{ *Navigation tools* }

« / » COVER / BACK PAGE

ENLARGE QUADRANT

RETURN TO SPREAD VIEW

‹ / › PREVIOUS / NEXT PAGE

IN THIS ISSUE
CLICK ON PAGE # TO GO TO STORY

SCROLL PAGE
(IN ENLARGED VIEW)

WEB LINKS
URLS IN TEXT & ADS ALSO CLICKABLE

CLICK HERE TO EXIT
OR USE ctrl/cmd-Q

Winter15
vol15no1

Washington State MAGAZINE

Winter15
vol15no1

features

upfront

COVER: PHOTOILLUSTRATION FROM WASHINGTON STATE *SNOW-COVERED FRUIT* BY BEHINDTHELENS/GETTY **LEFT:** OKANOGAN ORCHARD IN WINTER BY JEREMY HIEBERT

Vintage roses. The beginning of a sports tradition that lasts to this day. **SIDELINES**

22

PHOTOILLUSTRATION FROM *ROSE BOWL* BY HARRY HOW/GETTY

Thematics

Departments

Washington State Magazine is published quarterly by Washington State University. **Editorial office:** IT Building 2013, 670 NE Wilson Road, Pullman, Washington. 509-335-2388 **Mailing address:** PO Box 641227, Pullman, WA 99164-1227. Printed in the USA.

Washington State Magazine is distributed free to alumni, friends, faculty, and staff. Others can subscribe or gift the magazine for $15 yearly (magazine.wsu.edu/subscribe).
Change of address: Biographical and Records Team, PO Box 641927, Pullman, WA 99164-1927; address.updates@wsu.edu; 800-448-2978.

FIRSTwords

Forgotten fruits. Around the beginning of the twentieth century, William Jasper Spillman, one of Washington State's first faculty members, recognized that eastern Washington farmers were committed to lucrative wheat as their primary crop. Spillman experimented by crossing wheat varieties to find traits desirable for the Inland Northwest.

Variations didn't appear in the first generation, but Spillman soon observed that the second generation of plants had combinations of the parents' traits. He then applied a mathematical formula to predict inherited traits, to the benefit of the wheat farmers.

Many of us know the basics of this research from high school science: Gregor Mendel's laws of inheritance, published in 1866. However, the practical significance of Mendel's work was not recognized until Spillman and other scientists independently found and applied those genetic principles 40 years later.

Spillman did not find something completely novel, but that does not diminish the importance of his research. By applying knowledge that had been ignored or misunderstood, thousands of farmers who used Spillman's research changed the face of the state. Over half a million acres in Washington were planted with Spillman varieties by 1911, writes historian Laurie Carlson '04 PhD.

Like Mendel's genetic studies, knowledge and other discoveries can sit in plain sight, forgotten or ignored, until a new use is found. Apple trees in old backyard orchards—some with varieties of fruit thought to have vanished—could provide new genetic material for WSU tree fruit scientists. Ancient corn and millet found by WSU archaeologists might help subsistence farmers in drought-stricken places in the world. American appetites are bringing back hard cider, the drink on which the country was founded.

Spillman was acknowledged for his work, moving on to the U.S. Department of Agriculture after just six years of successful research and service at Washington Agricultural College. The profound importance of Mendel's studies of pea plants, on the other hand, didn't receive recognition until Spillman and European scientists verified the findings decades after Mendel documented them. Perhaps other research, medicinal plants in forests, or even practical skills of our ancestors, await rediscovery, when they can be applied to our modern problems.

EDITOR: Larry Clark '94

ASSOCIATE EDITOR: David Wasson **SCIENCE WRITER:** Rebecca E. Phillips '76, '81 DVM **ART DIRECTOR:** John W. Paxson
INTERN: Ainslie Kellas

CONTRIBUTING WRITERS: Tom Benjey, Will Ferguson, Mary Hawkins, Jacob Jones '07, Sylvia Kantor, Ainslie Kellas, Jim Kershner, Jim Rockey '63, Jonathan Shipley '95, Eric Sorensen, Tim Steury, Dr. Universe
PHOTOGRAPHERS: E.J. Armstrong, Tony Bacewicz, Matt Hagen, Shelly Hanks, Jeremy Hiebert, Harry How, Robert Hubner, Rina Jordan, Shannon Love, Curtis Smith, Zach Mazur '06
ILLUSTRATOR: Rob McClurkan

WSU INTERIM PRESIDENT: Daniel J. Bernardo '85 PhD

ADVERTISING: Contact Advertising Manager Jeff Koch at 509-335-1882 or jeff.koch@wsu.edu.
Advertising guide is online at **magazine.wsu.edu/advertising**.

Washington State Magazine *is pleased to acknowledge the generous support of alumni and friends of WSU, including a major gift from Phillip M. '40 and June Lighty.*

Washington State Magazine is printed at a facility and on paper that is FSC® (Forest Stewardship Council®) certified, using soy-blended inks on **100 percent post-consumer-waste recycled paper**. It is processed chlorine free. The paper is milled at a facility using 93% recovered biogas (remainder hydroelectricity)—using approximately 60% less water than the North American average. It has the lowest carbon footprint per metric ton in North America (no offsets used), and is UL certified for reduced environmental impact.

100% post-consumer
FSC RECYCLED Paper FSC® C006571
ECOLOGO
PERMANENT
BIOGAS ENERGY
SOY INK

TALKback

Refreshing

Thank you for continuing to publish *Washington State Magazine* at such a high level. I read the Fall 2015 issue from cover to cover and rate it as outstanding in every respect. The redesign of the magazine with sustainability in mind is commendable. Mostly, however, the content was what gave me the feeling that I am still connected to WSU almost 50 years after I graduated.

As it happens, there were also multiple articles that connected with me personally. I took an ecology course from Rexford Daubenmire and continued to refer to his classic texts on autecology and synecology during my own 40-year teaching career in plant science. Although I did not meet Lorenzo Pablo Martinez, the knowledge that he and I were on campus at the same time is special. John Olerud's recollections of Bobo Brayton brought back my own memories of baseball games at Bailey Field where I watched Olerud play and Brayton coach. And I still recall reading about Dan Doornink's contributions to Cougar football in the 1970s. Even Dr. Universe's piece on what makes a great chocolate chip cookie took me back to my own visits as an undergraduate in agronomy to the Western Wheat Quality Laboratory and to my own interactions with legendary wheat breeder Orville Vogel.

I look forward to many more fine issues of *Washington State Magazine*.

JOHN PHILLIPS '67
San Luis Obispo, California

Props on moving to recycled paper. Appreciate it.

ROGER CRAWFORD '86
Pullman

I love the new art direction of the pub. It feels much fresher and younger than it did a couple of years ago.

RICHARD BLAKLEY '76
Lake Union

No tea with Jackie

The article about the teas was very interesting, but let me put one rumor to rest.

Jackie Kennedy did not come to Pullman with her husband in 1960. I know because my father, Verner L. Johnson, the Whitman County Democratic Party chairman at the time, was the host for Kennedy's visit. He met JFK at the Pullman-Moscow airport, and then escorted him to Bryan Hall for a talk to an overflow crowd, which I attended while a Pullman High School freshman.

Politics was a hobby for my dad. His full-time job was associate professor in the WSU College of Veterinary Medicine. He died on a Saturday morning in December 1964 in Pullman.

OWEN V. JOHNSON '68
Associate professor emeritus, IU Journalism
Indiana University

Studying with Daubenmire

I enjoyed the article "Traveling ecologist Rexford F. Daubenmire" by Adam M. Sowards. I was a graduate student, botany major, at WSU from 1953 to 1957. The very best class I took there (or anywhere else, for that matter) was Dr. Daubenmire's class, "Field Ecology." Besides classroom activities, he led us on field trips many weekends to various ecological areas in the Pacific Northwest. After each trip, he asked us to write down what we had learned. I believe his semester grades were based mostly on what we had written. I learned more about plant ecology from this one course than from all the other botanical classes I had taken, both as an undergrad and in graduate school.

