

Winter20
vol20no1

Washington State

MAGAZINE



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together

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The faces of
small farms

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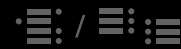
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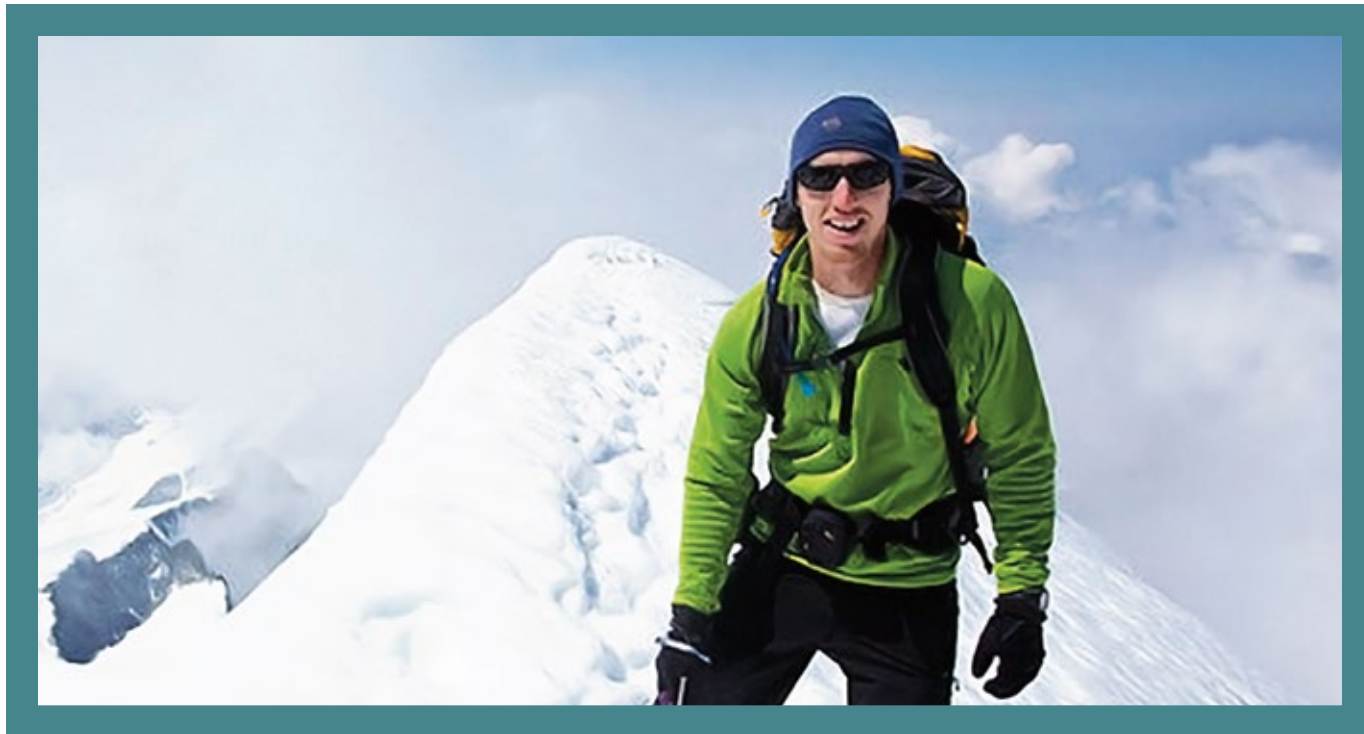
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SERVING THE MOST VULNERABLE

People who are homeless struggle with health issues and stigma. Now, the challenge of keeping the most vulnerable healthy is more complicated due to the pandemic.

Sorosh Kherghhepush, a research fellow at the WSU College of Pharmacy and Pharmaceutical Sciences, is making a positive impact in the midst of COVID-19.

He and a team from the Elson S. Floyd College of Medicine perform health checks and deliver socks and sack lunches where homeless individuals congregate in Spokane.

Serving the public good and tackling real problems is a part of WSU's 130-year history.



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PULLMAN VANCOUVER TRI-CITIES SPOKANE EVERETT GLOBAL

FIRSTWORDS



Symbiosis. Many of us have taken to hiking trails and forests during this pandemic, in exchange for other types of vacations. We admire the rivers, towering firs, and flowers, but it's easy to look over amazing fungi on the trees and rocks in front of us: the lichens.

Lichens are so much more than fungi. They aren't even a single organism; lichens survive because of a symbiotic partnership with algae or cyanobacteria that provide carbon. Symbiotic relationships, a foundational part of the living world that we're starting to understand even more, inspire the research of Stephanie Porter, a microbiologist at WSU Vancouver.

Porter studies the evolution of cooperation and plant-microbe symbiosis. In particular, she analyzes the symbiotic relationship between crops and their microbial community, which has transformed as humans domesticated plants. The work of Porter and her lab is motivated by the need to maintain a healthy food supply with fewer environmental costs.

On a larger level, a symbiotic relationship forms between farmers and those who eat their products. Small farmers, some of whom you'll meet in this issue, need the support of their communities, who in turn get those delicious carrots or apples or beets. WSU plays a part, too, providing tools and training to many of those small farmers.

Connections happen at the smallest levels, even smaller than microbes, although those interactions get pretty strange. WSU researchers are digging into quantum mechanics, where many known rules become unpredictable. It's hard to wrap one's mind around concepts like entanglement, where two particles are inextricably linked and affect each other no matter the distance. However, the results of quantum research will have a profound effect on our technology and understanding of the universe.

This magazine is also deeply linked to you, our readers. We provide stories and insight into WSU to keep you connected. Unfortunately, the COVID-19 pandemic's economic fallout has hit the University hard, with consequences for the magazine.

We will not be printing a spring issue next February due to budget cuts. We're still producing an issue, available digitally around February 1. If you would like to read the Spring 2021 magazine, visit magazine.wsu.edu/connect to sign up for our email newsletter or to follow us on social media. We'll have print-on-demand and other options, too.

The summer issue in May will also have reduced distribution, but we will have print and digital versions. The print magazine will be sent to WSU Alumni Association members and paid subscribers, so join WSUAA if you haven't already. We also welcome any support you can provide to the magazine.

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TALKback

It pays to know who pays

I was happy to see Alysen Boston's article ["An epidemic of misinformation," Fall 2020]. She is correct to point out motives of political or sales agendas. When we investigate sources, it is not enough to know the source, we must know who is paying the source. Follow the money! Is it a few dollars of support from an individual or billions from an industry? Once we know that answer, motives become very apparent. Using coronavirus as the obvious example: Research for yourself who is paying billions of dollars to politicians, universities, mainstream media, WHO, CDC, NIH, certain doctors in the limelight and funding scientific and unscientific studies for and against certain treatments/cures. It is easy to find public information. The answer will not surprise anyone. Another point not mentioned in the article, is what information are we not

receiving at all due to censorship? When an entity or group is in a position to gain big money profit from pushing one side of an agenda, any information they pay for is suspect.

WESLEY WILKERSON '85 BUSI.

Proud of the pride

"Cougar confidential" [Fall 2020] brought back fond memories of my own experience as Butch and made me realize there is likely a whole cadre of other Butch alumni that go unheralded: those brought into service for events at the then newly-developing branch campuses. When I was brought in as director of development for the Tri-Cities campus, there were so many requests for Butch to appear at events in the area that it was impossible to fulfill the demand from the Pullman campus. So, WSU Tri-Cities was given its own costume.

While access to a proper costume was key, there was no training provided that anyone could recall and the only instruction provided was that Butch did not speak. My two major non-WSU sponsored events were at a Tri-City Americans hockey game and the annual 4th of July community parade.

I recall how disappointing it was after the hockey game to walk out of the locker room with Butch safely tucked into the duffel bag, wading through rows of kids who minutes before were enthusiastically hugging and high-fiving Butch but were now completely ignoring Glenn who emerged out of it. Gave me great respect for all the former Butches who managed to maintain their secret identity for sometimes years. A remarkable group of students and so glad they are now finally getting their due respect.

GLENN WILLIAMS '89 BUSI.

FROM THE president



AS THE CLOSE OF THE FALL SEMESTER APPROACHES, the University continues to make a significant difference in the lives of Washingtonians and people far beyond the state's borders—despite the continuing challenges of COVID-19, systemic racism, and state funding.

Our fall semester enrollment is one testament to the quality of education we continue to deliver. Although many universities experienced double-digit decreases in enrollment this fall, WSU's system-wide enrollment declined less than 2 percent from a year ago. Our emphasis on access in our enrollment policies continues to yield results. Nearly one-third of the 31,159 students enrolled statewide fall semester are first-generation college students. The percentage of students of color is at an all-time high, totaling 31.5 percent of the student body.

Our faculty and staff continue to creatively deliver life-changing experiences to students in a largely online environment. Professor David Thiessen, for example, who teaches chemical engineering, set up multiple web cameras in his lab that allow students to design and conduct experiments in chemical processes remotely. Another professor, Stephen Hines, from the College of Veterinary Medicine, was awarded fourth place in an international competition for his podcast-style discussions.

Meanwhile, we continue to ramp up efforts to address diversity, equity, and inclusion. Among the newest actions under

way: creation of a President's Commission on Diversity, Equity, and Inclusion, a thorough review of longstanding university policies to bring about a truly inclusive environment, and a faculty cluster hire focused on "Racism and Social Equality in the Americas." Our new provost, Elizabeth Chilton, will play a leading role in these efforts.

Our budget continues to be a challenge. As the financial impact of COVID-19 on state revenues became apparent last spring, we were asked to cut spending by about \$37.5 million. We were able to meet that goal, but it required many painful decisions. Positions were eliminated, services reduced, and equipment purchases curtailed. We expect to face additional financial challenges when the legislature convenes in January.

That brings me to *Washington State Magazine*. WSM is the University's flagship communication vehicle, delivering stories that demonstrate the impact of this remarkable institution on lives worldwide. Bringing this information to you in a quality manner is costly. As part of our budget trimming, we reluctantly decided to eliminate the print edition of the February magazine and will limit distribution of the May issue. This is just one instance of the distressing choices we have made in recent months.

Thank you for your ongoing support of the University. I continue to be filled with appreciation and gratitude for our entire Cougar family, which rallies in remarkable ways to overcome every challenge that comes our way.

KIRK SCHULZ

President, Washington State University



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BY REBECCA PHILLIPS

HUMANS COME FULLY EQUIPPED WITH CURIOSITY AND AN IRRESISTIBLE URGE TO EXPLORE THE NEXT HORIZON. IN 2018, THAT WANDERLUST ADDED NEARLY \$9 TRILLION TO THE GLOBAL ECONOMY ACCORDING TO THE WORLD TRAVEL AND TOURISM COUNCIL.

It's been a different story for 2020 as pandemic travel restrictions crippled airlines, cruise ships, hotels, and Airbnbs with up to 90 percent fewer bookings overall. While it may take years for the industry to recover, the shutdown is proving to be an unexpected boon

for the virtual reality market, which reports a big spike in interest.

Once the domain of video gamers, virtual experiences are increasingly popular with educators, ecotourism operators, retirement and care facilities, as well as would-be tourists who are bored and stuck at home.

VR technology and 360-degree video were already in use by a few airlines and travel agents as a vacation destination "try-before-you-buy" experience. Today, companies like Visualise and National Geographic give consumers a chance to virtually immerse themselves in the wonders of Machu Picchu, Cuba, the Great Barrier Reef, or even the horrors of war-torn Syria.

It's all an educational goldmine for Andrew Perkins ('95, '98 MBA), director of the Washington State University Center

for Behavioral Business Research. The associate professor in the Carson College of Business runs a virtual reality laboratory where he studies the physiological and emotional responses that occur while someone is experiencing a virtual space.

One of his goals is to compare how people behave in real versus virtual retail environments.

Using an Oculus Rift VR headset and a specially designed computer, Perkins has participants don goggles and walk through a virtual art gallery, for example, while measuring their responses to changes in the layout and ambience.

"We invented a way to collect data in the virtual space," he says. "For the experiment in the art gallery, they can walk into another room and use their controllers to answer survey questions in 3D right in front of them—just point and click.

"Figuring out how to get that to work was a tough nut to crack," Perkins says. "Once you take someone out of the virtual space and hand them a clipboard and pen, the VR effects may vanish. So, we had to find a way to collect data while they are still in VR."

Perkins says the virtual

experience can activate the same emotional responses that, at least on some level, happen in the real world. He personally tries out each virtual environment before enrolling study participants and says the experience can be shockingly intense.

"I've done roller coasters, dinosaurs, and standing on a platform a thousand feet in the air," he says.

An especially intense program was experiencing rock climber Alex Honnold free solo the 1,500-foot El Capitan wall.

"When you put on the headset, you are sort of floating in space as you watch him climb from bottom to top," says Perkins. "I rock climbed for 20 years and I can't even watch the entire thing. It's that emotionally difficult and scary to watch him climb this incredibly difficult route."

Perkins also had a graduate student try a virtual astronaut training program. "The kicker is that if something goes wrong, you go spinning off into space. You can be crawling along carefully fixing the space station when suddenly your rope breaks and you're head over heels out of control," he says.

"When the student exited the program, he'd sweated through his shirt, and the goggles and controllers were soaked—he was so viscerally a part of that experience."

But while virtual reality can be incredibly immersive, Perkins says the technology has a long way to go before it can become an authentic travel alternative.

"The goggles are still heavy and large, and we use little hand controllers. It can be disorienting if the space is not well designed because, when you disconnect what you're seeing and hearing from what your body is feeling, it's like being on a roller coaster and can cause motion sickness. So, we have to be very careful how we design these virtual spaces.

"As good as VR looks now, it will look a million

times better five or ten years down the road," he says. "Some argue it will be indistinguishable from reality—with technology we can't yet imagine.

"It could be that we'll have the ability to increase the physiological response so that if you're visiting a virtual beach, we can make you feel the warmth of the sun or feel like you're actually skiing down the Swiss Alps."

Perkins says although sensory haptic suits could provide some of those experiences, many futurists predict we will soon have computer technologies that interface directly with the brain. ✨

360° VR PANORAMA FROM THE RIM OF MOUNT ST. HELENS (COURTESY MOUNTSTHELENS.COM)

Pandemic parallels

BY ADRIANA JANOVICH

When the first cases appeared October 1, the gymnasium was quickly converted into a temporary hospital. Three weeks later, classes were canceled for a month. The state epidemiologist ordered Washington State College under “complete quarantine.” All social activities were suspended.

By November 2, the Students’ Army Training Corps (SATC) saw 634 sickened cadets, over half their number. Just five days earlier, there were 98. By the end of the ordeal, 42 would die.

During the final months of World War I, an influenza pandemic swept through WSC, dramatically affecting the campus community. Buildings were transformed into infirmaries with as many as 300 bedridden cadets. Faculty and female students from the College of Home Economics came together to prepare meals for the sick.

“The real challenge was the SATC,” says Trevor Bond, associate dean for Digital Initiatives and Special Collections at Washington State University. “That’s where all the deaths happened.”

Cadets came to campus, a designated training camp, beginning that June. A second cohort arrived in August. “As I understand it, we somehow ended up with fifty percent more trainees than anticipated,” says University archivist Mark O’English. “They didn’t have enough room. All it takes is one or two to have been exposed. In close quarters, an outbreak seems inevitable.”

The 1918 influenza pandemic disproportionately claimed the lives of people in their 20s and 30s and dropped life expectancy by about 12 years for both men and women in just one year. According to the Centers for Disease

Control and Prevention, it was “the most severe pandemic in recent history,” killing more people than World War I.

About a third of the global population were infected. At least 50 million died, including some 675,000 Americans. In Washington state, nearly 5,000 people perished.

As the pandemic was wreaking havoc on the Western Front, it was also taking its toll in Pullman. “The flu didn’t hit when the first soldiers came in, but when it hit, it really hit,” O’English says.

Pullman’s Northwest Sanitarium, with 33 beds, was overwhelmed. So were the WSC hospital and converted gym and Mechanical Arts Building. Three local churches were transformed into sick wards, along with at least two fraternity houses: Sigma Phi Epsilon and Alpha Tau Omega. Convalescents recuperated in Ferry Hall and on the top floor of the Administration building.

WSC nurse Mary B. Packingham set up the church hospitals and served as head of the ATO infirmary, which she also organized. She had recently enlisted and was awaiting her call to serve overseas when the flu broke out. She worked as many as 36 hours straight tending to patients. Packingham died of the flu herself at the ATO house on October 29. The *Pullman Herald* called her “a martyr to duty.”

To help stop the spread, all public gathering places were closed, and sentries were posted around WSC to keep cadets from leaving. “We literally had soldiers patrol-

ling the edges of campus,” O’English says.

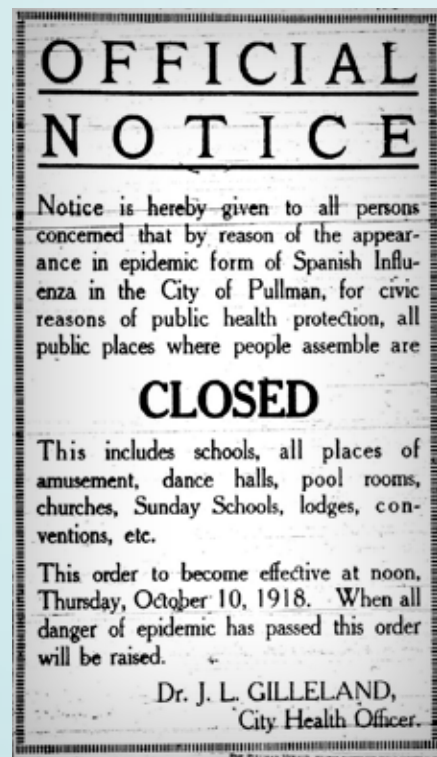
Passes were required for going on and off campus. And, said former WSC bursar Clarence Hix for a 1980 oral history project for the Whitman County Historical Society, “we had to wear masks.” Hix, who worked at the College from 1911 to 1957, recalled a professor who refused to show a guard his pass. The guard pulled out his gun.

When the pandemic was at its worst, College of Home Economics head Agnes H. Craig and her crew prepared more than 900 meals per day. In all, they served some 17,000 meals during the crisis. “Home Ec. became this giant kitchen,” Bond says.

It wasn’t enough, one father argued. Spokane’s Roger S. Sanborn charged both the College and War Department with mishandling the pandemic, alleging both were responsible for cadet deaths, including that of his son, Roger P. Sanborn. The state launched an investigation. Both WSC and the government were cleared of any wrongdoing.

On November 11, when the armistice ending “the war to end all wars” was announced, people filled Pullman’s downtown to celebrate.

That same day, Craig wrote to Leila Wall Hunt, associate professor of home economics: “It would be difficult to experience a finer spirit or quality of cooperation than has existed among members of my staff in association with a large representation of faculty women and women students who volunteered their aid in a time of need.” *



Courtesy WSU Manuscripts, Archives, and Special Collections

Books of knells

BY BRIAN CHARLES CLARK

When Washingtonians were told to “stay home” to “stay healthy,” ethnic studies associate professor John Streamas began seeing a dramatic uptick in online discussions of plague literature. Intrigued, he devoured Daniel Defoe’s *A Journal of the Plague Year* (1722), published nearly 60 years after the bubonic plague swept through London. Streamas decided to write a plague journal himself but, instead of looking back, he wrote from the middle of the pandemic, embracing the flux of facts, theories, false claims, and shifting ethical ground.

