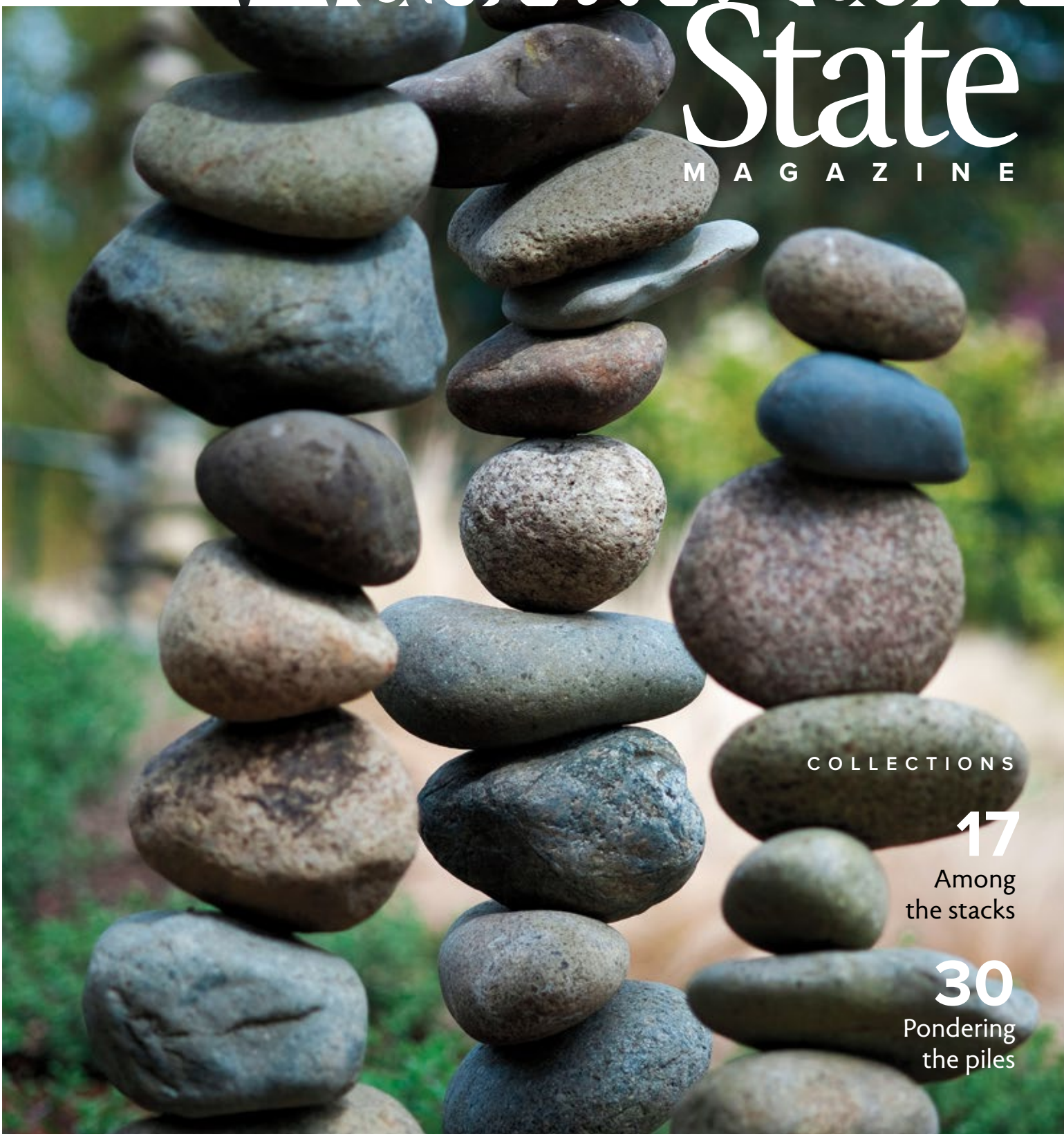
Winter21
vol21no1

Washington State MAGAZINE



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Collecting. My friend Mike and I were visiting a beach in Japan many years ago when we spotted tiny things all over the sand. Hundreds of plastic fish covered the ground, empty soy sauce containers blowing around and drifting out to sea. We gathered as many as we could and threw them in the garbage. There was no recycling those fish.

It was fine to collect the plastic, but what then? There's so much plastic in the environment and, as this issue's feature on plastic waste notes, only 9 percent of plastics gets recycled. While we may call it an insurmountable problem, Washington State University chemical engineer Hongfei Lin sees an opportunity; he and his colleagues have developed a method to convert some plastic waste into jet fuel and other high-value products. Other WSU researchers are helping identify how much plastic is in soil, how different types react in water systems, and how biodegradable plastic alternatives can be used in agriculture.

Unlike accrued plastic waste, WSU hosts other collections of great value. Tucked away in secure library vaults are Virginia and Leonard Woolf's books, ancient papyrus fragments, first-edition Jane Austen novels, and much more. But they aren't just locked up. Scholars come to Pullman from all over the world to study the works.

Sometimes people at WSU shine new light on old collections, too. Seattle photographer Irwin Nash captured the lives of migrant workers in the Yakima Valley from 1967 to 1976, but the pictures had very little identification. WSU librarian Lipi Turner-Rahman has been using social media to crowdsource connections between the images and names.

Pulling together stories like that has been the work of WSU's student newspaper, the *Daily Evergreen*, almost since the founding of the college. There is a rich history of training the collectors of news and documenting the life of Washington State.

It's not just about collecting, though. It's how one uses the collected items, whether they're stories, plastic water bottles, old books, or even syrup from Washington bigleaf maples.

For 20 years, *Washington State Magazine* has been providing you with WSU's stories, too. We truly appreciate our readers from across Cougar nation throughout the last two decades and look forward to many more years.

P.S. If you'd like to collect some photos from the magazine, check out our **2022 calendar**. Proceeds will help the magazine continue to tell WSU's stories: **magazine.wsu.edu/friend**

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Beyond time and distance

September 2006, a typical extremely hot and humid day in Auburn, Alabama.

The Pacific Northwest WSU Cougars traveled East to play my Deep South Auburn Tigers.

During a pregame tailgate party at my parking spot near Jordan Hare Stadium, I espied some Cougar fans heading to the stadium.

Some looked uncomfortable. One lady seemed unsteady, extremely hot, likely heat exhaustion threshold.

I took her hand, led her to a shady chair, gave her water. We invited them to rest, share our BBQ and drinks.

We welcome, honor, and respect our visitors, share our hearts, become friends, the Southern way, the Auburn Family way.

We walked with them to the stadium.

Soon post game, I received a "thank you" note, some Cougar Gold cheese, a local band CD, and WSU memorabilia from our new friend, **Dennis Johnston** ('74 Poli. Sci.).

Through the years we shared our Cougarness and Auburnness.

A few years later, my wife and I and some Auburn friends traveled to Seattle to embark on an Alaska cruise. We met with Denny, Bonnie, and some Cougar friends for an evening of friendship and nostalgia.

In 2010, my wife and I traveled to Seattle, stayed at Denny's house, traveled to Pullman, watched a Cougars game, experienced the Palouse, WSU campus, and game weekend.

In 2011, we met Denny and Bonnie in Phoenix for the Auburn-Oregon BCS National Championship game. I gave my tickets to some Auburn grads. An Oregon friend and I, Denny and Bonnie, watched the game from his desert condo.

WSU again traveled to Auburn in 2013. Denny and a friend stayed in our Atlanta home for a magnificent game weekend. We drove down to Auburn, showed them around our campus and provided them club level seats, food and drink, surrounded by welcoming and friendly Auburn Family folks.

After WSU beat UW, I called Denny from the North Carolina Outer Banks; after the 2013 Auburn-Alabama (Iron Bowl) "Kick Six" epic, Denny called me from the Olympia Pig Bar. Both conversations had to overcome unspeakable stadium/bar noise.

Our mutual bucket list: Cougar-Tiger National Championship game.

Our friendship endured 15 years. We're saddened Denny crossed the bar. (Alfred Lord Tennyson, "Sunset and Evening Star," 1889).

Denny and I joined our respective Alumni Associations. I'll continue my WSUAA membership in his honor.

We'll meet again, old friend.
Fair winds and following seas.
GO COUGS, WAR EAGLE!

ROBERT W. SCHORR
('61 PHD AUBURN UNIVERSITY)

COLONEL, USAF/US SPECIAL OPERATIONS COMMAND (RETIRED)

ACWORTH, GEORGIA

From left: Robert Schorr and Denny Johnston. *Courtesy Robert W. Schorr*

Discovering Goldsworthy

Thanks for the story about Harry Edgar Goldsworthy by Adriana Janovich. When I saw that name, I wondered if they named Goldsworthy Hall after him. [*The hall was named after his father, Harry E. Goldsworthy Sr.* —Ed.]

I lived in Goldsworthy Hall in 1976, my freshman year at WSU. Although my overall experience at Goldsworthy Hall was not pleasant, it is how I met my best friend, so the place is important to me. On Harry's Wikipedia page, I found out that he lives in California, was born in Spokane, spent time in Pennsylvania at the Army War College, and in June 1967 he assumed command of the Aeronautical Systems Division at Wright-Patterson Air Force Base, Ohio. I grew up in Los Angeles and Spokane, worked in various human factors research labs in Pennsylvania for over three decades (including one job with the Navy), and now work in a lab at Wright-Patterson AFB.

Thanks to your story, I feel a little more connected to Harry Edgar Goldsworthy and the world seems just a little bit smaller and friendlier.

KEN GISH '80

Correction

In the Fall 2021 story, "Mimicking nature," 3D printed joint replacements heal better, rather than make a better fit. The innovative material used is chemistry-modified calcium phosphate, with additives and natural medicinal compounds, which can improve biocompatibility. The corrected story is available at **magazine.wsu.edu**.

AN AMERICAN DREAM
Behnam Mozafari left Iran to become a police officer in the United States.
It wasn't an easy path, but the Washington State University senior found success through the criminal justice program, internships, and research.
"I'm very excited about my career and how close I am to graduating," Mozafari says. "It takes hard work, but WSU is there for you.
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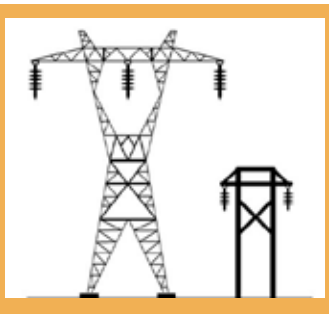

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The great recession

BY LARRY CLARK

Hikers and nature lovers have watched for years as snow has shrunk away from mountains and glaciers. In the freakishly hot summer of 2021, even Mount Rainier saw its snowpack fade at an alarming rate.

The diminishing view of snow on mountain peaks foreshadows a much larger impact of warming temperatures on the Pacific Northwest: declining snowpack means less water later in the summer for irrigation, fish, hydropower, residential, and other uses.

"We have a temporal mismatch between water availability and water demand," says Jennifer Adam, Berry Distinguished Professor of Civil and Environmental Engineering at Washington State University.

In particular, the Columbia River basin derives an average 60–70 percent of its annual streamflow from snowpack melt. However, in recent years, the peak snowpack is earlier, the decline is faster, and the duration is shorter, leading to less water availability when it is needed most in the summer.

The Pacific Northwest is particularly vulnerable to changes in the snowpack because of its outsized importance for storage.

"On average, we can only hold maybe 30 percent of the annual streamflow behind dams," Adam says. "That's in contrast with other river basins, like the Colorado or the Nile Rivers."

Because water is so crucial for power, fish, and agriculture, the Washington State Department of Ecology commissions a long-term water supply and demand forecast every five years. Adam worked on the next forecast, slated for November release, that looks 20 years ahead and, for the first time, 50 years out.

One clear finding: "Dry seasons are getting drier. Wet seasons are getting wetter," Adam says, noting these circumstances can lead to greater droughts and floods.

Scientists at the Pacific Northwest National Laboratory (PNNL) have also been monitoring and modeling regional snowpack and subsequent water flows for many years. Their results show warm temperatures can affect snowpack.

Ruby Leung, a PNNL atmospheric scientist, says that, due to warmer temperatures, "even if there is no change in the amount of precipitation in the future, you would expect that the precipitation would be falling more as rainfall rather than snowfall."

Increasing rainfall leads to faster melting of the snowpack. Leung and her fellow researchers, including PNNL watershed hydrologist Mark Wigmosta, study atmospheric rivers that dump a lot of warm rainfall. They have 40 years of measurements that show an increase in these rain-on-snow events.

And, "projections are also very clear that atmospheric rivers in terms of the frequency will increase," Leung says.

Dust, as well as ash from increasing wildfires, add to the problem, she says. It collects on snow and reduces the ability to reflect sunlight, thus raising the temperature and leading to earlier melting.

As the availability of water supplies shifts earlier in time around the Cascade Mountains, water users must adapt. They rely on forecasts such as the Columbia River report and PNNL's work to make adjustments.

The forecast helps improve understanding of where water is most critically needed, now and in the future, Adam says. In addition to Adam, 19 WSU researchers are involved, along with consultants, the University of Utah, and the Department of Ecology.

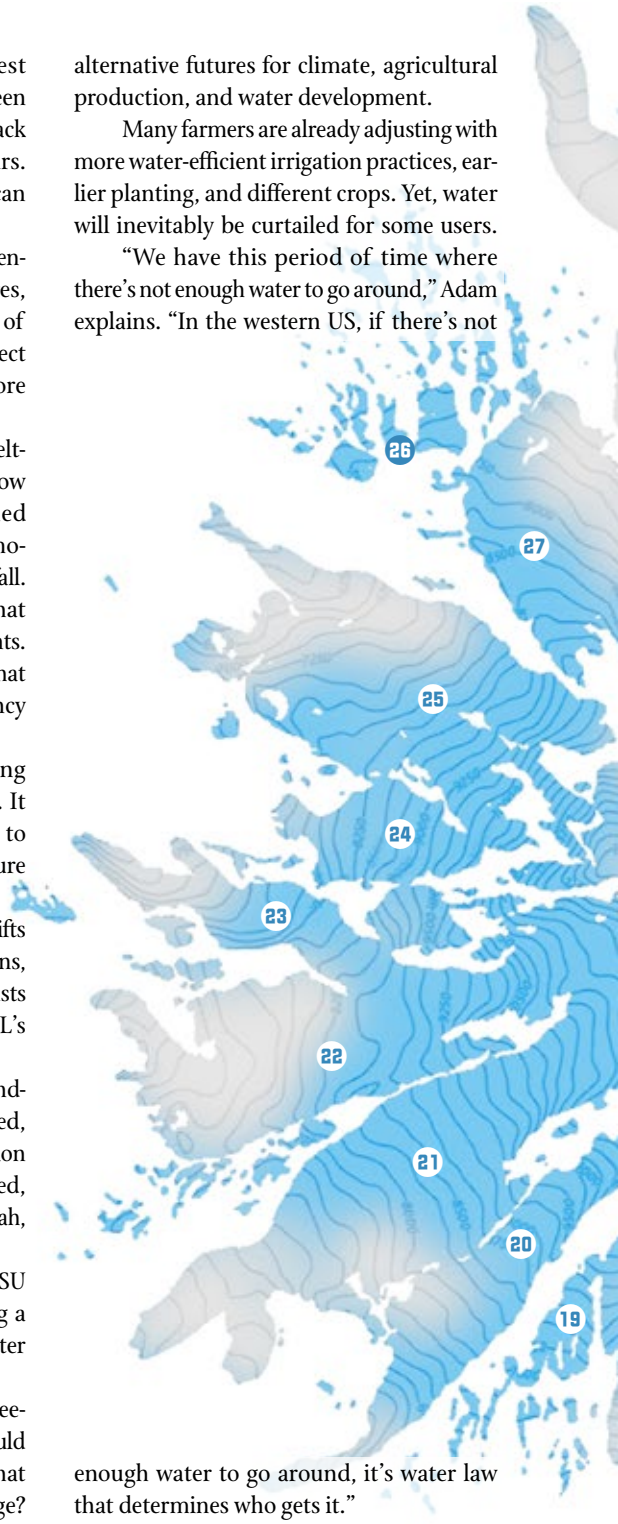
Adam says this group and others at WSU want to work more toward formulating a number of "what if?" scenarios around water storage and scarcity.

For example, "what if we had the three-year drought that California had? What would that do to our system?" Adam asks. "What does that mean for managing our storage? What if we have a major northward migration of vegetable production?"

To examine possible answers, their model brings together a complex array of information, including land cover, elevation, river flows, snowpack, evaporation, irrigation demand, and more. The results can show alternative futures for climate, agricultural production, and water development.

Many farmers are already adjusting with more water-efficient irrigation practices, earlier planting, and different crops. Yet, water will inevitably be curtailed for some users.

"We have this period of time where there's not enough water to go around," Adam explains. "In the western US, if there's not enough water to go around, it's water law that determines who gets it."



She notes that Washington state will need to change how water is stored. "The shift in timing points to seasonal storage. We're losing our snowpack and becoming more reliant on the reservoirs," Adam says.

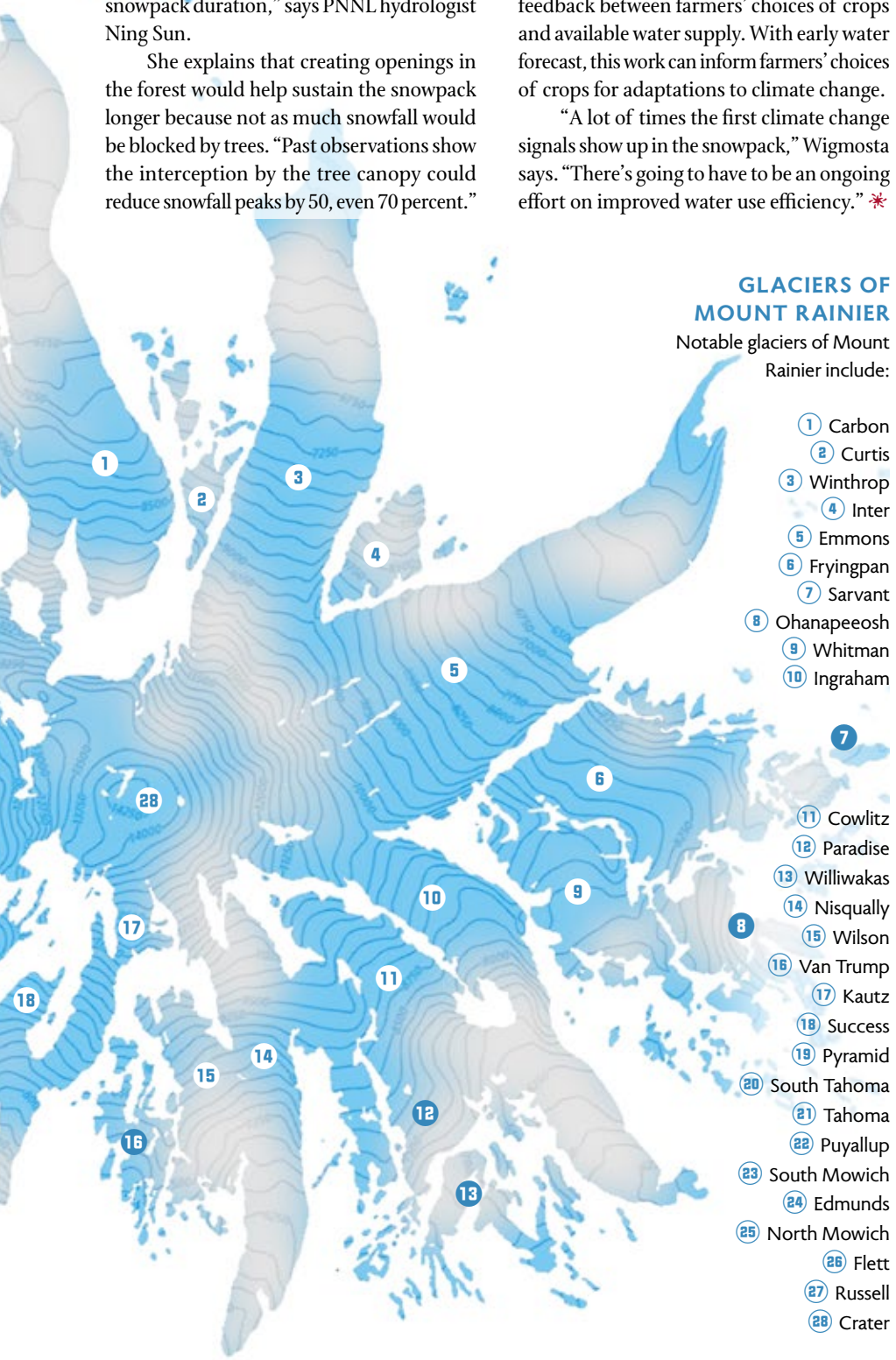
Another avenue could be maintaining the snowpack. "We're looking at how we

can take different measures to improve the snowpack duration," says PNNL hydrologist Ning Sun.