F. DOUGLAS WILSON
Tempe, Arizona

We'd love to hear from you! Send us your letters or class notes, sign up for our monthly email newsletter, and connect with us on social media: magazine.wsu.edu/connect

UPfront

BY TIM STEURY

Forgotten fruit

The 'lost' apples of the Palouse entice a detective to sleuth for their rediscovery

ZACH MAZUR

Dave Benscoter's obsession began innocently—as a favor to a neighbor, Elinor, a retired missionary. Resettled near Chattaroy, and now beset with complications from childhood polio, she asked Benscoter '78 to harvest some apples for her from the old orchard above her house.

"Every apple was too high for me to pick," he says of his initial effort.

"One of the trees was 40 to 50 feet high. The trunk was split, and I couldn't get my arms around either trunk."

Determined to deliver Elinor's apples at some point, he started pruning to encourage new growth lower down. Meanwhile, the old orchard had infected Benscoter with that most persistent of apple bugs—the need to know the names of apple varieties. And who planted them.

Fortunately, Benscoter had the chops to crack the mystery. Following a career with the FBI and the IRS Criminal Division, those mystery apples whetted his investigative skills.

He started modestly, with a Google search. What first popped up was Arcadia Orchard, the "largest orchard in the world," located in nearby Deer Park.

Arcadia founders bought thousands of acres of land in the early 1900s and marketed orchard plots nationwide. Promotional materials claimed that by 1916, 7,000 acres were planted to orchard.

Arcadia was only part of the area's orchards. In his 1905 Washington Agricultural Experiment Station Bulletin, "The Wormy Apple," A.L. Melander introduces his strategy against the codling moth with his observation on the regional industry: "It is asserted that 1,500 carloads of apples, valued at $600,000, were carried last year from the Inland Empire."

Historian John Fahey writes that by 1914, Whitman County had nearly 240,000 apple trees. Spokane and Stevens counties had nearly a million. Whitman County had three commercial nurseries.

Benscoter was rediscovering what has been repeatedly forgotten—that before it finally coalesced around Wenatchee and Yakima, the apple industry further east was enormous and diverse.

forgotten apples watercolors: magazine.wsu.edu/gallery

DAVE BENSCOTER. BY ZACH MAZUR

Both orchards and nurseries were charmed by the apple's diversity. The Hanford Nursery in Oakesdale listed 64 varieties on its advertising flyer. The Inland Empire was a true garden of apple diversity and bounty.

But soon, it all started to disappear. Ultimately, the Inland Empire could not compete with the irrigated orchards to the west.

Although the large orchards are long gone, remnants, and scores of homestead orchards, are scattered throughout the area.

Early in his investigation, Benscoter made some key discoveries. One was that every year the *Colfax Gazette* would publish a list of the prizewinning apples at the county fair. From 1900 to 1910, over 110 varieties were entered. Though many of the names are familiar, others had disappeared, and Benscoter was determined to find them.

Benscoter tapped the efforts of other apple detectives across the country. He studied Lee Calhoun's *Old Southern Apples*, a large part of which is devoted to forgotten apples.

Benscoter combed Calhoun's descriptions and noted a number of "extinct" apples that appeared in the *Gazette*. He narrowed his investigation: Arkansas Beauty, Babbitt, Cornel's Fancy, Dickinson, Isham Sweet, Lankford, Nero, Pyles Red Winter, Scarlett Cranberry, Walbridge, and Whitman.

On an August morning, Benscoter and I plod down a long draw on Steptoe Butte through dry grass and wild roses toward a dense grove that someone told him was an orchard.

Fruit is sparse this year, following last year's bumper crop, frosts, and intense heat early in the summer. Even so, fruit speckles many of the trees, beckoning explorers in search of lost tastes.

Indeed, when we reach the grove, it is filled with apple trees, maybe 200 of several, as yet unidentified, varieties.

But why seek out these forgotten apples?

Some of it is simply wonder at the diversity of apples. Apple detective Dan Bussey estimates 17,000 named varieties in the United States since Europeans first arrived.

Rediscovered apples could also produce benefits such as genes for disease resistance or flavor. Indeed, Amit Dhingra's WSU genome lab is intrigued by Benscoter's efforts and is nurturing tissue culture of one of his "extinct" discoveries, the Nero.

One might hope to restore diversity to a market defined first by the Red Delicious and now by the Honeycrisp-type apple, all mouthfeel and initial burst of sweet-tart, delightful indeed, but with none of many older apples' subtlety and sophisticated complexity.

But none of this seems to be Benscoter's primary motivation, which has more to do with his professional drive to identify all the elements of an investigation, to find what was lost.

It is the satisfaction of matching unidentified apples to the USDA's stunning collection of apple watercolors, of interpreting plat maps, connecting family histories, and recovering human drama—of Robert and "Mecie" Burns, for example, who planted exuberantly on Steptoe, but misjudged their apples' marketability, thus losing their farm in 1899.

"I got to … walk in the orchard," says Benscoter, "and see and taste the fruit of the trees Robert Burns planted."

BY WILL FERGUSON

Ancients among us

SAFEGUARDING OUR FUTURE

The arid soil on the mile-high Hopi Mesa trickles through clenched fingers like sand. If you visit this isolated corner of northeastern Arizona, you might find it hard to believe it is home to one of the oldest civilizations in the Americas.

For more than 2,000 years, the Hopi and their ancestors have carved a living out of the rough terrain. They survived drought, famine, war, and a fluctuating climate that drove many of their ancient southwestern neighbors elsewhere in search of more fertile lands.

One key to the Hopi's longevity is a variety of drought-tolerant corn they have adapted over the centuries to prosper in the poor soil. That corn and other traditional crops like Tibetan millet could be crucial for survival in places around the world impacted by global climate change.

Washington State University postdoctoral anthropologist Kyle Bocinsky thinks those crops could help Ethiopian farmers survive a warmer, drier future. He is working with WSU archaeologist Jade d'Alpoim Guedes to scour the globe for little-used or in some cases completely forgotten crops that were bred to survive warmer weather, drought, and disease. With the help of sophisticated climate and crop-niche modeling, they are able to determine how these crops grew well in the past and where they might be useful today.

"For millennia, the Hopi cultivated their corn to grow in a high-elevation, low-rainfall terrain. It is more adapted to these types of areas than many genetically modified strains," says Bocinsky. "The thought struck me that if this ancestral corn variety has grown so well on the Hopi Mesa, what other places in the world would it prosper?"

In Ethiopia, subsistence farmers have been growing *ensete ventricosum*, the Ethiopian banana, for centuries. A staple food for over 12 million people in the southern highlands of the country, the crops have recently been afflicted by emerging pests, disease, and blasts of intense heat. Many Ethiopian farmers switched to growing varieties of corn cultivated in the midwestern United States. But Iowa corn is not suited to the drought-prone high elevations.

Bocinsky and Guedes decided to see if their modeling could help identify a better alternative.

"Our models showed Hopi corn would grow extremely well in the Ethiopian highlands," says Bocinsky. "The real benefit is that it is rain-fed and can grow in natural conditions without expensive irrigation, fertilizer, and genetic modifications that the vast majority of these farmers can't afford."