Titled “It’s Not Racist if It’s Accurate: A Plague Journal on the Tag Teams of Authority,” Streamas’s journal is part torn-from-the-headlines reporting, part personal observation together with a large measure of historical scholarship.

“I wanted to capture things as they were happening,” Streamas says, but to also compare remarkably similar stigmatizations across many centuries of pandemics. At the turn of the twentieth century in San Francisco, Chinatown was cordoned off and Chinese blamed for bringing disease by way of food choices and “unclean” practices. “It’s amazing how,” Streamas says, “that as time passes and we learn more and more, the accusations are the same!”

He notes, too, that what scholar-journalist Naomi Klein calls “disaster capitalism” is in full swing during the coronavirus pandemic: the world’s billionaires were half-a-trillion dollars richer in May than they were in January.

Streamas writes, “A foundational truism in Ethnic Studies is that any

catastrophic event—war, economic collapse, ‘natural’ disaster—disproportionately hurts already marginalized groups. This truism stands out against the larger truism that constant, ambient inequality maintains the marginalizing of targeted groups.”

What Streamas argues is that even as the message of bigotry remains the same across generations, the source of bigotry has shifted. In the late nineteenth and early twentieth centuries, it was the professionals in the medical establishment claiming that Asians were pest-ridden disease carriers. The politicians of the time, Streamas says, certainly had the doctors’ backs in that message, but it was the medical men themselves who delivered the message. Contrast that to the current pandemic where the scientific and medical establishments are trying to minimize stigma while certain politicians are vociferously racist, calling the COVID-19-causing coronavirus the “Chinese flu” and the “Wuhan virus.”

Part of the reason the virus of bigotry continues to ravage, Streamas argues, is that we simply haven’t dealt with systemic racism. “[H]igher education and ‘diversity’ training clearly fail,” he writes, and “are designed to fail,” as responsibility is devolved upon individuals rather than the institutions (higher education included) that perpetuate it.

Indeed, Streamas says that efforts to address racism are little more than self-help. Books like *White Fragility* and other tomes coming out of the diversity-workshop industry all locate racism in White culture and White individuals, he says, stripping disaster capitalists of culpability and putting the onus of change on the employees they send to diversity workshops.

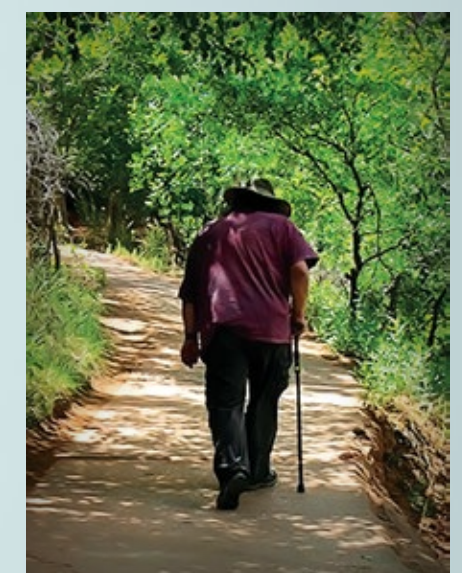
This line of argument is interwoven with many moving and thoughtful passages about day-to-day life during lockdown. Many of Streamas’s students are Black and Brown, and many hail from the Seattle area—where the early months of the pandemic hit hardest. In online classes and follow-up emails, he hears of the toll the pandemic takes on his students.

Streamas recalls a professor who once said the most affecting line in the entire King James Version of the Bible was also

the shortest: “Jesus wept.” He says the passage in the journal that most affects him is also the shortest entry. On April 26, Streamas writes, “In the past week I have



Above: Original edition title page. Wikimedia Commons. Below: John Streamas. Courtesy WSU School of Languages, Cultures, and Race



received emails from two students who have close relatives suffering the virus, and another told me his father has just died of the disease.” *



Fallen, but not from history

Charles Kirkham. Noel Plowman. Toll Seike. Allen Ferguson. Sidney Beinke. Myron "Mike" Carstensen. Archie Buckley.

THEY WERE husbands, fathers, sons, brothers. One was a stand-out college athlete and beloved coach. A couple were pilots. A few quit school to serve.

Some were never found.

These seven servicemen are a handful of nearly 260 military personnel with ties to Washington State University who made the ultimate sacrifice during World War II. Now, 75 years after the end of the war, a small cohort of faculty and students in the Department of History are compiling the stories of the men and women who didn't make it back.

The Fallen Cougars Project will celebrate the University's World War II fatalities with an online memorial detailing their early lives, time at Washington State College, military missions, and deaths in the line of duty.

"It's really important to me that we recapture the people behind the names," says associate history professor Raymond "Ray" Sun, who started the project. "They are meaningful members of Cougar nation, just like recent graduates or athletes or scholarship winners. If you go to the WSU Veterans Memorial, you see their names but you don't

know anything about the people who those names represent. That's the primary motivation: to make these names come to life again."

Sun aims to make the stories of WSU's World War II dead accessible to the public and maybe even inspire similar projects. "It would be great to collaborate with other schools in the region or even across the country to build a network of digital exhibits," says Sun, who leads the effort in collaboration with Trevor Bond, director of the WSU Manuscripts, Archives, and Special Collections (MASC).

University archivist Mark O'English as well as several graduate and undergraduate

students are helping with the research, funded by grants and fellowships from the WSU Center for Arts and Humanities, MASC's Lawrence Stark Graduate Fellowship, and William D. Aiken Memorial Fund.

A fellowship from the Center for Digital Scholarship and Curation (CDSC) at WSU allowed Sun to create the framework for the digital exhibit. The biographies will be posted through the Mukurtu cultural archiving program managed by the CDSC, of which Bond is codirector. Last summer, due to the COVID-19 pandemic, he and O'English scanned dozens of documents for student researchers who weren't able to

access WSU Libraries in person. The students worked remotely on 25 profiles each. About two dozen had been completed before COVID-19, including several whose names are not on WSU's memorial wall. They hope to have the project online by the end of 2021.

"I hope the project will grow organically and people will go up into their attics and come back with photos or a yearbook or letters and other memorabilia to add to the collection," says Sun. He got the idea for the project in summer 2017 after attending the national teachers conference of the Friends of the World War II Memorial, an organization dedicated to World War II commemoration and education.

Sun had recently learned of the University's war records through another project in collaboration with O'English and WSU's Senior Reserve Officers' Training Corps (ROTC) to commemorate the hundredth anniversary of the United States' entry into World War I. The records include letters from former WSC President Ernest O. Holland to families of fallen Cougars. Holland had planned to create a booklet honoring the college's World War II dead but

died before seeing the project to fruition.

Now, Bond says, "It's being done in a different way."

Work on the project began in fall 2017. Sun recruited undergraduate students in his World War II history classes to start compiling biographies. He treated the project as service learning; students received credit for participating and using the knowledge they gained in class to provide context for their research. They combed through war, burial, and University records as well as copies of the *Daily Evergreen* and *Chinook* yearbooks, newspapers, websites of veterans' organizations, and more.

They found Kirkham came from Sunnyside, Plowman went down with his plane, and Ferguson set out to rescue soldiers who were wounded during early morning patrol. Seike, a son of Japanese immigrants, enlisted at an internment camp. Carstensen took part in the first assault wave on Saipan. Hit by a mortar blast, Beinke was treated for his injuries, then went back to battle to carry out his command. And Buckley acted quickly to warn crewmates aboard their aircraft carrier of an impending kamikaze attack.

"It's really tough stuff," says Bond, who's writing several of the biographies. "When you see young people at the start of great things in their lives die, it's extra hard. I think these veterans really bring that home. I'm just grateful that the University gathered so many of these records. Many of the parents wrote with stories of how their sons died, sometimes including copies of the commendations for medals. It really does humanize the sacrifice and family toll." ✨

We put them through

CORA HARRINGTON keeps it right up there on the wall, hanging in her husband's shop just below his bachelor's degree. When she received the certificate at the end of May, right around the time Michael Harrington ('67 Mech. Eng.) received his diploma, "It meant a lot to me," she says. "It was an honor to be recognized."

And it remains an important keepsake. "I've had it framed ever since I received it," she says. "In 53 years, it's been on the wall in almost every room of the house."

Washington State University was one of many institutions of higher learning across the country to recognize wives' contributions to their husbands' education with "Putting Husband Through," or "PHT," degrees, in appreciation for work outside the classroom, from earning money to support their households to caring for their young children and tending to their homes.

The practice of presenting PHTs is now largely lost to history. But it was particularly popular in the post-World War II era and continued through the 1960s. At WSU, the effort was coordinated by the Kappa Chapter of the National Association of University Dames, a social and charitable club for wives of college students. WSU's mechanical engineering program had an especially active sub-group, called the ME Wives.

Harrington joined University Dames after arriving in Pullman in January 1965. The couple, high school sweethearts from Bremerton, lived in married student housing at 44C South

Fairway. She turned 20 that February, and their daughter was born in March. Harrington worked on campus as an administrative assistant in the Department of Physical Education for Men. She was also among the last groups of wives at WSU to receive the PHT recognition.

Her certificate, presented by the Department of Mechanical Engineering at WSU, conferred her degree "with all the rights, privileges, and honors pertaining thereto in recognition of her praiseworthy and successful efforts, despite privation and hardship, in helping her husband to attain his degree in mechanical engineering." It's dated May 28, 1967. And it's signed not only by the department chair but by the dean of the College of Engineering and the University president himself.

PHTs were typically awarded at potlucks or informal ceremonies during social gatherings, says University archivist Mark O'English. But the group doesn't seem to have donated their records to the WSU Archives. If any former members or others hold records, photos, or documents associated with the organization, "we would love to have them," O'English says.

Members held monthly meetings and social activities, such as dances that included both husbands and wives.

"I can remember some picnics, Christmas parties, and a flag football game out in Palouse

on some farmer's field," says Doug Auburg ('65 Mech. Eng.), whose late wife Tamara was a member of the group.

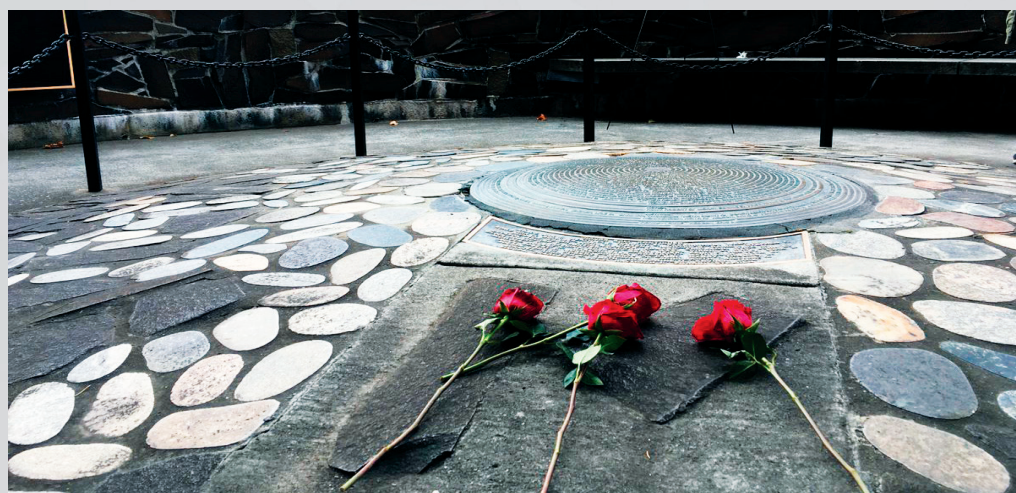
The last mention of the Kappa Chapter in the University's archives appears to be 1971, O'English says.

The *New York Times* on April 9, 1974, referred to the honorary degree as "a quaint relic." Nadine Brozan wrote: "It was called the 'Putting Hubby Through' diploma, and it was once awarded by universities as token thanks to wives of students. But with the drive for equality propelling women into the upper reaches of academe, the decision to support a student husband is being weighed on a new scale. After all, the reasoning goes, if John can study medicine; why can't Jane; if he aspires to a professorship, why not she? And in the face of dual ambitions, the question of who pays for whom and how has taken on new complexities."

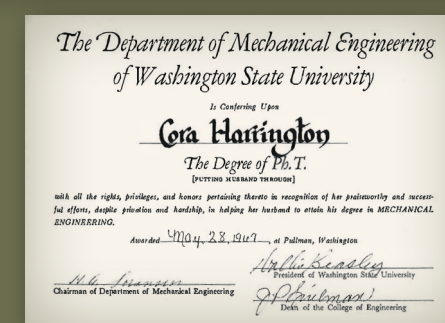
The highest numbers of PHTs were awarded just after World War II, when veterans enrolled in unprecedented numbers. Marriage rates, which had remained low during the war, soared after its end.

"We were the generation after the G.I.s," Auburg says. "We were at the beginning of a time of transition to women working after marriage as an accepted social thing. The PHT degree was a symbol. It represented a partnership, one partner helping another." ✨

read more: magazine.wsu.edu/extra/fallencougs and magazine.wsu.edu/extra/PHTs



WSU VETERANS MEMORIAL IN PULLMAN (COURTESY COLLEGE OF AGRICULTURAL, HUMAN, AND NATURAL RESOURCE SCIENCES)



COURTESY CORA HARRINGTON



PHOTO: CORIKOAGAN

The audacity to dream

BY BRIAN CHARLES CLARK

As the COVID-19 pandemic claws at the fabric of American society, the worst affected are those in our most underserved communities. With bodies and spirits already pushed to the limit by chronic diseases—racism, diabetes, substance use disorders, and more—Native American communities suffer terribly as nurses, doctors, and their colleagues scramble to treat those they can.

Among those on the front lines of the pandemic are former participants of a Washington State University program, Na-ha-shnee, the Native American Health Institute. People like Rhonda Martinez-McFarland, a Spokane nurse practitioner and a commander in the U.S. Public Health Service. People like Hailey Wilson, a Nez Perce doctor working on the White Mountain Apache Reservation in eastern Arizona. And Shoshannah Palmenteer, a health clinic administrator and Colville tribal member working with her people in Grand Coulee.

The hundreds of participants in Na-ha-shnee's long history are helping to heal a broken health care system. Native American high school students, profoundly inspired by what they learn at the hands-on, experiential health sciences camp, share in the beauty and wisdom of their cultures while also discovering that they can make a positive

difference in the health of their communities. Na-ha-shnee, quite literally, unleashes strong medicine for the body and the soul.

NA-HA-SHNEE TURNS 25

The story of Na-ha-shnee begins with the hiring in 1995 of Robbie Paul, a Nez Perce woman who worked tirelessly to recruit and encourage Native students to pursue careers in nursing. Indefatigable, Paul has been retired from her position as director of WSU's Native American Health Sciences program for a few years but she still mentors students.

"The original idea for Na-ha-shnee was based on Native input," Paul recalled recently. She had a Native American advisory board to help guide her, as well as rich collaborations with Barbara Aston, former tribal liaison for WSU, and the late Sharon John, a nurse and Yakama-Umatilla tribal member.

Hands-on experiential learning is "a proven model," Paul says, that opens doors for young people who might not have otherwise considered a career in health care. The impact is amplified when Native professionals serve as camp counselors and share stories of their own journeys.

Janet Katz, one of Paul's longtime collaborators and a professor in WSU's College of Nursing, is a staunch supporter of Na-ha-shnee, as much for what the program does to bring Natives into health professions as for inspiring young people to go to college, whatever career they choose. "People with more education are healthier, they have higher incomes," she says. "There is so much inequity in our society and usually the ones who get

to go to college happen to be born into situations where they also have opportunities." Katz and others have shown that diversity in health care has a positive impact on quality of care and on health outcomes.

A college campus could be stressful for students who'd grown up on a reservation. Paul, Katz, and their colleagues found ways to help their students express their fears, doubts, and hopes. One way was by taking a photo that represented something that concerned them, or that they hoped for. Katz recalls, "One student took a picture of a ladybug on a tree trunk, saying 'I am small, but college and a career are big!'"

I AM SMALL—WE ARE GREAT

From the very beginning, Paul, a passionate storyteller drawing on the wisdom of many generations, grounded students in traditional cultural knowledge. One of the stories she tells is that of the creation of her own people, the Nez Perce.

In the story, Coyote kills a monster that's been killing animals. Coyote and Fox cut the body into pieces, scatter the pieces to the four directions, and thus people the world. Soon, the remains of the monster are all gone. But the beautiful Kamiah Valley where the monster had made so much trouble is empty, with no one to enjoy it. Coyote says to Fox, "Bring me some water with which to wash my hands." Coyote sprinkles the remaining drops of monster blood from his hands and creates the Nez Perce people. Coyote says to the newly emerged people: "You may be small, but you're strong, brave, and intelligent."

Paul says, "I share that story because when I was growing up, I had a teacher tell me I was just a dumb Indian. My father helped me learn that story so I would know that I was not dumb but rather was intelligent. I got a lot of letters from camp participants telling me, 'I now believe I am not a dumb Indian' and 'I didn't think I could do it,'" students who are now health care professionals and productive researchers.

Paul says Na-ha-shnee started because a group of inspired people "knew that we needed to provide the opportunity to undo those stereotypes. They needed to know they could do it, and that they were loved."

More than 500 students have participated in Na-ha-shnee in its 25-year history.

THE AUDACITY TO DREAM

Lonnie Nelson, an assistant professor in the College of Nursing and a descendant of the Eastern Band of Cherokee Indians, affirms the power of experiential learning.

"My mom was an Indian Health Services nurse," he says. When he was in the tenth grade, they were living on the Navajo Nation. "My chemistry teacher had heard about a program at Northern Arizona University." Nelson was one of two students accepted from his high school.

"So off to Flagstaff we went for six weeks on a college campus." Nelson says his "goal had been to join the military," in honor of the warrior tradition of his people, "but that program changed me. One thing was just the exposure to college life. And here were these researchers at this university who were taking an interest in me, and listening to my ideas, and trying to incorporate them into the research in a real chemistry lab. And that was a first for me! Now I'm a university faculty member and in the position to create a pipeline like that."

Nelson is collaborating with Naomi Bender, the new director of Native American Health Sciences, in expanding opportunities for Native American young people. Nelson had planned to run a six-week camp giving students research experience.

But then the coronavirus pandemic threw everyone's plans in the air. Bender, Nelson, and their colleagues quickly regrouped.

This year, 33 students from all over the country will participate in an online program

that combines aspects of both Na-ha-shnee and the program Nelson had envisioned.

"A lot of schools have been forced to adapt, and from our perspective, something was better than nothing, so we decided to do something," Nelson says.

"We're sending the participants Chromebooks," to ensure they can get online, "and every week they'll get a package from us. It'll contain the kits for the experiments for the week as well as any other supplies they might need for other activities. We're sending them a microscope and slides, so they prepare and stain samples. They'll get petri dishes, and agar" so they can grow microbial cultures.