She explains that creating openings in the forest would help sustain the snowpack longer because not as much snowfall would be blocked by trees. "Past observations show the interception by the tree canopy could reduce snowfall peaks by 50, even 70 percent."

Researchers at PNNL are simulating the feedback between farmers' choices of crops and available water supply. With early water forecast, this work can inform farmers' choices of crops for adaptations to climate change.

"A lot of times the first climate change signals show up in the snowpack," Wigmosta says. "There's going to have to be an ongoing effort on improved water use efficiency."



A 1970–2016 comparison of Mount Rainier glaciers show over 100-foot decreases in elevation (gray areas on map) based on earlier USGS topo map elevations and recent satellite stereo imaging. *Staff Illustration from data courtesy UW Applied Physics lab and United States Geological Survey*

The *Daily* *Evergreen*

BY ADRIANA JANOVICH

"To those who are interested in the educational affairs of the state, and desire to see the best interests of the Agricultural College advanced, we cordially extend greeting in the first number of our college paper—*The Evergreen*."

Since these words appeared in March 1895, the student newspaper of Washington State University has provided a first draft of history, recording campus and Pullman news, life on the Palouse, student opinion, and more. For more than 125 years, the *Daily Evergreen* has done double duty, serving as both a source of information and a training ground for student journalists. The experience has helped alumni land jobs in newsrooms throughout the country—from the *Moscow-Pullman Daily News* and Spokane's *Spokesman-Review* to the *New York Times*.

"I think of it as a learning lab for our students," says Bruce Pinkleton, dean of WSU's Edward R. Murrow College of Communication. "When I talk with our alumni, they single it out as a turning point in their education. The *Evergreen* is almost like finishing school for our journalism program. It's true-to-life journalism experience in many respects. It's something I really believe in. It is an outstanding student publication."

The *Evergreen* technically isn't part of Murrow College. It's housed under WSU's Office of Student Media and supported by services and activities fees, a student fee, and sales of ads and *Chinook* yearbooks.

"A lot of Murrow students have worked there," Pinkleton notes. "But students from across campus can and do get involved. It's one of those experiences that galvanizes students. You all pull together and work under the duress of deadlines. And you're working on stories that make a difference."

Those stories have included cadets leaving campus to fight in World War I, the gym transforming into a sick bay during the 1918 Influenza Pandemic, the 1931 Rose Bowl, and the ringing of the Victory Bell to signal the end of World War II.

former student journalists look back: magazine.wsu.edu/extra/evergreen

Evergreeners have written about the Vietnam draft, Watergate scandal, the 1970 racially charged rallies and student strike, May 1980 eruption of Mount St. Helens, and May 1998 Greek Row riot that left nearly two dozen police officers injured. More recently, they've covered the COVID-19 pandemic.

"Students do more than make memories at the *Evergreen*," Pinkleton says. "It helps them develop the professional skills they need to succeed. Historically, that's been the Murrow calling card: students at the undergraduate level who have a lot of hands-on experience. The paper has a history of moxie. In a sense, it doesn't change much over the years."

The first issue of 1899 asserted: "Let the editorials be fearless. Not too radical, but exceedingly truthful. Not always fault-finding, not always commending. Giving credit for all that is good, but speaking with undisguised plainness as to those things that injure the reputation of the college and lower the standard of college life. The college paper ought to be the voice of the student body itself—against all that lowers, in favor of all that uplifts."

By the end of 2019, the *Evergreen* had published more than 144,700 pages in more than 13,800 issues. About 40 issues are lost to history. The rest are available in the Manuscripts, Archives, and Special Collections (MASC) at WSU Pullman. MASC also contains copies of the *College Record*, the *Evergreen*'s predecessor, published in 1892 and 1893, as well as approximately 60 issues of alternative papers published by students unaffiliated with the *Evergreen,* including the *Upstream* (1939 to 1941), *Burgerville Blues* (1970), and more.

The *Evergreen*'s initial issue was 12 pages, carried no photos or bylines, and featured a section called "Personals." It was printed at the *Pullman Herald*, a practice that took place for decades. "A staff member, and usually the night editor, would walk or bicycle the copy over to be printed," the late Maynard Hicks recalled in a special centennial issue published October 4, 1994. He taught journalism at WSU for 35 years, retiring in 1972, then returning in the 1980s.

In 1996, the *Evergreen* launched its website. Photography was all digital by 2002. News continues to be published online five days per week at dailyevergreen.com. Due to the persisting COVID-19 pandemic, the *Evergreen* went online-only for summer 2020 and switched to a weekly printed product last fall.

"When I was there it was typewriters and an AP (Associated Press) teletype machine rattling away," recalls Bruce Amundson ('75 Poli. Sci.), a member of Murrow College's professional advisory board. He worked for the *Bellevue Journal-American* before moving into corporate communications at Pacific Northwest Bell and the Weyerhaeuser Company.

WSC daily EVERGREEN

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Famous Jazz Artists Featured In Jazz at the Philharmonic

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The Day Wire

Library Puts Out 'Handbook'

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Idaho Walks Next Sunday

"Browsing Stack" Set Up In Library

Jazz Thrush

DAILY EVERGREEN, NOVEMBER 4, 1952

"Everything I learned was on the job at the *Evergreen*," he says. "If I made a mistake, I made a mistake for everybody to see. I learned a lot working on deadline. I got time management experience. And when I became sports editor my sophomore year, I started hiring people and managing them. I learned how to identify talent. It served me well. I built on it after that, but it gave me a foundation."

Amundson served as assistant sports editor, sports editor, managing editor, editor-in-chief, and editorial page editor. He was working at the *Evergreen* in 1972 when it moved to its current location in the Murrow Hall basement. For 20 years before that, the newsroom was in the CUB basement. The paper started in a basement, too—in Old College Hall—as a monthly. It later became a weekly, then a twice-weekly, and continued to grow—publishing three, four, then five times a week.

"We very much lived there," says Lisa Cowan ('89 Comm.), *Evergreen* editor-in-chief in spring 1989. Adviser Lois Breedlove "used to say journalism was the last 'white-collar trade.' You have to do it to learn it. We covered a lot of stuff, not just student-related stuff. We covered the city like a regular local paper. We were, in a sense, competing with the Pullman-Moscow paper. The biggest challenge was we published through dead week, the week before finals. Reporters would disappear. You'd hear, 'I'm going to fail biology if I don't study.'"

Now a night digital editor at the *New York Times,* Cowan "graduated on Saturday and started working at the *Spokesman* on Tuesday—with no break (from journalism) since. I felt very prepared because of what I learned at the *Evergreen*. It was run very professionally."

Ten years after Candace Baltz ('02 Comm.) graduated, her career circled back to WSU. The former *Evergreen* editor-in-chief returned as director of student media. For three years, she advised the *Evergreen* staff, telling students "to always ensure you're presenting your best self when you're reporting and defending the public's right to know."

She says, "WSU—and Pullman—is a really, really great place for a fledgling journalist. You get to experience what it feels like to influence a community."

Bigleaf belief

BY REBECCA PHILLIPS

They said it couldn't be done. But this writer, for one, has sampled the complex, toffee-like flavor of bigleaf maple syrup produced right here in Washington state.

The deep amber liquid is less sweet than the Midwest and eastern varieties, and thanks to its high mineral content, offers a rich earthy note that leading Seattle restaurants covet for specialty dishes and drinks.

That's not to say it can't be enjoyed on pancakes, says Neil McLeod, owner of Neil's Bigleaf Maple Syrup company in Acme, where he taps 1,200 maple trees along the Nooksack River and cold ravines near Mt. Baker. His is the first successful commercial maple syrup operation in the Pacific Northwest.

"When I started in 2011, I could barely get a drop out of the trees," McLeod says. "But now we're producing 500 to 700 gallons of syrup per year. We just planted 3,500 new trees all over the property from swamps to the mountains—in shade, sun, all different environments—to see what does best."

ALLEN CRANEY (COURTESY ALLEN CRANEY)

His commercial success owes much to the curiosity of retired Skagit Conservation District forester Allen Craney ('73 Forest Mgmt.). Ten years ago, Craney and Washington State University Extension forester Kevin Zobrist, who covers north Puget Sound, teamed up to provide educational workshops for small forest landowners in western Washington.

Craney says some of those landowners had been toying with the idea of producing maple syrup, including McLeod, who at the time was cooking his bigleaf sap over an open fire. Intrigued, Craney joined McLeod's operation—answering questions, doing research, and helping tinker with the production process.

"Eventually, Neil said he'd like to make a commercial venture out of it," Craney says. "But going from hobby to commercial is a huge leap and we had a lot to learn. As a hobby, you might boil 40 gallons of maple sap per day but as commercial, we boil around 4,000 gallons per day. It's a whole different ball game."

Since that time, Zobrist and Patrick Shults, WSU Extension forester for southwest Washington, have joined in with new programs aimed at maple syrup production for hobbyists. In addition, scientists at the University of Washington are investigating the potential for large-scale commercialization in the Northwest.

Indroneil Ganguly, associate professor in the UW School of Environmental and Forest Sciences, is a wood products specialist who helps small landowners develop sustainable and profitable harvest practices.

He says Washington state has one of the strictest riparian zone management systems in the country, which is environmentally friendly but limits a landowner's harvest flexibility.

"Riparian is the buffer zone along both sides of a stream," Ganguly says. "The buffer increases to 200 feet if the stream has fish. You can't harvest trees the same way as in non-riparian zones, so many small landowners lose income from not being able to sell timber.

"If we make maple syrup production an income-generating opportunity for these landowners, they can actually recoup some revenue and also practice sustainable forestry and get certified," he says.

With 2019 grant funding, Ganguly's team set up their first syrup research site at the UW Pack Forest in Eatonville. In 2020, they added additional sites including the WSU Environmental Field Station at Meyer's Point near Olympia, which is managed by Shults.

Shults, Zobrist, and McLeod collaborate with UW through data sharing and expertise.

Bigleaf maples, which grow from sea level to 3,000 feet in western Washington, Oregon, and British Columbia, require a freezing period followed by a thaw to get their sap flowing. Tapping season generally runs from November through February.

At Meyer's Point, sap is collected through a natural gravity vacuum system which consists of a long series of tubes that drain into holding tanks. Since most bigleaf maples grow on sloping banks, this system is a good fit for hobbyists. Commercial producers like McLeod typically rely on electric pumps to create the vacuum.

"Being at sea level, we didn't anticipate there would be much sap production because the temperatures are so moderate," Shults says. "But we had freezing weather, and the trees produced a lot. It's a very unique product."

Ganguly says their end goal is to estimate how much maple syrup can be commercially produced in Washington state and how large the industry can be.

Shults plans to share UW's research findings with landowners who are interested in commercial production but says there is also tremendous potential in the hobby scale.

"It's a fun way of getting forest owners, families, and communities engaged with their forest," he says. "It can help create an attachment to the land that in the long run might prevent them from selling it off and subdividing."

ABOVE: NEIL'S BIGLEAF MAPLE SYRUP **BACKGROUND:** NEIL MCLEOD AMONG HIS MAPLE TREES (COURTESY @NEILSBIGLEAF)

Scouting for a forgotten few

BY RYAN W. BOOTH

A COOLER LOADED WITH SMOKED SALMON AND COUGAR GOLD. Pendleton blankets with the price tags removed. Suitcase full of every possible academic tool needed. WSU Motor Pool Ford Focus stickered with our logo and one that says, "How's My Driving?"

When your research involves the Native people who served as US Indian Scouts, it means traveling vast stretches of the American West. The materials these people left behind are few and far between. It also means consulting with the tribes, who have every interest in how their ancestors' stories are told.

My research focuses on the Northern Cheyenne and White Mountain Apache who served as scouts for the US Army from 1866 to 1947. The army needed Indigenous soldiers if they hoped to win the US-Indian Wars. An old army adage went something like, "It takes an Apache to find an Apache." One can insert just about any tribe in the old war maxim. I am an Upper Skagit looking for Indian Scouts wherever they might be.

While I fulfilled an obligation to serve as a fellow at the Newberry Library in Chicago and visited sites for my dissertation, I found so much more on the highways of the American West. It took me to quiet places where few travelers venture. It took me to one of the busiest cities in our nation. It took me to some of the most profound historical places I've seen. Have Ford Focus, will travel.

I have driven by Pompey's Pillar a few times on my way to Miles City, Montana. I never stopped. This summer I finally stopped to see one of the only physical remnants of the Lewis and Clark expedition. On July 25, 1806, William Clark carved his name on some sandstone near the Yellowstone River. It was hard to see the old graffiti due to the plexiglass meant to protect it from the weather and people. The signage depicted the area as "A Crossroad of Events" and mentioned troops protecting the survey and railroad crews, but stood mum on the topic of my research, Indian Scouts.

Decked out in little flags, the Custer National Cemetery stood ready for Memorial Day. On previous trips, I'd walked the places of the Little Bighorn Battlefield and admired the new monument to the Native warriors who prevailed on that hot day in June 1876. This time, I spent my time walking row upon row of the Custer National Cemetery, which is adjacent to the park. As a resting place for our nation's veterans, it remains a hallowed place overlooking the Little Bighorn River. I noticed a few older graves. One headstone stated "Curly, Custer Scout, May 22, 1923." Another one read, "White Man Runs Him, Alias Mahr-Itah-Thee Dah-Ka-Roosh, Montana, Private, Indian Scouts."

Sadly, most historians, let alone average Americans, do not know these names. These men were Apsáalooke (ahp-SAH-luh-guh), Crow, scouts who were at the Battle of Little Bighorn. They tried to warn Lt. Colonel George A. Custer of the impending danger of charging into the camp of approximately 3,000 Lakota, Dakota, Northern Cheyenne, and Arapaho. For the army, it was one of the worst defeats in their war against "hostile" Native people.

In historical shorthand, we often refer to these conflicts as the "Indian Wars." The problem with that characterization is that it implies that the Indians caused it and therefore needed to be punished for it. Native people were simply living on the land they called home for generations. Like any person, they reacted to attacks on their homeland with returned violence. Most of us would be willing to die for our families and homes. They were no different.

The conundrum in all of this are the Indian Scouts. These were Native men who willingly took up arms to fight for the government against other Native people. Why would they do that? The truth is that certain tribes hated other tribes. The animosity between some of these tribes reached back into time before White settlers arrived. The army knew this and used another old military maxim to their advantage: divide and conquer.

While that was the army perspective, what did Native men get out of serving as scouts? They were able to survive in a fast-changing world. The 1800s must have seemed like living inside a tornado—everything upside down and nothing firm to hold onto. The scouts spoke their own languages, practiced their own cultural traditions, and fought people they didn't like much anyway.

For the most part, they lived good lives. They supported their families and communities. They accessed plentiful army stores. With an army blue jacket, they traveled the West untouched—no one wondered why they weren't on their reservation.

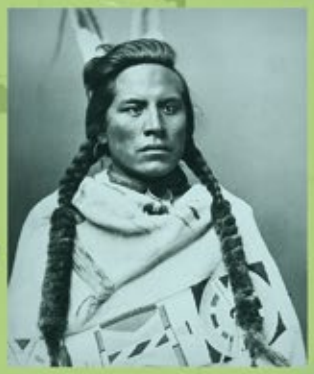
PHOTOS RYAN W. BOOTH EXCEPT AS OTHERWISE NOTED

For some, they only realized the cost of their service when it was too late. US Indian Scouts participated in some of the worst Indigenous massacres at places such as Washita and Wounded Knee. After the 1890 Wounded Knee Massacre, James Tangled Yellow Hair remarked that this was "not at all brave on the part of the soldiers." Yet he continued to wear the army blue uniform to stave off hunger, poverty, and the lingering possibility of being labeled "hostile" to the US government.

As I drove into the Washita Battlefield National Historic Site in Oklahoma, the place seemed misnamed. It was hardly a battle. On a frigid November 27, 1868, Custer and his Seventh Cavalry rode into a village of about 300 Cheyenne people and shot 60 of them. National Park Service signage refers to this as a "clash of cultures," which also seems to dodge important historical questions. Who bears the burden of this battle and why does no one want to talk about it? The place is silent now, but it cries out for an amends.

WOUNDED KNEE SITE (PHOTO ADAM SINGER/ WIKIMEDIA COMMONS)

NEWBERRY LIBRARY



Curly, Custer's Apsáalooke Scout, in 1884.

COURTESY NEWBERRY LIBRARY

All along the journey, I passed out gifts from my mobile storehouse. The blankets went to honored friends and collaborators. The cheese and smoked salmon found its way to a few grateful associates. In my own way, I attempted to smooth the way for better conversations and set a tone for friendship. I carry the lessons of my own ancestors, Native and White, to treat everyone with dignity and respect. Perhaps this could work for future dialogues about difficult stories with wounded people on all sides?

As I traveled on, I stopped at Fort Huachuca, Arizona. It is one of the last active military posts from the US-Indian Wars. As I explored the oldest section of the army post graveyard, I noticed that White and Native soldiers were buried side-by-side. As was the custom, the wives and children of soldiers at the fort were mixed together. All were equals in death.

WASHITA BATTLEFIELD NATIONAL HISTORIC SITE

MEDAL OF HONOR INDIAN SCOUT Y.B. ROWDY'S GRAVE AT SANTA FE NATIONAL CEMETERY

This fits with my knowledge of military history. I never served in uniform, but soldiers consistently report that the reason they fought was to help the buddy next to them. They may have joined for various reasons, but the thing on the battlefield that keeps them fighting is to protect their friends as well as themselves. The cemetery made that more real to me.

In a way, it reminded me of the "Cougs help Cougs" spirit at WSU. While I was driving through Iowa in the Coug Car, a big, black pickup started to roar past me and then slowed to keep pace. I thought to myself, "Shoot. Now what?!" I timidly looked over to see the folks in the truck waving, giving me a thumbs up sign and honking. I smiled and waved. As they passed me, I noticed a WSU sticker in their rearview mirror. We know something about an *esprit de corps*.

The US Indian Scouts did as well. They wore a crossed arrows insignia on their uniforms and hats. When the unit was disbanded in 1947, the insignia transferred to the US Army Special Forces, where it lives on to the present day. Those Native men who served in uniform represented a unique moment that is unlikely to come around again. Their service represented their own "special forces." They have been waiting a long time for their story to be told. We have so much to learn from them if we are willing to listen. Otherwise, the past will continue to haunt the present.

Ryan W. Booth is a doctoral candidate in history at WSU. He also teaches at WSU Vancouver.

To shield and protect

BY REBECCA PHILLIPS

COURTESY MATTHEW PERCIVAL

LAST JULY, as the United States began its military drawdown from Afghanistan, a smaller American force toiled behind the scenes to ensure the safety of those remaining at the US Embassy in Kabul.

One of America's largest diplomatic missions, the embassy, before closing in August, was a massive 15-acre complex protected by 10-foot blast walls, heavily armed US Marines, explosive-sniffing dogs, and lots of technology.

"In Diplomatic Security, our job is to protect the embassy, to work closely with the Department of Defense to ensure everyone in that compound is safe," says Matthew Percival ('01 Elec. Eng.), director of the Office of Technology Innovation and Engineering in the US State Department in Washington, D.C. "We had many visa discussions going on in Kabul during that time as people rushed to evacuate the country."

Percival, a security engineering officer in the State Department's Diplomatic Security Service, oversees much of the US counterintelligence effort and also leads teams in the development of high-level technology.

Since the Cold War discovery of the "Great Seal Bug," a covert listening device ingeniously planted in the US ambassador to Russia's Moscow study in 1952, the Diplomatic Security Service has employed people to detect such devices and prevent them from stealing national security information.

In 2020, Percival was presented the Robert C. Bannerman Diplomatic Security Employee of the Year award for his leadership in the development of an advanced cybersecurity system known as Rio Celeste, which deployed earlier this year.

"The question was, 'How do we protect sensitive information in a world where streams of data are constantly flowing through the air creating vulnerabilities and potential threats?'" says Percival. "Almost every agency overseas and in Washington, D.C. has some presence they need to protect. Our vision was to create a wireless countermeasure the entire government could use."

To that end, Percival formed a team of radio frequency (RF) professionals from the US intelligence community and Pacific Northwest National Laboratory in Richland. Together they developed a system based on emerging technology in software-defined radios, which use digital and wireless technology instead of traditional analog.