In the United States and other wealthy nations, farmers have access to genetically tailored crops, pesticides, and advanced irrigation systems to help ensure their wheat or corn harvest during a bad growing season. Because of this, the variety of crops grown now is a lot smaller than it once was. For most of early history, humans relied on a wide variety of grains to feed themselves. If a millet crop was struck by blight, farmers would still have three or four other options to fall back on. Today, the vast majority of commercial agricultural production is focused on five high-yield crops—wheat, sugarcane, corn, barley, and rice.

In areas where farmers don't have access to modern technology, growing one or two strains of the "big five crops" can be incredibly risky for subsistence farmers who depend on their harvest for food.

"If you are relying on only a few varieties of crops, you have very little genetic diversity. If you are unlucky and one year the type of fungus to which your crop has no resistance enters your farm, your probability of losing your entire harvest is a lot higher," says Guedes. "If you are a subsistence farmer in a marginal area, who relies on his harvest to feed the family, it can be catastrophic."

One such area is the Tibetan Plateau where temperatures have been creeping up to six degrees Celsius higher than they were 200 years ago. Rapid temperature increase is making it difficult for the region's inhabitants to carry out a key facet of their traditional lifestyle: Yak pastoralism.

Two possible alternatives are foxtail and proso millet which farmers stopped cultivating on the Tibetan Plateau around 4,000 years ago as global temperatures grew colder.

"These millets are on the verge of becoming forgotten crops," says Guedes. "But due to their heat tolerance and high nutritional value, and very low rainfall requirements, they may once again be useful resources for a warmer future."

ANCIENT GRAINS FREEKEH, AMARANTH, BARLEY, QUINOA, BULGUR, MILLET, AND FARRO (COURTESY PIONEER PRESS)

BY REBECCA PHILLIPS

Emerging disease: A case study

HUNDREDS OF PEOPLE, CATS, DOGS, PORPOISES, BIRDS, AND OTHER ANIMALS ON VANCOUVER ISLAND, BRITISH COLUMBIA, FELL VICTIM to what was diagnosed as a rare fungal infection called *Cryptococcus gattii*. Though physicians and veterinarians were familiar with the more common *Cryptococcus neoformans*, *C. gattii* was considered a tropical disease found only in places like Australia.

1999

Upon deeper investigation, B.C. health officials were alarmed to discover that *C. gattii* had established itself in the native trees and soil—and was especially prevalent in decaying wood. Epidemiologists speculate that climate change and warmer summers helped create favorable habitat for the organism.

While *C. neoformans* primarily attacks those with weakened immunity, *C. gattii* is more virulent, infecting both healthy and sick alike. Worse yet, the yeast-like microorganism is often resistant to standard fungal medications.

Kulshan Veterinary Hospital, Lynden, Washington It had been a routine day for veterinarian Dorrie Jordan when she was presented with a sick cat, Boots. Jordan's exam revealed a large tumor in Boots' abdomen. With a poor prognosis, the cat was euthanized and the tumor, which Jordan described as "a weird yellow color," was sent to WADDL for expert diagnosis.

NOVEMBER 2004

Not long after, another cat, Nutmeg, arrived at the clinic with a swollen neck. Jordan removed a small sample. Her technician examined it under a microscope and reported "a strange organism." Jordan also sent that biopsy to WADDL.

WADDL, Pullman, Washington When WADDL executive director Timothy Baszler and his colleagues received Jordan's biopsy samples, the lead pathologist ordered a typical histological exam of the tissue. The microscope revealed severe inflammation and budding yeasts. The verdict: *Cryptococcus neoformans* species. They informed Jordan, who began treating Nutmeg with an antifungal drug.

WADDL, Pullman, Washington Jordan's preserved samples were transferred to the molecular diagnostic lab managed by Daniel Bradway. Using a pioneering technique, Bradway extracted DNA from the fungus and sequenced its genome.

JANUARY 2005

With great surprise, he found it was *Cryptococcus neoformans* subspecies *gattii VGII*—the same organism responsible for the Vancouver Island outbreak. It was the "index case," the first occurrence of the disease in the United States.

WADDL Emerging Infections Surveillance Team Veterinarian Margaret Davis DVM '85 scrambled to learn everything she could about *C. gattii*.

MARCH 2005

She coordinated with the Washington State Department of Health (DOH) to alert veterinarians that *C. gattii* is contracted by inhaling fungal spores and usually causes neurological, skin, or respiratory symptoms. Vehicles, camping equipment, and birds are possible modes of spreading the infection. Animals, especially curious cats, are often the first to pick up a new disease.

Washington State DOH, Olympia, Washington Public health veterinarian Ron Wohrle DVM '77 had followed the emergence of *C. gattii* in British Columbia. As it spread to Washington, he and WADDL developed a surveillance system for tracking the disease. The team mapped each new case of the infection,

MAY 2007

carefully noting range and habitat. They also conducted an extensive environmental search for the fungus, sampling air, trees, and soil. No areas of permanent colonization were detected. The health department added *C. gattii* to the state's list of reportable diseases for veterinarians and human health care providers.

Centers for Disease Control and Prevention, Atlanta, Georgia Wohrle received funding to establish a national surveillance program

2008

with the Centers for Disease Control Mycotic Diseases Branch. CDC was notified of all *C. gattii* cases identified by WADDL.

Oak Creek Wildlife Area, Yakima, Washington Washington Department of Fish and Wildlife veterinarian Kristen Mansfield received an unusual report of a calf elk seen stumbling at the Yakima winter feeding grounds. In samples sent to WADDL, a pathologist found yellow masses in the brain and diagnosed fungal meningitis caused by a *Cryptococcus* species.

MARCH 2011

Samples were sent to the molecular diagnostic lab and also to Wohrle who routed them to the CDC. Both labs confirmed *C. gattii VGII*. It was the first documented case in eastern Washington.

Valley Veterinary Clinic, Twisp, Washington Veterinarian Teresa DeWeert battled a stubborn mouth infection in a cat, Biskit. When antibiotics didn't help, DeWeert sent a biopsy to WADDL. The diagnosis came back *C. gattii* and the pathologist advised caution for all those in contact with and sharing the environment with Biskit.

MARCH 2013

The key word is environment as Baszler says it is very unlikely that humans can "catch" *C. gattii* from pets. Rather, infected cats and other animals act like sentinels warning their owners that the fungus could be in their yard.

DeWeert later discovered two more infected cats—all three cases falling far outside the predicted niche.

STATE OF THE OUTBREAK

Since 2008, 30 people and 59 animals have been diagnosed with *C. gattii* in Washington, with many more cases likely unreported, says Wohrle. Is the fungus spreading or has it been here all along? These and other questions remain.

Since first isolating *C. gattii* in 2005, WADDL has refined and expanded the capabilities of the molecular diagnostic lab.

NOVEMBER 2015

Today, pathologists from across the nation routinely send samples to WSU for DNA sequencing, not only to identify fungus, but also thousands of other organisms including bacteria, viruses, protozoa, and chlamydia.

Baszler says WADDL staff members pay close attention to the details of every sample they receive, to help protect the public.

"You never know what kind of problem is going to come through the door," he says. "Something as simple as a bump on a cat's head might turn out to be a public health threat."

WADDL

Washington Animal Disease Diagnostic Laboratory (WSU College of Veterinary Medicine)

WADDL offers extensive diagnostic services for protecting the health of livestock, pets, poultry, and fish. The laboratory also safeguards human health through surveillance of animal-borne diseases like West Nile virus, avian influenza, and plague. WADDL handles requests from all over the Pacific Northwest, Alaska, and Hawaii—providing state-of-the-art identification of viral, bacterial, and fungal diseases, parasites, poisonings, cancer, and emerging public health concerns.

Postscript

All cats, except Boots, recovered completely. Pet names have been changed for owner privacy.