"We are planning to hold talking circles at the end of every day, with an adult facilitator, to reflect on whatever is going on." The talking circle is a ceremony with a central place in Native cultures. Participants speak one at a time, as others listen in respectful silence. There is no judgment or criticism. The talking circle, Nelson says, gives students "space to share" whatever is on their minds: science, careers, or the stress of living through the uncertainty of a pandemic.

Wil James, a Swinomish physician and Native speaker, will be there to help facilitate talking circles. The circle is important because "all of us are smarter than any one of us. That's the power of oral tradition: it provides space for everyone. Critical thought, open mindedness, talking from the heart, all have the ability to bring people together despite their differences."

Suspending judgment through mutual respect "allows for the sharing of information which breeds creativity. When we become polarized, we become unenlightened to what could be," James says.

James was educated at Stanford and received his medical training at the University of Washington. "What I bring is that—a melding of the two. My goal is to expose people to the way I was taught. I am bringing teaching from an oral tradition."

James adds that while "some people would talk about cultural appropriation, the simple power of the talking circle can be used by everybody."

In his new role as an assistant director of student mentoring and success, James likes to say that "the paint moves."

"At a pow wow, the paint people wear has meaning. It's like a mantle, or a role, a responsibility. If you go again ten years later, you'll see the same paint, the same roles, but on different people." Just as James once wore the paint of a student, now he wears the paint of a teacher. "I'm trying to move the paint to the next generation of people," he says.

"Society deserves to teach the next generation" of healers, storytellers, scientists, engineers, "and we need to strive to find ways to reach people so they can be taught the things they need to be taught. And our responsibility as teachers is to find those ways.

"We need the audacity to dream, to see our own self-worth," James exclaims. "Dream big—and start with yourself!" *



PHOTO: EMMA FOX/COURTESY SWINOMISH COMMUNICATIONS

Maestro of many voicings

A HUSH FALLS over the crowd as symphony orchestra conductor Danh Pham takes the podium and slowly lifts his baton. With the down stroke, he leads the performers through a seemingly effortless musical journey that enchants the audience and clearly brings Pham great joy.

A native of Honolulu’s “ethnic mixing pot,” Pham delights in sharing music with all people, whether that’s conducting the score of *The Force Awakens* at Spokane’s Fox Theater or teaching a master class at China’s prestigious Wuhan Conservatory of Music.

The associate professor at Washington State University is known for musical selections which embrace not only classical titles but also those by contemporary composers and musicians who were marginalized or undiscovered during their lifetimes.

“In our discipline, it’s really important that we focus on classics, but we have a sense of duty as artists to promote living composers who will become the Beethovens of the future,” he says.

“We also have composers who never got a chance to see the limelight because they’re women or of an ethnic minority and lacked the opportunities that would get them to the stage to mature and become part of the mainstream. Today, many organizations are trying to right that wrong and shine a light on those composers.”

Last winter, Pham put that pledge to the test while conducting the Washington Idaho



Maestro Danh Pham conducting the 48th season opening concert of the Washington Idaho Symphony. Courtesy Washington Idaho Symphony

Symphony in a concert called *Explorations!* that introduced the public to compositions most had never heard before.

“I was extremely fearful beforehand,” he says. “I didn’t know what the reaction would be. Many conservative concertgoers want to hear their Beethovens and Mozarts—the music they’re familiar with.”

Explorations! instead highlighted Black composer, conductor, and English political activist Samuel Coleridge-Taylor (1875–1912); Ellen Taaffe Zwilich, the first woman to win the Pulitzer Prize in composition; and Florence Price (1887–1953), the first Black woman to have a composition performed by

a major American symphony orchestra.

“Lo and behold, it turned out the audience loved it,” says Pham. “Oh, give us more of this,” they said. ‘It was fantastic!’ From that point on, for all of my music groups, we committed ourselves to performing more underrepresented composers.

“That includes the chance to spotlight composers who without question are writing about Black Lives Matter and tensions in society,” he says. “Artists reflect upon the times they are going through and it will be important to program those pieces that are still being written. At WSU, we’re committed to performing the works of leading African

American composers such as Kevin Day and Omar Thomas.”

This year, unfortunately, many of Pham’s plans for student orchestras, wind ensembles, and bands have been disrupted or postponed due to the coronavirus pandemic.

“Performing is the life blood of what music groups do,” he says. “Our top concert band was supposed to tour South Korea last spring when it was just becoming a hot zone. It was also the Saturday when Washington was declared the site of the first COVID death in the country. I thought about it all weekend and on Monday, I was on the phone with our travel companies who graciously agreed to cancel the trip and refund us almost entirely.

“Now, it’s all a waiting game. We’re trying to figure out how to safely perform with singers and instruments in the same room. We’ll be working on this until we have a vaccine available.”

The isolation required during COVID times has been particularly tough on Pham, who has long seen music as a vehicle to socialize and collaborate with other people.

“It’s really difficult to do music online and afar,” he says. “You see many virtual groups performing on YouTube and Zoom but people don’t realize the incredible amount of editing time it requires for a short 4- to 6-minute video.

“Even though I’m a private person, my craft relies on being with other people. That’s where the joy comes out. I love working with students. I’m of the ilk that if there are no students, there are no musicians, and no me. Performing is about sharing not only with the audience but with the talented musicians on stage.” ✨

A heart for service

BY RACHEL WEBBER

ON A SPONTANEOUS TRIP to the Yakima Valley Museum, Tabitha Espina (’20 PhD English) perused the history exhibits and wondered, “Where are all the Filipinos?”

A WSU Pullman graduate student at the time, she had read about the experiences of Yakima’s Filipino Americans in Carlos Bulosan’s classic 1943 memoir, *America in the Heart*.

Espina’s question led her to a roundtable with the museum, Arts Washington, and Humanities Washington where she served as a graduate fellow, exploring ways to amplify Filipino-American narratives in the Pacific Northwest.

They came up with an idea to promote take-out, including adobo, rice noodles, and lumpia, from the Filipino-American Community Center in Wapato. Another idea was inviting a Filipina children’s author to share her books with museum visitors.

Espina is fascinated with language and the power of words, along with their ability

to shape identity and sense of belonging. She grew up on the tiny island of Guam and moved an ocean away to earn her doctoral degree at WSU.

Now an assistant professor of rhetoric and composition at Eastern Oregon University, she reflects on her experiences and draws parallels between rural life and island life. “You may not be separated by oceans. But there are other borders,” she says. “How do you transcend those borders? Not just geographically, but also ideologically.”

In isolated spaces, finding a supportive and welcoming community is essential. When Espina visited the WSU Pullman campus for the first time, she flew into the Spokane airport.

“Guam is only 30 miles long, so sitting in the car with a stranger for an hour and half was new to me,” she recalls.

The stranger was Amir Gilmore, who would become her friend. He was a graduate assistant for the Research Assistantship for Diverse Scholars initiative, a recruitment effort to increase access to doctoral education for U.S. students from underrepresented or underserved communities, while increasing WSU graduate student diversity.

For her doctoral degree, Espina investigated identity politics among Filipinos who

have been colonial settlers of Guam for generations, a subject that’s both academic and personal.

“When I was seven, I came out with an album entitled *Island Girl*,” she says. “But I’m Filipino, so throughout my life people have always wondered, ‘How can you claim to be an island girl when you are not Chamorro, one of Guam’s indigenous people?’

“At the time, I wasn’t having very critical ideas about positionality or intersectionality. I just thought, well, ‘Where do I belong?’”

As she learned about the struggles of Chamorro people, she asked how she could help. She is now a founding member of “Filipinos for Guahan,” a group dedicated to decolonization and justice for Guam’s Indigenous people.

Espina’s work in the classroom and communities requires curiosity, like a moment in a museum. It also requires imagination and envisioning how communities can engage with different perspectives. In addition to teaching and research, she has a heart for service.

“I just want to continue to serve,” Espina says. “Serve the communities wherever I am and the community I call home in the Pacific.” ✨

“Serve ... wherever I am ... and the community I call home in the Pacific.”



At right: Tabitha Espina, courtesy WSU Graduate School
Background image: Agana Bay, Google MAPS Street View

A QUANTUM REFLECTION

Are we not drawn onward, we few, drawn onward to new era?*

At first glance, the forces of the universe appear to be predictable. Throw a pebble into a pool, ripples will form. Toss a stick in the air, it falls back to the ground. The past is behind us and today precedes tomorrow.

For millennia, humans have relied on that premise to unlock the secrets governing our natural world. It's been a determined pursuit from the first stone tool devised by a prehistoric craftsman to the rise of ancient Greek astronomy, and later, the field of physics, one of civilization's oldest academic disciplines.

Physicists like Newton and Einstein paved our understanding of matter, motion, energy, force, space, and time—which, in turn, opened the way to harness nuclear energy and create marvels like combustion

engines, computers, and cell phones.

Today, that quest has entered the quantum realm, where things don't always behave with predictability. In quantum's microscopic domain, the physical world seems to move in random and mysterious ways unlike anything described by Newton or Einstein. This unpredictability gives scientists the chance to produce previously unimaginable technologies.

Over the next decade or so, enormous breakthroughs in quantum theory and engineering are expected to deliver products that will boggle the mind. The revolution includes the work of visionary researchers at Washington State University like theoretical physicist Michael Forbes.

Forbes, whose voice carries traces of his Canadian roots, studies the extreme properties of neutron stars. When prodded, he good-naturedly admits his

student days at MIT were much like the television series *The Big Bang Theory*. "I was partly like Sheldon, who is also a theorist," he says, "And, I lived with an experimentalist who was pretty similar to the Leonard character."

In fact, Forbes's advisor was awarded a Nobel prize for a famous equation that appeared on Sheldon's whiteboard in one of the show's episodes.

It takes that Sheldon-type intensity to unravel the confounding complexities of quantum mechanics. If you're not a physicist, concepts like superposition, entanglement, or tunneling can be confusing.

"That's because of our human size," says Forbes, an associate professor of physics and spokesman for the WSU Quantum Initiative. "In our world, Newton's laws like gravity and $F=ma$ (force equals mass times acceleration) apply to the things we can easily observe, such

as watching an apple drop from a tree."

But Newton's laws have problems when you start pushing the boundaries of our human-sized existence.

At extremely high speeds, for example, it takes Einstein's theory of relativity to perform accurate calculations. And, when you want to observe things at exceedingly cold temperatures or very tiny scales, quantum mechanics is the right tool.

"Those things are outside of our typical day-to-day experience," Forbes says. "It seems weird to us because we'll never run at the speed of light or see down to quantum level to interact with material there."

Physicists, however, have suspected there could be a quantum world since 1900, when Max Planck theorized that radiation comes in discrete packets or quanta. Researchers like Einstein, Niels Bohr, and Erwin

Schrödinger expanded that idea until it finally took off during the 1940s and 1950s in what is called the first quantum revolution.

"During this period, quantum mechanics became very concrete and gave rise to the invention of transistors and lasers," says Forbes. "Out of this came classical computers."

In the second quantum revolution, physicists learned to precisely control and measure atoms, which enabled the development of atomic clocks, global positioning systems, magnetic resonance imaging, and an array of quantum sensing devices.

Forbes says many WSU researchers are actively engaged in quantum's third revolution, which is focused on new quantum technologies, building ultra-precise sensors, and solving complex problems beyond the capabilities of current computers.

"We could use quantum computers to solve a lot of prob-

lems we can't solve with classic computers," he says. "But you can also build extremely fast analog computers that work with electrical signals and circuits."

Quantum computing in the form of analog quantum simulations is already being used for research at WSU and forms the backbone of the University's Quantum Initiative. The effort is aided through regional partnerships with Pacific Northwest National Laboratories, the University of Washington, and the Northwest Quantum Nexus.

"We use these techniques to try to solve problems and discover new quantum phenomena that can be engineered into practical applications," Forbes says. "For example, we can use Peter Engels's ultra-cold lab as an analog quantum computer."

Engels, a WSU physics professor known for creating the first Bose-Einstein condensate in

the Pacific Northwest, traps and cools atoms to the point where quantum effects become apparent, which then allows researchers to conduct experiments.

"It turns out that what we think of as particles at room temperature are actually waves with very short wavelengths," says Forbes. "When you slow atoms by cooling them to nano Kelvin temperatures just above absolute zero where there is no movement at all, the wavelength increases, and quantum mechanics apply."

"And, the atoms in Peter's lab get colder than any naturally-occurring system in the universe. Creating such an extreme environment has only become possible by exploiting some of the most modern atomic physics tricks."

Ironically, it's the perfect environment for Forbes to study neutron stars—incredibly dense remnants of a supernova explosion. He says that matter in a neutron star is governed by quantum

mechanics because it has been crushed to such a small scale. One teaspoon of a neutron star weighs as much as a mountain.

"The remarkable thing is that the extremely hot neutrons in these stars behave almost identically to the ultra-cold atoms trapped in Engels's lab," Forbes says. "Once we understand how neutron stars behave, we can start applying it to nuclear physics and eventually use those discoveries for applications in nuclear energy."

Forbes's work is just one snapshot in the catalog of brilliant projects currently underway in WSU's Quantum Initiative. Other researchers are exploring aspects of quantum chaos, optics, hyperpolarized noble gases, exotic matter, chemistry, and engineering. Their efforts not only help advance quantum computing but usher in the wider quantum technology revolution as well. *

* SORRY—WE COULDN'T RESIST THE PALINDROME (ILLUSTRATION PETE LINFORTH/PIXABAY)

WSU Quantum Initiative Research

* **Michael Forbes** – associate professor of physics. Studies quantum many-body theories to investigate neutron stars, cold atoms, superfluids, condensed matter, and computer science. * **Peter Engels** – Yount Distinguished Professor in Sciences. Cools atoms to nearly absolute zero to study the quantum mechanical foundations of nature. Designs new paradigms for future technologies in areas of quantum sensing and quantum analog simulation. * **Brian Saam** – professor and chair of the Department of Physics and Astronomy. Studies spin physics, magnetic resonance, and hyperpolarized gases for medical imaging uses such as MRI. * **Mark Kuzyk** – Regents Professor of physics. His theories of light-matter interaction guide the development of optical transistors which will greatly increase the processing speed of computers and other technologies. * **Steve Tomovic** – professor of physics. Studies quantum chaos, the frontier where aspects of classical Newtonian physics and

quantum mechanics coexist and create highly unusual phenomena, like chaos-assisted tunneling. * **Jeffrey McMahon** – assistant professor of physics. Searches for exotic phases of matter through the study of quantum fluids and solids. Examples are dense hydrogen, dense water-ice, and superfluidity. * **Subhanshu Gupta** – assistant professor in the School of Electrical Engineering and Computer Science. Develops integrated circuits for large antenna arrays that will enable the use of holographic wireless communications, autonomous vehicles, and deep-space communications. * **Aurora Clark** – chemistry professor and director of the Center for Institutional Research Computing. Conducts fundamental research in quantum and statistical mechanics and data science with potential applications for quantum computing algorithms. * **Kevin Vixie** – associate professor of mathematics. Studies the geometry of quantum computation.



Guiding a transition game

BY RJ WOLCOTT

For more than three decades, **KYLE SMITH** has helped young men make the transition from adolescence to adulthood through the game of basketball.

He doesn't see himself as a parental figure or a big brother. His role is more similar to that of a guide, ushering student-athletes to the summit of self-empowerment.

"Being around 18- to 22-year-olds for 33 years helps you get a good idea what it's like being a young adult," Smith says.

Smith sees tremendous value in transparency.

"My mindset has always been that opting-in is key" he says. "It's not so much selling a program to a student-athlete; it's saying, 'Here's who we are and what we're all about.'"

Smith is well known for his stats-based approach to the game of basketball, which has seen dividends in his short time leading WSU's men's program, particularly on the defensive side of the ball.

Last season, the work he and his team put in paid off significantly for a program that hadn't seen a .500 or better record since the 2011-12 season. His inaugural 16-16 season included significant wins over an Oregon team ranked eighth in the nation and a sweep of the University of Washington Huskies.

At WSU, the focus now is on building up players through solid coaching and maintaining the momentum that helped secure highly

touted prospects like Andrej Jakimovski and Carlos Rosario.

"We're looking to become more efficient offensively," Smith says, noting significant strides last year in defense and rebounding. "It'll be a bit of a reboot this year with six new guys, and it always takes time to jump from high school to the Pac-12."

The loss of CJ Elleby to the NBA draft—a dynamic scorer who created opportunities across the floor—is a challenge Smith is looking forward to.

While his time in Pullman has been brief, he's already grown accustomed to the ever-present Cougar Spirit. Whether it's a free cup of coffee or someone waking him up from a nap on an airport bench to say, "Go Cougs," it's an environment where Smith and his family feel welcomed and supported.

"I've never been around an alumni base that's so loyal," Smith says.

As ever, the goal for this year is to make it to post-season play. That'll require strong outings against conference opponents eager for the same thing. For now, he's looking forward to having his players back in the gym and seeing how much they've been able to improve in spite of the challenges posed by the ongoing public health situation.

"Everything that is being done is to protect the health and safety of each individual," Smith says. "We have a young team so it will give us a chance to bond and grow together." ❄️

COURTESY KREM

memories of the Butchmen, and the notorious Butch Brawl: magazine.wsu.edu/extra/Butchmen

Butch and the Butchmen

BY ADRIANA JANOVICH

The Butchmen were students with a big responsibility: getting Butch to the field for home football games back when Washington State University's mascot was a live cougar.

They helped wheel the cougar from its cage to the stadium and watched over the animal as students and their parents, fans, and alumni came for a closer look, often posing with Butch for photos. And, when WSU scored, they took a lap, carting the cougar past the stands and bringing the crowd to its feet.

"I think we may have invented The Wave," jokes retired Colfax dentist Al Kirkpatrick ('75 Zool.), a member of the Butchmen his sophomore through senior years. "As we got the cougar in front of each seating section, they'd stand up and cheer and wave. We did the student section first, then the alumni section. When the Cougars scored a lot of points, we got tired."

The Butchmen formed in 1963 and disbanded after the last live cougar mascot died in 1978. Before them, though, other student handlers—known as the Cougar Guard or Intercollegiate Knights—hailed Butch through downtown Pullman during parades and showed off the animal during sporting events.

"It was a pretty large group when I was involved," says Barbie Olson ('68 English), a member of the Yell Squad from 1965 to 1967 and longtime volunteer consultant and advocate for WSU's cheer program. "What I remember about the Butchmen is they wore hats and

blazers, and they were quite a group. They weren't responsible for Butch's care and feeding or cleaning his cage. That was done by his keeper and not left to a bunch of college boys. But these guys were all obviously spirited athletic fans, and they were also considered leaders."

In the 1960s, the Butchmen distinguished themselves with crimson-and-white striped jackets and straw boater hats. The group of some 30 to 50 members enlivened rallies and games with original skits and cheers, and helped raise money to support Butch. "We sold seat cushions before football games and, I think, before basketball games, too," says Kirkpatrick, who also remembers helping out at alumni and donor events.

By the time he was involved, though, there were only "probably six or eight" in the group. And, three years after he graduated, the Butchmen were out of a job when an aging and ill Butch VI was euthanized in late summer 1978.