The new system can analyze all RF in a specific area and then, through artificial intelligence and machine learning, provide real-time updates on dangers or vulnerabilities.

Radio frequency, a type of electromagnetic radiation, is emitted by cell phones as well as FM radio, broadcast television, computers, Wi-Fi routers, Bluetooth devices, GPS, and microwaves.

"Our system will detect any RF energy but we're mainly looking for cell phones," Percival says. "We want to make sure the classified discussions of top dignitaries like the secretary of state are private and protected. Cell phones are one of the main problems, especially overseas where they might be connected to another country's network."

Percival says RF technology has greatly advanced over the last decade with the advent of 5G mobile networks, the Internet of Things, and smart cities.

"It was the perfect time to leverage all the science and advancements that both the federal government and private sector have put into these," he says. "Our goal is to continue evolving the Rio Celeste program for the next 10 or 20 years. It's an area where our cities, buildings, and for us, 'the threat,' will continue to advance as everything shifts to wireless."

Prior to his current post, Percival worked for the US Foreign Service protecting lives, information, and US embassy facilities in Uruguay, Tunisia, El Salvador, and Russia.

"I'd be in charge of making sure everything worked, from counterterrorism ballistic-rated barriers to security systems, alarms, locks, and cameras," he says. "The discussions in our buildings are wanted by others, so, it's important to keep our diplomatic playbook safe.

"As an American envoy living in Moscow, for example, we always felt there were eyes watching us. There's always counterintelligence and someone's always following you. It's just the nature of the job."

Percival says beyond the RF program, they have an array of countermeasures to protect US personnel and property, including systems for drones and incoming mortars.

"Security engineers like myself help manage our programs by developing those systems, choosing them, and working with the military," he says. "It's a great career, and I'd love to see more Cougs join our department."

SHUTTERSTOCK

MANUSCRIPTS, ARCHIVES, AND SPECIAL

COLLECTIONS

STROLLING THROUGH THE STACKS in the vault that houses many of Washington State University Libraries' most valuable volumes, Trevor Bond pauses to randomly pull a title off of a shelf. The leather-bound book happens to be the ***Primitive Devotion in the Feasts and Fasts of the Church of England*** by Edward Sparke. It's a fourth edition, published in London in 1666, featuring a portrait frontispiece of the author.

"We have a lot of this kind of stuff," marvels Bond ('17 PhD History), pointing out a notation inside the front cover detailing the purchase price and year: $1.16 in 1939. Later, a quick Google search shows a similar edition, printed in 1660, for sale on Etsy for $950.

The 355-year-old prayer book is one of tens of thousands of tomes at Manuscripts, Archives, and Special Collections (MASC) at WSU Pullman, each with its own story. MASC contains "roughly 65,000 rare books, 3.2 miles of paper, 1,000 historical maps, and a million photographs," says Bond, associate dean for digital initiatives and special collections. And it has drawn researchers to WSU from all over the world.

"They used to call this the treasure room," he says, "and it is that. It's really hard to imagine unless you walk through it. It really is powerful."

Along with rare books, MASC contains thousands of artifacts, such as George Hirahara's camera. The photographer and his son, Frank ('48 Elec. Eng.), documented life in the World War II Japanese-American incarceration camp at Heart Mountain, Wyoming, from January 1943 to November 1945. With more than 2,000 images, theirs is considered the largest private collection of photos depicting life in confinement.

Another collection features 489 fruit crate labels, mostly from Washington, dating to 1916. MASC also houses 37 boxes of Beatles memorabilia and music, 517 propaganda posters dating from 1914, one letterpress, a photogravure of the 1908 Edward S. Curtis image ***White Man Runs Him***, and 122 linear feet of shelf space containing newspapers from 1721 to 1965.

There's also a copy of the Geneva Bible—"the Bible Shakespeare would have known," Bond notes—with a famous typo in John 6:67. A quote from Jesus is incorrectly attributed to Judas. MASC's version, containing the crest of the Prince of Wales, has a printed slip of paper pasted over and correcting the error.

The oldest book in MASC is Johannes Gerson's ***De sollecitudine ecclesiasticorum***, published in Cologne by Ulric Zell in 1470. "We also have a collection of papyrus fragments from the Hellenistic era," which spans 323 to 31 BCE, between the death of Alexander the Great and the emergence of the Roman Empire, Bond notes.

STAFF ILLUSTRATIONS (BACKGROUND IMAGE PATRICK TOMASSO/UNSPLASH)

Here's a closer look at more of MASC's treasures:

✳ **Jane says.** One of MASC's most recent acquisitions is a set of first editions of Jane Austen novels. Lorraine (Kure) Hanaway ('49 Comm.), a founding member of the Jane Austen Society of North America, bequeathed four titles—*Emma*, *Mansfield Park*, *Northanger Abbey*, and *Persuasion*—upon her death last year at 93. She served as editor of the *Daily Evergreen* and managing editor of the then-alumni magazine *Powwow* before pursuing her dream of working as a writer in New York City and, later, at the University of Pennsylvania. *Emma* and *Mansfield Park* are leather-bound "triple deckers," published in three volumes. *Persuasion*, *Northanger Abbey*, and *Emma* are largely in their original state and feature inscriptions and bookplates from former owners. "Jane Austen is one of the most loved authors in all of literature," Bond says. But, "The WSU Libraries had no first editions of her work until now."

✳ **Yes, Virginia.** Leonard and Virginia Woolf built their library around the books the author inherited in 1904 from her father. MASC's collection of titles from the couple's independent Hogarth Press is among the most extensive in the world. [See the story that starts at the bottom of this page.]

✳ **Home Ec.** Instructions for a "peanut butter omelet," the proper placement of a meat thermometer, the right amount of time for curing firewood. These are just some of the tips found in a 1938 newsletter of "Homemakers Briefs" issued by Washington State College Extension. MASC is digitizing its collection of such bulletins, largely from the 1930s and 1940s, with a focus on research by female faculty such as Leila Wall Hunt, head of foods and nutrition, who, in 1938, issued one detailing the benefits of a light afternoon snack.

✳ **Papal bull.** Thirty-eight days before his death, Pope Innocent III—on June 8, 1216, in Perugia, Italy—confirmed the rights and property of the Order of St. Lazarus, which tended to the sick and lepers in particular. The edict is written on vellum and includes the Papal seal cast in lead and attached to the document with silk thread. It was donated by the Friends of the Library in 1951.

✳ **Complete anglers.** Joan and Vernon Gallup donated more than 15,000 rare books related to angling and outdoor sports in 2011. Then valued at $1.8 million, the collection comprises the largest single gift in MASC history. It includes a full set of 19 first editions of Henry Abbot's privately printed birch books, Oswald Crawfurd's annotated copy of *The Compleatest Angling Booke*, and a 1653 first edition of Izaak Walton's *The Compleat Angler*. The Gallups had previously given 506 copies of *The Compleat Angler* to MASC, including all seventeenth-century editions.

—Adriana Janovich

HOW VIRGINIA WOOLF'S LIBRARY CAME TO WSU

by Trevor Bond

In 1967, English professor John Elwood took a sabbatical to England with his wife, Karen, and their three sons, Sean, Eric, and Kirk. It would become the most important sabbatical ever for the Washington State University Libraries.

During their time in England, the Elwoods met Fred Lucas, a bookstore owner, who in turn introduced them to author and critic Leonard Woolf, spouse of Virginia Woolf, arguably the most innovative British writer of the twentieth century.

"When we were about to leave, Dad asked if he could please see the Hogarth Press's first edition of T.S. Eliot's *The Wasteland*," Sean Elwood recalls. Leonard retrieved a copy, "its boards covered with what looked like a hand-marbled blue paper. My mother, without thinking, said, 'Oh, it's blue, my favorite color!' She immediately felt foolish for saying it. But Leonard locked his eyes on her, made a mid-course correction away from dad and toward my mother. 'Is it? It's mine too!' he said, while at the same time tossing the book through the air toward my father who lunged, bobbled, but finally retained possession of the volume."

That very book is now in a climate-controlled vault on the Pullman campus.

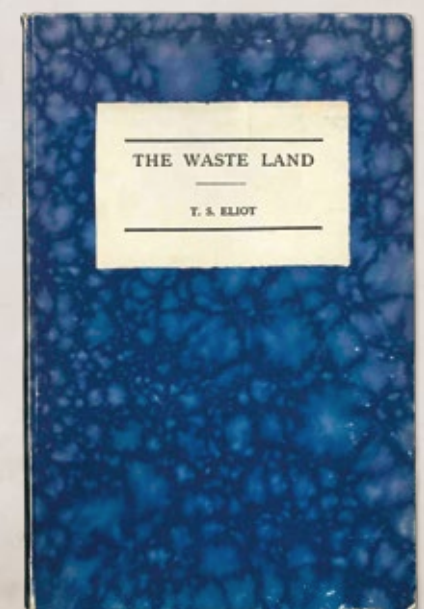
After Leonard's death in 1969, Lucas mentioned in a letter to Elwood that his Bow Windows Book Shop had acquired the bulk of the Woolfs' library. Elwood immediately contacted G. Donald Smith, director of WSU Libraries, who supported the purchase. After a 25-minute trans-Atlantic call, WSU negotiated to buy the collection for 11,000 British pounds ($26,000 then, and roughly $192,000 today when adjusted for inflation).

WSU also bought books from Leonard's London residence in 1974, an additional 400 volumes that Leonard had loaned to his nephew, Cecil Woolf, and 100 books from Quentin Bell, Virginia's nephew and biographer. WSU librarians noted the incomplete holdings of the Hogarth Press, which the Woolfs founded in 1917, and immediately began collecting those titles—an effort that continues to the present.

Among the highlights of the Hogarth Press Collection are three copies, including both bindings, of *Two Stories*, the first volume published by the Hogarth Press, limited to 150 copies, hand-set, and hand-printed by the Woolfs in their living room, and a copy of the privately circulated *Poems* by C. N. Sidney Woolf, published in 1918.

Today, the Woolf Library fills 219 shelves of books, totaling roughly 9,900 books, housed in a secure room, in WSU's Manuscripts, Archives, and Special Collections (MASC). It is a glorious, massive, and far-ranging collection. It is a library of libraries.

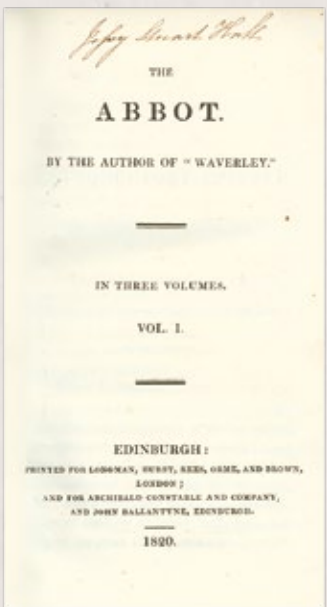
Virginia inherited a large library from her father, Sir Leslie Stephen, author of numerous works and the first editor of the *Dictionary of National Biography*. She also inherited her brother Toby's books and those of her mother, Julia.



COURTESY WSU MANUSCRIPTS, ARCHIVES, AND SPECIAL COLLECTIONS

Leonard brought his own library to the marriage, including his classical texts from university, books that he reviewed, and volumes he collected. Friends associated with the Bloomsbury group and others gave the Woolfs more books. Both Leonard and Virginia reviewed many more books now in the library. There are scores of books that Virginia rebound or repaired, books with pictures drawn by her father and brother, and books annotated by Leonard.

One of my favorite books in the collection is a gift Leonard gave Virginia for her 35th birthday in 1917, a first edition of Sir Walter Scott's *The Abbott*. At her birthday tea, the couple made a major decision. They would start the Hogarth Press, which in time would become a highly influential publisher of Modernist literature, including nearly all of Virginia's works, T.S. Eliot's *The Wasteland*, and the first English versions of Sigmund Freud's works, as well as hundreds of other titles.



THE

ABBOT.

BY THE AUTHOR OF "WAVERLEY."

IN THREE VOLUMES.

VOL. I.

EDINBURGH:

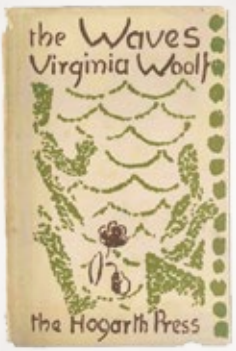
1820.

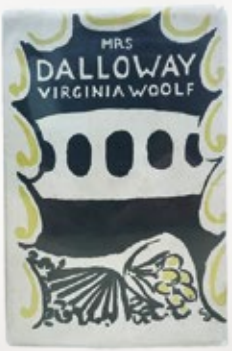
COURTESY WSU MANUSCRIPTS, ARCHIVES, AND SPECIAL COLLECTIONS

WSU professor emerita of English Diane Gillespie recalls first seeing the collection when she arrived in 1975. "My PhD-level work on Virginia had prepared me to use and introduce others to Leonard and Virginia's personal library. Then-housed on an upper floor in the older Holland Library building, the books were a special province of librarian Leila Luedeking. With infectious enthusiasm, she brought out treasured hand-printed books, annotated the incomplete and sometimes inaccurate seller's catalog, and provided me with lists of any categories of holdings that might interest me. Although I was overwhelmed by the possibilities, I felt very lucky to be here."

With the formation of MASC in 1978, library staff moved the collection, shelving it by call number along with other rare book collections. In 2010, I hired Andrew McCarthy ('06 MA, '10 PhD English) and Nora (Wiechert) Kuster ('05 MA Amer. Stud., '09 PhD English) to help move the Woolf Library to its own section of the rare book vault.

"The Woolf collection made me realize that authors operate in dialogue with others who have come before them," Kuster says. "They do not think, write, and create in a vacuum. An author's personal library provides a physical marker of that community."





COURTESY WSU MANUSCRIPTS, ARCHIVES, AND SPECIAL COLLECTIONS

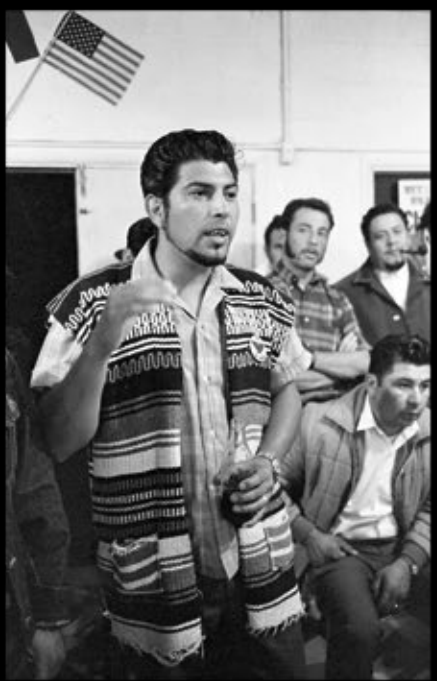
Throughout the decades, MASC has welcomed scholars from around the world to work with the Woolf Library. During her tenure at WSU and into her retirement, Gillespie has mined the collection for numerous books and articles. "Because much of my research involves relationships between visual and verbal arts, I was delighted by the first editions of Virginia's writings, published by the Woolfs' Hogarth Press with illustrations and dust jackets designed by Virginia's sister, Vanessa Bell," she says. "Although I had made research trips to other archives, art galleries, art dealers, and private collections, mostly in England, I was delighted to find—right here in the Woolf Library—31 of the 82 illustrations for my first book, *The Sisters' Arts: The Writing and Painting of Virginia Woolf and Vanessa Bell*."

Gillespie has also examined the range of surprising titles published by the Hogarth Press, including detective novels, a novel about war refugees, a volume spoofing wedding rituals, an etiquette guide, a book of advice about investing, a collection of last words, and books on religion, heart health, and diet.

The Woolf Library continues to inspire researchers. Kathryn Manis, a WSU doctoral candidate in rhetoric and composition, spent last summer as a graduate fellow taking digital photographs of books in the Woolf Library that Virginia repaired or re-covered as well as Woolf's American first editions. Manis contributed these images to the Modernist Archives Publishing Project (MAPP), an international collaboration between faculty at universities in the United States, Canada, and the United Kingdom. MAPP is creating a critical digital archive of early twentieth-century publishers, beginning with Leonard and Virginia.

"Hands-on learning with primary texts has been one of the most important elements of my own research and of my teaching," Manis says. "Primary source work, at all levels of education and for all majors and specialties, grounds your engagement with something in its material reality." ✳

Trevor James Bond ('17 PhD History) is associate dean for digital initiatives and special collections at WSU Libraries.



into the light

Wallis ('68 Civ. Eng.) and Marilyn ('64 Speech and Hearing Sci.) Kimble provided funding for the Kimble Digitization Center as well as the Wallis and Marilyn Kimble Northwest Historical Data Base.

BY REBECCA PHILLIPS

Many of the people in these photos have been identified but hundreds more remain unknown. The public is invited to share information through Facebook or by contacting Lipi Turner-Rahman directly via email ilipi@wsu.edu, phone at 509-335-4849, or letter.

View the photos: magazine.wsu.edu/extra/nash-photos

SEATTLE PHOTOGRAPHER IRWIN NASH (pictured above) had a knack for shooting portraits. You can see it in the eyes and demeanor of the Yakima Valley migrant farmworkers who gazed into his lens 50 years ago.

The long-forgotten photos bring to life Latino families who once cut field asparagus, prepared meals, or celebrated a teen girl's quinceañera.

Nash documented many of these activities at the Ahtanum and Crewport migrant labor camps in the Yakima area from 1967 to 1976. He often traveled with the migrant community and followed them during their turbulent struggles to obtain fair pay and other farmworker rights.

In a 2021 interview, Nash said he chose these types of projects because he "wanted to call attention to the plight of a segment of the population that has never received the recognition and compensation merited by their contribution to our society." His collection—319 rolls of 35mm film—was purchased in 1991 by Washington State University and housed in its Manuscripts, Archives, and Special Collections. Only the barest of information and history was provided with the photos.

Nearly 30 years later, as part of a larger project to digitize Depression era newspaper clippings, librarian Lipi Turner-Rahman decided to revive the Nash collection. At the Kimble Digitization Center in Terrell Library, she hired students to scan material and add descriptive metadata. Last June, with the help of grant funding and donations, her team digitized the last of Nash's 9,500 photos and posted them online. Now, they are asking for the public's help to identify them.

"The Kimble Digitization Center is important because part of our charge as a land-grant university is to give all Washington residents access to library materials," says Turner-Rahman. "Not everyone can drive to Pullman or visit during open hours.

"I felt that digitizing these photos allows greater access for the people in the photos and it's important that they are the ones who actually see it. Having it online should make it easier for them to encounter photographs of themselves, their parents, and grandparents. It provides an affirmation of who they are and validates their lives and community."

The difficult part is collecting the identities and stories that go with the photos. To that end, Turner-Rahman created the Nash Photo Collection Facebook group where the public can comment and share memories and thoughts.

"We want to add information in a respectful way, to let their community do the storytelling," she says. "The database we are creating will also be useful for scholars and genealogists."

MANUSCRIPTS, ARCHIVES, AND SPECIAL COLLECTIONS (MASC) is one of several units within the Washington State University Libraries. Other units include:

Animal Health Library

Holland/Terrell Libraries

Owen Science and Engineering Library

WSU Spokane Academic Library

WSU Tri-Cities Max E. Benitz Memorial Library

WSU Vancouver Library

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Ripe ideas

BY RACHEL WEBBER HOLM

Seanna Hewitt didn't always care for pears. The ones she picked up at the supermarket were often unpredictable, overripe, or hard as a rock.

But as a doctoral student interested in food sustainability, Hewitt ('19 PhD Molecular Plant Sci.) was reacquainted with the fruit and joined the Washington State University Genomics Lab in its pursuit of a more perfect pear.

When Amit Dhingra, now a professor and head of the department of horticulture at Texas A&M and adjunct professor at WSU, launched the lab about 15 years ago, he recalls how many researchers were trying to solve the pear ripening problem through the lens of apples.

"Initially, pears weren't even on my radar," he says. "A farmer, Chuck Peters, reached out to me and said, 'I hope you'll work on pears.'"

As Dhingra met with growers across the country, he heard a similar sentiment about the need for new knowledge and tools for the pear industry. In turn, the lab set out to sequence the pear genome and explore the inner workings of fruit.

Pears don't typically ripen on the tree. Instead, they spend time in cold storage which kickstarts the production of a ripening molecule: ethylene.

People who put unripe fruit in a brown paper bag also take advantage of this molecule. The ethylene released from the fruit gets concentrated in the bag and speeds up the ripening process.