OURstory

Black Spokane

BY JIM KERSHNER

Dwayne Mack was, to say the least, skeptical when his faculty mentor at Washington State University, LeRoy Ashby, suggested he write his doctoral dissertation on Spokane's black history.

"I thought to myself, 'Wow, every time we pay a visit to Spokane, we rarely even *see* black people,'" recalls Mack, who was brought up in Brooklyn and received his master's degree from a historically black college, North Carolina Central University. "There couldn't be enough black people to do a study."

Then he started researching Spokane's African-American history and realized he had "struck gold." Spokane's African-American community was small—historically averaging between 1 and 2 percent of Spokane's population—but it had a rich and compelling story, studded with strong personalities "who were very potent in their approach to civil rights and justice." The result was a dissertation that earned Mack his doctorate in history at WSU in 2002 and which eventually formed the basis for Mack's 2014 book, *Black Spokane: The Civil Rights Struggle in the Inland Northwest* (University of Oklahoma Press), which immediately became the definitive work on the African-American history of the region.

"Most people say there's strength in numbers, but the black population was so small that this small band of black folk, they stuck together, and they were committed to a cause, along with their white allies," says Mack, who is now the Carter G. Woodson Chair in African-American History at Berea College in Kentucky.

Their story stretches back to Spokane's roots. In the 1880s and 1890s, black people were migrating out of the South and spreading across the United States. Hundreds arrived in eastern Washington to work on the railroads, to work in the mines, to work as stonemasons, and, in some cases, to become entrepreneurs. Peter Barrow Sr. arrived in 1889 from Mississippi, established an irrigated apple orchard north of Spokane, and hired more than 100 African-American workers. He then

FROM LEFT: DWAYNE MACK (COURTESY BEREA COLLEGE); CARL MAXEY (COURTESY GONZAGA UNIVERSITY); JAMES AND ELEANOR CHASE (*THE SPOKESMAN-REVIEW*)

helped establish Calvary Baptist Church, the city's first African-American Baptist church, and became its pastor. In 1888, Emmett Hercules Holmes brought his family to Spokane from Mississippi and found work as a railroad porter, bellhop, and butler—and eventually became Spokane County's deputy treasurer. In 1890, he established the Bethel African Methodist Episcopal Church. These two churches would become the twin centers of Spokane's small black community, and their pastors would become the community's earliest activists. When a business put up a "No Colored Patronage Solicited" sign, the pastors were the ones who would pay a visit and respectfully request its removal. Sometimes they got results, sometimes they didn't.

Spokane had a West Coast form of Jim Crow, but it wasn't as blatant as Jim Crow in the South. "Here, you didn't have lynchings or people being chased out by the Klan," says Mack. "But you did have store owners who put signs on the windows and shop-owners who wouldn't let them try on clothes, and barbers who would not cut black hair." The black community's options were especially limited in labor and housing. "For the most part, blacks found menial labor positions. You had black entrepreneurs, a handful, but for the most part, blacks worked as domestics and chauffeurs and butlers."

No true "black ghetto" emerged in Spokane as it did in cities such as Los Angeles and Oakland. Black residents were restricted by covenant and custom from the South Hill, the most posh part of Spokane, yet for the most part, black residents were scattered around the city. "Because they were no real threat, blacks were able to survive and coexist with white people," says Mack.

In 1919, 81 petitioners submitted an application to create one of the community's enduring institutions, the Spokane chapter of the National Association for the Advancement of Colored People (NAACP). Nearly a century later, Jon Stewart of *The Daily Show* earned a big laugh during the 2015 Rachel Dolezal controversy by saying with feigned astonishment, "Whaaaat? There's an NAACP chapter—*in Spokane*?"

The answer has been "yes" for the last 96 years. In fact, the Spokane NAACP's influence was uncommonly large, at least geographically, since it was the only chapter in a vast area. "It not only mediated and protected the rights of blacks in Spokane, but it also protected the rights of black people throughout the Inland Northwest region, which was socially and culturally isolated," says Mack. "So if something was happening at a base in Walla Walla in 1945 with black soldiers who were being discriminated against, the NAACP in Spokane would come to their rescue. ... East of the Cascade Mountains, Spokane was the *only* organization you could trust to come to your assistance."

Spokane's black population ticked upward in the decades following World War II and a new set of community leaders emerged. These leaders form the compelling core of Spokane's black history. Here's a look at a few of them:

Carl Maxey

Brought up in a Spokane orphanage, Maxey became an NCAA boxing champion at Gonzaga University and the first African American to pass the bar exam in eastern Washington in 1951. He launched a controversial career as one of Washington's most effective civil rights attorneys and civic gadflies. Maxey confronted restaurants, hotels, social clubs, and real estate organizations throughout the state and pushed them to end blatant discrimination. He spent the violent Freedom Summer of 1964 in Mississippi as a volunteer lawyer. He also made national news in many high-profile cases, including one known as the "Haircut Uproar," in which a Gonzaga University student from Liberia was refused service at a barbershop. "The eyes of the world are on Spokane and a small barbershop," thundered Maxey. "But the issue is not small." He won that case, and many other civil rights cases. Mack calls Maxey "the Inland Northwest's version of Martin Luther King Jr.—a true advocate for civil rights."

James and Eleanor Chase

When Spokane elected James Chase as its mayor in 1981, his supporters called it "a night of history." Indeed it was, says Mack. "Nine years before Norm Rice was elected mayor of Seattle, you had James Chase, with just a high school diploma, elected mayor of this conservative city. It was a remarkable and amazing accomplishment." *Ebony* magazine came to Spokane to do a feature story, in which it noted "that there is a black man who became mayor of a sizable city with little fanfare, no rancor." Chase arrived in Spokane on a boxcar in 1934, built up an auto repair business, and became the president of the Spokane NAACP. He and his wife Eleanor Chase became deeply involved in civic affairs. After his landslide mayoral victory, he proved to be an exceptionally popular mayor and would have easily been reelected to a second term if he hadn't dropped out because of terminal illness. Mack calls Chase's tenure a "watershed moment in the history of black Spokane."

James and Lydia Sims

James Sims arrived from New Jersey in 1955 and became pastor of New Hope Baptist Church. He and his wife Lydia soon became two of Spokane's most influential advocates for civil rights. James Sims was elected the Spokane NAACP president in 1956 and Lydia Sims became the first woman to be elected as the chapter's president in 1976. She had already served as the city's first affirmative

BELOW: JAMES AND LYDIA SIMS (COURTESY HISTORYLINK.ORG AND NEW HOPE CHURCH, RESPECTIVELY)

action head, and she brought with her, in Mack's words, "a sense of tempered militancy." Among her accomplishments was an annual NAACP job fair, in which she tried to improve black employment opportunities. It was apparent, she said, "that change will not come from the goodness of people's hearts," but from moral and legal pressure on employers.

James and Lydia Sims also contributed to the state's political future in a more personal way. Their Spokane-born son, Ron Sims, was twice elected county executive of the state's largest county, King County. In 2009, President Barack Obama appointed Ron Sims deputy secretary of the U.S. Department of Housing and Urban Development, where he served until 2011. He currently sits on the WSU Board of Regents.

Mack's six years as a WSU graduate student prepared him well to tell this story. "Even though I was the only African-American Ph.D. student at the time, the campus community welcomed my family with open arms. I had great advisors, great role models, who took me in and treated me with great respect," says Mack. "These older men, older white men, just embraced us. ... It was a wonderful experience and I wouldn't change it for the world."

Mack is doing his best to pass it on. He has developed an expertise in academic mentoring and he recently published two books, *Beginning a Career in Academia: A Guide for Graduate Students of Color* (Routledge) and *Mentoring Faculty of Color* (McFarland).