WSU's cougar mascot tradition dates to 1919 when Washington State College played its first football game as the Cougars. According to University archivist Mark O'English, the Cougar Guard formed after University of Washington fans stole one of WSC's two stuffed cougar mascots.

The Cougar Guard became affiliated with the national honorary service fraternity of the Intercollegiate Knights, and members wore white sweaters adorned with a knight's helm. Their duties included guarding the stuffed mascot as well as the Victory Bell—and ringing it after wins. When WSC was gifted its first live cougar, the Knights guarded its cage overnight before games.

The legendary Butch mascot tradition was born when Washington Governor Roland

Hartley gave the campus its first live cougar cub in 1927. The cub was named for Spokane football standout Herbert "Butch" Meeker. When Butch I died in 1938, then-student body president and football captain Chris Rumburg organized a tag sale to help fund a new cage for Butch II. For 10 cents, supporters could buy a tag bearing the likeness of the first Butch, who lived in a wooden shack downhill from the campus fire station. The new cage, called Butch's Den, was located on the then-forested hill south of the football field. It was later moved outside the east end zone.

Throughout 51 years, six live cougars served as WSU's mascot, each presented by the state governor after the passing of the preceding Butch. Butch III and IV were twin cubs given in 1942 by Governor Arthur B. Langlie, who also bestowed Butch V in 1955.

The last one, Butch VI, was gifted by Governor Albert Rossellini in 1964. Following the animal's death, a survey of about 400 students conducted by the ASWSU Environmental Task Force Committee found more than 60 percent opposed another live cougar mascot. Then-President Glenn Terrell, an honorary member of the Butchmen, decided Butch would take a different track. Members of the Rally Squad took turns suiting up to be Butch. Not long later, designated students began taking on the role.

Butch's Den remained on campus until 1987, when it was disassembled. But the rolling cage still rests on the Palouse. "When I saw it advertised in the paper, I knew I had to have it," says Whitman County Superior Court Judge Gary Libey ('73 Poli. Sci.), who bought Butch's old cage at a surplus auction "like 25 years ago. I wanted to own a piece of WSU history." ❄️



FROM LEFT: COUGAR GUARD IN 1927 AND THE BUTCHMEN IN 1966 (COURTESY WSU MANUSCRIPTS, ARCHIVES, AND SPECIAL COLLECTIONS)

New stars on the market shelf

BY ADRIANA JANOVICH

IT'S INHERENTLY FESTIVE. Crimson in color and flecked with tiny golden starbursts, this attractive apple might just make for the ultimate holiday fruit. And, with its long storage capability, it's also quite possibly the perfect pome for riding out a pandemic.

Cosmic Crisp® apples were bred to maintain their flavor—sweet, tangy, tart but not too sharp—as well as texture—crisp, firm, juicy but not watery—for up to a year in commercial cold storage. Even when cut or cooked, they're naturally slow to brown, retaining their pleasing appearance.

Since their release a year ago, Cosmic Crisps, bred at Washington State University specifically for Washington's climate, have proved to be out-of-this-world.

Good Housekeeping awarded the Cosmic Crisp, a WSU registered trademark, its "Nutritionist Approved" emblem. *America's Test Kitchen* tasters scored it "significantly higher than the other apples," noting the variety sports a thick skin that "snaps when you bite into it." That satisfying crunch was also noted by GeekWire, which declared, "The high crunch and firmness of the flesh are deceptive since the overall impression is light rather than dense, and there is very little softness or grittiness."

Not only is the new apple exceptionally good for eating fresh, it stands up to high temperatures in the oven or on the stovetop. "Cosmic Crisp is truly the most versatile apple on the market," says Kathryn Grandy, chief marketing officer for Proprietary Variety Management, which helps get new fruits to the global marketplace. "I'm totally hooked on Cosmic Crisp. It's amazing to bake with. It holds its texture and shape. But when you put your fork through it, it doesn't fight back."

It is, says Jamie Callison, executive chef of WSU's School of Hospitality Business Management at Carson College, "a beautiful apple." He would regularly buy different apples for particular purposes: Granny Smiths for baking, Honeycrisps for salads and cheeseboards. The Cosmic Crisp's versatility, he says, is "why it's going to be successful. It's durable and ships well and stores well. So it's a win-win for producers and consumers," particularly during

learn about WSU's other apple—the Sunrise Magic, and check out recipes for the Cosmic Crisp and where to find them: magazine.wsu.edu/extra/more-cosmic

the current novel coronavirus pandemic, which has some shoppers limiting trips to the supermarket.

Flavor-wise, Callison says, the Cosmic Crisp is "a perfect balance of sweet and tart. It's a hardy apple, too, so it holds up in galettes and pies. I love cooking with apples. But, sometimes, you get apples that fall apart when you bake them. Not these." And, because of their inherent sweetness, Grandy says, "you don't need to mix them with other apples, and you can significantly reduce the amount of sugar."

Use the Cosmic Crisp in sweet or savory dishes, such as tarts, streusels, cobblers, upside-down cakes, salads, and salsas. The apple also pairs well with chicken, pork, and, Callison says, "of course, Cougar Gold cheese." The sharpness of WSU's signature canned rich white cheddar complements the apple's sweetness. "They balance each other out," Callison says, also noting, "Brie is always good with apples."

Callison featured Cosmic Crisps in a slaw paired with crispy pan-fried Northwest oysters from his 2013 cookbook *The Crimson Spoon*, published by WSU Press, during one of the WSU Alumni Association's Feast of the Arts events last year. "I was able to showcase the Cosmic Crisp the weekend it was going to market, which was an amazing opportunity," says Callison, who's also featured the apples in class. "I gave them to students and challenged them to be creative and come up with their own dish."

Chalk up the apple's appealing attributes to good breeding. Premium-priced and non-GMO, the Cosmic Crisp is the product of 20 years of extensive research and development by WSU's pome fruit breeding program, with support from faculty and staff throughout WSU Tree Fruit Research and Extension as well as the Department of Horticulture in the College of Agricultural, Human, and Natural Resource Sciences. "We have all of these different people who are helping to develop protocols for the best ways to grow them, the best time to harvest them, and how to store them," says Kate Evans, leader of WSU's pome fruit breeding program since 2008, when she succeeded Bruce Barritt.

The retired WSU horticulturalist started lobbying for funding from the University and industry partners in the early 1980s to launch an apple breeding program. Red Delicious had dominated production for decades, and Barritt cautioned against depending too much on a single variety. In 1994, after funding came through, Barritt and his team began producing thousands of hybrid seeds and sampling the results, including WA 38, the 1997 cross that produced the Cosmic Crisp. Two years later, the first Cosmic Crisp seedling was planted. But the first commercial plantings didn't go into the ground until 20 years after hybridization.

"It takes a lot of time to produce a new variety," says Evans, noting work is ongoing. "We have apple selections in every stage all the time. The bad ones are discarded, and the good ones move to the next stage of evaluation."

Nearly 500 Washington growers have so far planted some 15 million Cosmic Crisp trees. Because the state's apple industry helped fund the research, they enjoy the exclusive right to grow the new variety in North America for 10 years. That's part of their allure, according to Evans and Grandy.

Consumers in statewide focus groups were also enamored with the little spacey sparkles on the apple's deep ruby-red skin. "Cosmic" became part of the name because of those lenticels, or pores, reminiscent of distant stars. "Crisp" describes its texture while paying homage to one of its parents, the popular Honeycrisp. Its other parent is the Enterprise. Another fun fact: Cosmic Crisp is the first apple variety to be named by consumers.

Washington is America's top apple producer, growing nearly 60 percent of the country's crop of about 135 million boxes that rake in about \$3 billion. In all, about 1,300 growers cultivate apples on some 175,000 acres, largely in Central Washington.

Cosmic Crisp finally hit supermarkets nationwide in late 2019 with a five-year, \$10.7 million marketing campaign. Unless you were living on another planet, you couldn't miss its release. The apple has its own Instagram, Twitter, and Facebook accounts, plus a Pinterest page, YouTube channel, and website. And it's made headlines in the *Los Angeles Times*, *New York Times*, *Seattle Times*, *Wall Street Journal*, *USA Today*, *Popular Science*, *Time*, and more.

Some 1.95 million boxes are slated to ship this season, compared to 346,000 boxes in 2019. The volume will increase each year and by 2026 more than 21 million boxes are expected to ship.

"I call it the billion-dollar apple," Grandy says. "I don't know that that's an accurate number, but to me it feels like our growers have spent hundreds of millions of dollars. They've made just an enormous investment."

That support, she says, has helped the Cosmic Crisp exceed expectations "many times over. It sold out everywhere we sent it." ✨



COURTESY STEWILT

feature

Some two billion years ago, a dining experience went sideways. An early nucleated eukaryotic cell engulfed a cyanobacterium—but instead of digestion, co-housekeeping was the result of the union. This ancient endosymbiotic event brought together the mobility of eukaryotes with the photosynthetic ability of cyanobacteria, an evolutionary win-win that resulted in the creation of a new type of organelle—the chloroplast—precipitating the ascendance of plant life on Earth.

BY BRIAN CHARLES CLARK

A
WSU
SCIENTIST
EXPLORES
THE
ECOLOGICAL
AND
EVOLUTIONARY
POWER
OF
SYMBIOSIS

GET TOGETHER



DERIVED FROM ARTWORK BY STELVARDEN/GIPHER

The Greek historian and travel writer Herodotus wrote 2,500 years ago of an altogether different sort of dining experience. A plover perches in the gaping mouth of a Nile crocodile, feasting on the leeches that, in turn, are feasting on the croc's blood. Keen on extracting moral guidance from natural phenomena, Herodotus said that we should learn friendship from the cooperation between the unharmed bird and the predatory reptile.

The example of the plover and the crocodile has served as a paradigm of symbiotic relationships clear through the nineteenth century. But around the time of Darwin, scientists began to look at symbiosis with new eyes. Thanks to their work, we now know that some of the most important evolutionary innovations in the long history of life on Earth—organelles within eukaryotic cells, such as the chloroplast and the mitochondria—are due to symbiosis.

Symbiosis occurs when two or more species live together in close physical contact and, strictly speaking, need not be mutually beneficial. Mutualism, where species cooperate to their shared benefit, is a type of symbiosis. Some researchers argue that bees and flowers, as interdependent ecological niche mates, are symbionts. Similarly, humans and our food plants and animals are in symbiotic relationships: we need to eat them, so we

give them what they need to grow to an edible state.

As biologists realize that cooperation is as important as competition or predation in the evolution and maintenance of ecological roles and niches, they are also seeing that microbes are foundational partners in the success of a huge number of life forms.

THE MICROBE CONNECTION

For microbiologist Stephanie Porter, an assistant professor at Washington State University Vancouver who studies the evolution of cooperation and plant-microbe symbiosis, "The microbiome is the set of all microbes that live in and on plants and animals. Understanding the complex and often positive role the microbiome plays in the health of plants and animals has precipitated a real renaissance in biology. There's been a blossoming of ideas due to new genomic tools for understanding this microbiome.

"But there's also been a shift in our thinking about microbes. We've moved from microbes being viewed strictly as the cause of diseases or that they are at best harmless, to thinking they have a lot of positive effects on plants and animals. They can help plants and animals resist diseases or tolerate environmental stress and we didn't previously recognize this. It's an opening of our eyes to this whole world of complexity that didn't exist before this paradigm shift in the field."

Porter and her team of collaborators, which includes other scientists as well as WSU Vancouver undergraduate research interns and graduate students, design experiments that tease out the genetics of cooperation—experiments that at the same time shed light on big evolutionary questions. Her lab is itself a kind of symbiotic relationship. Individuals from varying backgrounds bring hypotheses and design solutions to the table as they all seek answers, Porter says, to "fundamental questions about why plants and microbes cooperate." Among other things, Porter's group is keenly interested in understanding how cooperation lasts when, as she says, "the temptation to cheat might turn partners into enemies?"

These are questions that are critical to the resiliency of the human food system threatened by a changing climate that drastically increases stresses. Problems that become

more frequent under climate change, Porter says, include soil salinization, drought events, extreme temperature, insect herbivores, and insect-borne pathogens. Researchers in Spain recently conducted experiments suggesting that a two-degree Celsius increase in temperature results in a tripling of soil pathogens. Maintaining a healthy food supply, while minimizing the environmental and economic costs of agriculture, are motivating forces in Porter's lab.

"Fungi and bacteria that live in plant roots perform functions that we expect, like providing nutrients to the plant, or taking up space and therefore preventing pathogens from invading the plant. But they also manipulate the hormonal and metabolic profiles of plants to make them resist all kinds of different stresses," Porter says.

She and her team are also investigating symbiosis from the microbe's point of view. As Porter points out, there has been lots of work on that relationship from the perspective of crop plants (including at WSU), but understanding why a microbe would go to work for a plant is a new frontier.

LONG-TERM RELATIONSHIPS

Even before humans had any clue that there were organisms they couldn't see, we knew there was something in soil that made plants grow.

Take alfalfa, a legume grown in Greece for livestock fodder since at least the time of Herodotus. When Europeans colonized the Americas, they brought livestock and their fodder with them. But alfalfa wouldn't grow here. Turns out, the plant was missing its ancient partner, a kind of bacteria called rhizobia.

Alfalfa, and other legumes in the pea family, depend on root-dwelling bacteria to convert nitrogen from the air into a form the plant can use. These bacteria essentially fertilize the plant. European colonists "had to bring soil from Europe to seed their fields" to colonize the soil with compatible rhizobial bacteria and other microbes, Porter says. "They shipped trainloads of soil from their successful alfalfa fields to new areas of cultivation as colonization there proceeded. That's an early example of manipulating the plant microbiome to make agriculture successful."



"Understanding the complex and often positive role the microbiome...has precipitated a real renaissance in biology."

But why would the relationships between legumes and their nitrogen-fixing associates persist for such a long time?

"When you cooperate, you are giving valuable resources to someone else instead of your own offspring," she says. "Darwin considered cooperation to be a mystery and a problem for the study of evolution. Natural selection should select for traits that benefit your own offspring. So how is it stable over

the long term to give resources away—why wouldn't an unrelated partner just cheat you instead of reciprocating?"

As Porter and others have learned, cheating can be a winning strategy. But biologists have drawn on a theory from economics called partner choice to explain why cheaters don't prosper in most cooperative interactions.

"In an economic market," she explains, "partners can see who is going to benefit

them and preferentially allocate resources to them." In a symbiotic relationship, "if there is exploitation going on"—as when a non-nitrogen-fixing bacterium sneaks into a legume—one partner can "stop cooperating before it makes a bad investment." Partner choice explains some forms of associations, but "cooperation has many forms. It is deep and challenging, and one hypothesis doesn't work across all these different forms."

Cooperation sometimes evolves when the “interests of both partners are intrinsically aligned,” Porter says. One example of a stable symbiotic relationship is between the Hawaiian bobtail squid and its bacterial symbiont, a bioluminescent bacterium called *Vibrio fischeri*. The bacteria live in the squid’s light organ. In exchange for sugars and amino acids, it glows blue at night—providing the squid with protection from predators as it nocturnally feeds close to the ocean surface. Without the bacteria’s glow, the squid would present a dark silhouette against the moonlit surface, making it easy pickings for hungry predators looking up from the depths below.

Porter says “the squid is exquisitely poised to maintain cooperation in these bacteria because the same genetic capacity that makes these bacteria glow allows them to detoxify chemicals the squid fills its light organ with. So the key trait of the bacteria that helps the squid is also the same one that allows it to live in the squid’s organ. It can’t cheat, because if it didn’t have the genetic capacity to make light, it wouldn’t be able to live there anyway.”

Another method symbionts use to ensure a good fit is called screening. Basically, the host organism sets up an entrance exam that only the most beneficial organisms can pass. Acacia trees and ants are a good example.

“The ants live in special swollen thorns on the acacia tree, and feed on nectar and lipid-rich bodies the tree produces. Ants bite any insect or animal that tries to eat the tree, defending the tree. Acacias that put out really great food bring in the most aggressive ant colonies, because they’re the ones that can outcompete all the other ants for this great feast. More aggressive ants are better at warding off animals that try to eat the tree. The big reward allows the tree to screen for the best defenders.”

CHANGING PARTNERS

Just as humans do, plants have microbiomes critical to their health. But there appears to be a catch. Agricultural crops get nutrients and pest control from humans, making microbes less valuable. Porter and her colleagues have found that crop plants often have microbiomes of reduced species diversity that may not

provide the same level of benefit as do the microbiomes of wild plants.

“We have domesticated many crop species that now depend on us,” she says. “Corn can’t grow in the wild, and many of our animals can’t survive without us—and we can’t without them. It is possible that elements of plant-human relationship have replaced microbial services to plants. If that’s the case, there’s a lot of potential to benefit from reintroducing beneficial microbes to crop plants.”

Since microbes are known to provide plants with defenses against pathogens and, in some cases, nutrients, encouraging crop microbiome associations to mimic those of wild plants might reduce agrochemical use.

But that’s a big maybe. As Porter points out, “We are far from understanding whether restoring wild-type microbiomes to crop plants would help make agriculture more sustainable because we don’t know what the costs might be. Maybe being better at managing symbionts uses a lot of energy” that might otherwise go to producing a larger yield, or to having some other benefit.

“We have to do the science first! We have to find which aspects of the microbiome changed during crop domestication and which did not.” It’s possible that some crops are better off not relying on their microbiomes. “There are lots of steps to figure out before providing products to farmers.”

Those products, called inoculants, would be applied to seeds, or sprayed on fields after sowing.

“The Holy Grail,” Porter continues, “is identifying the ways in which crops are deficient in their ability to control symbionts,” and comparing the genetics of those plants with wild relatives that manage the relationship well by making sure cheaters don’t prosper.

“We could then introgress those traits back into crops and reduce our dependence on agrochemical inputs and irrigation.” Introgression is a process of moving a gene from one organism to another using hybridization and backcrossing. The process is often slow, requiring many generations of backcrossing to successfully move a trait from one species to another—but it is more acceptable to consumers than genetic engineering, where a

gene is artificially introduced into the target plant’s genome.

The recipient of a prestigious National Science Foundation Early Career grant, Porter’s group is seeking to answer the question, “Have we compromised our crops’ ability to benefit from microbes through domestication?”

In looking for the genetic controls of symbiosis, they hope to “select variants that allow the plant to have optimal symbiosis and optimal outcomes with its microbes.”

Together with WSU plant pathologist Maren Friesen, Porter analyzed 87 studies in which plant-microbe relationships were experimentally manipulated. Across the studies, they saw that fungal symbionts were more important for ameliorating stress than bacteria, though both are critical for plant health. The message from that study, Porter says, “is really about the potential for improving plant health via its microbiome, especially under stress.”

In a 2014 paper, a group of scientists described hundreds of studies in which introgressed wild genes enabled domesticated crops to resist pathogens, insects, and improved seed nutrition. One notable example of targeted introgression, the researchers write, comes from the common bean, “*Phaseolus vulgaris*. Breeders have successfully introgressed genes conferring resistance to insects ... and pathogens ... , as well as higher nitrogen, iron, and calcium seed content from existing collections of wild *Phaseolus*. These efforts have contributed to both higher yields and improved nutritional quality and have also lessened the environmental impact of crop production by facilitating reduced pesticide, herbicide, and fertilizer use.”