In packing houses, pears are often treated with ethylene after their cold spell. But in recent years Dhingra, Hewitt, and fellow WSU researchers have discovered there's more to it than just ethylene.

When Hewitt joined the lab in 2014, she began to investigate the molecules and molecular pathways that might promote ripening, specifically in D'Anjou pears. Along with Bartlett and Bosc, D'Anjous are among the top varieties grown in the Pacific Northwest.

The compounds and molecular pathways she identified, along with those identified by her predecessors in the lab, hold potential as targets the industry could use for regulation—turning genes on and off to improve the fruit's quality—and fine-tune ripening.

For instance, producers who treat pears with a compound called 1-MCP, which slows or in some cases completely blocks ripening at harvest, could ship the fruit to its destination. Then they could apply a compound like glyoxylic acid, which can overcome 1-MCP, and restart ripening as needed.

"If we can solve the ripening problem in pears, we can do it in almost any fruit," Hewitt says.

Understanding these nuances at the molecular level could help improve food sustainability, reduce food waste from consumers, and even prevent losses that often occur before harvest.

The discoveries also bring new ideas to Washington state's $250 million pear industry. Fresh sliced pears, for instance.

"That's the ticket," Dhingra says. "If you slice it and sell it, a ten-cent pear is now worth a dollar and ten cents. There's so much margin to be made in the industry."

In partnership with the WSU School of Biological Systems Engineering and with funding from the Washington State Department of Agriculture, the lab is now developing packaging that's just right for fresh sliced pears and the ripening research continues.

Meanwhile, Hewitt is now working as a scientist in the horticulture industry and sees the fruit in a different light—full of potential and promise, in many ways, thanks to basic research inspired by growers. As she puts it, "There's still hope for the pear."

PHOTO CANSTOCK

INSET: SEANNA HEWITT (COURTESY WSU THREE MINUTE THESIS)

Cranberries

BY ADRIANA JANOVICH

CRIMSON-COLORED CRANBERRIES offer a pleasing pop of color and tart, tangy taste to the holiday table. Aside from the traditional turkey, these inherently festive fruits might just be the most iconic Thanksgiving ingredient. They are, after all, more American than apple pie.

Centuries before European explorers arrived in North America, Native peoples were consuming wild cranberries, combining the crushed fruit with tallow and deer and other meats to make pemmican. Colonists called them "craneberries" for the resemblance their blooms have to the head of a sandhill crane. Eventually, "craneberries" became cranberries—and a colonial staple.

"They are excellent against the Scurvy," John Josselyn wrote in his 1672 *New England's Rarities Discovered in Birds, Beasts, Fishes, Serpents, and Plants of That Country*. "They are also good to allay the fervour of hot Diseases." And, he noted, "The Indians and English use them much, (boiling) them with sugar for Sauce to eat with their Meat; and it is a delicate Sauce, especially for roasted Mutton; Some make tarts with them as with Goose Berries."

October, the height of harvest, is National Cranberry Month, but perhaps it should be November. According to the Agricultural Marketing Resource Center, Americans consume nearly 400 million pounds of cranberries per year. Twenty percent, about 80 million pounds, occurs during the week of Thanksgiving, celebrated for the first time 400 years ago.

Large American cranberries (*Vaccinium macrocarpon*) may or may not have been on the table. If they were, they most likely weren't in the form of sweetened sauce. In November 1621, Pilgrims were still relatively new to cranberries and essentially out of sugar. Stores that had traveled across the Atlantic were nearly or completely depleted.

Cranberries were first cultivated in the early 1800s on Cape Cod. Washington state's commercial cranberry industry wasn't born until the latter part of the nineteenth century. Since the early 1920s, research from Washington State University has helped it flourish. Today, Washington cultivates some 1,800 acres of cranberries and ranks among the top five cranberry-producing states.

Year-round, per capita consumption is 2.3 pounds, nearly all in the form of juice. In fact, an overwhelming majority—95 percent—of cranberries are processed, mostly for juice but also for dried fruit and canned sauce. Just 5 percent of cranberries grown in the United States are sold fresh. Fun fact: the fresh ones float. And bounce. That's because of four tiny air pockets inside the fruit. Technically, they are epigynous, or false, berries.

Marketed as "America's original superfruit," cranberries, close cousins of blueberries, are low in sugar and high in acidity. They're also rich in antioxidants and vitamin C. And they're good sources of A, K, E, and B-complex vitamins. Research has linked their nutrients to prevention of certain cancers as well as decreased blood pressure, improved immune function, enhanced oral health, and reduced urinary tract infection. Plus, they store well, lasting about a month in the fridge and year in the freezer.

CRANBERRIES BY THE NUMBERS

US ANNUAL HARVEST
41,000 acres
About 10.4 million barrels, or more than 1 billion pounds

WASHINGTON STATE ANNUAL HARVEST
Approximately 1,750 acres
About 148,000 barrels, or 14.8 million pounds

festive recipes for cranberries: magazine.wsu.edu/extra/cranberries

Washington state's industry, concentrated along the "Cranberry Coast" in Grays Harbor and Pacific Counties, experienced slow growth between the late 1800s and early twentieth century. The fruit is finicky. Cranberries are difficult to grow. In the early 1920s, Washington State College sent plant pathology student Daniel James "DJ" Crowley to Long Beach to investigate the pests, weeds, and diseases affecting cranberry crops. He returned in 1923, establishing the Cranberry Research Station and serving as its superintendent for three decades. Early on, he proposed using overhead sprinklers to protect vines from frost, a practice growers were initially slow to adopt but is still widely used.

The Pacific Coast Cranberry Research Foundation (PCCRF) purchased the station and 40 acres of farmland in the early 1990s, running the Cranberry Museum on the site. Another Cranberry Museum in Grayland explores the history of the Furford Picker/Pruner, which revolutionized harvest when it was invented in 1957 by picking berries while simultaneously pruning vines.

Wet harvest is used for cranberries that will be processed. Fresh ones are picked by small combines. Harvest season is six to eight weeks in September, October, and November. Or, just in time for the holidays.

That's when Jamie Callison makes his favorite cranberry recipe: a simple sweetened sauce. The recipe is so easy that the executive chef at WSU's School of Hospitality Business Management at Carson College of Business recites it in a few sentences. "It's basically the zest and juice of one orange, one cup of sugar, one cup of water, and one bag of cranberries," Callison says. "You cook it all together until the cranberries start to pop, and you're good to go. Sometimes, I'll add a little Cointreau at the end, or Grand Marnier."

Cranberries pair well with pork, chicken, beef, and—of course—turkey. Slather some sauce on day-after-Thanksgiving sandwiches. Swirl some into oatmeal. Or, serve some with brie or another soft, mild cheese. Callison pairs cranberry sauce with WSU-developed Cosmic Crisp® apples and WSU's signature canned Cougar Gold sharp cheddar. "You need the fat from the cheese and the sweetness from the apple to balance it out," he notes.

His other favorite uses are relishes for terrines and pâtes, chutneys for game meat such as deer and elk, and sugar-coated cooked whole fruits to decorate desserts. "Those little candied cranberries look amazing," he says.

Dried cranberries add texture and a sweet-tart element to salads, such as shaved Brussels sprouts and kale with walnuts, hazelnuts, pistachios, or pecans. "One of our house salads is arugula, Cosmic Crisp® apples, and dried cranberries," Callison notes. Cranberries—dried, fresh, or frozen—are also great baked into muffins, scones, turnovers, and tarts.

Betsy Rogers ('89 Comm.) pairs them with Braeburn or Golden Delicious apples to make her mom's cranberry-apple pie. "It was always something we had at Thanksgiving," says Rogers, a personal chef in Seattle. She founded Ovens to Betsy twenty years ago, transitioning from public relations to doing what she loves more: cooking.

"I've always liked tart things, and I just love the taste of cranberries," she says. "When I was little, I'd eat them straight from the freezer, just pop them in my mouth with no sugar or anything. I'm not sure I'd do that now. But it's funny how cranberries are so associated with Thanksgiving. We really should do more with them all year."

FUN FACT

95 percent of Washington growers sell to Ocean Spray, which accounts for about 80 percent of raw cranberry purchases nationwide.

PHOTO TINA WITHERSPOON/UNSPLASH

World of difference

***Above*:** WSU women's basketball head coach Kamie Ethridge. ***Below*:** Krystal and Charlisse Leger-Walker. *Courtesy WSU Athletics*

BY RJ WOLCOTT

THEY GATHERED FROM AROUND THE WORLD AND MADE A MARK ON COUGAR BASKETBALL.

Propelled by Charlisse Leger-Walker, a breakout star who earned Pac-12 Freshman of the Year honors, the women's basketball team from Washington State University earned their first NCAA Tournament invite in 30 years to cap off a tremendous 2020–21 campaign.

The Leger-Walker sisters from New Zealand, Charlisse and Krystal, are among several international talents—from Canada and Turkey to Rwanda and Israel—who form the core of a Cougar lineup poised to capitalize on the program's momentum during the upcoming 2021–22 season.

The Cougs upcoming season will kick off at the Baha Mar Hoops Pink Flamingo Championship in Nassau, The Bahamas, on November 25–27. The event is the largest early season event in college hoops. WSU will play the University of Miami (Florida) the first day of the event and will take on perennial contender North Carolina State on November 27.

The team's 12–12 2020–21 record included a substantial improvement against conference foes. Their 9–10 record within the Pac-12 leapt over the prior season's 4–14 finish, sweeping rivals Oregon State and the University of Washington.

WSU also fought top-ranked opponents tooth and nail, overcoming both Arizona and UCLA and falling just short of upsetting Oregon inside Beasley Coliseum.

In the Pac-12 Tournament, WSU defeated Utah in the first round before falling to Arizona. But unlike the prior three decades, it wasn't the end of the Cougs' season. The team earned its first NCAA Tournament berth since 1991 as a ninth seed, facing off against eighth-seed South Florida in the first round. Heading into the fourth quarter tied at 45, WSU came up just short, falling 53–57.

Charlisse led the Cougs in scoring for the twenty-second time that season with 18 points, with Johanna Teder, a sophomore guard from Estonia, contributing 16 points of her own.

"I loved our fight and loved our spirit, it's just what we have been all year," head coach Kamie Ethridge said after the game. "We had a great third quarter to put us in a position to be in another close game against a high-quality opponent.

"I think in every sense of the word, we gave ourselves a chance to win a close game. They made a couple of more game-winning plays than us and we didn't make enough shots tonight to get us a win, but I'm very proud of our team."

Ethridge, a former University of Texas standout and Olympic gold medalist, has shown steady progress year-over-year since arriving in Pullman in 2018. The success of Ethridge's teams has elevated WSU's standing among top prospects, netting exceptional new players who join a roster of improving players.

Several of these players, including freshman Tara Wallack, spent their summers excelling in international play in preparation for the 2021–22 season.

Wallack, the lone freshman on this year's roster, is the newest international player to join WSU since Ethridge took charge. Her high school playing days in Canada included back-to-back British Columbia Provincial Championships in 2019 and 2020. During provincial play, Wallack averaged 26 points and 15 rebounds per game.

WSU also added Australian guard Tayah Burrows and Arizona State transfer Keeli Burton-Oliver during the offseason.

Burrows spent last season playing for the Perth Lynx in Australia's National Basketball League where she shot 36.8 percent from the floor and dished out nearly two assists per game. She was named the team's Youth Player of the Year for her efforts.

Burton-Oliver, a Seattle native, was a successful forward at Eastlake High School in Sammamish. Twice named Washington Class 4A player of the year, Burton-Oliver was the twelfth-best ranked player at forward in ESPN's 2020 class.

In addition to last season's successes on the court, WSU's women's basketball team earned its highest ever cumulative grade point average with 3.629. It was enough to earn the team's first ever Top 25 Team Honor Roll recognition from the Women's Basketball Coaches Association.

"This top 20 academic achievement tops off a remarkable, and groundbreaking, 2020–21 season for WSU women's basketball," Ethridge says. "This team is setting a standard of excellence on the court and in the classroom. Being selected to the WBCA Academic Top 25 Team Honor Roll is a reflection on how much pride and determination our student-athletes have each day, as they seek to maximize the special opportunity of succeeding as student-athletes.

"Get used to this program being in Top 25!"

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Left to right: Johanna Teder, Tayah Burrows, Tara Wallack, Keeli Burton-Oliver. *Composite from photos courtesy WSU Athletics*

BY LARRY CLARK

Plastic is a big word. It encompasses a dizzying array of material throughout the world, as anyone can attest, from yogurt containers and car parts to hard lawn chairs and flimsy grocery sacks all around us.

WARUT CHINSAI/SHUTTERSTOCK

That also means a giant amount of waste products, from a floating island of plastic trash in the north Pacific to stacks of plastic waiting to be recycled or just crammed into landfills. While many of us might see a nearly insurmountable problem, Hongfei Lin also sees a vast, untapped resource.

Left to right: Hongfei Lin, Indranil Chowdhury, Markus Flury. *Courtesy Voiland School of Chemical Engineering and Bioengineering, WSU Department of Civil and Environmental Engineering, and Puyallup Research and Extension Center, respectively*

Lin, associate professor of chemical engineering at Washington State University, and his research team are working on a plastic recycling solution that bypasses tedious and inefficient physical sorting and sequentially breaks down different types of plastics using chemical means. They've already had success with producing jet fuel and high-quality industrial lubricants from plastic waste such as milk bottles.

Meanwhile, other WSU scientists are studying how tiny plastic particles move through wastewater treatment systems, what effects those plastics have on soil health (and how much is even in soil), impacts of the global plastic waste trade, and ways to reduce agricultural use of traditional plastics by replacing them with soil-biodegradable options.

Plastic waste is a problem with a lot of angles. Each researcher approaches that conundrum in a different way, but all with the goal of a more sustainable world with less plastic making its way into the environment. Lin, for example, wants to see recycling scale up quickly, since only 9 percent of plastic is recycled now. It could lead to a more circular economy where used plastic becomes an asset.

"Waste plastics are a huge reserve," Lin says. "If you don't consider it a waste, it becomes a useful resource for many years."

David Attenborough, a 94-year-old documentarian and natural historian, sums up the idea in his 2020 memoir, *A Life on Our Planet*: "By changing our approach to the use of our resources, a growing number of people believe that humanity could eradicate waste and come to mimic nature's cyclical approach."

FROM BOTTLES TO JET FUEL

Plastics didn't start out as a problem. It was a wonder material that was cheap and easily shaped into any number of items. Its first iteration, as celluloid, actually came from a desire to replace rare animal products, such as tortoiseshell, horn, and ivory.

The first fully synthetic plastic, Bakelite, was invented in 1907 and marketed for its insulating capabilities in a rapidly electrifying society. Following that breakthrough, the word "plastic" became a catch-all term for synthetic polymers—long chains of carbon atoms in repeating units constructed primarily of fossil fuel-based chemicals.

Because the polymers were strong, lightweight, and flexible, manufacturers quickly started identifying polymers for new forms of plastic. The need for materials in World War II led to a rapid, 300 percent explosion of plastic production: Plexiglas for airplane windows, nylon for parachutes, and thousands of other uses. The postwar period saw those new materials enter the civilian world and offer cheap, often disposable, alternatives for consumer goods.

"When people designed plastics, they wanted really good properties. For example, packaging materials need to be durable. It's not easy to break and you probably want it to resist chemicals and water," Lin says. "From the very beginning, the scientists designed the formula to use plastics for a long time."

Those same beneficial properties were detriments when it came time to dispose of plastic. It's hard to break the molecular bonds in polymers to form another useful product. Plastics decompose very slowly in natural environments, which is why recycling is a preferred option.

It gets even more complicated because of the variety of plastics. Almost everyone has seen the numbers one through six in arrow triangles at the bottom of plastic products, which show the composition of the plastic for recycling purposes. Those recyclable, numbered products make up 80 percent of all plastics.

Lin notes that people throw almost everything in the recycling bin, even when there are sometimes complex plastic recycling rules for each city or region.

"The grand challenge of recycling plastics is that when we collect those waste plastics from residential or industrial places, it's already in a mixed, commingled state," he says.

The recycling industry relies on physical sorting facilities, which are very large and capital intensive. Even when plastics are separated mechanically and processed, the resulting material isn't great.

Disposable water bottles, for example, are shredded, heated, and then extruded to fibers for other applications. These processes tend to change the properties of the plastics, Lin says. After a water bottle is recycled and goes through the mechanical process, it degrades the material and it won't be suitable for that application again. This is called downcycling.

A typical mechanical recycling process also can't bring together two types of commingled plastic and make a new plastic. The different polymer composition, for example, of a water bottle and a milk jug, prevents melting them together and turning the result into a useful material. They are not compatible.

"To address this, there's an alternative approach in chemical processing," Lin says. "We break the plastics down to monomers and then use the monomers as a building block. This is almost the same as producing plastics from petroleum."

The plastic types have different chemical bonds. Lin's research is identifying specific catalysts that will break the bonds of a plastic type, without affecting the other plastic types. This approach removes the need for physical sorting while recycling a wide range of plastics.

"Our idea is to convert a mixture of plastics sequentially," Lin says. "This really depends on the catalysis, and if you can design a highly selective catalyst for every step of the process."

Lin and his fellow researchers in the Gene and Linda Voiland School of Chemical Engineering and Bioengineering, including former postdoctoral researcher Shaoqu Xie and Chuhua Jia ('21 PhD Chem. Eng.), have already proven the concept with the multilayer plastic films that are composed of polyethylene terephthalate (PET), common number one plastics such as water bottles.

Using a specific catalyst, they converted 90 percent of the polyethylene into jet fuel and lubricants in an hour at a moderate temperature.

The researchers used ruthenium (a "noble" metal in the platinum group) on carbon as the catalyst and a commonly used solvent. The conversion took place at a temperature of 220 degrees Celsius, which is more efficient and much lower than 500–600 degrees Celsius that would be used in pyrolysis.

Changing parameters such as temperature, pressure, and solvents can produce different products, Lin says.

MOHAMED ABDULRAHEEM/SHUTTERSTOCK

"Once we deconstruct number one plastics, we'll send the residue to the next stage and convert nylon and then to convert polyethylene in the final stage. We can gather useful products from each conversion unit and eventually could utilize all these waste plastics," he says.

As the team works on applying the chemical process, they'll also study the fundamentals for the specialized catalysts. For example, Lin wants to ensure that ruthenium and other key catalysts remain stable for a long time, after many uses.

He also wants the technology to get out into the world. "My passion is to grow and develop the technology in the lab, so it will mature and then commercialize," Lin says. "It's a pressing need and, if it's cost-competitive, we reduce the use of more fossil fuels and help mitigate CO_2 emissions."

Lin and his WSU team collaborated with researchers from the University of Washington and Pacific Northwest National Laboratory, with support from the Washington Research Foundation and the National Science Foundation, on the catalytic approach to plastic recycling.

Lin says another purpose of his work is training a workforce for industries and research. "It's not just products, but people. Renewing resources in a circular economy is the future."

WHAT'S IN THE WATER AND SOIL?

Recycling plastic scrap can lead to a more sustainable world, but it's clear that plastics are already widespread in the environment. WSU researchers Indranil Chowdhury and Markus Flury investigate just how plastic particles move through water and soil, and how much plastic is actually in soil.

"There is a lot of research going on about plastics in the ocean," says Flury, a soil sciences professor working out of the WSU Puyallup Research and Extension Center. "We have a fairly good idea how much plastic is in the oceans and that we need to really address that issue. However, we don't really know how much plastic is in the soils."

Flury explains that plastic is more difficult to analyze in soil. Since plastic is carbon-based, it is hard to separate plastic from natural, carbon-based organic matter that's already in the soil. He suspects the same widespread problem of plastic micro- and nano-particles exists in soil as in water, so Flury and others are looking at methods to analyze and quantify the plastic in terrestrial settings.

One way is to try to remove natural organic matter. The plastics would remain and can be filtered to identify what type of plastic it is, such as a polyethylene, polystyrene, or polypropylene.

"You can try to identify the type of plastics and then also see where it ultimately came from," Flury says. "Polyester fibers are likely from clothing, dislodged during washing in your washing machine. That goes into the wastewater treatment plant and then into the biosolids that spread onto the soil."

Many biosolids from wastewater treatment end up on soil, especially for agricultural use. They generally have positive effects, Flury says, particularly if applied to drier areas in eastern Washington, but questions remain about plastics in those biosolids.

Flury's investigations into plastics in soil connect to Chowdhury's research on plastic in wastewater and drinking water. An assistant professor of civil and environmental engineering in the Voiland College of Engineering and Architecture, Chowdhury has found some of the mechanisms that allow tiny pieces of plastic bags and foam packaging at the nanoscale to move through a wastewater and drinking water environment.