His time in Pullman also proved invaluable in another way. Pullman was considerably less diverse than his hometown of Brooklyn, and looking back, he says, Pullman prepared him to work in a community like Spokane, with a much larger white population. As Mack soon discovered, Spokane's history came in deeper shades. ✳

BY JACOB JONES '07

excerpts from Alex's new book: magazine.wsu.edu/extra/newkuo

Triple Shanghai

Alex Kuo's writing confronts censorship both explicit and hidden

IN A PIVOTAL MOMENT from Alex Kuo's new novel *shanghai.shanghai.shanghai*, several Chinese card players watch a team of Americans publicly disavow George W. Bush's administration in front of an international audience. Struck by the brazen criticism, a pickpocket known as Bogota Man questions how such anti-government opinions could ever be voiced openly.

He contends that political dissent in China can mean life in solitary confinement. A friend quickly responds that in America the defiant act of protest is more likely to be completely ignored.

"I'm not sure which is worse," she says.

Kuo, 78, spent 33 years as a professor and writer at Washington State University, and has long championed the political influence of literature. Born in Boston and raised in China during World War II, Kuo's writing often explores the entangled roles of citizens, states, money, and memory. His 2002 *Lipstick and Other Stories* won the American Book Award for fiction.

WSU EMERITUS PROFESSOR AND WRITER ALEX KUO, COURTESY ALEX KUO

Throughout his career with WSU's English and Comparative Ethnic Studies departments, Kuo traveled back to China to teach each year. He retired from WSU in 2012, but still holds an appointment at the Beijing Forestry University's School of Foreign Languages.

Kuo's novel, which he refers to as "Triple Shanghai," is a brief, but complex, book that follows the life of a newspaper culture writer named Ge as he confronts many of the eccentricities and hypocrisies of Chinese society. Ge seemingly slips between the 1939 of occupied China, the 1989 of the Tiananmen Square protests, and modern China.

Scrambling historical touchstones, often within the same sentence, creates a dreamlike fluidity in many of the early chapters. Inspired by Faulkner, Kuo likens the book's time structure to an "anti-chronology" or Möbius loop.

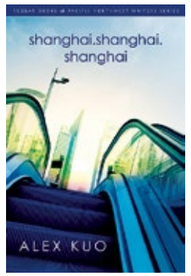
"We think back and forth," Kuo explains. "Time is totally irrelevant."

Kuo sets history against revision, tyranny against absurdity, and culture against commercialism. Artists paint propaganda. Journalists print lies. Mao Zedong runs up against Clint Eastwood, Beethoven, and Quentin Tarantino.

The book often uses layers of multicolored fonts and sidebars to help the reader navigate historical and cultural context. Several scenes amid a controversial bridge tournament include diagrams of the cards at play. Kuo admits it can be difficult to make such dynamic concepts approachable for everyone.

"A novel about an unusual subject that is accessible to [the average reader] is probably not a very good novel," he says. "The unique and the different should be challenging, infuriating at times, and requires work."

But that is the power of literature—the ability to provoke and shape critical thought, the capacity to change minds, incite revolutions. Would you rather have your writing punished or ignored? While *shanghai.shanghai.shanghai* draws much of its drama from the heavy hand of state censorship, Kuo argues America currently faces an equally sinister threat.



"We have censorship in this country, but it's self-imposed," he says. "The worst kind of censorship is nobody reads. That's self-censorship."

Kuo will launch the book tour for "Triple Shanghai" with a public reading at 5:30 p.m. on November 16 in Goertzen Hall on WSU's Pullman campus. He also has a new poetry collection in Chinese and English, Meeting Words at the Gate, *published this fall.*

BY REBECCA PHILLIPS

Eureka! on the horizon

The silence is unnerving. Not another car in sight as I drive through the desolate Hanford nuclear area. The road unfolds in an eerie lacework of tarred concrete until finally I see it gleaming in the distance—the Laser Interferometer Gravitational Wave Observatory (LIGO.)

LIGO is home to Earth's most sensitive optical instrument, uniquely designed to intercept gravity waves. These elusive cosmic waves—or ripples in space-time—are so miniscule that Einstein thought them impossible to view and measure. And so far, he's been right. Yet if detected, gravitational waves could transform our fundamental understanding of the universe. They also, incidentally, play a starring role in the hit film *Interstellar*—a science fiction thriller replete with black holes, time travel, and ultimately, the quest to harness gravity. A bit of that movie magic imbues LIGO, which was co-founded in 1983 by theoretical physicist Kip Thorne. Thorne wrote the initial story concept for *Interstellar* and was also an executive producer on the film. At LIGO, Thorne and other descendants of the Einstein legacy are pushing science to extreme limits. Here astrophysicists fine-tune the newly updated instrument for its maiden run, confident of spotting gravity waves 250 million light years into their galactic journey.

I pull into the LIGO parking lot and step out into bleaching sunlight. To the west, I catch a glimpse of the L-shaped interferometer whose concrete arms stretch two and a half miles into the distance. Fred Raab ushers me into the air-conditioned main office.

Raab is head of LIGO Hanford and an adjunct professor in astronomy and physics at Washington State University. He is also a member of the WSU Relativity Group led by physics professor Sukanta Bose.

Thorne personally recruited Raab in 1988 to help build LIGO, which is funded by the National Science Foundation and operated by the California Institute of Technology and Massachusetts Institute of Technology. Raab was handed the reins in 1994.

"I've spent the last 25 years focused on designing and inventing technologies to get the first gravity wave detection," says Raab. "I knew it would take a long time."

The concept of gravitational waves originated with Einstein's general theory of relativity in 1915. Among other things, his hypothesis states that space and time are linked, creating a type of "fabric" comprising our universe.

Like bowling balls on a trampoline, the sun and other massive celestial bodies stretch this space-time fabric. As smaller objects pass by, they follow the curving fabric downward in what we know as gravity. Planets, moons, and asteroids become trapped in these gravitational channels and orbit like little balls in a roulette wheel.

A catastrophic event can also shake space-time fabric into generating "gravity waves." The violent forces of a supernova or the formation of a black hole can flip the fabric like a sheet causing waves to flow out in ripples. These waves then travel the universe at lightspeed for eons before gradually losing intensity.

In 2000, Initial LIGO was launched to try to observe these ripples. Although it failed to detect a gravitational wave, Raab says they have since updated and improved the instrument's sensitivity and call it Advanced LIGO. The inaugural run began with high hopes in September.

Thorne had intended that Initial LIGO detect the gravitational anomalies prompting *Interstellar*'s adventures. Director Christopher Nolan eventually cut the Hanford scene but still permitted gravity, with its ability to travel back and forth in time, to claim the spotlight.

Raab leads me to a bridge overlooking LIGO's long, pipe-like arms. He points out the corner station, which houses the interferometer.

During the instrument's operation, a laser beam is split, directing light down giant vacuum tubes in each arm. The light is reflected back to a detector by polished mirrors delicately suspended on wires. Since the two arms are identical in length, light naturally cancels out at the detector.

Should a gravity wave pass by, relativity says it will cause space to stretch and squeeze making one arm appear momentarily longer and the other shorter. Then the pattern reverses. In this case, laser light reaches the detector, signaling a possible hit.

A duplicate LIGO observatory is also listening in rural Louisiana. If both instruments detect the same signal, it confirms the discovery.

"These are the most radically sensitive machines in the world," says Raab. "They are at our limit of knowledge and extremely complex. We are looking for a circle of space with a two and a half mile radius to go out of round about one-billionth the size of an atom."

"We are controlling noise—or vibration—to a ridiculous precision," he says. "Like a large orchestra, there are 350 high-performance servo-control systems all working together in perfect harmony."

