benny, and Boone**

ALLEN JOHNNSON ’85 PhD

The author of the memoir Parion My French returns with a bildungsroman about three friends who face deaths and spiritual awakenings together. Allen Johnson has crafted a novel that spans 53 years, as three boys form a lifelong, unbreakable bond on the banks of the Columbia River.

The novel’s first half takes place in 1938. The “Terrible Three” 12-year-olds are Spike, an athletic, dandified boy by an alcoholic father; Benny Devine, a compassionate red-headed who can’t kill a spider, instead letting it crawl onto his hand so he can transport it to safety outside his home; and Boone, the professor and word nerd who knows better than to introduce himself as Clarence: too wimpy.

Spike is prone to audacious adventures—but doesn’t recognize the word when Boone sticks him with the epithet:

“Ah-dishes! What the hell is a dishes?”

Spoke asked.

Boone cleared his throat. “Recklessly ventriloquize, fearfully daring.”

“Eh?”

“He means scary,” Benny explained.

“Why? Well, why the hell didn’t he say so? You gotta stop reading them damn books, Boone. I’ll turn your brain into a five-pound turd.”

“That’s a rather unpleasant metaphor,” Boone said.

Spoke also mauls the language, managing to derange even the simplest of clichés. “You could have knocked me over with a fender,” he says at one point.

When Spike’s angry drunk of a father, “has lower lip curled down as if wrapped around the butt of a flat tire,” kills and buries the dog, Spike and his pals head for the mighty Columbia to console themselves. There, they meet David, a spiritual hobos steeped in Quakerism, Buddhism, and a touch of pantheism by way of Marcus Aurelius. After an initial confrontation in which we see Spike head down the path of bullying, David arrests that progress with a few whispered words: “Every- thing is interwoven, and the web is holy.”

Just between intervenors becomes clear in the second half of the novel, set in 2001 and mostly taking place in France. Mysteriously, a just-published book echoes the words of the now-grown friends’ long-dead spiritual mentor, David the Hobo.

How came that to be? Why is anyone interested in spiritual growth and “mindfulness” should dive into Johnson’s novel. By turns funny, touching, and wise, “Spike, Benny, and Boone is a satisfying read for those of us struggling to make it through interesting times.”

—Brian Charles Clark

**Bound**

VAUGHN BODACH ’87, ’95 BIOCHEM.
BODACH BOOKS: 2018

Rebecca Joshi, like any average teenager, hangs out with her friends, has crushes on boys, and contemplates complex aspects of life like religion and abortion. However, something about Rebecca sets her apart from her peers and haunts her every day: her body is heavily scarred.

When Rebecca was 11, she was accidentally burned by a sparkler on the Fourth of July. She had surgeries and physical therapy sessions, and deals with external and internal shame.

Unfortunately, Rebecca also lost her mother and must care for her developmentally delayed older sister, Jenny. Rebecca loves her sister, but she often feels like her parents only adopted her from India as a baby so they would have someone to take care of her. All Rebecca wants to do is go to a school far away from her hometown of Pullman, Washington, and become a doctor. Her strict father is not supportive, but Rebecca applies to several medical programs and constantly dreams of her freedom.

Suddenly, her dreams come to a halt when her sister gets pregnant. The father wants nothing to do with the baby and Rebecca has to decide how to help her sister. Does she let her sister, who is still a child mentally, have a baby, or does she take her to an abortion clinic? After almost going through with it, her sister decides she wants her baby.

Rebecca then has to choose between taking care of her sister and nieces or getting away. *Bound* is a one-of-a-kind novel that gives the reader a look into the struggles of adoption, injuries, growing up, and complex family dynamics. Young readers from diverse cultures and nontraditional backgrounds may be able to relate to some of Rebecca’s adversities and see a bit of themselves in her.

—Kamonde Wajie ’18

**Sponge Cake: A Mostly Made Up Young Adult Adventure Novel**

CHRIS ARNESON ’18 SPORT MGMT.

In the latter book, the author delivers a thought-provoking novel that deals with addiction and family support. The book is a satisfying read for those of us struggling to make it through interesting times.