Right: Carol Miles. *Photo Scott Terrell/*Skagit Valley Herald. ***Opposite, from left:*** Lisa DeVetter, Suzette Galinato. *Courtesy Mount Vernon Northwestern Washington Research and Extension Center and WSU College of Agricultural, Human, and Natural Resource Sciences, respectively*

Silica surfaces, such as sand, are often used as part of drinking water filtration. Chowdhury and his research team found that silica has little effect on slowing down the movement of plastics.

Natural organic matter in water resulting from decomposition of plant and animal remains, on the other hand, can either temporarily or permanently trap the nanoscale polystyrene particles. Polystyrene is often found in packaging materials and disposable food containers.

Unfortunately, polyethylene, the most common plastic material, doesn't easily bind with organic matter and slips through sand filters. Chowdhury wants to better understand the fundamental ways tiny plastic particles move, with the intent of capturing as much plastic as possible in wastewater and drinking water treatment systems.

"We look at the traditional filtration systems and how we can actually improve the filters to better remove this plastic," Chowdhury says. "People have seen these plastics escaping into our drinking water, and our current drinking water system is not adequate enough to remove these micro and nanoscale plastics."

A 2019 study found that people consume about the amount of plastic in a credit card each week. The health effects of plastic ingestion are still mostly unknown.

Flury says the impact of plastics on soil and plants is similarly mysterious.

"Is the impact as bad as in the ocean or do soils have more resilience toward plastic pollution? Does the plastic hinder plant growth?" Flury asks.

"At the moment, we don't see that because the biosolids probably overwhelm the negative effect of the plastic in terms of plant growth," he says. "But microplastics could potentially be taken up by plants." To have an effect, though, would require pretty high concentrations of plastic.

Flury notes that plastic itself is inert and not really toxic, unlike many pesticides with toxic effects. Plastics, however, can absorb chemicals on their surfaces. Moreover, plastics often have additives, such as dyes or plasticizers to make them more malleable.

Some of these additives have been revealed as toxic, including bisphenol A (BPA). Pat Hunt, Meyer Distinguished Professor in the WSU School of Molecular Biosciences, has published several high-profile findings that BPA disrupts hormonal processes and causes genetic abnormalities. Many companies changed plastic products and removed BPA from their composition.

There are still many questions to answer about plastics in soil and plants, though. "We are really working on whether plastic particles can potentially be taken up by plants," Flury says. "We have also done some work with earthworms, to see whether they are affected by plastics if they eat them."

TO MULCH PLASTIC

Plastics have a key role in both conventional and organic agriculture, so Flury's investigations often intersect with horticulturist Carol Miles's work on biodegradable plastic mulch.

Miles, a professor at WSU's Northwestern Washington Research and Extension Center at Mount Vernon (NWREC), has experimented with plastic mulch for more than 20 years, studying its effects and testing improved products with industry partners.

Whether it's at the bottom of fruit trees near Yakima or under organic strawberries in the Skagit Valley, plastic mulch retains water, keeps fruits and vegetables cleaner, and controls weeds. It's an essential part of horticultural production, which is why soil-biodegradable plastic can offer a better alternative.

Agricultural plastic is about 3 percent of the plastic used worldwide, Miles says. Even though that's a relatively small portion of all plastics, its contact with soil and proximity to water give it more importance.

"I saw agriculture as a model to study the use of plastic that's intentionally put into contact with the soil and to see if there was an opportunity to look at alternatives to conventional plastic," Miles says. "Could it be biodegradable?"

The answer is yes. A number of companies now produce plastic mulch that can decompose in soil, but it's not without challenges.

Miles explains that some plastics might be called compostable, that is, they rely on the high temperatures of municipal composting. Home composting or degradation directly in soil doesn't have enough heat, and thus a different biodegradable plastic product is needed for those situations.

Regional variations in soil temperature, moisture, and composition can also affect the behavior of biodegradable mulches. In Washington, cooler soils around Mount Vernon are far different from dry, warm eastern Washington soils.

Another obstacle is convincing farmers who have their eyes on the bottom line to shift to soil-biodegradable plastic mulch. Miles says the economics make sense for farmers, once you consider the full production cycle. Rather than removing conventional plastic mulch after each season—which can't usually be recycled because it's dirty—the biodegradable material can be tilled into the ground.

"Your upfront costs are two times greater for the biodegradable than the conventional plastic. But there are no additional end of season costs for the biodegradable plastic. It costs a lot less over the course of the season to use a biodegradable mulch," Miles says.

Moreover, when buying a product, farmers need to be sure of crop productivity. That's where Flury's study of plastics and soil health and Miles's study of crop yield make a difference.

"The hypothesis was, you know, that the bioplastics would potentially impact soil health and microorganisms," Flury says. "We have not found any evidence for that at the moment. Biodegradable plastics seem to perform fairly well, and do not seem to have any negative impacts on soil health as far as we can detect or measure."

THE PLASTIC CIRCLE

Tilling useful plastic mulch back into the soil, where it will safely degrade after providing benefits to crops. Breaking down plastic waste into valuable products, which will lower the amount of fossil fuels extracted. The circular economy can take us past a throwaway model to a more sustainable way of viewing a material like plastic.

The efforts at WSU continue to show that the circular economy will benefit everyone.

For example, the growing organic fruit and vegetable industry has an even greater need for plastic mulch for weed

plastic from renewable biomass such as plants: magazine.wsu.edu/extra/bioplastics

control without herbicides, while maintaining a favorable soil temperature.

Lisa DeVetter, associate professor and small fruits scientist at NWREC, teamed with economist Suzette Galinato, assistant director of the WSU School of Economic Sciences Impact Center, as part of a national research effort to support sustainable practices such as biodegradable mulches.

In an expansion of Miles's work, they are testing biodegradable mulches that are made with fully organic-approved ingredients. Because existing soil-biodegradable mulches are made from starch and a blend of polymers that come from plant-based and synthetic sources, they do not meet the federal National Organic Program's requirements for organic farming.

"I am very excited to work with new materials and develop technologies that could help sustainably grow organic, specialty crops in an economical way, while reducing plastic waste," DeVetter says.

By reducing plastic waste, whether it's covering the ground in a field of strawberries with biodegradable mulch or converting a mound of bottles and jugs, both the economy and the environment can win. Even with technological solutions, though, the plastic problem can seem to be mountain-size, literally in some cases.

"If you go to India, you will see trash mountains filled with plastics," Chowdhury says. "They're growing higher than 200 feet."

As recycling techniques, such as Lin's catalytic method, create new ways to deal with those piles of plastics, countries and people will see economic gains. That's already happening with the global plastic waste trade.

As a WSU doctoral student, Yikang Bai ('21 PhD Socio.) found that the import of plastic waste was associated with growth in gross domestic product per capita in lower-income countries. Bai and Jennifer Givens of Utah State University analyzed 11 years of data, from 2003–2013, on the global plastics trade against economic measures for 85 countries. They found a positive impact of taking in those waste plastics.

Even though the plastic waste adds to the environmental burden of those importing countries, they are seeing financial benefits. With increases in plastic recycling, the circular economy could raise those countries' standard of living even more.

The prospect of changing the approach to plastics inspires scientists such as Miles and Lin.

"I'm very enthusiastic that we can develop technology and make contributions toward a sustainable society. It makes my work feel valuable," Lin says.

Everyone should play a part though, Flury says. "The solution to the plastic problem is multifaceted. One of them, for instance, is recycling. Another one is to reduce the use of plastics in the first place.

"We also need to reuse. Instead of a single use plastic bag, you have a multiple use plastic bag," he says.

The change in mentality could make the biggest difference. Rather than plastic waste, we could have plastic scrap, upcycled into something new and useful or just turned back into the soil where it won't harm the planet.

KYLE BASTIAN/SHUTTERSTOCK

ALUMNIpedia

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A PULLMAN CAMPUS OUTING FOR ENTOMOLOGY LAB 103 (PHOTO SHELLY HANKS)

COURTESY KING COUNTY TV

Moving up—by not giving up

BY ADRIANA JANOVICH

He was rejected and waitlisted, then waitlisted again. When it came down to it, **FA'AMOMOI "MOI" MASANIAI III** didn't have the money to attend law school. But that didn't stop him from pursuing his dreams of becoming a lawyer and ultimately a judge.

"I knew what I wanted to do. I just didn't have the means to do it," says Masaniai ('92 Crim. Jus.), who's believed to be the first person of Samoan heritage to serve on the bench of a Washington state court. He's also believed to be the first graduate of Washington's Law Clerk Program to be appointed to the bench.

"It's huge for my culture," he says. "It's huge for Polynesian people. It's huge for us from White Center."

The Metropolitan King County Council unanimously selected Masaniai to fill a vacancy on the bench in King County District Court in early 2021, nearly three decades after he had been inspired by something his dad said. He was posing for photos in his cap and gown at his Washington State University graduation. "My dad said, 'Hey son, you look like a judge in that robe,'" recalls Masaniai, who, at that point, wanted to be a police officer like his uncle.

Twelve years later, he passed the bar exam, qualifying to sit for it by completing a four-year program informally known as "Rule 6." Authorized by the Washington Supreme Courts Admission and Practice Rule 6 and overseen by the Washington State Bar Association and Law Clerk Board, the Law Clerk Program allows aspiring attorneys to work and study with an experienced lawyer or judge instead of going to law school.

Masaniai had grown up "in the poorer parts" of San Francisco and Seattle, moving to Washington state in 1984 when he was 14. He played football at Evergreen High School and WSU, walking on to the Cougar football team his junior year. When he did go to class, he says, "I always sat in the back. I always came late, and I always left early." By fall of senior year, his grades slipped to their lowest point: under a 1.0.

Graduation took five years. He had to quit football to pull it off, but he was able to bring his grades up. He credits his coaches and a tough criminal justice professor for helping him buckle down. He needed her class, which he had previously dropped, to graduate. On the first day of his second attempt, in front of a full house in the Todd Hall auditorium, she singled him out. "She said, 'I think you can do better,'" he recalls. "She said, 'You will come to class. You will take all the tests. You will take all the quizzes.' She pushed me, and I responded. I don't remember her name, but if she's still alive I want to thank her."

He got an A in that class and spent the following summer training for the police academy. During physical fitness testing, he blew out a knee. The injury ended his police dream. Within a month, he was working aboard a fishing boat in Dutch Harbor. "That taught me what I didn't want to do with my life," says Masaniai, who went on to work a series of odd jobs while pursuing a career in criminal justice.

He had applied for "five or six" positions but wasn't landing interviews. To get his foot in the door, he started volunteering at Tukwila Municipal Court. He remembers asking a bailiff in an otherwise empty courtroom if he could sit in the judge's chair. "I sat in it, and thought, 'This is where I want to be one day.'"

Masaniai worked his way up from part-time volunteer to full-time court clerk. "I would ask the judges I would clerk for: 'Why

COURTESY KING COUNTY TV

this? Why that?' They kept telling me, 'You need to go to law school.'"

The University of Washington rejected him. Seattle University twice put him on its waitlist. That's when Masaniai learned of and was encouraged to apply for the WSBA APR Rule 6 program. "Learning about the law and applying it at the same time, that was fun," he says. "I had a natural affinity to be in court and talk with people."

Masaniai completed the program in 2003, passed the bar in 2004, and went to work in the law office of his mentor, Scott Stuart, now a judge at Issaquah Municipal Court. After two years, he left to become an assistant attorney general in American Samoa, where his father was born and where Masaniai met his wife. From 2006 to 2008, he prosecuted human trafficking, immigration, and public corruption cases. In 2009, he was appointed, through the High Court of American Samoa and Department of Insular Affairs, as an independent prosecutor. His office uncovered a human trafficking ring involving members of the government and a local business.

"If you make a bad choice, you've got to live with it," he says. "But you can learn from that bad choice and rebuild your life and make a difference in someone's life."

Throughout his career, he has sought varied experiences, from defending low-level criminals in community court to prosecuting white-collar criminals, and handling mediations, bankruptcies, and litigation in federal court. Before his appointment to the bench, he served as judge pro tem at multiple courts in King and Pierce Counties, including Kent's Regional Justice Center. "Being a judge pro tem made me a better lawyer," says Masaniai, who lives in Federal Way with his family, including three children ages 12, 11, and 7.

The five bar associations that evaluated him for the judgeship all ranked him as exceptionally well qualified for the role. Interviews took place in late 2020 via Zoom because of the pandemic. When he was selected, "I got a little emotional," Masaniai says. "It had been a long journey to get there."

Today, his first three tips for young people, including kids from the old neighborhood, are the same. "First, don't give up," Masaniai says. "You're going to be told no. Don't give up. Try another way. Don't give up."

COURTESY FA'AMOMOI MASANIAI

Shaken but still stirring

BY ADRIANA JANOVICH

Blake (Loos) Preston ('14 Wine Busi. Mgmt.) never intended to run a restaurant.

She broke into the hospitality business as a bartender, working night shifts during college, and ended up falling in love with the job and her future husband. Cory Preston was a regular who would drop by after his own shifts. In 2015, a year before they wed, the couple opened their first establishment.

Etsi Bravo is Pullman's premier nightclub and lounge, popular with Washington State University alumni as well as current students, faculty, and staff. It quickly became known for its craft cocktails, comedy shows, live music, and theme nights—from tiki to disco. Football coaches and other athletic staff would gather on the mezzanine after home games. College students celebrated their twenty-first birthdays on the dance floor.

When Washington state went into its initial pandemic-related lockdown, Blake says, "we went into survival mode." Not only did they add a kitchen at Etsi Bravo, they started two new establishments on College Hill. "We've always admired the businesses up here and how they seem rooted in the Cougar spirit," Cory says. "It feels like you're part of something."

Before the pandemic, Etsi Bravo, located on the second floor of a downtown historical building, served a limited selection of dishes from Black Cypress, the upscale Greek restaurant downstairs. Etsi Bravo is a Greek expression meaning, "That's the way, well done." Says Cory, "We wanted to create some synergy between the restaurant downstairs and give a nod to the entertainers, the deejays, musicians, and comedians who perform at Etsi Bravo."

The night spot is known for its eclectic vinyl album collection and vintage, artsy vibe. Pullman artist Gracie Brown ('19 Fine Arts) created the mural in the stairwell. Exposed brick, Art Deco-inspired wallpaper, and five crystal chandeliers—including one that came from Burt Reynolds's estate—add to the

Left: Blake (Loos) Preston behind the bar at Etsi Bravo. *Kai Eiselein*/Moscow-Pullman Daily News
Below: Will Vinton and Marq Evans. *Courtesy Marq Evans*

sample a cocktail recipe from Etsi Bravo: magazine.wsu.edu/extra/etsi

ambiance. "We wanted it to feel timeless," Blake says, "like it had always been there."

She does the books. Her husband, with a background in graphic design, does the marketing. Both work behind the bar.

During Etsi Bravo's pandemic-related closure, they missed their patrons most. "I would usually have the opening shifts, and I would see the same people very day," Blake says. "It was really nice growing those relationships. Sometimes, alumni would come in and look at everything before they sat down and say, hi, I remember when this was whatever it was. It's always fun to hear their stories."

Online sales of house-made, nonalcoholic mixers and discounted gift cards helped the Prestons, then parents of a newborn daughter, get through spring 2020. Their first child, Cameron, was born about two months before the pandemic. "The silver lining is getting to spend more time with her," says Blake, who transferred to WSU her senior year. Her dad, John Loos ('85 Ag.), encouraged her to become a Coug.

In summer 2020, things worsened when restrictions loosened and people started going back to restaurants. Etsi Bravo, operating under a nightclub license, wasn't eligible for reopening. With online sales dropping, the Prestons worked out another pandemic pivot: in-house food preparation and service. The move required buying new equipment, adding a kitchen, switching their license, and investing most of their nest egg back into the business.

At the end of August 2020, with its new restaurant status, Etsi Bravo was finally able to sell its specialty cocktails again—only now in bottles and cans for pickup—as well as items from a new food menu. By the end of February, the lounge was able to open at limited capacity for drinks and in-person dining. Comedy nights resumed in March, also at limited capacity.

By the time Washington state fully reopened June 30, renovation on their two new establishments was already underway. The Prestons partnered with Etsi Bravo patron and former WSU student Raustin Memon on both. Crybaby Café, a coffee shop and bar on the first level of Adams Mall, opened in August, the same month the Prestons' second child, a boy named Oliver, was born. Memon and the Prestons are also slated to open a restaurant and nightclub in autumn in the basement of Adams Mall.

Pandemic or no pandemic, downtown or on College Hill, Blake says, "We always want to provide a safe and fun place for everyone."

Dreams of clay

BY DANIEL P. SMITH

Mark Matthew "Marq" Evans ('03 Busi.) was aware of Will Vinton and his iconic work. But it wasn't until the documentary filmmaker read an online article about the rise and fall of the "Father of Claymation" that he reached out in the hope of telling the story.

"It had it all. There was all this glamor and built-in drama," says Evans, who harbored a certain nostalgia for the characters Vinton created.

The charismatic, ground-breaking artist—creator of the California Raisins, Domino's Pizza "Noid," and the M&Ms characters—revolutionized the animation business during the 1980s and 1990s, but lost control of his Academy Award- and Emmy-winning studio in 2002.

In 2015, Vinton agreed to meet, but Evans was told the renowned stop-motion clay animator "was not really interested in doing a film." Six months later, though, he agreed. Filming started on *Claydream* in 2016.

Evans spent five years working on the film, which premiered at the prestigious Tribeca Film Festival in summer 2021 and, shortly after that, was shown at the Annecy International Animation Film Festival in France. He wrote, directed, produced, and did some editing on the film, his second full-length documentary.

His first major project, *The Glamour and the Squalor*, documented the career and personal struggles of famed Seattle deejay Marco Collins, credited with popularizing bands such as Pearl Jam, Nirvana, Foo Fighters, Beck, Weezer, Garbage, and the Presidents of the United States of America. Evans directed and produced the 2015 film, which he also worked on for five years.

Before that, he had a career in sales that took him and his wife, photographer Angela (McCaw) Evans ('03 Comm.) to Phoenix, San Francisco, Salt Lake City, and San Diego.

When his stepfather died, Evans and his stepbrother, Kevin Noland of Spirit Lake Pictures in Spokane, made a short video for the service. "It was emotional work," Evans says, noting that, at the same time, the pair "talked about how much fun it would be to work on a feature-length project together."

Soon, they were flying back and forth from Haiti, working on a still-unfinished documentary about the catastrophic January 12, 2010, earthquake and its aftermath. "The story has taken on a life of its own," says Evans, who had caught the filmmaking bug and realized that sales "just wasn't what I wanted to be doing. I wanted to be doing something

creative." So, he says, "my wife and I quit our jobs and sold everything."

The Washington native—Evans was born in Yakima and grew up in Tri-Cities—moved to Bremerton, where he works on films and other projects in his basement and teaches filmmaking at Olympic College. He and his wife formed The McCaw, a creative studio that, according to his LinkedIn page, "produces films, photography, books, special events and other unclassifiable works."

Last year, The McCaw published two books, *Bands by Jude*, inspired and created by his son, Jude McCaw Evans, 10, and *Booze by Bear: 25 Cocktails for Seasonal Living*. The McCaw also directs creative duties for Cow by Bear, a dinner party experience in San Diego and Seattle.

Evans earned his master of fine arts in film/cinema/video studies in 2020 from the Vermont College of Fine Arts. He lists his influences as documentary filmmakers Werner Herzog and Errol Morris.

Toward the end of making *Glamour*, Evans came across the story detailing how Vinton "lost his studio to a rapper named Chilly Tee," aka Travis Knight, son of billionaire Nike founder Phil Knight. He found Vinton's email address and reached out the same day.

Now he's working on a true crime film documenting a woman's 1986 disappearance in Kodiak, Alaska. "There are many questions that remain, and things that don't add up," Evans says.

He and his wife "pick projects we're really excited about," Evans says. "We're always busy. The great thing is, this is the stuff we love doing."

Making waves around the world

BY ADRIANA JANOVICH

Phil and Diane Ohl never leave home without Tabasco sauce and two crimson Cougar-head flags.

Below, from top: The Ohls in Antarctica, Pamplona, Spain, and United Arab Emirates.
Opposite, left: Flag waving in Iceland's Blue Lagoon. *Courtesy Phil and Diane Ohl*

They wave the Washington State University flag wherever they go. And they go a lot of places, places where their favorite condiment can be difficult to find.