Although LIGO observatories are built in remote rural areas, vibrations from volcanoes, earthquakes, wind, traffic, logging, and even ocean waves thousands of miles away can skew the instrument's readings.

Just walking near the instrument can be disturbing. Vehicles are therefore banned. Bright yellow delivery tricycles shuttle supplies into the corner station. Garbage is dutifully pedaled back out.

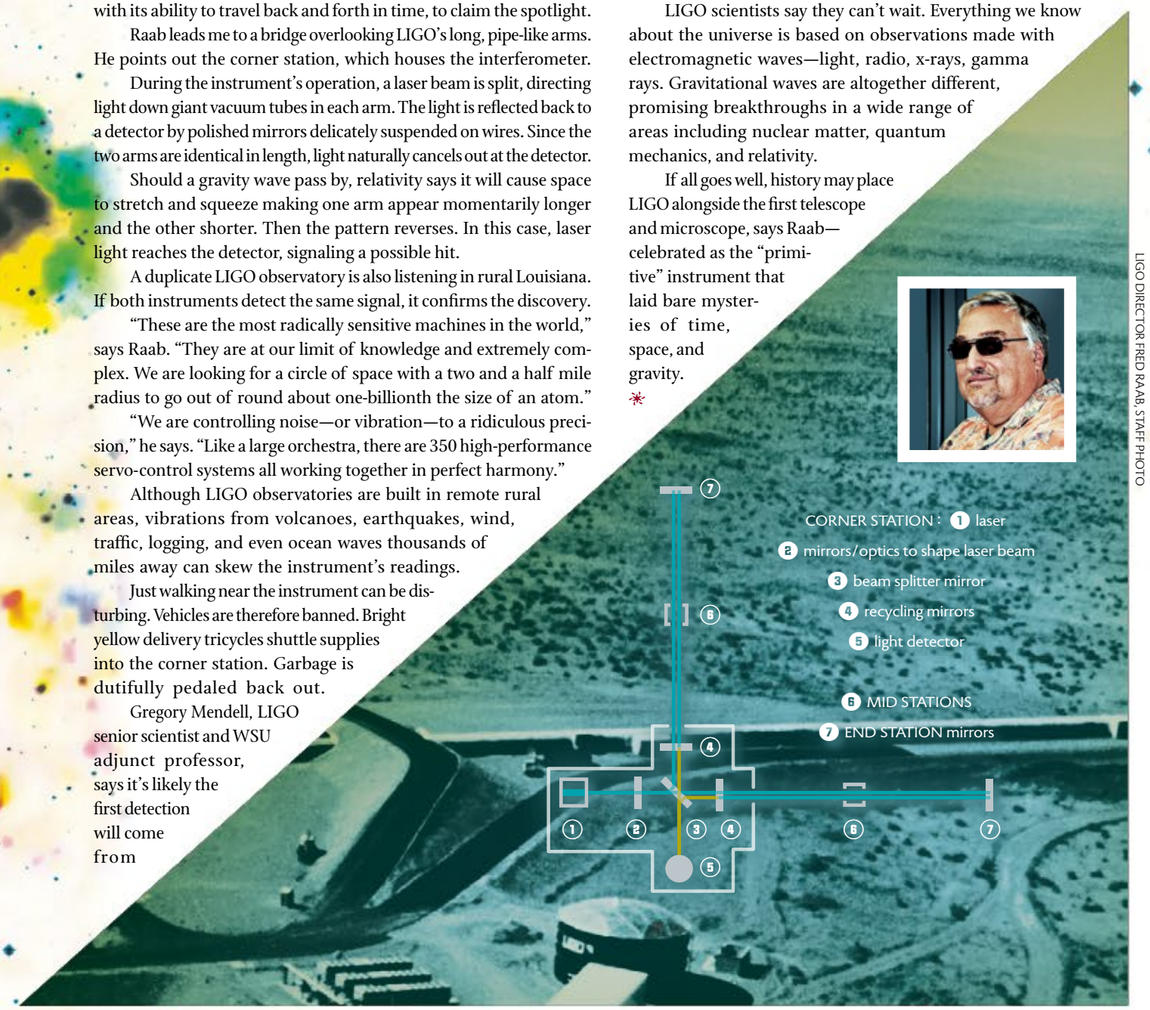
Gregory Mendell, LIGO senior scientist and WSU adjunct professor, says it's likely the first detection will come from the "coalescence" of a double neutron star formed perhaps 250 million years ago. Coalescence occurs long after supernova when a pair of dying stars spiral, crash, and merge, releasing gigantic gravity waves—large enough to make the trip to LIGO.

Radio telescopes have detected similar moments of destruction, which are audible as a descending ring ending in a chirp. Mendell calls these star sounds cosmic bells, and says the discovery of gravitational waves will add song, melody, and rhythm to our comparatively muffled sense of the cosmos.

LIGO scientists say they can't wait. Everything we know about the universe is based on observations made with electromagnetic waves—light, radio, x-rays, gamma rays. Gravitational waves are altogether different, promising breakthroughs in a wide range of areas including nuclear matter, quantum mechanics, and relativity.

If all goes well, history may place LIGO alongside the first telescope and microscope, says Raab—celebrated as the "primitive" instrument that laid bare mysteries of time, space, and gravity.

COURTESY NATIONAL SCIENCE FOUNDATION



LIGO DIRECTOR FRED RAAB, STAFF PHOTO

Foley Institute alumni recollections: magazine.wsu.edu/extra/Foley-Institute-alumni

The lasting impact of Tom Foley

BY MARY HAWKINS

Thomas S. Foley was a political gentleman. The Speaker of the House lived and worked from principles that defined his political career: civility, honesty, and integrity. Even though he lost his seat in Congress, Foley's legacy continues to encourage many others to follow his path, through his namesake institute at Washington State University.

No one on the reelection team was emotionally prepared for Foley's defeat in 1994. A sitting Speaker had not been defeated since the Civil War era. John Pierce remembers Foley as "sad, stunned about the election results, but not vindictive." Pierce had been a congressional fellow with Foley before beginning a 24-year career at WSU, eventually as chair of political science and then dean of humanities and social sciences.

Just days after Foley's defeat, Pierce, WSU government relations director Beverly Lingle, and WSU archivist John Guido met with Heather and Tom Foley in the Speaker's office in Washington, D.C. The usually bustling office was almost empty of staff. "The Speaker's office had eight phone lines. Usually it was difficult to carry on a conversation there. On that day, the phone didn't ring once," says Lingle.

It was in this somber atmosphere that plans solidified for Foley's archives and for a center at WSU to give them context. "Tom wanted a living, breathing place where students could gather," says Lingle. "He was very clear about that."

The idea of an institute at WSU had evolved from discussions between WSU President Sam Smith, Pierce, and the Foleys. "We wanted Tom's congressional papers and had discussed housing them for quite some time. The institute concept evolved very quickly and came together over the course of weeks," says Smith.

Guido immediately started working with staff on gathering materials. "I remember that when we arrived, staff were throwing things away," Lingle recalls with a laugh. "John Guido quickly put a stop to that and implemented a system to prepare Tom's papers for travel. Staff members were extremely cooperative, and the archives had no restrictions." Within weeks, large moving vans appeared at Johnson Tower and at Holland Library's Manuscripts, Archives, and Special Collections.

"We quickly set about researching other, similar institutions, seeking funding, and defining the scope of the institute," says Pierce. By mid-November 1994, initial plans were in place, and the institute had a name: The Thomas S. Foley Institute for Public Policy and Public Service.

Twenty years later, Foley's "living, breathing place" resides in Bryan Hall, where it hosts guest lecturers and researchers. It also sends many students on internships to encourage public service careers.