—Brian Charles Clark

**What’s in the Fridge?**

KAIL SAKAI ’97 COMM. AND OTHERS

“This is a thoroughly entertaining and thought-provoking novel that deals with addiction and family support. The book is a satisfying read for those of us struggling to make it through interesting times.”

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**52 Seattle Adventures With Kids: A Four-season Guide**

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**Regents professor emeritus of political science.**

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CLASS NOTES

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The National Dairy Shrine awarded RANDY KORTUS (‘80 Ani. Sci.) with the 2018 Distinguished Dairy Cattle Breeder Award. Kortus has served leadership roles on the All-Win Select Sires Board and the Select Sires National Board for over 20 years each. Kortus has visited 27 different countries throughout his career judging dairy cattle breeding and management. GZA Geoscientific Management, Inc. announced they have elected MURIEL S. ROBINETTE (‘81 MS Eng.), a senior hydrogeologist in their New Hampshire office, to chair the New Hampshire Board of Professional Engineers for a two-year term.

SANDY HODD (‘92 Comm.), a Pullman native, was named one of five Business Reviewer Women of the Year. Hood is an executive director of Buy-Mah Inc. and was recognized for her professional achievements, leadership, mentorship to other women, community service work, and community leadership.

A gallery of HANNAH UENO (‘92 MFA) was displayed from August 23 to October 29 at the Gallery on Grant in Ocean Township, New Jersey. Ueno is a visual artist and the gallery displayed her Metalista series in which the central theme was “a place of solace in one’s mind’s eye.” CHUCK ARNOLD (’94 Sport Mgmt.), was named the president of the Seattle Seahawks. Arnold has worked with the Seahawks for 25 years. Arnold will manage all team business operations.

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to be a medic is because I thought what’s better way to serve than looking out for my fellow soldiers.”

Shurer was trained to do and was there to do,” Shurer says. “The reason I wanted himself. wounded while helping hold the attackers at bay and being wounded a soldier died in the six-hour battle, despite multiple casualties, as of a nation was draped literally around his neck. Not a single U.S. stowed last October during a White stan with the U.S. Army, and his valor of the U.S. Secret Service, returned to, now serving as a member Former Special Forces combat medic. He’s humbled by the recognition but is still uncomfortable with. At the 2018 Apple Cup, he hoisted the Cougar flag and was part of the Counter Assault Team, which protects the president from. Shurer left the Army a little over a year after the Shok Valley battle and was hired by the U.S. Secret Service, where he serves as part of the Counter Assault Team, which protects the president from possible attacks. He and his wife Miranda, along with their two sons, live in Virginia. 

BY DAVID WASSON

real Shurer’s full story: magazine.wsu.edu/extra/ron-shurer

Former Special Forces combat medic RON SHURER (‘01, Spanish Ed., ’04 MAR Arch.) as a project manager. Gudzien previously worked at OY Construction in Seattle as a project manager for OY. KRISTIN LINCOLN (‘08 Bus.) was named the Washington Idaho Symphony’s new director. Lincoln is also a board member of a Pullman theater and the Washington State Community Theatre Association. CODY SCHUELER (‘09 Econ.) was appointed to be the business treasurer of the Year by the International Association of Top Professors. SchueLER was chosen for his outstanding leadership, entrepreneurship, dedication, and commitment to the sports recreation industry.

Lara Powell, a Pacific Northwest law firm, added SATIYA RAMSUJEN (’12 Crem. JPN) to their cannabis team. Ramssuen advises cannabis businesses on corporate governance and contract law. The cannabis team monitors developments in the law, prepares for how changes will impact their clients’ businesses, and provides legal services. ZACH SEVERNS (’12 Crop and Soil Sci.) was named the 2018 league tugmaster of the year. Severns is the head groundskeeper for the Lansing Lugnuts in Michigan. This is Severns’ second season with the team. ASHLEY TUNISON (’12 Hum.) was appointed to the role of operations supervisor at the Ketchum, Idaho branch of D.L. Evans Bank. Tunison has four years of banking experience. Freihaut Architecture, a commercial architecture and interior design firm, hired KELLY JANCOLA (’15 Arch.) as an architectural designer. Jancola is working on commercial projects. The Western Agriculture Research Center hired RACHELLE RISSOLO (’15 PNW Hort.) to work on small fruit research with an emphasis on apples. Limone is an expert plant pathologist and has experience analyzing post harvest apple quality.