Porter’s work builds on this to investigate whether genes from wild relatives could boost symbiotic abilities in our crops.

THE NITROGEN FIXERS

Among others, Porter studies nitrogen-fixing rhizobial bacteria, which, she says, “have an amazing ability” to insert or eject from their genomes the genes that confer symbiotic ability. The genes for symbiosis are on a large plasmid (a usually circular ring of DNA that can replicate independently of



chromosomal DNA). Angeliqua Montoya (’18 Biol.), a graduate student working with Porter, calls it the “symbiosis island. It can be lost or gained—they can just kick it out if they’re feeling stressed.” When the bacterium ejects the island, it gives up on cooperation and can be ejected in turn by the plant. The bacterium is then left to dine on decaying organic matter in the soil.

“We need to understand the potential for these strains of mesorhizobium to give up on cooperation,” Montoya adds, “especially in conditions such as high fertilizer situations where relaxed selection on the plant seems to make the microbes become less cooperative,” and less willing to fix nitrogen in the plant’s root system.

Since nitrogen is a limiting factor in plant growth, “the fact that legumes can get nitrogen from rhizobial bacteria gives them an advantage,” Porter says. “Legumes can be pests but they can also greatly benefit humans. It’s a powerful symbiotic relationship that has been harnessed in agriculture for millennia. It’s a really rich area for both understanding evolution but also doing work that has really practical implications for how we can improve food security and reduce pests.”

As weeds, leguminous plants such as scotch broom and kudzu have “these little engines in their roots pumping out nitrogen,” Porter says. Their microbial associates give them a serious advantage when competing with other vegetation, to the extent that legumes can exclude other plants from the environment.

Rhizobial bacteria give some legumes another advantage, too: the ability to thrive

ANGELIQUA MONTOYA (COURTESY STEPHANIE PORTER LAB/WSU SCHOOL OF BIOLOGICAL SCIENCES)

in serpentine soils. Such soils are formed by the weathering of certain mineral-rich rocks. The soils are high in toxic heavy metals like nickel or cobalt, and low in nitrogen and phosphorus, which are essential for plant growth.

While serpentine soils are usually on steep inclines and are shallow due to erosion, industrial sites often have a similar set of environmental conditions: high heavy metal content and low organic matter. Could legumes and their rhizobial partners be the first step in a succession of plants that remediate such soils?

Yes, says Porter, but cautions that “we’re still at the starting block.” She and her team have collected samples of mesorhizobia and their leguminous associates that live in serpentine soils from southern California north into Oregon. From the samples, they extracted “these super tolerant bacteria. We’re unlocking the genetic mechanisms by which they can tolerate heavy metals. They alter their enzymes to function at high levels of heavy metals and they pump them out.”

SPECIFYING SPECIES

Miles Roberts (’20 Biol.), an undergraduate working in Porter’s lab until his recent graduation, investigated the heavy metal-tolerant mesorhizobia before heading off to graduate school in Michigan. From the samples, he and his lab mates found that some of the bacteria are “adapted to these soils while other populations are adapted to nearby metal-poor soils.”

Roberts was testing a hypothesis about bacterial speciation: that bacteria adapt to specific local conditions by trading off the ability to live in diverse ecological niches. While Roberts didn’t find direct evidence of trade-offs, Porter had previously done so. In a 2012 paper, she and a colleague write that “trade-offs and adaptive divergence may be important factors maintaining the tremendous diversity within natural assemblages of bacteria.”

But, she cautions, trade-offs are not likely the single explanation for the diversity of life. “One of the great mysteries of ecology, for any organism, is what maintains diversity at any level of organization.” And with bacteria, it gets really tricky. Bacteria have a variety of ways of exchanging genetic information. One organism can, for instance, simply pass, or

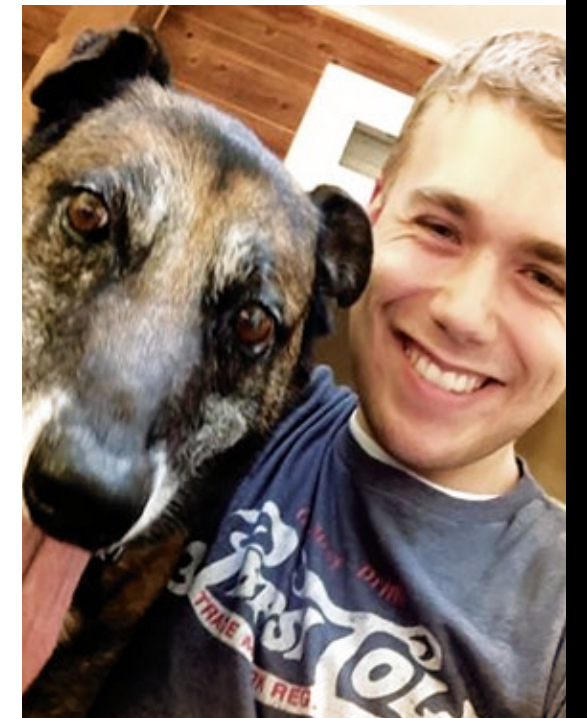
horizontally transfer, a set of genes to another. “You can have incredible ecological variety in a single species,” to the extent that the concept of species breaks down.

“Even in pathogenic organisms you may have cholera that is highly infectious and deadly, or that doesn’t infect anyone. In terms of the ecological impact of those two different strains of the same species, they’re fundamentally different and yet they may only differ in small portions of their genome.”

Porter suggests that, rather than species, bacteria might be organized in terms of their ecological roles and niches. Eschewed as too ambiguous, the word “species” is replaced by some researchers with terms such as “biovar” or “ecotype.”

“Environments are highly variable and finely structured,” Roberts says. “Stand in one spot in a forest: there’s a dry patch over here, there’s a sunny patch over there” and each little patch will likely have its locals-only population of specially adapted microorganisms.

On a global scale, the myriad microbial eco-niches do form a kind of metaphorical forest—and it’s only recently that we’ve begun to discern the fine structure of the individual trees. And what we now see is that, from root to crown, these “trees,” whether humans, legumes, squids, or real trees, are engaged in struggles to survive. Struggles that, strange as it may seem to the old idea of “survival of the fittest,” are in fact often a matter of cooperation. *



MILES ROBERTS (COURTESY STEPHANIE PORTER LAB/WSU SCHOOL OF BIOLOGICAL SCIENCES)

the faces of small farms



Pablo Silva started working in the fields as soon as he arrived in the United States. He was 14, picking strawberries in California. Agriculture, he says, is in his blood.

Silva was born in the village of Santa Cruz Yucucani in Guerrero, Mexico, and spent a lot of time growing up at his grandmother's house outside of town. She raised animals and grew corn and beans and, he says, in Spanish through a translator, "I always helped her."

When his father in California called for his son to join him, they worked together in the strawberry fields for a couple years before moving to the Skagit Valley. Silva picked strawberries in western Washington for about 15 years before making a transition most pickers never achieve: from farmworker to farm owner and operator.

While Latino people make up 83 percent of all farmworkers, according to the U.S. Department of Labor, they account for just 3 percent of farm owners. Language and other barriers keep many from making the move. Washington State University Food Systems' Immigrants in Agriculture Program helps farmers like Silva write business and whole-farm plans, apply for grants and loans, explore value-added products, connect with markets and buyers, and more.

The Immigrants in Agriculture Program, jointly housed out of WSU Skagit County Extension and the School of the Environment, is just one way that WSU Food Systems helps Washington agriculture, particularly first-time and small farmers. Those farmers can take classes, tour farms, attend specialized farming conferences, and meet with and learn from successful farmers. The program also offers online farm finder tools that make it easier for consumers to connect with local food producers.

"The small farmers of Washington state are really the backbone of the local food community," says Nicole Witham, statewide coordinator of Food Systems, a program of WSU Extension within the College of Agricultural, Human, and Natural Resource Sciences.

"If we don't foster and support them and lift them up, they don't thrive. They don't become mid-sized farmers," she says. "We need a pipeline for new and beginning farmers. They are the farmers we're going to be relying on to provide us food within our local community."

We'll rely on them more than ever in the future. With the world population expected to reach 9 billion by 2050, the United Nations Food and Agriculture Organization estimates that, to feed everyone, sustainable food production will have to increase by 70 percent. However, there is an across-the-board decline in the numbers of farms, farmers, and farmland, as well as an aging group of farmers, in the United States.

BY ADRIANA JANOVICH

STAFF ILLUSTRATION

Although American farmers are historically White, male, and older, the faces of small farmers in Washington state are becoming more diverse. They include more women and people of color—particularly Latino—as well as young, military-veteran, and first-time farmers. Among their biggest challenges: coming up with capital and locating land.

Despite the hurdles, a new crop of Washington's small farmers are finding their way to farming from varying backgrounds and employing different entry points into agriculture. They are farmworkers like Silva; Melony Edwards, a young Black woman who started in food service; and Jim Long, a first-time farmer after 30 years in the United States Air Force.

and additional duties. "I couldn't see my kids," he says. "I would leave while they were sleeping, and I would come home when they were sleeping."

Most days, it's still like that, leaving around 5:30 in the morning before his children wake up. But now he works during the day for a smaller organic berry farm with stable hours and returns home from his own agricultural enterprise at night.

Silva and his wife, Maura, established Silva Family Farms in small steps with support from the Food Systems Immigrants in Agriculture Program. "In Mexico, I just finished third grade," Silva says. "We lived so far from town. It was hard to get there, and the teacher was not there every day."



MAURA AND PABLO SILVA (PHOTO FREDRICK R. SEARS/COMMUNITY FOOD CO-OP)

Pablo Silva

Silva Family Farms, Burlington and Oak Harbor

"Owning a business was completely new to me," Silva says. "I had never owned a business before. I had always worked for someone else in agriculture. In a way, that's easier. You work and, yes, it's really hard work. But at the end of the day you can go home and you don't have to think about the business."

Now as an owner and operator, "you go home and you have to think about it—from planting all the way to sales."

Silva is no stranger to long hours. As a longtime farmworker, he would often leave for work around 4:00 in the morning and return around 10:00 p.m. or midnight, depending on harvest

He took English as a second language classes at Skagit Valley College, a tractor-driving class through WSU Skagit County Extension, and Cultivating Success, which offers an overview of production and marketing options for modern small farms. "I learned how to start a farm business, write a business plan, and think about your goal and your mission," Silva says. "I also learned how to create your own policies and how to comply with government regulations."

In 2016, his employer, Bow Hill Blueberries, rented a quarter of an acre of certified organic land to Silva so he could cultivate his own berries on his off hours. The following year, Silva expanded, renting an acre for organic strawberries at Viva Farms, a nonprofit farm business incubator and training program in King and Skagit Counties. Its mission is to empower aspiring and limited-resource farmers by providing bilingual training in holistic, organic farming practices as well as access to land, infrastructure, equipment, marketing, and capital.

there are nearly 35,800 farms in Washington state

SOURCE: 2017 CENSUS OF AGRICULTURE/U.S. DEPARTMENT OF AGRICULTURE

Since its founding in 2009, Viva Farms has trained more than 900 small farmers in sustainable organic farming.

Today, Silva cultivates three and a half acres of organic strawberries and raspberries at the farm incubator. He also grows organic blueberries, raspberries, and blackberries on four acres at his own farm in Gig Harbor, which offers U-pick on weekends. "It's a lot," he says. "My wife helps me a lot. That's why I can do it. Otherwise I won't make it."

Silva met his wife picking berries. They were working at the same farm in Skagit Valley and discovered they came from the same village in Mexico. They've been married 15 years and have five children ranging in age from 3 to 15. The oldest, Pablo Jr., helps his parents on their farm.

The Silvas bought a blueberry farm in 2019 from friends on Whidbey Island, more than doubling their operation. With the training he pursued through Viva and WSU, "we were able to advance and expand quite a bit," says Silva, who didn't quit his day job once he became a business owner. He continues to work as a field manager at Bow Hill, where he's worked for nearly 10 years. In fact, Bow Hill sells his blueberries. Silva's berries can also be found at the Bayview Farmers Market in Langley, through the Puget Sound Food Hub, Food Co-op in Port Townsend, Skagit Valley Food Co-op, Chimacum Corner Farm Stand, and more.

"We hope to continue to build our business," Silva says. "No one in our family before us has ever been a business owner. We want to show our kids they can start their own business. It's not necessary that they have to go be farmers. But we want to show them how to start a business and teach them about that."

And he encourages others who are thinking about starting a business to "go for it and start and try. With the support that's available from places like WSU you can really move forward. So go for it."

Melony Edwards

Ebony by Nature, Whidbey Island

Melony Edwards found her way to farming through food service. But she likes to joke her name might've had something to do with it, too. "Melon with a 'y,'" she notes, adding the pull of the land was probably inside of her all along. She just didn't know it.

"I recently learned that my ancestors, after they were emancipated from slavery, became sharecroppers in Tupelo, Mississippi," Edwards

explains. "I learned my paternal great-grandmother followed her siblings to Detroit for a better life."

Some six million Blacks left the rural South for the urban West, Midwest, and Northeast to look for jobs, often as industrial laborers. The Great Migration lasted from 1916 to 1970. Now, Edwards says, "I want to acknowledge my ancestors and their struggle and the land."

Since going through WSU's Cultivating Success program, Edwards has become not only a farmer but an advocate and activist, sharing her story to encourage other aspiring farmers, particularly young people of color and especially women. It's part of her mission of changing the narrative around people of color joining the farming community, specifically in rural areas.



"I'm young and Black, and I'm a woman. There's not a lot of farmers like me in Washington, especially in rural farming," Edwards says. "You see it in the urban landscape. Seattle has a lot of urban farms run by people of color, but not in rural farming."

Her LinkedIn and Instagram accounts describe her as a "Melanated Woman Farmer." On social media, she uses the hashtags #PNWMelanatedFarmer, #ReClaimingFarmingOnMyOwnTerms, and #TheUnbearableWhitenessOfFarmingPNW.

In Washington state, there are fewer than 200 Black-only or mixed-race Black farmers. Not quite 70 are women. And about 40 are new or beginning farmers, with fewer than 10 years of experience. "There's definitely a growing network," Edwards says. "We're starting to get more visibility."

Blacks historically played a significant role in American agriculture, enslaved for centuries, followed by sharecropping and tenant

farming. Racist violence against Black farm owners in the South and decades-long, well-documented discrimination against Black farmers by the USDA—which excluded Blacks from farm loans and assistance—contributed to their decline. In fact, the number of Black farmers fell so drastically that, in 1982, the U.S. Civil Rights Commission predicted there would be none left by 2000.

In the Pacific Northwest, systematic disenfranchisement of Black farmers predates statehood. Exclusion laws prevented Blacks from settling in what was formerly known as Oregon Country and, later, the Oregon Territory, including present-day Washington. "Today's current lack of land ownership for African American farmers in the PNW is a direct result of those laws," Edwards writes in *Sound Consumer*,

where my food came from," she says. "It led me on this journey of discovery."

Edwards began volunteering on a farm, and "it was awesome," she says. "I fed chicken and pigs, and I scooped a lot of cow poop." That experience led her to Cultivating Success. The classes, she says, "really got me thinking about what I wanted to do."

Afterward, she pursued an entry-level rural farm internship, which proved difficult to find. She landed phone interviews only to be later told she was either "over-qualified" because of her work experience and salary history or "under-qualified" because of her lack of farm experience. "They would also say I wouldn't fit in because I was too old. I was just going into my 30s at the time. I applied for



(OPPOSITE AND THIS PAGE) PHOTOS: MERE HUNTER

a publication of the Seattle area's PCC Community Markets. "The majority of Black farmers in the PNW are leasing land with the hopes of owning it one day. But the limiting factors, such as increasing cost of land and lack of land-purchasing knowledge within the Black community, add steep barriers to an already disadvantaged field. ... With land ownership we could reclaim our ancestral skills and re-associate farming with power versus slavery."

A century ago, there were nearly a million Black farmers in America. Today, there's not quite 48,700, making up 1.4 percent of all farmers. Most of them—88 percent—live in the South and Mid-Atlantic.

Edwards, originally from Ohio, moved to Washington state with her family as a teen. She majored in hospitality in college and also studied culinary arts at Portland's now-closed Le Cordon Bleu. Her career in food service raised questions. "I really wanted to know

internships for two years, and I got denied for two years. I was ready to give up."

Then she interviewed at Willowood Farm of Ebey's Prairie in Island County, where the population is about 85 percent White, and got the job. She was excited, but nervous. "It's really scary to move out to a rural White community where you don't know if you're going to be accepted or not," says Edwards, who was hired as an intern in March 2016 and was slated to stay through October.

At meet-ups for interns from regional farms, she noticed she was the only person of color. "I remember when I first moved to the farm, I actually kept my bags packed for a period of time because I was afraid I would get chased off the property," she says. "I felt like I was putting myself in a very vulnerable situation."

Now she feels "empowerful." She's traveled to Washington, D.C., twice with the National Young Farmers Coalition to lobby for funding

for young farmers, including beginning farmer training, outreach to socially disadvantaged farmers, and mental health services for farmers. She was recently appointed to serve on the coalition's board of directors. She's also shared her story and perspective in essays and on panels, including, in 2018, the inaugural Seattle Food Tank Summit and the Tilth Alliance Conference, where she gave a talk titled "The Unbearable Whiteness of Farming in the PNW." Today, she's working on building a network of Pacific Northwest Black farmers. She's also working with the Organic Seed Alliance to help build a network of Black seed growers.

She's participating in the 2020 Heirloom Collard Green Variety Trial, hosted by Seed Savers Exchange and Southern Exposure Seed

Jim and Connie Long

Fresh Cut Farms, Deer Park

When Jim Long was preparing to retire from a 30-year career with the United States Air Force, he and his wife, Connie, considered a transition to farming. They had cultivated a small garden when they lived in South Dakota and were interested in scaling up. "We saw that we could make an income and not have to punch a clock," says Jim, who grew up in Mead and was stationed around the country and overseas.

He and his wife had been planning to move to Montana in retirement until they stumbled upon property outside of Spokane



(OPPOSITE AND THIS PAGE) PHOTOS: CRISTAL TORSSON

Exchange, and growing some 20 different varieties of heritage collard greens, including a few that were almost forgotten.

Edwards recently started her own enterprise: Ebony by Nature, a fiber arts farm selling plants for home dye gardens and naturally dyed fiber as well as seeds. She also continues stewarding the land at Willowood, where she ended up staying through winter 2016 and getting hired back for subsequent seasons eventually as both farm and harvest manager.

Now she's pondering her next steps, working with local land trusts, incubator farms, and farmer-to-farmer land-linking programs to help her find her own land—and remaining optimistic.

"I want to farm," says Edwards, whose goal is to raise sheep and expand her seed-growing business. "And I'm determined to reclaim farming in my own way."

that seemed a perfect fit. "It was the old house that really drew us in," Jim says, noting, "There were only two other owners besides us."

The original homestead stretched some 250-plus acres. The Longs bought three 10-acre parcels, including a pre-1900 farmhouse and 1947 rancher, in July 2015. Most of the acreage, Jim notes, was overgrown. "Saplings were coming up in the fields," he says.