"Political engagement by students is critical because it is so immensely empowering," says Cornell Clayton, director of the Foley Institute and political science professor. "I'm proud to say we've expanded internships significantly. Internships in Olympia and D.C. used to be almost an afterthought. Now they are a key part of our work." Foley interns work in local, county, state, and national government, diplomacy, law enforcement, courts, political action groups, and at research organizations.

The institute has also hosted dozens of significant and diverse speakers, such as John Ashcroft, Angela Davis, Seymour Hersh, and Christopher Hitchens. It has fostered informed public policy debate by organizing formal and informal political gatherings, multidisciplinary symposia, and citizen forums, including an ambitious conference in 2011 on civility and American democracy.

First '16 Rose Bowl

WSC banged, smashed, bulled, and pounded their way to a 14–0 victory that started a storied football tradition.

BY TOM BENJEY

WASHINGTON STATE SUPPORTERS WONDERED, SOMETIMES ALOUD, IF PRESIDENT E. A. BRYAN HAD MADE A GRIEVOUS MISTAKE IN ENTRUSTING THE FOOTBALL PROGRAM TO WILLIAM "LONE STAR" DIETZ SHORTLY AFTER THE SHARP-DRESSED MAN ARRIVED ON SEPTEMBER 1, 1915.

Dietz emphasized conditioning over running plays, then a radical approach. He inherited eight experienced players and three teams of untested candidates, none of whom were familiar with the single- or double-wing formations Dietz—as Pop Warner's protégé—brought with him from Carlisle Indian School. Hopes sank when the varsity squeaked by the alumni 3 to 2. Captain Asa "Ace" Clark wasn't convinced the new approach would succeed but he accepted Dietz's request to shift to tackle. Hoping for Washington State College's first winning season since 1909, Lone Star then moved Clarence Zimmerman to end, "Hack" Applequist to guard, and plugged some holes with new men.

The season opener against the tough Oregon eleven changed some minds. *The Evergreen* editorial, "Vindication for Dietz," praised both coach and players in their 28 to 3 victory. Four more convincing wins earned an invitation from the Pasadena Tournament of Roses Association to a postseason game on New Year's Day against Brown University. Quelling "Gloomy" Gil Dobie's assertions that his undefeated Washington team should represent the West, Dietz's charges pummeled Gonzaga 48-0.

On December 21, after a fancy send-off dinner at Spokane's Davenport Hotel, the Washington State contingent boarded the Spokane-Portland Flyer train. They arrived in Tinseltown Christmas morning to a surprise from Coach Dietz: they were to become movie stars. Dietz had arranged for his players to portray the football team in *Tom Brown at Harvard* and wrangled a small part for himself. Dick Hanley recalled, "Each player was making around $100 for fourteen days of work, and while that wasn't hard to take we always figured the movie was strictly a camouflage idea to make us forget Dietz was getting away with twice-a-day drills."

That wasn't the only trick Dietz pulled. He took his players aside individually, saying WSC's only chance was to stop future College and Pro Football Hall-of-Famer Fritz Pollard, "and I'm counting on you to do the job!" He swore each to secrecy ostensibly to keep the others unaware.

On December 30, Mother Nature dumped two to three inches of snow on Southern California. On New Year's Day she poured rain. To complete the mess, game organizers scheduled a donkey polo game for Tournament Park that morning. Fritz Pollard almost drowned when he was tackled in a mud puddle. People observed Lone Star Dietz's white suit was splattered with mud in the first quarter.

Dietz's team normally ran a wide open offense but field conditions rendered tricky ball handling inadvisable. He shifted to cautious line bucks against the heavy Bruin line. Brown had the best of it early but WSC's defense rose to the occasion. Archie Durham intercepted a pass on his own 10-yard line and they sacked the Brown quarterback on fourth down at the WSC six.

The second half was a different story. Ralph Boone, "Bing" Bangs, and "Red" Dietz (no relation to Coach Dietz) smashed the ball down the field. Boone bulled the ball from four yards out for the first score. In the fourth quarter, Red Dietz pounded the ball in from the two. Quarterback Arthur "Bull" Durham dropkicked both extra points. Two other scores escaped when they fumbled the wet, slippery ball near the goal line.

It wasn't just offense that won the game. WSC's defense smothered Pollard from making substantial gains, preventing any scores for the Brown Bruins.

WSC's 14–0 victory established West Coast football as the equal of the Eastern variety and started the New Year's Day football tradition and the series of games today known as the Rose Bowl.

OPPOSITE: WSC FOOTBALL COACH "LONE STAR" DIETZ. **BELOW, FROM TOP:** WSC FOOTBALL TEAM POSING ON THE FIELD IN PASADENA. THE CITY OF PULLMAN TURNS OUT TO GREET THE 1916 ROSE BOWL CHAMPIONS. COURTESY WSU MANUSCRIPTS, ARCHIVES, AND SPECIAL COLLECTIONS

view some 1916 Rose Bowl highlights: **magazine.wsu.edu/video**

read an excerpt from *Chance for Glory*, a new book about the 1916 Rose Bowl by Darin Watkins '84 (Aviva Publishing, 2015): **magazine.wsu.edu/extra/chance-for-glory**

Duck

Rediscovering a worldwide favorite

BY LARRY CLARK

In a small northeast Washington field, a flock of 34 Ancona ducks—a white breed with distinct, mottled feathers—quack sociably as they waddle around Rebecca Cahill Kemmer's farm. Sometimes they drop eggs while they follow their guardian geese and gobble up old apples and remnants of summer squash.

Cahill Kemmer and her husband Eric Kemmer started their Pend Oreille County farm, in Fertile Valley just north of Spokane County, in 2013, with education and assistance from WSU Extension's small farms team. When they chose livestock, ducks were a natural choice.

"They're very hardy," says Cahill Kemmer. "Last winter, they liked to sit out in the snow instead of their shelter. And it's harder to find duck eggs and meat in the store."

Cahill Kemmer's flock is not an exception. Adaptable and tough, ducks range from the Arctic tundra to tropical rain forests, isolated cold islands off Antarctica to suburban ponds. They're omnivorous in the broadest sense, eating almost anything and earning the nickname "pigs of the bird world." Their bills act as extremely effective sieves with horny plates to filter food and sensitive taste buds to determine if it is edible, even in mud and cloudy water. They also have a field of vision of nearly 340 degrees, can simultaneously see both near and far, and can see in color.

As waterfowl, ducks depend on a second layer of feathers to stay warm. They also resist cold with their webbed feet, which lack nerves or blood vessels. To dry off, ducks preen in a ritual to remove grime while also spreading a waterproof oil from their uropygial gland.

Humans have raised ducks for beauty and food since at least 2,000 BCE, where records show the waterfowl were fattened in ancient China for their meat. Ducks were raised in Egypt and Rome, and Christopher Columbus wrote about flocks of large ducks kept by natives on Caribbean islands.

Ornamental ducks, wild and domesticated, have graced art from Japan to the Netherlands. It's not a surprise, with their colorful plumage, often reflected in their monikers: blue-winged teal, canvasback, harlequin, red-breasted merganser, Barrow's goldeneye, to name a few species.

Utility ducks—those kept for meat, eggs, and downy feathers—all descend from the same species, *Anas domesticus*, and were crossbred for certain traits. They are distinguished in one way by their feeding method: "dabbling" ducks forage in water and on land, "diving" ducks find food almost exclusively by diving to the bottom of ponds or other bodies of water.

Another distinguishing characteristic is size. Like boxers, ducks can range from heavyweight down to bantamweight. Cahill Kemmer's flock of Anconas are mediumweight, smaller than common Pekin ducks but they grow faster. Duck expert Dave Holderread writes that Anconas are also prolific egg layers and excellent foragers.