Since 2016, the Tri-Cities couple behind Open Door Travelers have waved the flag on all seven continents, documenting their journeys on social media and their blog, posting reviews as correspondents for an itinerary-building website, and acting as unofficial ambassadors for WSU.

"We really enjoy waving the flag and having that Cougar connection," says Phil ('87 Mat. Sci. and Eng., '92 MS Eng. Mgmt.).

And, says Diane ('89 Psych.), "We find Cougs everywhere."

They've waved the flag from Angkor Wat and Antarctica to the deck of a sailboat in the Adriatic Sea, while standing atop the Great Wall of China, riding camels in Dubai, soaking in Iceland's Blue Lagoon, and swimming in the world's largest rooftop infinity pool at the Marina Bay Sands luxury hotel in Singapore.

"I think one of the best flag waves we've done was at Victoria Falls, in Devil's Pool on the Zambia side," Diane says. "The water's going over the falls, but there's a natural pool you can swim and hang out in. It was an epic flag wave."

The COVID-19 pandemic cut short their 2020 travel plans. The Ohls, who are often away for a month or two at a time, had planned to cruise the Danube and Volga Rivers and make their first trip to Cuba. Their next big trip is slated for January 2022 when they plan to take their children, Tate Ohl ('18 Busi., History) and Jamie Ohl Turner ('16 Busi.), and son-in-law Chris Turner ('13 Elec. Eng.), to South Africa.

"Cuba's still high on our bucket list—rolling your own cigars, diving," Phil says. "So are India, Russia, and Greenland."

The couple gets many of their travel ideas—ballooning over Maasai Mara in Kenya, marveling at the monolithic statues on Easter Island, viewing the "Sarajevo Roses" memorializing the siege of Sarajevo in Bosnia-Herzegovina—from Instagram. "I'll see a really interesting spot and build a trip around it," Diane says.

Phil identifies himself on LinkedIn as an "International Man of Leisure." Before that, he spent 30 years in the nuclear engineering industry and retired in 2016.

The couple, who met in Stephenson Hall at WSU and married in 1987, attended a travel blogger conference in spring 2016, coming away with a contract to do hotel, resort, and cruise inspections for the travel42 online travel review

Phil and Diane Ohl's travel tips: magazine.wsu.edu/extra/ohl-travel

service. They also partnered with Travel Leaders in Tri-Cities to book trips for others.

"We're in an interesting demographic: 50-something, young enough to be mobile, and old enough to have the resources to travel," Phil says. "It's a good gig," Diane adds.

When they inspect a property, they note the décor, cleanliness, and amenities such as pools, spas, restaurants, and conference centers. Sometimes, they get comps, like a 2,000-square-foot presidential suite in Dubrovnik.

Diane takes most of the photos and manages the social media while Phil does most of the writing.

They're often asked to name their favorite place but agree it's impossible to pick. They particularly enjoyed San Sebastian, Spain, though. And the most remote location they have visited was "probably the Faroe Islands. It felt even more remote than Antarctica," Phil says.

No matter where they travel, the Ohls always find their way back home. Both are platinum life members of the WSU Alumni Association, and Phil is a member of the WSU Tri-Cities Advisory Council. He formerly served on the Department of Mechanical and Materials Engineering Advisory Committee at WSU Pullman.

"We haven't found a continent where we haven't found a Coug," Phil says. "We run into Huskies around the world, too—particularly when we wave our flag."

Looking back on a fast forward

BY DANIEL P. SMITH

On May 7, 2011, at age 16, **Kayla Heard** made history as Washington State University's youngest-ever graduate. A decade later, she reflects on her unconventional journey and discusses her post-WSU life.

Heard ('11 Soc. Sci.) displayed an early aptitude for learning. She identified letters at seven months, read flash cards at 18 months, and recited the names of presidents by age 3. She earned her high school diploma at 10 and her associate's degree at 14, all remotely. "My mother is from the Philippines, a culture that highly values youth education, and she applied remote learning to increase the velocity of my education."

Heard applied to Washington State given the university's pioneering work in remote education. From her so-called "nerd cave"—the bedroom of her Union, Washington, home that was packed with journals and pens as well as books like *The Jungle* and volumes on Ancient Roman mythology—the history major explored tales of the past and studied how humans achieved great things with a mix of self-reliance and mental fortitude. She applied those qualities herself in the then-rather primitive world of remote learning, where assigned readings, weekly assignments, and online discussions paled in comparison to the snazzy virtual classrooms of today. "I had to create my own structure, check my assumptions, and break down seemingly larger-than-life goals into manageable pieces."

Heard's 2011 graduation from WSU garnered widespread attention—and mixed reactions. Though many saw it as an inspiring feat, others labeled it a disservice. "I learned an important life lesson then: the best direction for most is not the best direction for all. In fact, it's the diversity of experiences that makes humanity beautiful."

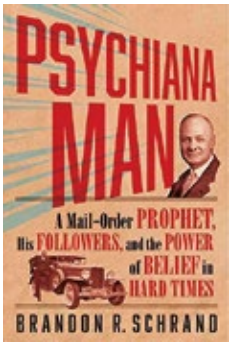
COURTESY KAYLA HEARD

Though ready to charge into the workforce, Heard found employers reluctant to hire a 16-year-old. Resourceful and pragmatic, she enrolled in an online MBA program before securing—quite intentionally—a people-facing job as a medical office coordinator. "I realized my upbringing led to a different level of social development than my peers, so I wanted to build strength and capacity in social interactions."

In 2014, Heard landed a call center position with Zonar Systems, a Seattle-based firm that provides smart fleet management solutions. She later moved into quality assurance testing and product management. "I fell in love with tech and its ability to inject value into the world."

Today, the 26-year-old, who earned a second bachelor's degree in cybersecurity, designs user interfaces for Zonar software. She performs user-experience (UX) research on market environment, design patterns, pain points, and more to ensure Zonar customers enjoy a positive, seamless experience. "I talk to people around the world about their needs and problems and learn about where technology is heading, which is all incredibly exciting."

Though dealing with twenty-first-century technology, Heard sees an undeniable link to her WSU history studies. "Every day as a UX researcher, I'm trying to see the world through others' eyes. That's emotional intelligence I began to develop during my Washington State studies, where I started to understand the many variations of normal and had my eyes opened to different possibilities."



Psychiana Man: A Mail-Order Prophet, His Followers, and the Power of Belief in Hard Times

BRANDON R. SCHRAND

WSU PRESS: 2021

This is the true and bizarre story of a largely unknown, mail-based, self-help, American religion with "a money-back guarantee" and the charismatic, publicity-craving confidence man who established it in, of all places, Moscow, Idaho.

Frank B. Robinson was a drunk and a vagabond who couldn't seem to hold down a job until he invented one. He didn't graduate from college but he called himself a doctor. He certainly wasn't a psychologist, but he called himself that, too. And a prophet. He also announced, in a newspaper ad in all capital letters, to have "talked with God."

Repeat it enough, and others start to believe it, too, and repeat it themselves. At least, some people.

In this extensively researched tale of a man and his movement, Brandon R. Schrand points out, time and time again, instances in which Robinson lied—about where he was born, when he married, how much he paid for his fancy Duesenberg convertible, even his own name—or at the very least, grossly exaggerated the truth. He was, Schrand notes, known as a cheat, charlatan, and snake oil salesman. And he had, as the *Oregonian* wrote in 1939, "grown rich at the expense of the gullible."

Psychiana's "students" paid a dollar per "lesson" during the Great Depression and World War II for Robinson's so-called wisdom on how to achieve "health, wealth, and happiness." Schrand, interim director of communication at the College of Agricultural, Human, and Natural Resource Sciences at Washington State University, intersperses their stories throughout his detailed account of Robinson's life and the rise and fall of what Robinson dubbed "the new psychological religion."

The name "Psychiana," he told followers, came to him in a dream in 1929 in Moscow, where he had moved a year earlier with his wife, Pearl, and son, Alfred. She took him and, later, daughter Florence, to Moscow's Presbyterian church.

Schrand doesn't take sides, relying on documents, newspapers, letters, other archival materials, and Robinson's own writings to discuss the complex, often contradictory, cult-like leader. It's a fascinating story from the outset. The entry point is Robinson's small-town, high-profile trial that made headlines across the country. The self-made messiah was facing deportation.

Born in England in 1886, Robinson traveled as a teen to Canada with one of his three younger brothers, given up by his father and new stepmother. He worked across Canada before taking a train to Portland, Oregon, where he signed up for the US Navy, claiming to have been born in New York. He was soon discharged for drinking and for being, as records described him, "unreliable as to his veracity."

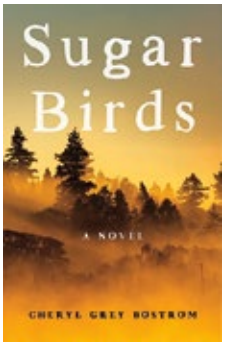
He spent years roaming the Pacific Northwest, getting and losing jobs. The prospect of work in the timber industry later led him to Klamath Falls, Oregon, where he met Pearl Leavitt. She was 14 years his junior and preparing for her freshman year of college.

After they wed, they bounced around to Arizona, California, back to Oregon, then Yakima, where "Robbie" worked at Pioneer Drug and got the notion to start a "Movement." Upon moving to Moscow, the town's newest druggist soon pounded out his 20 "lessons" on an old typewriter, borrowing text and ideas from contemporaries.

Six weeks after the 1929 stock market crash, Robinson founded a religion that relied heavily on newspaper, magazine, and radio advertising. Five years later, Psychiana reportedly raked in $422,000, or nearly $8 million in today's currency. The New Thought religion was the largest correspondence religion in the world.

In a richly layered narrative that seems ripe for the big screen, Schrand expertly explains, with impressive depth and breadth, how a one-time ne'er-do-well transformed himself into a keen marketer and salesman, vending hope and self-improvement to tens of thousands through the US mail. *Psychiana Man* just might renew interest in a figure and philosophy that have basically been forgotten.

—Adriana Janovich



Sugar Birds

CHERYL GREY BOSTROM '80 MA ENGLISH

SHE WRITES PRESS: 2021

Agate "Aggie" Hayes is a spirited and outdoorsy just-turned-10-year-old who sketches birds and climbs too high. She was only trying to get a glimpse of eggs in a nest. But Mama aims to ground her, forbidding Aggie from climbing the trees where the scrappy and rebellious girl takes refuge from her mother's admonishments. When Aggie unintentionally causes a devastating fire, she flees in an inflatable boat and hides out in the backwoods, riddled with guilt, dodging bird dogs, and evading rescue. She survives on cattails, salmonberries, and her own instincts and resourcefulness—until someone catches on.

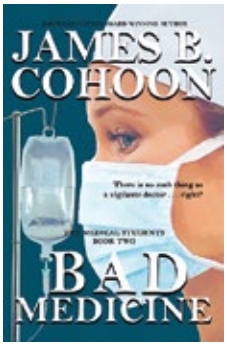
Sixteen-year-old Celia, recently uprooted from Texas and living with her grandmother at a nearby farm, joins the search party for Aggie carrying her own anger and pain. She meets Burnaby, Aggie's autistic older brother who milks cows and hunts for bones, and develops a crush on Cabot, a 20-year-old handsome but troubled, and possibly dangerous, farmhand.

While remaining out of sight, sleeping in trees, and tending to her physical and emotional wounds, Aggie discovers a sinister

plot to hurt her family. But, to try to change the course of events, she must learn to trust, reveal herself, and face the truth.

Cheryl Grey (Hobson) Bostrom skillfully interlaces the girls' parallel adventures in her debut novel, set in 1985 in rural Whatcom County. Bostrom has lived there for more than 40 years, and her deep knowledge of and respect for its flora and fauna runs through her writing. Each girl is lost in her own wilderness in this engrossing, coming-of-age, summertime story of self-discovery and redemption. *Sugar Birds* is a suspenseful read that explores the woods of northwest Washington alongside the complexities of family and faith, friendship, and forgiveness.

—Adriana Janovich



Bad Medicine

JAMES B. COHOON '76 BIOL.

TOUCHPOINT PRESS: 2021

James Cohoon is back with another contemporary medical thriller starring the two main characters from his first novel. Even-tempered heir Matthew Preston and sassy, whip-smart Torrey Jamison, now newlywed and living their dream, are serving as medical residents in San Diego when someone from their past comes back with a plea.

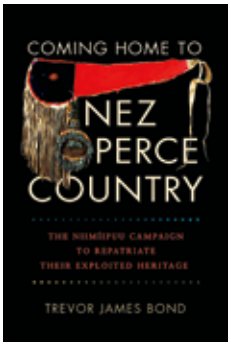
Suddenly, they're in the thick of a dangerous adventure, this time aimed at righting medical wrongdoing. They just need to confirm their suspicion: a local doctor is bilking desperate and vulnerable families of hundreds of thousands of dollars, promising a cure-all for their children's brain cancer.

Bad Medicine picks up where *Do No Harm* leaves off and jumps right into a new action-packed plot. Like Cohoon's first book, this volume is a fast-paced page-turner. It deftly weaves in a bit of backstory for readers who might have missed or forgotten elements of the first book.

A retired civil litigation lawyer in southern California, Cohoon and his wife Rozanne Lane Cohoon ('76 Biol.) have a daughter who, like Torrey and Matthew, went to Stanford, and a son who, also like Torrey and Matthew, practices medicine in SoCal.

This tension-filled sequel combines medicine and malpractice with motifs of greed, fraud, sexism, and more. Cohoon's writing demonstrates understanding of the medical profession, particularly the brutal, 80-hour work weeks of residents, and sets the scene for another volume in his *Medical Students* series.

—Adriana Janovich



Coming Home to Nez Perce Country: The Niimíipuu Campaign to Repatriate Their Exploited Heritage

TREVOR JAMES BOND '17 PHD HISTORY

WSU PRESS: 2021

Missionary Henry Spalding shipped two barrels of "Indian curiosities" in 1847 from his Idaho mission to his friend Dudley Allen in Ohio with the intent of obtaining barter goods. Spalding had coerced Nez Perce (Niimíipuu) tribal members and traded for their exquisite shirts, dresses, baskets, and more items, many of them beautifully decorated with porcupine quills, dentalium shells, beads, rare elk teeth, and other ornamentation.

The collection then endured a saga of more than a century, one that's rife with questions about how Native cultural history is acquired, traded, sold, and eventually owned. Spalding spoke against Native culture and demanded that Nez Perce cease their migratory life and settle as Christian farmers, all while gathering and bartering away their material items of cultural significance.

In 1893, the Allen family donated the collection to Oberlin College in Ohio, along with Spalding's letter that established its provenance. It remained there until 1942, when Oberlin College loaned the collection indefinitely to the Ohio Historical Society (OHS).

The collection languished in storage until inquiries in 1970, but Oberlin College faculty couldn't find it. After identification in the mid-1970s, the OHS agreed to loan the collection to the National Park Service for display at the Nez Perce National Historical Park.

Then, in 1993, the OHS suddenly recalled the collection, valued at $608,100. The OHS agreed in 1996 to sell the collection to the Nez Perce Tribe for that amount but gave them only six months to raise the money. Considering the tribe's resources, it was a daunting sum.

The ensuing fundraising campaign went global and raised the profile of the cause. Support came from schoolchildren's bake sales and car washes, MTV public service announcements, and donations from grunge bands Pearl Jam, Soundgarden, and other musicians. More than 2,000 individuals donated to the fund and the Nez Perce Tribe raised the amount with a day to spare.

Trevor James Bond, codirector of the Center for Digital Scholarship and Curation and associate dean at WSU Libraries, tells this fascinating story through interviews with Nez Perce experts such as Nakia Williamson-Cloud, historical records, and media reports. As part of his research, Bond commissioned photographs of the collection, which are included in the book and emphasize the stunning details of the Nez Perce clothes, horse regalia, cradleboards, and the rest. Williamson-Cloud also recorded interpretations of several items, available on the Plateau Peoples' Web Portal housed at WSU.

In a June 2021 ceremony, 25 years after it was finally secured, the Spalding-Allen Collection was renamed by the tribe. After careful deliberation, they chose *wetxuuwíitin'* as the new name. It means "returned after a period of captivity."

—Larry Clark

The Summer edition of Washington State Magazine is going exclusively to WSUAA members. Make sure you don't miss out by visiting **alumni.wsu.edu/join** to become a member today.

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apple drink recipe with seasonal syrup highlights: magazine.wsu.edu/extra/syrup-drink

CLASSnotes

COURTESY SIMPLE GOODNESS SISTERS/FACEBOOK

Think of it as farm-to-table but for your home bar.

Simple Goodness Sisters crafts specialty syrups for cocktails and mocktails using Washington-grown ingredients, including herbs and edible flowers cultivated by **VENISE (DRLLEVICH) CUNNINGHAM** ('10 Hum. Dev.). The first-generation farmer and her sister, Belinda Kelly, a mixologist and recipe developer, left the corporate world as new moms, and ditched their long commutes from rural Pierce County to the Seattle area.

A recruiter for Microsoft, Kelly founded the Happy Camper Cocktail Company, serving drinks from her vintage trailer. Cunningham, a project manager for Redfin, got into residential real estate and garlic farming. Inspired by their new endeavors, the sisters came together in 2017 to create their small-batch syrup company. The first 1,500 bottles sold out in six months.

Washington State University tested samples and formulated processing instructions to get the products ready for retail. WSU "has been instrumental in the success of our business," says Cunningham, who completed the university's Food Systems Program's Cultivating Success course at the WSU Puyallup Research and Extension Center. Both sisters also finished the WSU Better Process Control School Training.

With a boost from a $50,000 USDA Value-Added Producer Grant, they recently started a café and subscription service. The Simple Goodness Soda Shop opened last October in the historical coal mining town of Wilkeson. The inaugural Cocktail Farm Club box mailed out in March with recipe cards, mixers, and more. Membership doubled between the first and second shipments.

Top-selling flavors are rhubarb vanilla bean, blueberry lavender, and berry sage. Other offerings are lemon herb, marionberry mint, and huckleberry spruce tip. The November subscription box features rhubarb vanilla bean and fig cardamom shrub.

The sisters also sell a floral sugar glass rimmer, floral salt glass rimmer, recipe cards, and three ebooks: *Garden to Glass: Grow Your Own Cocktail Garden*, *The Drinks That Built Us*, and *The Classics*. *Garden to Glass* is also available in hard copy.

Since launching their business nearly five years ago, the sisters have shipped their multinote syrups to "almost every single state" and have been spotlighted in *Sunset* magazine, King 5 TV's *Evening* program, and RFD-TV's *FarmHer*.

They've also hired their first two employees. Summer interns Meggie Dakan and Emily Dakan are Cougs—and sisters, too.

BY ADRIANA JANOVICH

70

MARC SPOHR ('77 Busi.) has retired after serving 40 years as a volunteer firefighter with Adams County Fire District No. 5 in Othello. He remains secretary/treasurer of the district.

80

DAVID ELMS ('81 Arch.) is associate architect for ALSC Architects of Spokane. Elms has 40 years of industry experience. **ADÉ ARIWOOLA** ('84 Busi.) is retiring from his position as Federal Way finance director after 35 years in finance management. Previously, Ariwoola was finance director for the city of Ellensburg, financial services manager for Kitsap County, Chelan County chief accountant, and a financial officer for EPIC, a Yakima nonprofit organization. **RANDY COOK** ('85 Arch.) received the Vistage Leadership Award for the Seattle region. He is managing principal of the Tacoma-based TCF Architecture. Vistage is a CEO coaching and peer advisory organization, and its annual award honors members who demonstrate leadership excellence and an impact on their business, the Vistage group, and community. **MELISSA HARWOOD-ROM** ('89 MA Ag. Econ.) is interim vice chancellor for student affairs at the University of Arkansas. She has served as dean of students in the Division of Student Affairs since 2013 and has worked for the university in various roles since 1989.