Sheep provided "quick entry" into farming, so the property—zoned for agriculture—could "start showing some kind of revenue," says Jim, who spent his first 10 years in the military "turning a wrench" and his last 20 years in management.

Of Washington state's nearly 63,300 farmers, just over 8,100 served in America's military. Seventy percent of them farm fewer than 50 acres. Eighty-two percent are 55 and older. And 92 percent are men. But new farmers, with fewer than 10 years of farming experience, like Jim, make up less than a third of all farmers with military service in Washington state.

meet more Washington small farmers: magazine.wsu.edu/extra/wa-sm-farmers

The Longs founded Fresh Cut Farms in 2016, planting berries, starting a garden, and taking the name from the road where they live: Cross Cut. "We're Fresh Cut on Cross Cut," says Jim, who retired with the rank of chief master sergeant in April 2019.

In 2017, just one year into their farming operation, he was stationed overseas for a 12-month assignment, leaving Connie to manage their new venture on her own. Before he left they sold off the cows and goats to help lighten her load. She brought berries to the farmers market for the first time that year.

When Jim returned, the couple sold berries and other produce at two farmers markets instead of one. They also planted 120 cherry, apple, peach, nectarine, and apricot trees on about a half-acre. They're hop-

ing to increase their orchard to an acre and a half during the next several years.

The Longs also hope to expand their garden, which now stretches about a third of an acre, to an acre and a quarter, but not much more. "We're both hands-on," says Connie, who worked in management for a hospitality company before retiring a couple of years before her husband. But, "that's enough for the two of us," Jim says. "We can't do much more than that."

Last winter, with the help of a USDA grant, they installed two high-tunnel greenhouses to expand their offerings. "We want to make it like a grocery store experience, so we have variety and you can get all your vegetables at one stop," Jim says, noting, "We won't sell anything we don't grow ourselves."

While their farm isn't certified organic, the Longs use organic practices. Among their crops: kale, kohlrabi, Bibb and other lettuces, spinach, peppers, raspberries, strawberries, squash, tomatoes, potatoes, corn, cabbage, and more.

Now they're regulars at three farmers markets: Clayton on Sundays, Fairwood on Tuesdays, and Emerson-Garfield on Fridays. Twice a week, they also offer online ordering with pick-up on Thursdays and Saturdays.

Their plan is to grow slowly—and that's something they learned through WSU. They went through Cultivating Success as well as five or six other classes through Extension and Spokane Neighborhood Partners. Lessons learned include, Connie says, "Don't try to tackle everything at one time. Start small, then move on to the next step. Master that and keep going."

The classes "gave us ideas and contacts," Connie says. "They laid the foundation."

Long-term plans include turning two small grain silos into campsites, and maybe adding U-pick opportunities. The Longs are also thinking about adding flowers and Christmas trees. And, when the historical farmhouse is renovated, "We want to get into agritourism," Jim says. "We'd like to be self-sustaining, like the farms of old. We would like to grow and take care of ourselves." *

33,000
are small
farms

SOURCE: 2017 CENSUS OF AGRICULTURE/U.S. DEPARTMENT OF AGRICULTURE



changing ag

The U.S. Department of Agriculture's latest Census of Agriculture shows an across-the-board decline in the numbers of farms, farmers, and farmland, with serious implications for food production, the environment, and the next generation of farmers.

Small farms make up 90 percent of farms nationwide but account for just over half of America's farmland. It's a similar landscape in Washington state, where there are nearly 35,800 farms—**down from** just over 40,100 farms 20 years ago. Of those, about 33,000 are considered small farms.

American farmers average **58 years of age**—more than a third are 65 and older, and more than another third are between the ages of 55 and 64.

Of this country's 3.4 million farmers, 70 percent are potentially **slated to retire** within the next 20 years.

Most—95 percent—are White. And most—64 percent—are men.

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MEMORY PHOTO OF HOARFROST ON HOLLY OUTSIDE TODD HALL (PHOTO SHELLY HANKS)



PHOTO: YOUNG KWAK/INLANDER

The ultimate physical exam

BY ADRIANA JANOVICH

SALLY AIKEN became president of the National Association of Medical Examiners at the start of 2020. The first calls about the novel coronavirus came in early March.

Since then, she's talked about the pandemic with reporters from *Politico*, *Vice*, *Chicago Tribune*, *Miami Herald*, *Washington Post*, *Wall Street Journal*, *USA Today*, *Rolling Stone*, *Daily Mail*, Associated Press, CNN, CBS, NBC, ABC, and more.

"You name it," says Aiken ('78 Bacterio. & Public Health), who's become a go-to expert source for the media and the main spokesperson for the association while maintaining her demanding day job. "It's been crazy."

Aiken, a board-certified forensic pathologist, serves as Spokane County medical examiner, overseeing an annual budget of about \$1.4 million and an office that performs more than 575 autopsies each year. She's held

the position for 20 years, performing more than 9,000 autopsies in all and testifying in court so many times she's lost count.

"I stopped counting after 400 times and that was a long time ago," she says, noting her role has become even more challenging in the face of COVID-19, which she says is one of the most unusual experiences of her career.

But, long before the pandemic began, her field experienced another challenge: a shortage of board-certified forensic pathologists during the ongoing national opioid crisis. The country's premier professional organization for medical examiners that Aiken heads is working on a number of initiatives to increase numbers. Aiken, the sixth woman president in the association's history, was elected to the top post in fall 2019 while serving as its vice president. Her one-year term ends in December.

Meantime, she represents more than 1,300 members, including nearly 600 board-certified forensic pathologists with specialized training in investigating deaths and performing autopsies in unnatural deaths, such as homicides. In Washington state, a medical examiner must be a board-certified forensic pathologist by law. This differs from

coroners, elected officials who are responsible for investigating unnatural deaths but don't perform autopsies.

The role, Aiken notes, is often misrepresented on screen. "You'll see women in leather and full makeup," she says. In real life, "It's not as glamorous. We're wearing full PPE, especially now. You're wearing three pairs of gloves, and your hair is covered—the whole thing.

"We've always been at risk for infectious diseases, from COVID-19 to AIDS and more," she says. "One of the changes because of the pandemic is we have to wear PPE when we go out to scenes. Also, we now screen everyone for COVID-19. If any of those 12 symptoms we use for screening are positive, then we need to test. We've been very fortunate in Washington because the state has been very proactive in dealing with people who die of COVID-19. We've had test kits available the entire time and can get results in a day or two."

Other tests take longer than portrayed on TV. "It takes a long time to get DNA back," Aiken says. And, "We don't always get the answer. In TV shows, there's always an answer. But, sometimes, a death remains a mystery, something medical you haven't seen before, something unusual. You're always learning."

Q&A with Taryn Daly: magazine.wsu.edu/extra/Taryn-up

This year, the number of deaths is up “and mostly not because of COVID-19. The uptick started in January before we really believed COVID-19 was circulating that much. Suicides have been up 15 percent nationally for the last three years, and we’re seeing an increase here. We’re also worried about opioid deaths. And, people are staying home a lot more these days, so a lot of unusual home accidents are happening. It seems that people are driving faster and taking more risks in general.”

Some of the high-profile cases she’s worked include one of the victims of “Yosemite Killer” Cary Stayner, who was convicted of four counts of first-degree murder in 1999; Chanin Starbuck, a mother of five who was strangled in her home in 2001; and Summer Phelps, a 4-year-old who died in 2007 as a result of child abuse. But, Aiken notes, high-profile cases are not any kind of a benchmark in her practice. Attempting to find answers for grieving family members is more important to her, regardless of whether the case is mentioned in the media.

Aiken comes from a big Cougar family. Her sisters Kathy Aiken (’80 PhD Hist.) and Mary Fishback (’76 Comm.) and brother Jerry Aiken (’81 Hist.) are all WSU alumni. Her father, William David Aiken (x’47), attended then-Washington State College before and after serving in World War II. So did her mother, Dorothy Louise Snyder Aiken (’47 MA Phys. Ed).

Aiken met her husband, Bruce Fitterer (’78 Zool. & Pre-Med.), at WSU Pullman. Her sister-in-law, Carol Aiken (’82 Bacterio.) and brother-in-law, Doug Fishback (’77 English.) are also Cougs, along with two nieces.

“I had a great education at WSU and really valued my time there,” Aiken says. “It was a great preparation for graduate school. Some of the things I learned in my biology classes, I still think about.”

Her department recently moved into a \$12.7 million state-of-the-art building near WSU’s Elson S. Floyd College of Medicine. The new 24,000-square-foot facility is designed to handle a mass-fatality event, with room for 100 bodies compared to 15 at the former site. The added space and design also make it easier to do autopsies while social distancing. Aiken says she hopes more first-year medical students will have a chance to

visit and observe autopsies and maybe even get inspired to pursue forensic pathology.

She approaches her job as the ultimate physical exam, treating decedents with care. “I’ve never regretted this line of work,” Aiken says. “It’s a privilege. You speak for the dead. But you do this work to benefit the living, for adjudication and also for public health, which is really apparent right now during COVID-19.”*

Taryn your radio ON

BY ADRIANA JANOVICH

When she was in fifth grade, **TARYN DALY** convinced her parents to take her to a local Circuit City store, where KUBE 93.3 was hosting an event with longtime Seattle DJ Eric Powers. Daly wanted to meet him.

“He was the first radio DJ that I felt super connected to,” she says. Nearly 20 years later, Powers is a weekday afternoon host at HOT 103.7 Seattle, and “when they told me he was going to be on-air on one of our sister stations, I fan-girled so hard.”

These days, fans wait in line at promotional events and music festivals like Pain in the Grass to meet Daly (’07 Comm.), the weeknight DJ at 99.9 KISW “The Rock of Seattle.” Her signature tagline: “Taryn It Up.”

She’s known for her on-air energy and enthusiasm as well as love of Rush, local India pale ales, animals big and small, the Seattle Seahawks, and, last but not least, Washington State University Cougars. “My four years at WSU were four of the best years of my life, and I wouldn’t trade that for anything,” Daly says. “I love being a West Side Cougar.”

Daly lives in Stanwood and typically commutes to the station in downtown Seattle, a drive that takes about an hour each way. “It’s the best of both worlds,” she says. “I get the city life and the country life. Everything I love is represented by where I live and where I work.”

Since the novel coronavirus pandemic hit, her commute has changed “from upstairs

to downstairs,” where she’s set up a home studio. “It’s not the same as being in the moment in the studio, pushing buttons, and looking at the traffic driving by on I-5. But we’ve turned that into part of the storyline,” she says. “It’s our way of adapting.”

Radio had already adapted to the digital age by the time she started her career. “We still push buttons on a board, but it’s a touchscreen now. There’s no switching out reels and playing records anymore,” says Daly, who also serves as KISW’s assistant music director. “It’s all done digitally, which gives us more time to connect with our listeners outside of listening to us on the radio.”

Daly runs Facebook Live chats to interact with listeners while hosting her show, which runs from 6:00 to 10:00 p.m. Monday through Friday. She also serves as social media director for the station’s parent company, Entercom Seattle, overseeing digital strategy for five brands: KISW; the urban throwback station HOT 103.7; The Wolf 100.7 country music station; KSWD 94.1 The Sound and its soothing contemporary favorites; and 107.7 The End, Seattle’s alternative station.

She’s introduced and interviewed many of today’s top rock groups, including the members of Alice In Chains, David Draiman of Disturbed, Taylor Momsen of The Pretty Reckless, James “Munky” Shaffer of Korn, Kevin Martin of Candlebox, and Geoff Tate, the former vocalist for Queensrÿche.

“I think radio keeps you young,” Daly says. “You’re listening to new music. You’re paying attention to what’s going on in the world. And your adrenaline is going a million miles an hour when you’re doing a live show.”

Daly aims to come across the airwaves as “kind of your next-door neighbor. I’m a mom. I have dogs. I live on five acres. I have goats and chickens. I’m a commuter. I’m a rockaholic. I like to spend time outside. If I’m not outside or at work or at home, you can typically find me at a brewery, trying a new IPA. I connect with listeners because I am one of them.”

Daly celebrated five years as KISW’s weeknight host in July. The station will be celebrating its fiftieth anniversary in 2021, and Daly says, “We’re going to be celebrating in a really big way.”

Meantime, Daly writes for the station’s *Rock Blog* and *Taryn’s Wreckreation Guide*



@TARYNKISW/TWITTER

blog. She also gets recognized at the grocery store. “People will say, ‘I recognize you from Facebook.’ And it feels so weird, but that is where we spend our time. Everybody’s on social media now,” Daly says. And, “Everyone who works in radio wears multiple hats. My show runs four hours, but I do a ton outside of those hours.”

Lately, she’s been learning to balance being a new mom while working from home full time. Her son, Barrett, named for Barrett Martin, former drummer of Seattle band Screaming Trees, was born at the end of August last year. Daly and her partner, Brad Cash, work opposite schedules. He’s a DJ at 92.9 KISM in Bellingham, on air from 5:30 to 10:00 weekday mornings. So he watches their son while she works, and vice versa.

Daly comes from a Cougar family. Her father, Craig Daly (’75 Socio.), participated in eight Dad’s Weekends in a row from 2003 to 2010 while Daly and her sisters—Elise Jones (’09 Comm.) and Laine Haugstad (’11 Crim. Just.)—were attending WSU. All three were Delta Gamma sorority sisters. “My mom happens to be a Husky,” Daly says. “We try not to judge her.”

At WSU, Daly worked at Cable 8, the award-winning student-run television station, as a producer as well as on-air talent. The experience helped her land her first radio

job out of college, doing voiceovers, sales, and promotions.

“I took every opportunity that fell into my lap,” Daly says. “I worked nights and weekends and holidays and missed weddings and baby showers. It’s like anything in life; if there’s something you want to do, you have to go after it, be persistent, and work your butt off. I got my dream job at my dream radio station when I was 30 years old. I hit the lotto of radio. I feel incredibly lucky.”*

Five questions with Jennifer Adair

BY JOSH BABCOCK

JENNIFER ADAIR (’05 PhD Genetics and Cell Biol.) had never heard of Pullman when she considered applying for Washington State University’s School of Molecular Biosciences. She even admits, at first, she confused WSU with the University of Washington.

Now, after completing her doctoral degree at WSU’s National Institute of Health

Protein Biotechnology Training Program, the proud Cougar is developing gene therapies to treat genetic disorders, HIV, and cancer as the Fleischauer Family Endowed Chair in Gene Therapy Translation at the Fred Hutchinson Cancer Research Center in Seattle. Her goal: provide safe, cost-effective applications for gene therapy that can be implemented worldwide—and save lives.

What does your job entail? My research team develops new technologies that help to distribute gene therapy treatments on a global scale. We focus on delivering gene therapy to blood cells for a wide variety of diseases including diseases that arise from our own genetics (inherited diseases), or from infections, such as HIV, and also cancers. These diseases have incredible impacts on the population, and they are global health burdens. Currently, the best approach to treat these diseases is a bone marrow transplant from someone with the same tissue type. Finding those matches is difficult and getting the matches to accept one another adds another layer of difficulty. We’re working to create a better treatment solution by using the patient’s own blood cells, completely eliminating the need for a match from another person.

Why is your work important? Tens of millions of people on the planet are struggling with diseases that could be treated with blood cell gene therapy. Imagine if, in a five-year period, those tens of millions of people had the ability to work and be healthy and live a better quality of life. That’s tens of millions more brains worth of ideas that could have the freedom to think of other solutions to problems like climate change, food insecurity, and political stability. Providing basic human health exponentially increases the advances we make as a species.

Why did you choose to join the graduate program at WSU? My undergraduate work specialized in chemistry, and I wanted to branch out and do more of a genetics and cell biology-based doctorate. When I came for the graduate school interview, it had only been a short time since WSU had announced the formation of the School of Molecular Biosciences, which meant you could do a



doctorate in microbiology, genetics and cell biology, or biochemistry and biophysics, with any of the professors in any of those programs. I was also impressed with the structure of the program. I felt very comfortable that I would know exactly what my path was.

How did WSU prepare you for your career? WSU's graduate program showed me how to do the basic research well, and the National Institute of Health Protein Biotechnology Training Program showed me what it would take to get the basic science to the FDA and the path to develop a future drug, experience that was crucial in landing my job at Fred Hutchinson. I loved the basic science exposure I got, but my enthusiasm came from doing science to change the way we treat diseases so we could rewrite the playbook for physicians. I was never embarrassed by enthusiasm, and those at WSU never made me feel like that was something unacceptable in the field. I had big dreams when I came to WSU. The training program put me in a position to see those dreams to their current reality.

What advice would you give students about to embark on a graduate degree? Remember that great success primarily comes from failures, not by getting it right all the time. Take each failure as another step forward on

the path to making a great advancement. Never feel like you already know it all. It's great to be confident, but it's good to be open to learning new things. When you're humble and open minded it gives you the space to appreciate the value in other people's ideas and will only encourage you to have better ones yourself. *

Building on new directions

BY WENDA REED

Architectural and engineering companies headed by minority owners are, well, a minority. They are mostly small and don't have the networking base that larger, more established companies do. **PEDRO CASTRO** ('92, MS Arch.), owner of Magellan Architects in Redmond and an immigrant from Brazil, has taken a lead in mentoring minority-owners of Puget Sound-area architecture and engineering companies.

"I met my personal goal, to run a successful office, and now I want to give back," says Castro, who works with the state's Department of Enterprise Services to collaborate with

and coach minority-owned architectural and engineering businesses.

He finds talented architects who are working for large firms and want to start their own companies, but don't necessarily have the business knowledge they need. And he was recognized for his work in 2017, when the Northwest Mountain Minority Supplier Development Council named him Supplier of the Year, an award given to certified minority business enterprises that "excelled in their commitment to leadership excellence in business performance, inclusive performance, and minority business development."

Castro's work starts in his own office, where architects and support staff come from a variety of backgrounds, and about half of the 27 employees are women. Part of the reason is that the company was "flexible from the beginning, being a true start-up" when he opened it in 2000, Castro says. His wife was a part-time worker while raising their three children, and so he was open to hiring women who were doing the same thing. He has continued with flexible scheduling for any worker who needs it—a bonus when it came to working around the novel coronavirus pandemic.

Now he calls himself "Chief Explorer Officer," rather than the traditional CEO, and is concentrating on starting new offices and coaching new owners in the western United States and Brazil.

The son of an architect in Rio de Janeiro, Brazil, Castro had his own humble beginnings. He began doing internships with architectural companies from his first year of architecture school at Bennett University in Rio. By his fourth year, he had opened his own design/build firm doing smaller projects and hiring students to do the drafting. His office was downstairs from his grandparents' home in a triplex. He didn't have a phone because, in Brazil, it takes six months to a year to get a line and it's expensive. So his retired grandparents acted as his secretaries, answering their phone for him.

After earning his bachelor's degree in 1987, Castro came to the United States to learn English and further his education. He was taking English as a Second Language classes at a community college near San Jose, California, when he met Julianna Case ('89, '92 MA English), who later became his wife. Her grandparents, parents, and four brothers

▶ watch Castro's motorcycle adventures: magazine.wsu.edu/extra/Castro-explores

are all Cougar alumni, and at one time her picture was featured on a WSU brochure.