The Wine Club for Cougs

Twelve years ago, the Wine-By-Cougars Wine Club was created by the WSU Alumni Association (WSUAA) with several goals in mind: to raise the profile of Cougs in the wine industry, to engage alumni who are passionate about wine, and to help people learn more about WSU’s efforts to educate future generations of wine-industry leaders.

Wine-By-Cougars (WBC) has featured hundreds of Cougar-connected wineries over the years, with quarterly shipments to over 600 members (and counting!). Ron Stanley ’78, WBC member and WSUAA Platinum Life Member, has been a part of WBC since the beginning.

So what’s special about the Wine-By-Cougars Wine Club? Ron says, “The concept of using wineries that are Cougar-connected is brilliant! The opportunity to taste unique hand-selected wines from Cougar wineries (many of which I had never heard of) was a big draw. In addition, it makes me so proud to know how many great wines are produced by WSU alumni. It feels like I’m always ‘buying local’ with each shipment, because everyone wins: the club member, the winery, the industry, and the University.”

As a result of WBC’s success and the success of the Cougar Collectors’ Series (you can find Cougar V retailers near you at alumni.wsu.edu/cougarv), the WSU Alumni Association has been able to endow two scholarships at WSU; one in viticulture and enology and one in wine and beverage business management. In addition to enjoying great wines, WBC members are also helping the next generation of wine-industry leaders from WSU.

WBC is open to all Cougs over 21, who live in a state WBC can ship to, and who are members of the WSUAA. As Ron says, “Try it out!”

To learn more about the Wine-By-Cougars Wine Club, go to winebycougars.com.

Your generosity unlocks our future.
Where will you give?

April 10, 2019

#CougsGive
Do you want to make a tax-smart decision while supporting the next generation of Cougs? We can help. After you turn 70½, you’re required to withdraw from your IRA annually. Transferring those funds directly to the WSU Foundation supports the areas you’re passionate about, and you avoid paying income tax. It’s a win-win.

Keri Jones spends her work days helping people rehabilitate their speaking abilities after strokes or other disorders, not coding smartphone apps. But, Jones (’98, ’00 MA), a speech language pathologist at Pullman Regional Hospital (PRH), realized that the speech assistance apps out there were mostly for kids, with cartoonish graphics. She saw plenty of adults who could really benefit from a smartphone practice tool, especially one with moving X-ray images of mouth positions.

“We use this technology for diagnosing and treating swallowing disorders. One day, I thought, ‘Why don’t we use that technology to demonstrate how speech sounds are formed?’”

Using her expertise, X-rays, recording and playback, and other features, Jones hired a developer to build the Speech Sounds Visualized app. Jones accomplished the technology feat with assistance from PRH’s Center for Learning and Innovation, which partners with WSU faculty, such as Marie Mayes (’87, ’04 MBA) from the WSU Center for Entrepreneurial Studies. Influenced by the Mayo Clinic and other hospitals, PRH spokeswoman Megan Guido says, “The center was created to facilitate those ideas that our employees might come up with to help improve the patient experience.”

Technology and apps made by nurses, therapists, doctors, and others tap into their knowledge, and enable self-monitoring and self-care for patients. They can also help health-care workers themselves, says Zach Smith (’09).

As a nurse in Portland, Oregon, Smith says coordinating complicated schedules seemed hopelessly outdated and added to the stress of the occupation: “Hospitals just weren’t fulfilling that need with the technology that they were rolling out.”

Previously, he texted his wife Lantana (’08, also a nurse, about shift changes rather than using scheduling programs, which was very inefficient, Smith explains. Frustrated, he joined with fellow nurse Joe Novello to create a mobile tool called NurseGrid. The free app simplifies the process of scheduling shifts for nursing staff, and it’s been a hit. It’s the number one nurse app with almost a million downloads, used in every hospital in the country.

Smith tested the app as a nurse until joining NurseGrid full-time. He says health-care practitioners “can empathize and build tools that solve problems they identify,” but they need to bring the ideas to fruition. “What distinguishes true entrepreneurs from people who have good ideas is taking that first step,” he says.