90

ANDI DAY ('91 History) is chair of the Washington Tourism Alliance board of directors. Day has been a member of the board since 2012 and was previously executive director of the Pacific County Tourism Bureau. Day also serves on Pacific County's Lodging Tax Advisory Committee and the Marketing Advisory Board of WSU's Carson College of Business. **TRACY OSTREM** ('93 Busi.) is the chief development officer and president of the Swedish Medical Center Foundation. Previously, she was the associate dean for advancement for the College of Arts & Sciences at the University of Washington. **ANGELA JONES** ('94 English) is director of the Bill and Melinda Gates Foundation's Washington State Initiative, which provides support for early learning, education, and preventing family homelessness. Jones was previously the CEO of Washington STEM and has worked in education for more than 25 years. **CHRIS HOSSFELD** ('96 Poli. Sci.) is an assistant professor at the US Army War College and a colonel in the US Army. He was awarded Excellence in Service and Excellence in Innovation for the 2020-21 academic year. **JEFFREY ABBOTT** ('97 DVM, '04 PhD Vet. Sci.) is leading WSU's Diagnostic Challenge, simulated case-based exercises in which students diagnose and treat animals as

COURTESY ONE ACT THEATRE CAMP/FACEBOOK

JOSHUA EVANS ('03 Theatre Arts) founded Act One Theatre Camp in Glendale, California, just before the COVID-19 pandemic hit. Evans and his team "replaced the stage with the camera," he says, transitioning the program online with a focus on movies and music videos. Children in the United States, Canada, Mexico, Uruguay, Saudi Arabia, and other countries were able to participate in a safe outlet for creativity and socializing.

The program was online again in summer 2021, but Evans plans to transition back to in-person activities for summer 2022. Evans has taught theater summer camp for 16 years and teaches after-school theater programs in the Los Angeles area. Before the pandemic, online theater programs "really hadn't been done at this scale," Evans says. "It was kind of amazing how fun the summer went."

BY ALYSEN BOSTON

well as communicate with the animal's owner. As a student, Abbott participated in the program's fourth annual challenge in 1994. **JEAN-MARIA C. LANGLEY** ('97 Biol.) is recognized as a "Trusted Name in Otolaryngology" by the Continental Who's Who, a membership organization that recognizes executives, professionals, and entrepreneurs around the world, for her work in the field and at Utica Park Clinic in Tulsa, Oklahoma. Langley specializes in sinus and sleep apnea surgeries and has 14 years of experience in otolaryngology. **KRISTI MCPHERSON** ('97 Elem. Ed.) is a loan officer at Banner Bank's Wenatchee Loan Center. She has 23 years of experience in the real estate services sector and is certified to teach continuing education to realtors. She has volunteered with the North Central Washington Association of Realtors, NAPMW Wenatchee Valley and Building North Central Washington.

00

JENNIFER (SHAFAR) ALLEN ('00 Psych.) earned a doctorate of education in leadership and professional practice from Trevecca Nazarene University. She is the assistant director of special services in the Kennewick School District and a board member for the Northwest Gifted Child Association. **LEE LAMBERT** ('02 Poli Sci.) is executive director of Cascade Bicycle Club and Washington Bikes. Lambert previously was executive director of City Year Seattle/King County. **KIM O'NEILL** ('02 Ag. Ed.) is the vice president for university advancement and CEO of the WWU Foundation at Western Washington University. O'Neill previously held various roles at the University of Idaho and then Texas Tech University, where she led a team with an annual fundraising goal of $100 million. **TROY BISHOP** ('03, '04 MA Arch.) is principal architect at ALSC Architects of Spokane, where he provides design direction for the company's team of architects. **GALE (BEVINGTON) STANLEY** ('04, '06 MA Arch.) is an associate architect at ALSC Architects of Spokane. **ASHLEE BARTON** ('05 Hosp. Busi. Mgmt.) is a 40 Under 40 honoree for Connect Corporate's 2021 list of young event professionals and industry leaders. Barton is director of sales and marketing at Hyatt Regency Lake Tahoe Resort, Spa, and Casino in Nevada. **TAMARA VALLEJOS** ('08 English) has been named director of marketing at The Juilliard School in New York City. **ELIZABETH WILEY** ('08 Sport. Mgmt.) is the digital director at KING 5 in Seattle, where she manages the digital content team and leads digital strategy. Wiley was digital director for WFAA in Dallas and KPNX in Phoenix. She first worked at KING 5 as an intern in 2013. **LIKUN ZHANG** ('08 MS, '12 PhD Physics) won the 2021 R. Bruce Lindsay Award for his research in radiation pressure and acoustofluidics from the Acoustical Society of America. Zhang is an assistant professor of physics and astronomy at the University of Mississippi and a researcher at the National Center for Physical Acoustics.

ARON BAYNES ('09 Ed.) earned his first Olympic medal, a bronze, as part of the Australian basketball team at the 2020 Tokyo Olympics. The bronze was also Australia's first medal in men's basketball. Baynes played for the NBA's Toronto Raptors, Phoenix Suns, Boston Celtics, Detroit Pistons, and San Antonio Spurs. He also played in the Slovenian basketball and Greek basketball leagues as well as the German Basketball Bundesliga. **NATHAN GOODALE** ('09 PhD Anthro.) is the associate dean of faculty and a professor of anthropology at Hamilton College in Clinton, New York. His work specializes in the rise of complex hunter-gatherers in the interior Pacific Northwest, and he led the Slocan Narrows Archaeological Project, a biennial field school that explores Indigenous lifeways in the Upper Columbia River area. **HAL IVERSON** ('09 Kinesio.) is one of a trio of winemakers at Matthews Winery in Woodinville. Previously, he was an assistant winemaker at Quilceda Creek Winery in Snohomish.

10

VALERIE RATHBONE ('11 Neurosci., '16 DVM) is the medical director at Saving Grace Pet Adoption Center in Roseburg, Oregon. She previously worked at the Idaho Humane Society and Emancipet, a spay/neuter clinic in Austin, Texas. **LISA ROMAN** ('12 Psych.) helped Canada win the gold medal in women's eight-crew rowing at the 2020 Tokyo Olympics, securing Canada's first gold in the event since 1992. Roman competed with the WSU varsity rowing team for

three seasons, was a two-time All-Pac-12 honoree, and was named to the Pac-12's All-Century Women's Rowing Team. **MORGAN ASHLEY BRICE** ('13 Soc. Sci.) is a morning anchor for *Wake Up Montana*. She was previously an anchor and executive producer of *Wake Up Northwest*, Hanford beat reporter at KNDU/KNDO, and producer and reporter for KING TV. She also worked as public information officer for Overlake Medical Center & Clinics in Bellevue, where she led the hospital's public response to the COVID-19 pandemic. **ROBERT FRANKLIN** ('14 MA Hist.) was an onscreen expert for a history film about the Manhattan Project that was nominated for a 2021 Daytime Emmy Award. He is assistant director of the WSU Tri-Cities Hanford History Project and teaching assistant professor of history at WSU. The film, *The Manhattan Project Electronic Field Trip*, was produced by the National WWII Museum in New Orleans. **KEN HALPIN** ('15 PhD Higher Ed. Admin.) is deputy athletics director at Purdue University. He serves as chief operating officer for the Boilermakers and sport administrator for men's basketball. He is also responsible for overseeing revenue producing activities, strategic communications and marketing, sports medicine, and event operations. Previously, he was athletic director for Winthrop University and deputy athletics director for Eastern Washington University. **KOLBY CROSSLEY** ('16 Comm.) is the spokesperson for the Auburn Police Department. Crossley previously worked as a reporter for *Wake Up Montana* and *Good Morning Colorado*.

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THOMAS EDINGER ('20 Gen. Phys. Sci.) is a certified sous chef by the American Culinary Federation. He is the central production unit executive chef at WSU, where he oversees the bakery, grab-and-go bites, and test kitchen operations. **EMMA CLAIRE SPRING** ('21 Hosp. Busi. Mgmt.) is the 2021 grand-prize winner of "She Has A Deal," a real-estate investment platform that facilitates hotel ownership and development for women. Spring was awarded $50,000 for her Delta Hotel conversion project in Chantilly, Virginia.

40

RICHARD "DICK" MOORE SLAGLE ('42 Pharm.), 101, February 9, 2021, Republic. **MARJORIE HEMMENDINGER** ('44 Econ.), 97, June 30, 2020, Alexandria, Virginia. **BERNITA W. SUNDQUIST** ('44 English), 97, November 17, 2020, Old Saybrook, Connecticut. **GEORGE H. JONES** ('45 DVM, Phi Delta Theta), 99, August 15, 2021, Santa Fe, New Mexico. **GEORGE F. KLEMZ JR.** ('47 Zool.), 92, May 27, 2018, Sisters, Oregon. **RONALD WATANABE** ('47, '49 MS Chem.), 90, April 15, 2016, San Jose, California. **ALLAN C. BARGER** ('48 Ag., '57 Ed.), 96, February 10, 2016, Puyallup. **JOHN M. KUHLMAN** ('48 Econ.), 97, January 17, 2021, Asheville, North Carolina. **VIVIAN SARDESON** ('48 MA English), 93, January 28, 2017, Chesterfield, Virginia. **CHARLOTTE RAE WIRTH** ('48 Phys. Ed., '55 MAT Phys. Ed., Kappa Delta), 91, February 2, 2018, Walla Walla. **SHIRLEY ROSE COTTER** ('49 Gen. Stu., Sigma Kappa), 91, March 24, 2021, Medina. **EDGAR OLE LARSON** ('49 MS Phys. Ed.), 96, November 18, 2017, Boone, North Carolina. **EULA MAE MARSH** ('49 Home Econ.), 93, July 4, 2020, Seattle. **GWEN WARREN** ('49 Poli. Sci.), 91, May 3, 2018, Seattle.

50

DAVID L. BONSTEEL ('50 Arch.), 90, January 28, 2017, Tacoma. **EDWIN F. BROWN** ('50 Psych.), 91, March 14, 2018, Rancho Palos Verdes, California. **MILAN M. DUKICH** ('50 Econ.), 92, September 3, 2016, Spokane. **ANTON M. FLEISCHMAN** ('50 Math., '51 Ed.), 90, July 14, 2018, Lubbock, Texas. **VERNA LOIS (TRAVIS) HUGHES** ('50 Home Econ., '51 Ed.), 90, December 24, 2018, Kennewick. **M. PHILLIP HUTSON** ('50 Bacterio.), 93, August 12, 2021, Puyallup. **RALPH E. JOHNSON** ('50 Chem. Eng.), 92, July 8, 2021, Seattle. **JEAN CAROL HAMERLY MYRE** ('50 Home Econ., '52 Ed.), 92, November 1, 2020, Woodinville. **MARY ALICE BERG "PETE PEEL" OLSEN** ('50 Phys. Ed.), 91, November 26, 2019, Longmeadow, Massachusetts. **MARY JANE SMITH** ('50 Socio.), 91, October 3, 2019, Spokane. **GERALDINE ELISE WIESS** ('50 Special Ed., Kappa Delta), 92, March 10, 2021, Spokane. **CHARLES M. YOKE** ('50 Busi.), 92, July 21, 2021, Spokane. **ROBERT J. ASCHERL** ('51 Mech. Eng.), 93, May 24, 2017, Edmonds. **JAMES HENRY HANSEN** ('51 Ag.), 93, February 11, 2019, Reno, Nevada. **GABRIEL MARTIN MORELLI** ('51 Spanish), 90, August 5, 2020, Kirkland. **FRED TURNER JR.** ('51 MS Agro.), 96, March 3, 2016, Kearny, New Jersey. **JOHN ASCUAGA** ('52 Hotel & Rest. Admin.), 96, June 28, 2021, Carson City, Nevada. **BRUCE HALLER BERG** ('52 Comm.), 91, February 7, 2020, Las Cruces, New Mexico. **GERHARD "GIG" EBERHARDT** ('52 Geol., Acacia), 86, August 14, 2016, Brookings, Oregon. **CAROLYN JUNE HANSEN** ('52 Home Econ.), 90, August 13, 2020, Reno, Nevada. **GEORGE MIGAKI** ('52 DVM), 96, July 27, 2021, Phoenix, Arizona. **ROBERT E. NEITZLING** ('52 Phys. Ed.), 91, August 5, 2021, Kalispell, Montana. **MILTON EDWARD "PAT" DAVEY** ('53 Mech. Eng.), 95, August 14, 2021, Spokane. **ROBERT M. FERGUSON** ('53 Busi.), 87, October 30, 2017, Dawsonville. Georgia. **WALTER K. MCKIBBEN** ('53 Civ. Eng.), 84, April 5, 2016, Seattle. **MARLYS GAYE RIEGER** ('53 Ed., Chi Omega), 91, August 13, 2021, Spokane. **FREDERICK AUGUSTUS SCHILLING JR.** ('53 Geol.), 88, April 4, 2020, Florence, Kentucky. **HAROLD NEWTON TOBIE** ('53 Elec. Eng., Kappa Iota Phi), 89, December 25, 2020, Renton. **LAWRENCE W. TORREY** ('53 Pharm.), 90, May 13, 2018, Sherwood, Oregon. **ALAN PING I. WANG** ('53 Elec. Eng.), 89, August 10, 2019, Tempe, Arizona. **GEORGE JOHN BELL** ('54 DVM), 91, October 1, 2020, Sequim. **MARY ELLEN BREITENBACH** ('54 MS English), 89, July 28, 2020, Albuquerque, New Mexico. **MARILYN INA GILL FURMAN** ('54 Gen. Stu.), 88, February 23, 2021, Omak. **MARY LYNN HALL** ('54 Fine Arts), 87, June 6, 2021, Prosser. **RALPH GARY MACPHEE** ('54 Biol.), 89, February 12, 2021, San Antonio, Texas. **WILLIAM E. YENTER** ('54 Gen. Stu., Beta Theta Pi), 87, November 25, 2019, Kirkland. **DOROTHY HALVERSON BLODGETT** ('55 Home Econ.), 88, June 29, 2021, Fair Oaks, California. **PAUL A. JOHNSGARD** ('55 MS Wildlife Biol.),

IN*memoriam*

PHOTO BRUCE ANDRE

JACK ROGERS was already renowned for his work on *Xylariaceae*. He had described many new species of *Xylaria*, fungi commonly found growing on dead wood, including *X. magnoliae*, which grows from blackened magnolia fruit and resembles burnt matchsticks. During one particular Mycological Society of America foray—in Florida, in the early 1980s—this fungus was abundant. And participants kept presenting him with specimens.

"It was like they were bringing him gifts," recalls Lori Carris ('83 MS Plant Path.), then a doctoral student at the University of Illinois at Urbana-Champaign. "Even though he already had a bagful of this fungus, he would look over each specimen very carefully and say, 'Oh, that is a beauty! I think I'll keep this one.' That speaks to who he was and why people really liked him. He made everyone feel special."

The longtime Washington State University professor and mycologist—remembered for his booming voice, distinctive West Virginia accent, disarming and endearing sense of humor, enthusiasm for the outdoors, and genuine care for students and colleagues—died at home in Pullman on June 14. He was 83.

Rogers was a longtime member of WSU's Department of Plant Pathology in the College of Agricultural, Human, and Natural Resource Sciences. A past president of the Mycological Society of America (MSA), he wrote or cowrote more than 230 scientific papers and two books. Among his accolades are the R.M. Wade Award for Instruction (1967); the Sahlin Faculty Excellence Award for Research, Scholarship, and Arts (1986); the MSA's Weston Award for Teaching Excellence (1992); the MSA's Distinguished Mycologist Award (2004); the Library Excellence Award for Service to WSU Libraries (2005); and the WSU Eminent Faculty Award (2006).

Born in West Virginia, Rogers earned a bachelor of science from Davis and Elkins College, master of science from Duke University, and doctorate from the University of Wisconsin-Madison. He joined the faculty at WSU in 1963, the year he earned his doctorate.

He taught forest tree pathology and advanced mycology, advised graduate and postgraduate students, and served as department chair from 1985 until 1999. He was promoted to Regents Professor in 2007. Long after his 2013 retirement, Rogers continued coming to work. "It was kind of a challenge to see if I could get there before Jack," Carris notes. "The only time he took off consistently was Wednesday afternoon."

That's when he went fishing. Rogers also enjoyed foraging with friends and colleagues. "He loved being out in the woods. He loved anything to do with fungi," says Carris, who worked with Rogers for 30 years, including team-teaching a course for nearly a decade. She first met him as a graduate student at WSU, and he was department chair when she was hired. Their offices were next door, and he taught a graduate course on *ascomycetes* and *fungi imperfecti* across the hall.

Timothy D. Murray ('80 MS, '83 PhD Plant Path.), chair of plant pathology, "never worked harder in a class than when I took his class." He knew Rogers for 43 years, coming to WSU in 1978 as a graduate student, then joining the faculty in 1983. Rogers was his professor, colleague, chair, mentor, friend.

"He really was the complete package," Murray says. "He was a great scholar. He won awards for his research. He was very prolific in terms of publication. He was an engaging and committed teacher. And he worked on a number of higher-level university committees. He loved all aspects of the job, and he did them well."

He was also "a real character," Murray says. "He loved to tell a good joke. And he was very vocal in terms of explaining his position. If he had an opinion and it differed from yours, you would know what his opinion was."

Rogers traveled the world for research and to collect specimens, helping curate WSU's Charles Gardner Shaw Mycological Herbarium. For more than 30 years, he received funding from the National Science Foundation for his research, which, Carris says, "really laid the foundation for a lot of the work on Xylariaceae that is going on today."

He is survived by his wife of 63 years, Belle, and their twin daughters, Becky and Barbie, and their families.

BY ADRIANA JANOVICH

89, May 28, 2021, Lincoln, Nebraska. **DAVID ELMER LONG** ('55 DVM), 91, March 19, 2017, Bellingham. **DORIS MAE MANSPERGER** ('55 Home Econ.), 88, April 13, 2021, Pasco. **RICHARD ALLAN CRAMER** ('56 Busi.), 83, April 14, 2016, San Diego, California. **JACK L. EARNEST** ('56 Pharm.), 86, February 17, 2017, Portland, Oregon. **IRWIN JON PARKER** ('56 Zool.), 86, May 16, 2021, Phoenix, Arizona. **FRED STALLCOP** ('56 Ag.), 87, August 13, 2021, Carmichael, California. **LLOYD DEAN COOK** ('57 Mktg.), 86, February 26, 2021, Zillah. **BARBARA L. SANFORD KEEHNEL** ('57 Socio.), 85, July 2, 2021, Puyallup. **ELWIN GALE LARSON** ('57 Forest & Range Mgmt.), 85, September 17, 2020, Sisters, Oregon. **SHELDON LIFTIN** ('57 MS Phys. Ed.), 89, December 11, 2020, Dobbs Ferry, New York. **RICHARD LEE LUKINS** ('57 Pharm.), 88, February 25, 2021, Portland, Oregon. **LLOYD V. MCCLELLAND** ('57 Elec. Eng.), 92, February 27, 2019, Mesa, Arizona. **DONALD JACOB MEYERS** ('57 Mech. Eng.), 87, December 18, 2020, Kennewick. **LARRY RALPH WEIR** ('57 Phys. Ed., Phi

Gamma Delta), 87, August 16, 2021, Spokane. **WILLIAM R. WILSON** ('57 Elec. Eng.), 85, February 5, 2016, Berthoud, Colorado. **JACK W. LEWARNE** ('58 Hotel & Rest. Admin.), December 31, 2020, Melaque, Mexico. **JACK WILBUR OPPELT** ('58 Elec. Eng.), 91, April 29, 2020, Pasco. **B. RICHAL SMITH** ('58 Civ. Eng.), 88, June 21, 2021, Seattle. **JERRY OMER SOBOTTA** ('58 Pharm.), 85, March 21, 2021, Hermiston, Oregon. **SHIRLEY MAE SPENCER** ('58 Ed.), 85, May 11, 2021, SeaTac. **MARIANNE J. ANDERSON** ('59 Busi.), 83, July 22, 2021, Spokane. **GEORGE DAVID BARCLAY** ('59 Soc. Sci.), 80, March 4, 2018, Puyallup. **JAMES M. KIMURA** ('59 Phys. Ed.), 89, August 19, 2020, Vancouver. **LARRY CLAUDE LIPP** ('59, '65 MS Chem. Eng.), 83, January 17, 2021, Torrance, California.