"I expressed a desire to go to graduate school, and so she suggested WSU," Castro remembers. "We packed everything into a Ford Fiesta and moved to Pullman. We lived a simple life in a tiny apartment, living on Coke and pizza while she earned her master's in English and I earned mine in architecture."

The couple eventually settled in Case's hometown of Redmond, where Castro began working with Lee Architectural Group, then the larger MulvannyG2 Architects, now MG2. He opened his own full-service architectural company in 2000.

Today, he hosts meetings of the Architects and Engineers Agency in his Redmond office, belongs to the Northwest Minority Council, and is a member of One Redmond, the city's Chamber of Commerce and economic development enterprise.

Why Magellan? "I didn't want my own name on the business, that ego thing," Castro says. So, he made a play on his middle name (his full name is Pedro Azevedo de Magalhaes Castro) and chose the name of the famous Portuguese explorer. He keeps an antique telephone in his office to remind himself of his start in his grandparents' triplex—and makes time to go exploring.

A longtime motorcycle enthusiast, Castro enjoys planning long rides. He recently rode from Tijuana through Baja California with his sons, Lucas and Peter, a videographer who documented the adventure in a YouTube series. Castro's latest motorcycle trip—from Rio de Janeiro through Patagonia—was thwarted due to the pandemic. But, in 2008, he rode some 6,000 miles roundtrip from Redmond to Alaska and, in 2013, he rode from Redmond to Rio.

That same year, Magellan was named one of the fastest-growing minority-owned businesses in Washington by the *Puget Sound Business Journal*. The firm opened an office in California in 2011, another in Dallas, Texas, in 2017, and another in Rio De Janeiro in 2019. Castro is actively looking for more.

When architects join what he calls "the Magellan family," the home office handles billing and other chores "architects hate." They share personnel and marketing to minimize the "hire and fire" cycle that can happen with market fluctuations. Castro is co-owner of the new offices, and principals buy shares so that they can eventually become full owners.

"I'm transitioning to the roles of coach and consultant," says Castro, noting he'll help open as many new offices as he can. "If good people have good mentorship, it minimizes failures." *



COURTESY MAGELLAN ARCHITECTS

Alumni Association News

40 by '20

With the unwavering support of its members, the WSUAA has achieved its goal of reaching **40,000 members of the WSU Alumni Association by 2020.**

Back in 2003, the WSUAA had only 13,000 members. WSU needed more Cougs to be engaged with the University, so the WSUAA set its sights on doubling its number of members. This was an enormous undertaking, one that some people thought was crazy. However, the WSUAA knew that fellow Cougs would respond. And, they did. In 2012, the WSUAA exceeded 26,000 members.

As the WSU system grew, so did its need for alumni support. If the WSUAA was able to double membership, why not try to triple it?

In 2018, the WSUAA launched its "40 By '20" membership drive. Once again, the Cougar family joined in the effort. Along the way, member support propelled the WSUAA to be ranked among the top alumni associations in the world.

Cougs banded together to support WSU. All have different WSU experiences. They live on both sides of the Cascades, across the country, and around the globe. They may have attended WSU at different times or on different campuses or online. But they all share one thing in common: they all love WSU.

As WSU deals with the impact of COVID-19, it needs alumni support now more than ever. The WSUAA is confident that each member—all 40,000—will find a way to give back to WSU and help the University get through today's challenges.

WSU will emerge stronger and even more focused on meeting the needs of its state, nation, and world. No challenge is too big, and no need too great for Cougs. The WSUAA knows that members will be there for WSU just as they were there to help the WSUAA reach 40,000 members by 2020.



Saving the Oregon Trail: Ezra Meeker's Last Grand Quest

DENNIS M. LARSEN '68 POLI. SCI.
WSU PRESS: 2020

Ezra Meeker went back the way he came: in an ox-drawn covered wagon. He was a man on a mission, and no one and nothing—not his wife nor his children, and certainly not a lack of funds—could stop him. He was stubborn, resilient, resourceful, restless. And he had lots to do.

The president and a charter member of the Washington State Historical Society, first mayor of Puyallup, and one-time “Hop King of the World” wanted to mark the fast-disappearing Oregon Trail with monuments and preserve the memory of a generation that came West via the overland route like he did in 1852. So, in 1906 at age 75, he embarked on a two-and-a-half-year adventure, which Meeker dubbed “The Old Oregon Trail Monument Expedition.”

Many regarded his plan as a quirky idea from an energetic and eccentric old man. Meeker was nothing if not scrappy and, at this stage in his life, perennially short on cash. To fund his cross-country travels, he borrowed money, lectured, and sold postcards and books and pamphlets that he authored.

Meeker set out in 1910, turning 80 on the road. In 1916, he crossed the continent again, this time in an auto resembling a covered wagon. The Prairie Schoonermobile is one of more than 30 photos, illustrations, and maps in the book.

The fourth installment in Dennis Larsen's multivolume biography tracks Meeker from 1901 until his death in 1928

at nearly 98 years old. The author draws on some 50,000 pages of Meeker's letters and papers to document the end of the trail of a complicated Pacific Northwest character and pioneer. Larsen provides a fascinating look at the schemer, dreamer, and doer, a busy risk-taker who was hardly at home and made national headlines during the last quarter-century of his extraordinary life.

Meeker platted Puyallup, dabbled in motion picture-making, drew crowds as he drove his covered wagon down Broadway, met President Theodore Roosevelt, and joined the cast of a Wild West show in 1925 when he was 94. At 96, he sold commemorative coins out of the back of his covered wagon in Tacoma to benefit the newly formed Oregon Trail Memorial Association, which he founded.

Also in his 90s, Meeker wrote a romance novel and children's book, and flew across the country in a biplane. When he died, he was planning another cross-continent trip in another motor vehicle made to look like a covered wagon. Just before he passed, he whispered to his daughter that he wasn't quite ready to go. His work, he explained, wasn't finished.

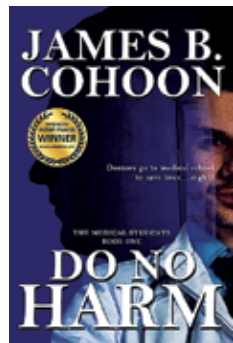
—Adriana Janovich

Do No Harm

JAMES B. COHOON '76 BIOL.
TOUCHPOINT PRESS: 2020

Matthew Preston is just a kid when his father is shot and killed while surprising a burglar in their home in the tony west Los Angeles enclave of Pacific Palisades. The culprit, Ted Nash, is the twentysomething ne'er-do-well son of well-to-do neighbors: a distant, workaholic father and doting, clueless mother. He's sentenced to life in San Quentin State Prison. But that's not enough for Matthew, who obsesses over avenging his father's murder.

Matthew is a straight-A student and standout athlete who attends the Stanford University School of Medicine with the nefarious plan of becoming a prison doctor in order to gain access to Nash. While Matthew's hitting the books in medical school, the killer's family files a petition to



get him released, and Matthew hastens his scheme to exact revenge.

By now, he's fallen for his study partner, the plucky and whip-smart Torrey Jamison, who did not enjoy the same kind of affluent upbringing. She's at Stanford on a full scholarship—and fighting her own troubled past.

Both take the Hippocratic Oath in a White Coat Ceremony at the beginning of medical school. And the big question throughout this suspense-filled story: will one of them break it before they graduate?

James Cohoon's fast-paced, tension-filled novel combines law and medicine with themes of privilege and power, corruption, socioeconomic inequality, entitlement, misogyny, and more. Despite those heavy subjects, though, the book reads quickly. It won the 2020 American Fiction Award for best medical thriller.

Cohoon spent more than thirty years as a civil litigation lawyer and served as president of an LA-based firm until his retirement in 2014. He and his wife Rozanne Lane Cohoon ('76 Biol.) have two children: a track-star daughter who went to Stanford and worked as a lawyer, and a son who practices medicine in southern California.

—Adriana Janovich

BRIEFLY NOTED

The ISIS Reader: Milestone Texts of the Islamic State Movement

HARORO J. INGRAM, CHARLIE WINTER, AND CRAIG WHITESIDE '14 PHD POLI. SCI.
OXFORD UNIVERSITY PRESS: 2020

This scholarly compendium examines key milestones and messages of the Islamic State without sensationalizing or merely recounting

them. It's a timely and thorough guide for those seeking to better understand the development and dynamics of ISIS. Coauthor Craig Whiteside, associate professor of national security affairs at the U.S. Naval War College in Monterey, California, and his colleagues contextualize the movement's evolution, analyzing its views and strategies on propaganda, governance, and warfare. Whiteside wrote his doctoral thesis on the political worldview and strategy of Iraq's Islamic State, focusing on the decade from 2003 to 2013. He's a retired lieutenant colonel of the U.S. Army and graduate of the U.S. Military Academy at West Point. His areas of expertise include counterterrorism, information operations, and irregular warfare.

Triptych

MARCIA WHITNEY-SCHENCK '73 COMM.
2020

Set over six centuries, this three-part historical narrative traces the journey of a mysterious Black Madonna, carved in France in 1365. The statue plays a pivotal role in the lives of a Spanish nun and apothecary during the Spanish Inquisition in 1491 and a Belgian lacemaker, who loses her ability to speak as the result of a vicious attack in 1914. Whitney-Schenck, a Chicago-based artist, writer, and performer, is the former editor and publisher of *Christianity and the Arts* magazine and a former reporter for the *Tacoma News Tribune*. This is her first novel. She is also the author of *Carrying Stones: A Spiritual Journey on El Camino*, featuring 33 meditations she wrote while walking the famed path to Santiago de Compostela, Spain.

Oklahoma Rodeo Women

TRACEY HANSHEW
ARCADIA PUBLISHING AND THE HISTORY PRESS: 2020

Tracey Hanshaw, a clinical assistant professor at Washington State University Tri-Cities, follows the trail that Oklahoma women have blazed across the rugged world of rodeo, including riding the same broncs as men, breaking records, training riders for Hollywood, and fighting to regain a foothold in the sport after being shut out following World War II.

Butch T. Cougar: Mascot or Superhero?

CARYN LAWTON
WSU PRESS: 2019

Secret identity? Check. Cool costume? Check. Never grows old? Check. What more evidence do you need? This whimsical, slim paperback offers these considerations and more to help young and old Cougar fans decide for themselves. Originally created for a fundraiser, the hand-illustrated picture book was so popular that WSU Press decided to release it as a regular title. Lawton, who wrote and illustrated the book, is the marketing manager for WSU Press.

Belayed Gratification: Waiting Until the Fur Flies Your Way, a Mascot Memoir

DAVID STOGDILL '98 ELEM. AND SEC. ED.

WARREN PUBLISHING: 2018

After portraying Butch T. Cougar at WSU, David Stogdill went on to become a professional mascot for teams in the NFL, NBA, and more. In this fast and fun read, he gives a behind-the-scenes look into one of the most visible, and yet anonymous, roles on the field or court.

ROORD: To War in a Rubber Duck

RODGER PETTICHORD '65, '67 MA ENGLISH

GRAY DOG PRESS: 2019

This trilogy about American B-52 pilots during and after World War II follows them from their beginnings with the British before the United States officially entered the war, to flying covert missions in the Cold War. ROORD stands for Reconnoitering, Observation, Opposition Resources, Destruction. American pilots dubbed it The Royal Order of Rubber Ducks. Retired Presbyterian minister Rodger Pettichord wrote the novels with retired U.S. Army warrant officer Jim Rubin and retired military and airline pilot David Ward.

Fractals for Kids

MIKE SUKOP '89 MS SOIL SCI.
2020

Florida International University Professor Michael Sukop aims to make the concepts and mathematics of fractals easily understood by children, using the simplest terms and examples. This is a significant departure from his earlier works on computational fluid dynamics, including *Lattice Boltzmann Modeling: An Introduction for Geoscientists and Engineers* (Springer, 2006) and *Multiphase Lattice Boltzmann Methods: Theory and Application* (Wiley, 2015).

Poaching Spree

TODD A. VANDIVERT '79 FOREST AND RANGE MGMT.

2019

Baffled by a yearlong poaching spree that leaves dozens of big game animals dead, two game wardens work to apprehend the perpetrators. Vandivert, a retired detective with Washington Department of Fish and Wildlife, writes about the dark world of wildlife trafficking in this novel using his own experience.

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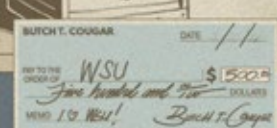
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CLASSnotes

60 DON WELLER ('60 Fine Arts) won the Western Heritage Award for Literature for *Don Weller Tracks: A Visual Memoir*. The book includes paintings, short stories, and essays of Weller's early career in illustration and design in Los Angeles as well as paintings of cutting-horse and ranch adventures in Texas and Utah.

70 JOHN THORESEN (x'72 Busi.), CEO of the Barbara Sinatra Children's Center Foundation, was honored by *CEO Today Magazine* as one of the global healthcare leaders in its 2020 Healthcare Awards issue.

✦ **JAMES R. "JIM" ANDERSON** ('74 Env. Sci., '78 MS Env. Sci.) was recently appointed to the Washington State Fish and Wildlife Commission. He retired from the Northwest Indian Fisheries Commission in 2010, where he served as executive director for 20 years. He lives in Buckley with his wife **DIANNE MESERVE** ('77 Env. Sci.). ✦ **LINDA ADAMSON BARTA** ('76 Comm.) retired from the *Wenatchee World* after 42 years as an editorial assistant, local history columnist, and editor of the *Douglas County Empire Press*.

✦ **JO ANN WAGSTAFF** ('77 Phys. Ed.) received the Distinguished Service Award from the athletic Northwest Conference. Wagstaff started at Whitworth University in 1984 as the women's tennis coach. She stepped down in 2015 after taking the Pirates to three national championships. She was National Association of Intercollegiate Athletics District 1 Coach of the Year in 1987, and, in 2013, she and her husband, Bill, also a longtime tennis coach, were jointly honored by the Inland Empire Sportswriters and Broadcasters with a 25-Year Award. Wagstaff recently retired as Whitworth's associate director of athletics and senior women's administrator.

✦ **LAURIE TURNER** ('79 Kinesio., '81 MS Phys. Ed.), a WSU Hall of Fame women's basketball player who served as women's basketball coach at the University of Idaho from 1986 to 1994, has been honored by the Northwest Conference with its Distinguished Service Award. Turner was athletic director at Pacific Lutheran University for 14 years before her recent retirement, leading the Lutes to 21 Northwest Conference championships in 11 different sports and one national title.

80 Governor Jay Inslee appointed Amazon executive **JOHN SCHOETTLER** ('80 Hosp. Busi. Mgmt., '17 Soc. Sci.) to Washington State University's Board of Regents. ✦

CHARLES KASTNER ('81 MA History) won the 2020 Peace Corps Writers Paul Cowan Award for best book of nonfiction for his book *Race across America: Eddie Gardner and the Great Bunion Derbies*. The book was noted in the Winter 2019 issue of *Washington State Magazine*. ✦ The 93rd annual Western Veterinary Conference in 2021 is named in honor of **JON R. PENNELL** ('81 DVM), a second-generation veterinarian who has practiced small animal medicine and surgery in Las Vegas since 1981. He has a long history with Viticus Group, formerly WVC, where he served as a session moderator, was later elected to the board of directors, and served as president of the board and chairman of the expansion committee.

✦ **MARK LEID** ('83 Pharm.) is the new dean of the WSU College of Pharmacy and Pharmaceutical Sciences. ✦ **EDWARD CHVATAL** ('84 Agri. Mech.) has joined the Walla Walla Catholic Schools board of directors. ✦ **CHRIS EIDE** ('84 Elec. Eng.) retired after 36 years at the Grays Harbor Public Utility District. During his career, Eide served in several roles, including district engineer, senior electronics engineer, substation engineer, and substation engineering supervisor. ✦ Soka University of America's founding president, **DANIEL Y. HABUKI** ('84 PhD Ag. Econ.), has retired after 27 years of leadership. He oversaw the opening of the school's Aliso Viejo campus in 2001 and construction of a performing arts center, academic building, additional residence halls, and recent completion of a state-of-the-art life sciences building.

✦ **ANNA MARIE DUFAULT** ('86 Ed.) is interim principal at Yakima's Discovery Lab School. ✦ **LAURA HENNUM** ('87 Comm.) is the chief executive officer of Good Samaritan Regional Medical Center in Corvallis, Oregon. Hennem had served as regional CEO for a string of microhospitals in southern Nevada, dividing her time between Nevada and Washington to develop and operate health facilities in the Puget Sound region for MultiCare. ✦ **GARY BALLEW** ('88 Busi., '94 Civ.

Eng., '97 MS Env. Eng.) is vice president for economic development at Greater Spokane Incorporated (GSI). GSI represents 925 businesses in the Spokane area. Ballew previously served as director of economic development and marketing at the Port of Pasco. ✦ **SHELLEY REDINGER** ('89 Ed. and Teach. Cert., '92 MA Elem. and Sec. Ed.) spent eight years as superintendent of Spokane Public Schools and is now the new superintendent for the Richland School District.

90 **GREG LANG** ('90 MBA) has joined the board of directors at technology company Rambus. ✦ **MOEKETSI MAJORO** ('90 PhD Ag. Econ.) is prime minister of Lesotho. He served as the minister of finance from 2017 to 2020 and minister of development planning from 2013 to 2015. Majoro joined the finance ministry as an analyst in 2000 and was promoted to principal secretary in 2004. From 1991 to 2000, he was a lecturer in economics at the National University of Lesotho. ✦ **MUHAMMAD TAHIR** ('90 PhD Agro.) is the director of research and regulatory affairs at Okanagan Specialty Fruits. ✦ Amazon recently promoted **TODD H. VAN VOAST** ('91 Arch.) to senior regional construction manager. The new fulfillment center in Spokane is among his projects. ✦ **AIMEE MELL** ('92 Music, '93 Teach. Cert.) was named a board trustee for Seattle Opera. A choral director in Seattle Public Schools since 2013, Mell has founded three choral programs in the district, most recently at Lincoln High School. In 2019, she was one of five choral directors selected nationwide to participate in the International Conductors Exchange Program through the American Choral Directors Association. The exchange allowed fellows to travel to South Africa for an interchange of music, culture, and pedagogy. ✦ **JEFF MOSES** ('92 Elem. & Sec. Ed.) is a paraeducator at Spokane's Ridgeview Elementary in Spokane. ✦ **KATHY RUSSELL** ('92 Arch. and Arch. Studies) is an architect and project manager at Architects West and 2020 AIA Spokane president. ✦ **STEPHANIE FUHRMAN** ('93 Busi. Admin. and Finance) is head of innovation at Catalyst Housing

CLASSnotes

Group in California. ✨ **VINCENT JUNE** ('93 MBA, '96 PhD Higher Ed. Admin.) is interim chancellor at South Louisiana Community College. ✨ Davidson Hotels and Resorts has appointed **LAURA WEST PRESNOL** ('93 Hotel & Rest. Admin.) as vice president of talent and culture. Presnol oversees all talent acquisition, training, and development across branded hotels, Pivot Hotels & Resorts, and the Davidson Restaurant Group. ✨ **ASHLEY WALYUCHOW** ('94 Comm.) is the 2019-20 Red River Athletic Conference Athletic Director of the Year. Walyuchow has served as athletic director since the inception of University of Houston-Victoria (Texas) athletics in 2006. He has expanded the Jaguar program from two to six sports and 50 to 140 student-athletes. At WSU, he founded, played for, and coached the hockey club. ✨ **DARRYL WOLFE** ('94 Soc. St.) is the chief executive officer at Olympic Medical Center (OMC). Wolfe oversees a \$221 million operations budget and nearly 1,600 employees. He joined OMC in 2006 as a financial analyst and progressed into leadership roles, including treasurer, director of administration, and chief financial officer. ✨ Columbus City Schools in Ohio has hired **DIONNE A. BLUE** ('95 MA Elem. & Sec. Ed.) as its first-ever chief equity officer. Blue had been serving as chief diversity officer for the Evansville Vanderburgh School Corporation, where she was responsible for creating and implementing a comprehensive plan for diversity, equity, and inclusion at the third-largest school district in Indiana. ✨ Miller Nash Graham & Dunn attorney **AMY ROBINSON** ('95 Poli. Sci.) recently was appointed to serve on the Washington State University Vancouver Advisory Board for WSU's Carson College of Business. Robinson represents public and private employers throughout Washington and Oregon in a broad range of workplace-related issues. ✨ **BRIAN G. BELL** ('97 Civ. Eng.) has joined Wood Environment & Infrastructure Solutions as a principal engineer after a 21-year career at Washington State Department of Transportation. He recently served WSDOT's south central region, managing the office that prepares bid-build design

packages and design-build procurement packages. Before that, Bell served the same region in construction administration, project controls and reporting, preparation of environmental impact statements, and general transportation design. At Wood, he's managing the I-405 expansion design from Renton to Bellevue, among other infrastructure projects in Washington. He and his wife, **THERESA (WEST) BELL** ('98 Ani. Sci.) reside in Zillah. ✨ **CARRIE BEEBE** ('98 Kinesio.) is the athletic director for Chimacum High School. ✨ **LIS PANKI** ('99 English) is the new dean of library and information services at Southern Illinois University.

00 **TAMMY H. MOORE** ('00, '04 MN Nursing) is the new chief operating officer at Catalina Island Medical Center on Santa Catalina Island, California. She comes to the role from Summit Pacific Medical Center in Elma, where she served as chief clinical officer. ✨ As part of his recent "In Plain Sight" exhibit, San Francisco-based artist **JOHN OSGOOD** ('00 Lib. Arts.) participated in a virtual tour with the Voss Gallery. Osgood characterizes his style as a mix between Picasso-esque cubism and punchy, graffiti-themed visuals. ✨ EveryMatrix appointed **STIAN ENGER PETERSEN** ('01 Int. Busi.) as CEO of its dedicated casino business segment. Petterson has been working in the department of product development and BonusEngine solutions. ✨ **MIKE BERENTSON** ('02 Comm.), a foreign service officer for the Department of State, has arrived at the U.S. Embassy in Islamabad, Pakistan, to work on environment, science, technology, and health issues. His prior post was Tegucigalpa, Honduras, where he worked in consular affairs. ✨ **NATALIE MASIN** ('02 Acc., '12 Ag. Busi. & Tech. Systems) is the vice president of finance at A&R Logistics, a chemical-industry, supply-chain-services company in Louisville, Kentucky. ✨ Merryman Barnes has promoted **AMY PALMER** ('02 Arch.) to associate principal. Since rejoining the firm two years ago, she's participated in the PDX Next suite of improvements at Portland International Airport and has

been managing work with TriMet on the Southwest Corridor light-rail expansion effort. ✨ **ANGELA TAYLOR** ('02 MS Civ. Eng.) has joined the Lewiston/Clarkston office of Keller Associates as a project manager. Taylor has 20 years of experience in water systems and environmental permitting. ✨ ALSC Architects of Spokane has promoted **JODI KITTEL** ('03 Arch.) to associate. Her recent projects include Creekside Elementary School and Amistad Elementary School. ✨ **MITCH FREEMAN** ('04 Kinesio, '05 Teach. Cert.) is the athletic director at Skagit Valley College. ✨ ALSC Architects of Spokane has promoted **ROBIN PECKA** ('04, '05 MA Int. Des.) to associate. Her current projects include the Walla Walla Community College Science and Technology Building and Highland Middle School. ✨ **DEREK TONN** ('05 Busi., '11 MBA) is the president and chief executive officer at the Tri-Cities-based Roasters Coffee chain. ✨ **CONNIE DIXON** ('06 Acc.) has been promoted to senior accountant at Opsahl Dawson. ✨ **ERINN QUINN** ('06, '11 MS Nursing) is the director of public health for Klickitat County. As a member of the Army Reserves, she was recently deployed to San Antonio, Texas, to assist with operations command and control for medical providers treating COVID-19 patients across the country. ✨ **MELISSA C. GASSETT** ('07 Nursing) is a clinical manager with American Mobile Healthcare in Spokane. ✨ Colorado State University professor **KELLY D. MARTIN** ('07 PhD Busi. Admin.) is coeditor-in-chief of the *Journal of Public Policy & Marketing*, an academic and professional publication that examines the impact of marketing and governmental policies and actions on economic performance, consumer welfare, and business decisions. ✨ **STEPHANIE SCHISLER** ('08 Kinesio.) illustrated the 2020 children's book *What Would I Be If I Couldn't Be Me?* The book was written by her dad, Jim Jameson, who founded the backyard nanobrewery Foggy Noggin Brewing in Bothell.

10 **KENDRA WIDGER** ('10 Acc.) has been promoted to senior accountant at Opsahl Dawson. ✨ **MINDI ELEAZER** ('11 MA

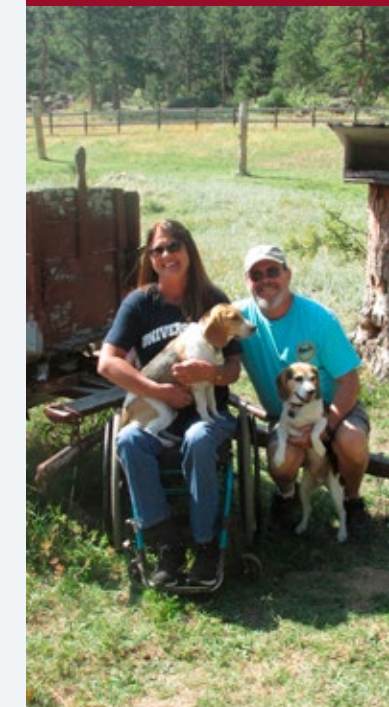
Acc.) has joined Opsahl Dawson. ✨ **DEREK RYAN D. JAHN** ('11 Fin.) is a partner at Baumgartner, Wagner & Jahn in Vancouver. ✨ The Fraser Valley Bandits have signed former Washington State University guard **MARCUS CAPERS** ('12 Gen. St., Soc. Sci.). He'd been with the National Basketball League of Canada's (NBLC) London Lightning for five seasons and was a member of the 2016-17 team that won the NBLC title. He won the NBLC Defensive Player of the Year award for 2019-2020. Capers has also played pro basketball in Finland and China. ✨ **SHAUN CAREY** ('12 PhD Ed. Leadership) is the superintendent of the Enumclaw School District. ✨ **MARK MULDER** ('12 PhD Busi. Admin.) is the dean of the Pacific Lutheran University School of Business. Mulder, who has taught at PLU for eight years, is a graduate of the institution's undergraduate business and MBA programs and former Tacoma-Pierce County Chamber of Commerce board member. ✨ **FRANCESCA (WHITE) WILLIAMSON** ('13 Biol.) earned a doctorate in curriculum and instruction (science education) and inquiry methodology from Indiana University, Bloomington. Her dissertation examined discourse in a key strategy for fostering diversity, equity, and inclusivity in STEM learning environments. At WSU, Williamson participated in TRiO Student Support Services, the McNair Postbaccalaureate Achievement Program, Coalition for Women Students, Black Women's Caucus, and the Xi Psi Chapter of Delta Sigma Theta Sorority. ✨ **JIM CRAWFORD** ('15 Comm.) is the communications director at the Denver-based CoPeace diversified holding company. ✨ **JUSTIN JENKS** ('16 Acc.) has been promoted to senior accountant at Opsahl Dawson. ✨ **JOHN LILLEY** ('17 MBA), who served in the U.S. Air Force as a firefighter and paramedic, is vice president of organ operations at Donor Network West, the federally designated organ procurement organization for Northern California and Northern Nevada. ✨ **CODY RATHBUN** ('17 Arch.) has joined Bernardo Wills Architects as a computer-aided design and building information modeling technician. ✨ **JUSTIN SCHAUER** ('17

Acc.) has joined Opsahl Dawson. ✨ **DEREK BAYLEY** ('18 Ed.) won the Reno Open, earning an exemption into the PGA Tour's Barracuda Championship. It was Bayley's first win as a pro, but he twice captured the Rosauers Open as an amateur. Both times, he declined the first-place prize monies in order to maintain his amateur status. ✨ **KERBIE BARRANTES** ('19 PhD Nursing Practice) is a doctor of nursing practice at Grays Harbor Community Hospital's Montesano Clinic. ✨ **ALEXA HOLLINGSWORTH** ('19 DVM) is a veterinarian at the Humane Society of Weld County in Evans, Colorado. ✨ **JOHN POLEN** ('20 Acc.) has joined Opsahl Dawson as an associate after interning with the firm last tax season. ✨ Oakpointe Communities has hired **JACK SPARKS** ('20 Chem. Eng.) as project engineer to help develop Ten Trails, a master planned community located in Black Diamond. ✨ **CONNOR STANTON** ('20 Acc.) has joined Railsback Johnson as an accountant.

Inmemoriam

40 **HERBERT EDWIN HAMMOND** ('41 Mining Eng.), 102, May 21, 2020, Silverdale. **ALEXANDER SWANTZ** ('41 Ag. Econ., Alpha Gamma Rho), 101, June 13, 2020, McLean, Virginia. **WILLIAM A. WEBER** ('42 MS, '46 PhD Botany), 101, March 18, 2020, Boulder, Colorado. **LOIS MARIE WILLIAMS** ('42 Theatre Arts, '68 Ed.), 99, February 24, 2020, Mercer Island. **MARJORIE JUNE EWING** ('44 Bacterio.), 98, January 9, 2020, Boise, Idaho. **VIORA LEA STRAIT** ('45 Pharm.), 96, May 4, 2020, Milton. **CAROLYN MAY FOOS** ('46 Music), 96, August 10, 2020, University Place. **VICTORIA J. FENTON** ('47 Comm.), 93, May 21, 2020, Hoquiam. **NANCY YOUMANS** ('47 Gen. St., Kappa Kappa Gamma), 94, June 26, 2020, Yakima. **SHIRLEY N. BOSMAJIAN** ('48 MS Chem.), 94, October 29, 2019, Pasadena, Maryland. **DEAN F. RATZMAN** ('48 Poli. Sci., Phi Kappa Tau), 93, March 1, 2019, Spokane. **EDWARD R. "MIKE" REUTER** ('48 Phys. Ed., Kappa Sigma), 98, August 14, 2020, Eugene, Oregon. **CARROLL RIECK** ('48

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Thank you Rusty and Sheri!

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In memoriam

Wildlife Biol.), 91, December 24, 2016, Hillsboro, Oregon. **JAMES H. WHITESIDE** ('48 Busi.), 94, April 7, 2019, Yakima. **JANET ELISE CAMPBELL** ('49 Busi.), 91, November 23, 2018, Yakima. **JAMES DEWEY CHANDLER** ('49 Hort.), 93, August 2, 2020, Yakima. **GEORGE ROBERT KNAPP** ('49 Pharm.), 92, July 13, 2020, Spokane Valley. **SADAKO OGATA TOYODA** ('49 Gen. St.), 92, July 15, 2020, Pasco.

50 JAMES H. BLUNDELL JR. ('50 Ed., '55 MEd), 89, February 7, 2016, Gig Harbor. **FELIZITAS M. BONE** (x'50 Home Econ.), 99, June 7, 2020, Citrus Heights, California. **MILTON A. BOYD** ('50 Zool.), 94, April 3, 2020, Henrico, Virginia. **MATHEW C. KRIER** ('50 MA Fine Arts), 85, May 22, 2019, New York, New York. **ROBERT EDGAR "BOB" ALLEN** ('51 Civ. Eng.), 92, August 12, 2020, Allyn. **WILLARD G. ALVERSON** ('51, '72 MEd Phys. Ed.), 91, August 23, 2020, Grand Rapids, Michigan. **JOHN M. DAWLEY JR.** ('51 Gen. St.), 87, June 12, 2016, Olympia.

MARY LOUISE GONSETH ('51 Home Econ.), 92, May 11, 2020, Yakima. **ROY H. "BUD" JONES** ('51 MA Ed.), 102, July 6, 2020, Spokane. **ROBERT A. KRAMER** ('51 Ag. Econ.), 91, August 14, 2020, Spokane. **BERNARD E. "BERNIE" ACKERMAN** ('52, '57 MA Music), 88, April 2, 2019, Auburn. **DAVID E. ALLEN** ('52 English), 90, August 17, 2020, Cambridge, Massachusetts. **JOHN E. BIERSDORF** ('52 Poli. Sci.), 89, April 21, 2020, Warren, Michigan. **JOHN BREMER CAMEALY** ('52 Busi.), 87, December 7, 2017, Galena, Ohio. **RICHARD ALLEN PROUTY** ('52 Mech. Eng.), 89, January 9, 2020, Arlington. **NANCY RUTH AMES** ('53 Home Econ.), 86, May 26, 2018, Cheshire, Oregon. **ROBERT "BOB" MCFARLAND** ('53 Psych., '59 MEd, '67 PhD Ed. Psych.), 88, March 4, 2020, Tacoma. **LAVONNE L. RESER** ('53 Busi.), 89, May 13, 2020, Walla Walla. **CAROL J. SHUMAN** ('53 Comm., Sigma Kappa), 88, August 6, 2020, Redmond. **HENRY D. OVEREN** ('54 Psych.), 85, May 8, 2017, Montgomery,

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80 KAY E. GUILLORY ('80 Pharm.), 63, June 20, 2020, Spokane. **MARTHA A. "MARTY" MULLEN** ('80 PhD Ed.), 78, July 8, 2020, Pullman. **JOANNE A. PARKER** ('80 Home Econ.), 82, September 2, 2015, Okanogan. **WAYNE ALLEN TOPINKA** ('80 Busi., '86, '88 MS Mech. Eng., Phi Kappa Tau), 63, August 16, 2020, Kent. **EDWARD DALE FOSTER** ('81 Mktg.), 61, July 26, 2020, Spokane. **RICHARD M. BERNAL** ('82 Hum.), 65, May 29, 2020, Tacoma. **KEVIN MILTON SCHWENK** ('83 Econ., Delta Sigma Phi), 61, April 16, 2019, Yakima. **DANIEL PATRICK MCCABE** ('84 Acc.), 60, June 7, 2020, Walkersville, Maryland. **ANNETTE LYNN FORESTER** ('85 Ed.), 59, June 29, 2020, Rossmoor, California. **JOANNE DENISE GAULKE** ('86 Poli. Sci.), 55, July 1, 2020, Spanaway. **SUZANNE (CREELMAN) MORCHIN** ('87 Spanish), 56, August 13, 2020, University Place.

90 DARREN A. GERMUNSON ('90 Crim. Jus.), 54, July 22, 2020, Seattle. **GLENN ADAMSON** ('91 DA Math.), 67, January 21, 2019, Osage City, Kansas. **DEVIN R. BUCKNER** ('91 Hotel & Rest. Admin.), 57, May 7, 2020, Palm Springs, California. **LAURA TERESE (MCGOVERN) WOODRUFF** ('95 Poli. Sci., Alpha Delta Pi), 50, June 19, 2020, Kirkland. **RICHARD**

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00 CASEY MEYER ('00 Crop Sci.), 44, June 30, 2020, Washougal. **MATTHEW SAMUEL THROOP** ('01 Psych.), 47, May 11, 2020, Richmond, Virginia. **NEWELL LEWIS CRARY JR.** ('03 MA Comm.), 73, August 11, 2020, Kennewick.

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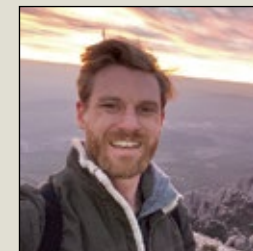


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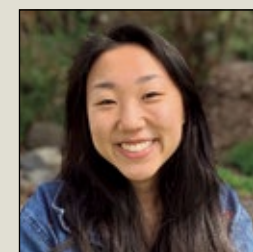
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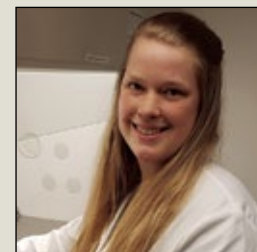
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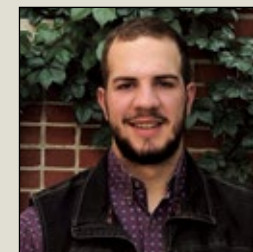
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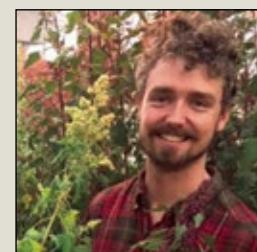
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⊕ the tiny world of glacier mice: magazine.wsu.edu/extra/glacier-mice

The mice will play

Glacier mice could be something from a fairytale—mossy little puffballs filled with tiny fanciful creatures.

“They are adorable—they really do look like little rodents,” says glacier biologist Scott Hotaling, a postdoctoral research associate at Washington State University. Hotaling studies organisms that live in the world’s coldest locations such as the ice sheets in Alaska and Iceland where these glacier moss balls are found.

Last April, his research with University of Idaho scientists Tim Bartholomaus and Sophie Gilbert was highlighted in the journal *Polar Biology*. Hotaling says studying moss balls helps scientists better understand the fragile glacier ecosystems that are disappearing due to climate change.

Glacier mice—squishy clumps of moss that form around a pebble or other glacial debris—were first reported by an Icelandic scientist in 1951. They appeared to live in colonies that mysteriously migrate around the glacier.

Hotaling says they now know glacier mice move by insulating the ice below them, which melts during summer except for a little pedestal under the moss ball. Once that pedestal gets too thin, the ball falls off and rolls.

“For this study, we wanted to determine how fast they move and in what direction,” he says.

Tracking moss balls on an Alaskan glacier, the researchers discovered the small pillows can move up to several centimeters per day—sometimes south, sometimes west but always as a choreographed herd. Hotaling says they don’t yet know why their movements are so synchronous.

They do know the moss balls provide homes and transportation for a thriving invertebrate community which includes shrimp-like springtails and chubby tardigrades, also known as water bears or moss piglets.

“The moss balls create islands on the glacier that buffer the environment and protect these organisms from the extreme effects of cold and UV light,” Hotaling says. “We’ve shown that once these islands mature, they can live about six years. That’s a long time for a little puff of moss.” ✨

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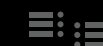
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