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HOWARD BARRY EMERSON ('60, '63 MA Math.), 76, February 18, 2016, San Diego, California. **UPTON B. HENDERSON** ('60 MS Wildlife Biol.), 89, March 14, 2021, Guthrie, Oklahoma. **TED LOPUSZYNSKI** ('60 Poli. Sci.), 83, June 11, 2021, McMinnville, Oregon. **IRA DELL RUDD** ('60 DVM), 88, April 2, 2018, American Falls, Idaho. **ADOLF P. SGAMBELLURI** ('60 Police Sci.), 84, February 15, 2021, Piti, Guam. **GORDON K. STENNES** ('60 Hotel & Rest. Admin.), 81, February 19, 2018, Peachtree, Georgia. **SALLY SUE TIBBITTS** ('60 Phys. Ed.), 81, June 10, 2021, Cheney. **NEAL BOYD BROWN** ('61 Physics), 82, July 19, 2021, Lebanon, New Hampshire. **RICHARD "DICK" ALLEN MONTEE** ('61 Kinesio.), 81, June 10, 2020, Madras, Oregon. **RICHARD WAGNER** ('61 Mech. Eng.), 82, June 16, 2021, Honolulu, Hawaii. **LINDA KATHLEEN (BECKETT) YOST** ('61 English, Delta Gamma), 79, November 8, 2019, Olympia. **ROBERT E. ARMSTRONG** ('62 DVM), 83, July 7, 2018, Cypress, Texas. **LORRIS "LOU" D. BENEDICK** ('62 Forest & Range Mgmt.), 86, December 25, 2020, Idaho Falls, Idaho. **BRUCE D. BREITENBACH** ('62 Busi.), 81, July 29, 2020, Port Ludlow. **RICHI G. CALDWELL** ('62 Comm.), 80, June 3, 2021, Spokane. **EVERETT**

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8 a.m. to 5 p.m. Monday - Friday

E. "ELL" HEINDSELMAN ('62 DVM), 88, June 1, 2021, Okanogan. **JAMES MATHEW TEMPLES** ('62, '68 MAT Phys. Ed.), 83, June 18, 2021, Solana Beach, California. **ROBERT RISTINE BELL** ('63 DVM), 81, November 4, 2019, Williston, North Dakota. **GLENN RAE BETZ** ('63 Ani. Sci.), 81, July 26, 2021, Modesto, California. **SHARON D.ODEGARD BISHOP** ('63 Math.), 79, July 5, 2021, Nine Mile Falls. **RICHARD CARL EMERY** ('63 Econ.), 80, July 22, 2021, Richland. **RATAN KUMAR GOVILA** ('63 MS Mat. Sci.), 79, July 30, 2017, Bloomfield Hills, Michigan. **ROBERT G. OWENS** ('63 Gen. Stu.), 80, February 18, 2021, Shelton. **LEO MICHAEL RILEY** ('63, '65 MBA Busi.), 81, October 21, 2020, Bellevue. **BLAIR N. BARNER** ('64 Phys. Ed.), 82, June 5, 2021, Olympia. **ROBERT VERL BRADLEY** ('64 DVM), 81, July 17, 2021, Blackfoot, Idaho. **THOMAS ERWIN HUNT** ('64 Comm., Tau Kappa Epsilon), 79, August 8, 2021, Olympia. **BILL D. THYR** ('64 PhD Plant Path.), 89, July 4, 2021, Reno, Nevada. **ROBERT LYLE WHITE III** ('64 Comm.), 79, April 12, 2021, Ocean Park. **JON FREDRIC BROWN** ('65 Ed.), 79, February 23, 2017, Rockaway Beach, Oregon. **LINDA C. MERSCHDORF** ('65 History), 76, March 3, 2020, Richmond, California. **TED F. NELSON** ('65 Busi.), 79, October 11, 2020, Olympia. **SCOTT CHARLES PEARCE** ('65 MA English), 84, July 16, 2020, San Diego, California. **PATRICIA C. SMITH** ('65 MAT Busi.), 81, May 3, 2021, Kennewick. **DAVID N. CAVANAGH** ('66 MA Poli. Sci.), 78, June 14, 2021, Fairfield, California. **CLARK DARREL COLWELL** ('66 Police Sci., '68 Socio.), 76, August 20, 2020, Spokane. **JUDITH S. HASTINGS** ('66 Math.), 75, August 16, 2020, Las Vegas, Nevada. **MICHAEL D. JACKSON** ('66 Physics, Math.), 77, December 9, 2020, Colorado Springs, Colorado. **SHARON A. JOHNSON** ('66 Busi.), 76, June 5, 2021, Conway. **MICHAEL D. MCDERMOTT** ('66 Acc.), 77, January 31, 2020, Richland. **NEVA E. MCLEMORE** ('66 Home Econ.), 76, December 30, 2020, Shelton. **RICHARD LEE RALL** ('66 Kinesio.), 87, July 11, 2021, Miramar, Florida. **PAMELA JEAN COWIN** ('67 Speech & Hearing Sci., Pi Beta Phi), 76, June 16, 2021, Encino, California. **GEORGE WEYER KIPPER** ('67 Arch.), 73, August 25, 2016, Maple Valley. **MONT J. PETTINGILL** ('67 MAT Gen. Stu.), 83, April 21, 2018, Lindon, Utah. **MARTIN H. PLONE** ('67 DVM), 81, July 8, 2021, Livermore, California. **DAVID WALTER TREAT** ('67 Elec. Eng.), 79, August 27, 2020, Union, Missouri. **KENNETH J. VANVOORHIS** ('67 Kinesio.), 73, January 2, 2018, Salem, Oregon. **JOHN F. WELLSANDT** ('67 Busi.), 71, July 21, 2016, Ketchum, Idaho. **DONALD JAMES BURDICK** ('68 MAT Phys. Sci.), 88, February 13, 2021, Wenatchee. **DONALD NEUENSCHWANDER** ('68 English, '78 MA German), 75, July 11, 2021, Tumwater. **STUART GEORGE ROBBINS** ('68 MS Phys. Ed.), 82, June 8, 2021, Calgary, Alberta. **JOSEPH AUGUST STANOSCH** ('68 Comm.), 74, July 26, 2021, Hayden Lake, Idaho. **JAY ORVAL VIOLETTE** ('68 Bacterio.), 74, December 25, 2017, Spokane. **CAROL LYNNE WESSELIUS** ('68 Home Econ.), 71, July 13, 2017, Gleed. **KURT BIDERBOST** ('69 Hort.), 71, May 22, 2018, Monroe. **FREDERICK ROSS BYRD** ('69 EdD), 78, August 21, 2016, Burien. **VIRGINIA "GINNY" KAY HOPP** ('69 MA Human Dev.), 75, June 24, 2020, Carthage, Missouri. **ROBERT WAYNE LAYTON** ('69 Gen. Stu.), 72, July 22, 2019, Ashford, Connecticut. **TEDD RANDOLPH NEALEY** ('69 Ag. Econ., Alpha Gamma Rho), 74, July 2, 2021, LaCrosse. **LEE ELWOOD POWERS** ('69 Phys. Ed.), 83, June 5, 2021, Pullman. **CAROL ANNE SORENSON** ('69 Busi., Kappa Delta), 72, October 16, 2019, Vancouver. **CORMAC C. THOMPSON JR.** ('69 Comm.), 76, July 29, 2021, Prosser.

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TERRANCE "TERRY" JOHN BROWN ('70 Vet. Sci., '74 DVM, Alpha Gamma Rho), 73, July 4, 2021, Spokane. **JILL DIANE GREER** ('70 Ed., Alpha Delta Pi), 72, March 16, 2021, Wauna. **PAUL C. FREDERICKS** ('71 MA Econ.), 82, October 31, 2020, Walla Walla. **STANLEY C. MCKINLEY JR.** ('71 Zool.), 76, June 8, 2021, Mercer Island. **DARRELL GRAYDON RUNG** ('71 Gen Stu., Sigma Nu), 78, June 11, 2021, Mukilteo. **LESTER CECIL RYAN JR.** ('71, '74 MS Chem. Eng.), 73, December 11, 2019, Yuma, Arizona. **MONTE G. STREETER** ('71 Bacterio.), 79, February 1, 2021, Big Timber, Montana. **LEONARD TILTON** ('71 Chem. Eng.), 71, January 11, 2021, Franklin, Tennessee. **THOMAS A. ZORNES** ('71 Geol.), 78, July 27, 2021, Oakesdale. **WILLIAM ELWYN ANDERSON** ('72 Bacterio.), 70, February 2, 2021, Edmonds. **NELSON SHIH-CHUNG CHEN** ('72 MS, '77 PhD Pharm.), 74, May 21, 2016, Lake Forest, California. **CHENG NAN LIN** ('72 PhD Eng. Sci.), 76, November 15, 2016, Seattle. **CLARK D. VETTERLING** ('72 MS Comp. Sci.), 74, April 16, 2021, Arvada, Colorado. **TERI EMMONS** ('73 Comm.), 70, June 12, 2021, Port Orchard. **STEVEN EDWARD HUGHES** ('73 Pharm.), 71, June 6, 2021, Beaverton, Oregon. **HOWARD D. MARTINSON** ('73 Gen. Stu.), 72, August 6, 2021, Coeur d'Alene, Idaho. **DAVID R. BRADT** ('74 PhD Amer. Stu.), 82, January 14, 2021, Berlin, Maryland. **DENNIS PAT JOHNSTON** ('74 Poli. Sci.), 70, July 21, 2021, Olympia. **DAVID EVAN JONES** ('74 Acc.), 69, November 25, 2020, Moscow, Idaho. **DAN DAVID OLIVER** ('74 Poli. Sci.), 68, August 21, 2020, Walla Walla. **ALEXANDRA "SANDY" NEMZEK OLSON** ('74 Fine Arts), 68, January 28, 2021, Richland. **RONALD W. VAIL** ('74 Math.), 69, August 9, 2021, Spokane. **RONALD ALAN WYSASKE** ('74 Acc., '90 MBA, Delta Sigma Phi), 69, May 29, 2021, Washougal. **GARY STORM BRESCHINI** ('75 MA, '83 PhD Anthro.), 71, June 5, 2018, Salinas, California. **REGINA TAI CHUNG** ('75 Bacterio), 66, November 13, 2017, San Diego, California. **CRAIG ALLEN NEVIL** ('75 Busi.), 63, September 10, 2016, Cle Elum. **DONNA MARIE PERRAULT** ('75 Phys. Ed.), 62, May 21, 2016, Yakima. **DOROTHY MARIE WEBSTER** ('75 MEd Couns.), 74, June 14, 2021, Theodore, Alabama. **MARIAN JACKSON** ('76 Gen. Stu.), 88, May 23, 2018, Manzanita, Oregon. **MARTIN S. SHAPIRO** ('76 Gen. Stu.), 67, April 19, 2020, Yakima. **MARJORIE E. BOUTELLE** ('77 MS Ed.), 97, August 9, 2017, Hillsboro, Oregon. **ARTURO S. DE LA CRUZ** ('77 Poli. Sci.), 64, December 24, 2019, Portland, Oregon. **STEVEN J. FERNANDEZ** ('77 MS Eng.), 66, July 15, 2019, Rio Rancho, New Mexico. **JILLIAN M. JOHNSON** ('77 PhD Socio.), 77, March 8, 2017, Asheville, North Carolina. **THURMAN ANDREW NASH** ('77 Busi.), 67, January 19, 2021, Little Rock,

Arkansas. **SIDNEY NICHOLSON III** ('77 Poli. Sci., History), 65, March 21, 2018, Spokane. **DANIEL ANTHONY BROCH** ('78 Spanish), 61, January 26, 2017, Pleasanton, California. **MICHAEL JOHN POLLEY** ('78 MA, '84 PhD History), 67, July 17, 2021, Columbia, Missouri. **BRENT JOHN STUVLAND** ('78 Crim. Jus.), 64, August 3, 2019, Sebring, Florida. **CEDRIC LEE WATKINS II** ('78 Mktg.), 65, November 14, 2020, Los Angeles, California. **JAMES EDWARD CARTER** ('79 MEd.), 85, October 26, 2020, Wenatchee. **STEPHEN DOUGLAS HEARD** ('79 Ani. Sci.), 68, January 18, 2018, Perry, Florida. **DAVID DOUGLAS MYROLD** ('79 MS Soils Sci.), 65, July 15, 2021, Corvallis, Oregon.

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WARREN W. GALE ('80 Fin., Theta Chi), 60, July 23, 2018, Snohomish. **SCOTT R. JAMIESON** ('80 Pharm., Bacterio.), 66, April 6, 2021, Columbia Falls, Montana. **DOROTHY "MURIEL" RADEBAUGH** ('80 PhD Ed.), 78, May 5, 2020, Spokane. **RODNEY M. RICHARDS** ('80 Mktg.), 63, July 3, 2021, Quincy. **DWIGHT WILLIAM TUTTLE** ('80 PhD History), 78, June 24, 2021, Wichita Falls, Texas. **DOUGLAS JAMES ASHBY** ('81 Econ.), 62, December 17, 2020, Seattle. **THEODORE R. HERRERA** ('81 MS Food Sci.), 67, February 2, 2018, Chico, California. **MATTHEW T. PARTLOW** ('81 Comm.), 64, February 24, 2021, Renton. **JOSEPH WALTER GORRIE** ('82 Civ. Eng.), 65, June 19, 2019, Issaquah. **DIANE M. PARK** ('82 Crim. Jus.), 57, March 5, 2018, Bellevue. **SCOTT HUNTT WETTLAUFER** ('82 MS Botany), 66, February 7, 2021, South Lyon, Michigan. **RICHARD STEVEN DROZD** ('84 MA Hist., '88 MA For. Lang.), 68, June 17, 2020, Pullman. **LINDA LU JAMES** ('84 English), 62, July 9, 2021, Pullman. **WARD MICHAEL MCLAIN** ('84 Const. Mgmt.), 59, June 22, 2021, Tacoma. **JOHN JESS NOWOJ** ('85 Const. Mgmt.), 58, July 21, 2021, Woodinville. **WAYNE ALLEN APRILL** ('86 MS Agro.), 62, November 6, 2020, Ogden, Utah. **MICHAEL JOHN CASEY** ('86 PhD Amer. Stu.), 72, December 28, 2020, Naches. **MICHAEL S. COLLINS** ('86 Chem. Eng.), 56, February 6, 2021, Richland. **MELINDA M. DELHOMME** ('86 Nursing, Gen. Stu.), 58, July 2, 2021, Spokane. **BRENT CARL KOLLER** ('86 Ani. Sci., Alpha Gamma Rho), 56, August 18, 2020, Amarillo, Texas. **KEITH LOUIS JACKSON** ('87 Elec. Eng.), 52, August 11, 2016, Bogota, Colombia. **RICHARD W. DICKERSON** ('88 Microbiol.), 64, March 11, 2020, Bellevue. **MAGDA ELSAYED KANDIL** ('88 PhD Econ.), 62, June 17, 2020, Abu Dhabi, United Arab Emirates. **JOANNE E. NUSSER** ('88 Hotel & Rest. Admin.), 62, January 2, 2019, Perryton, Texas.

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ROBERT WOODROW LUHRING ('90 MEd), 77, July 30, 2020, Pullman. **LORA LEA NEAL** ('90 Ed.), 81, July 10, 2021, Garfield. **CHARLENE G. FOLKER** ('92 Busi.), 77, July 30, 2021, South Jordan, Utah. **ERIC LEE PARKER** ('92 Socio.), 59, July 21, 2021, Palouse. **MOLLY MITCHELL HARKER** ('93 MIT Elem. Ed.), 65, October 13, 2020, Pasco. **GAYLE MARIE NELAND** ('93 Nursing), 77, April 19, 2020, Yakima. **SUSAN MARIA VETTER** ('93 MA History), 63, May 4, 2021, Pullman. **CRAIG ALLEN SUMP** ('95 Phil., '96 Geol.), 47, October 25, 2020, Kennewick. **MIRIAM LEE (COLVARD) STRATTON** ('97 Soc. Sci.), 89, July 3, 2021, Pullman. **NELSON JOSEPH TOPPER III** ('97 Comm.), 50, June 10, 2021, Sequim.

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JASON L. WARD ('00 Soc. Sci.), 46, August 18, 2021, Vancouver.

FACULTY AND STAFF

JUNE DAUGHERTY, 64, Athletics, 2007-2018, August 2, 2021, Boise, Idaho. **ARLEN D. DAVISON**, 88, Agriculture Research Center, 1998-2000, July 12, 2021, Pullman. **CAROL E. GORDON**, 95, Physical Education, 1962-1982, May 29, 2021, Pullman. **JOHN P. HUNT**, 98, Chemistry, 1955-1990, August 29, 2021, Pullman. **WILLY IRITANI**, 98, Horticulture, 1968-1988, August 18, 2021, Seattle. **MARILYN Y. JEFFERS**, 78, Student Financial Services, 1967-2003, August 19, 2021, Pullman. **ERIC PARKER**, 59, Finance, 1990-2021, **July 21**, 2021, Palouse. **JACK D. ROGERS**, 83, Plant Pathology, 1963-2013, June 14, 2021, Pullman. **SAUL M. SPIRO**, 90, Health & Wellness, 1972-1993, Anacortes. **MIRIAM LEE STRATTON**, 89, Animal Sciences, 1983-1997, July 3, 2021, Pullman.

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BY ADRIANA JANOVICH

SOME REMNANTS ARE TINY, scarcely one by two centimeters. Even the biggest pieces aren't that big, stretching some seventeen by eight centimeters.

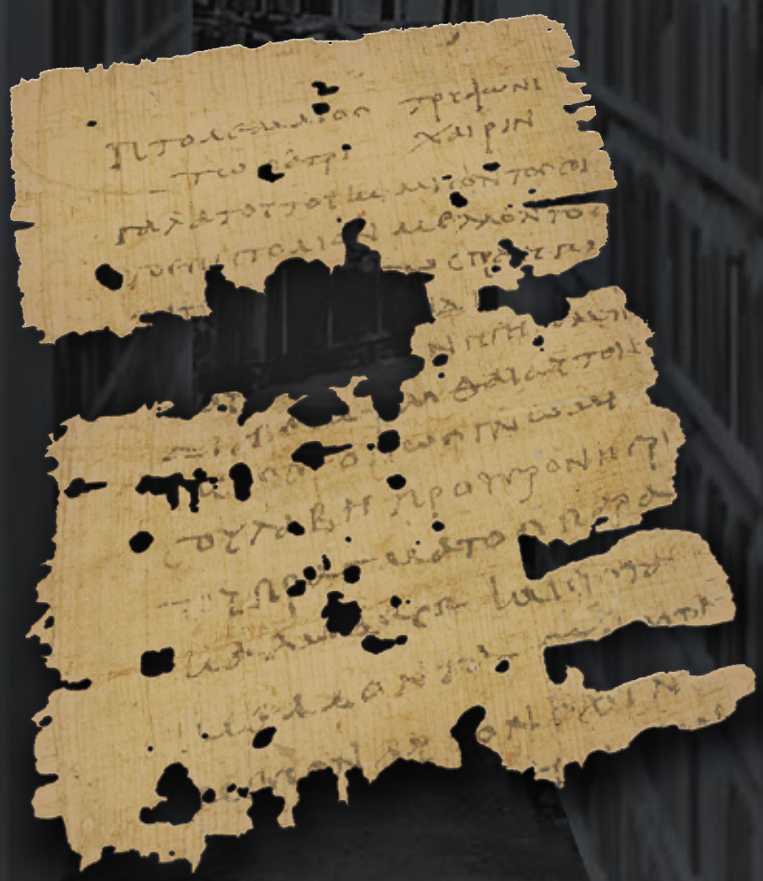
They are treasures just the same. The Papyrus Collection at Washington State University Libraries in Pullman holds 26 fragments in Arabic, Coptic, and Greek—edges fraying, fibers showing, peppered with holes—dating from 332 BCE to 600 CE or possibly later.

Two are from a certain Ptolemaios. One is among the collection's largest fragments and contains more lines of text than most of the other pieces.

"In this letter the sender … writes to his father Tryphon to inform him that a man named Galates is bringing a letter to him and that Galates then intends to meet with the *strategus*. Before the letter breaks off Ptolemaios requests that his father kindly receive Galates," explains Lincoln H. Blumell, associate professor in the department of ancient scripture at Brigham Young University, in "A Second-Century AD Letter of Introduction in the Washington State University Collection."

The *strategus* is an ancient Greek officer. Blumell theorizes "perhaps the request had something to do with Tryphon putting in a good word to the strategus on behalf of Galates. If such is the case, it could also be supposed that Tryphon is a person of some standing, since he had the ear of the strategus."

"These rare antiquities were the media for the written word of their day," says Gayle O'Hara, manuscripts librarian. "They are a vital part of the trajectory of human communication and provide rich context to our place in the world."



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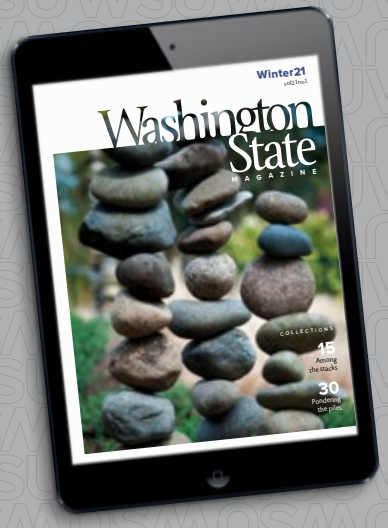

WEB EXTRAS

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