Ducks have worked their way into our idioms—sitting duck, lame duck, ducks in a row—and our pop culture—Donald Duck, Howard the Duck, *The Sopranos*, even another Pac-12 mascot. They haven't established themselves on the modern American plate, however.

Jamie Callison, WSU executive chef and author of *The Crimson Spoon* cookbook, encourages people to try cooking duck, maybe for the holidays, and not be intimidated. "You have to cook without fear. Try something unique; think about serving duck with some glazed carrots with a bit of honey, and you'll get rewarded."

Cahill Kemmer says cost can be a problem, increased by processing. "A USDA processor is required and it's an hour and a half to the nearest processor," she says. They sell on the farm and at farmers markets.

Unlike the United States, people in other countries regularly consume duck meat and eggs. They used to be more common in this country as well; WSC Extension bulletins from the early twentieth century offer instruction on raising the birds, recipes to smoke or cook duck, and tips on hunting.

Cahill Kemmer points out that wild ducks do tend to taste gamier, since they eat more worms and slugs. A well-rounded diet for a pastured duck improves the flavor, and the meat is still richer than other poultry. Cahill Kemmer even feeds fermented grains to her ducks for probiotic benefits.

Her family, including her five-year-old daughter Julianna, loves the large, rich eggs from the ducks. Higher in protein, iron, and Omega-3 fat than chicken eggs, duck eggs are also a preferred ingredient for pastries and desserts.

Callison says duck cooked low and slow, with something acidic like a citrus sauce to cut the fat, is a favorite food. He serves duck, fat rendered off, with a hardy grain, such as barley or forbidden rice, to balance the rich meat.

PHOTO E.J. ARMSTRONG

Pan Roasted Duck Breast*

The secret to this recipe is scoring the duck skin so the fat melts out during cooking, creating crispy skin—the perfect complement to the tender meat. Scoring also helps prevent the duck breast from curling up in the cooking process.

4 skin-on duck breasts, 5 ounces each
¼ cup orange juice
¼ cup olive oil
2 tablespoons balsamic vinegar
¼ teaspoon kosher salt
fresh ground black pepper

Serve with Hazelnut Forbidden Rice, Julienne Minted Carrots, and Orange Balsamic Glaze (recipes online at **magazine.wsu.edu/extra/duck-recipes**).

Score each duck breast by running the tip of a knife into the skin, but not into the meat, in four lines about 3/4 inch apart.

Whisk together orange juice, olive oil, balsamic vinegar, salt, and pepper. Pour over duck and marinate—refrigerated—a minimum of two hours and up to overnight.

Preheat oven to 350°F.

Remove duck from marinade; pat dry with paper towels. Cook duck breasts skin side down in a sauté pan lightly coated with vegetable spray until skin is golden brown and crisp, about 5 minutes, turn and repeat process.

Transfer duck, skin side up, to a baking pan and bake until cooked through (this may not be necessary if duck cooked through while sautéing). Remove from oven and allow to rest in a warm place about 5 minutes. Just prior to serving, thinly slice duck.

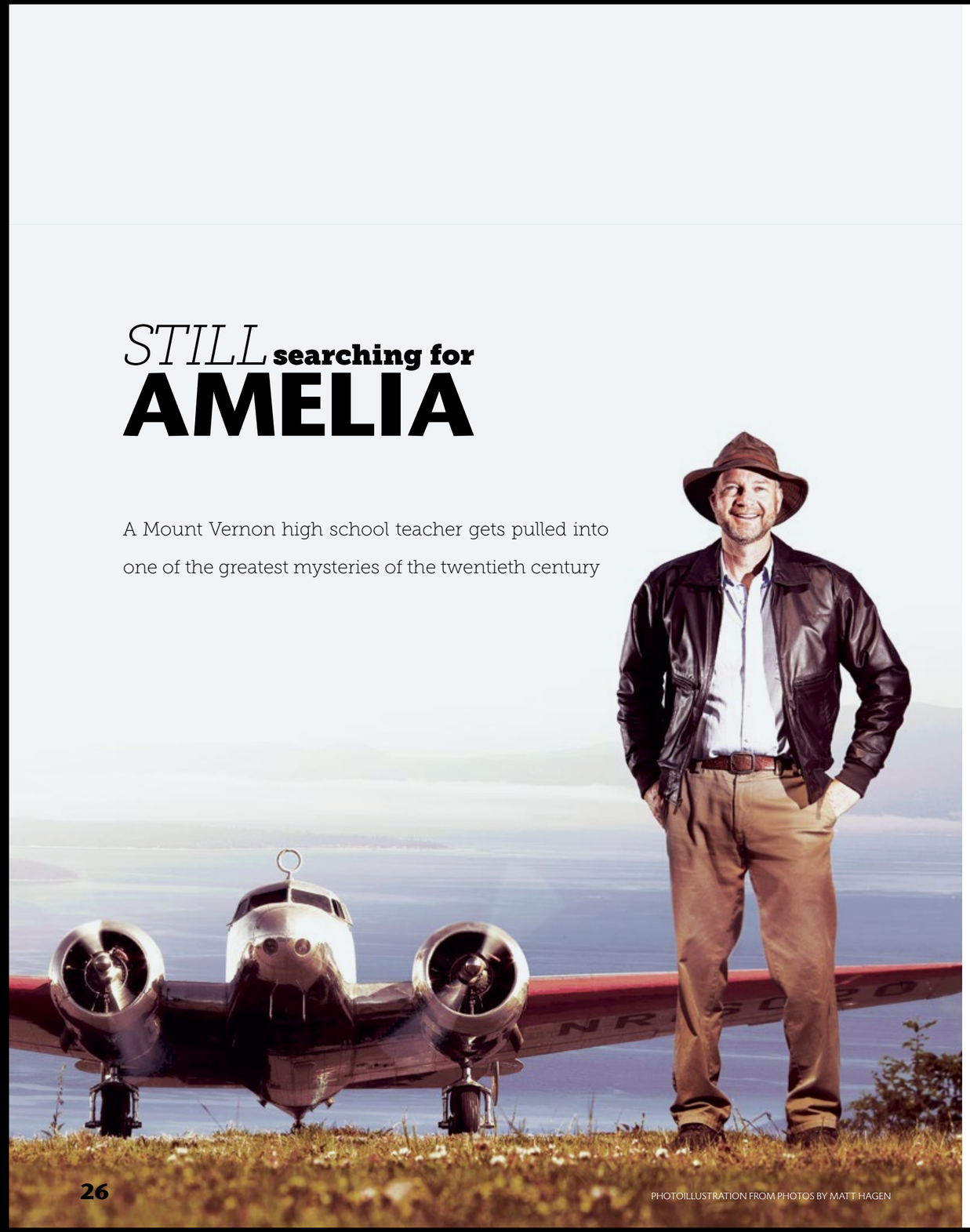
To serve, spoon Hazelnut Forbidden Rice on a plate, top with sliced duck and Julienne Minted Carrots, and drizzle with Orange Balsamic Glaze.

MAKES 4 SERVINGS

*From *The Crimson Spoon: Plating Regional Cuisine on the Palouse* by Jamie Callison | WSU Carson College of Business, 2013

STILL searching for AMELIA

A Mount Vernon high school teacher gets pulled into one of the greatest mysteries of the twentieth century



PHOTOILLUSTRATION FROM PHOTOS BY MATT HAGEN

BY LARRY CLARK

DICK SPINK '85 never intended to hunt for Amelia Earhart's airplane. He specializes in boats.

He put himself through Washington State University designing and fabricating aluminum boats. He now holds on to a day job teaching at Mount Vernon High School, but he's also a naval architect and licensed master. He sells boat kits all over the world, from Singapore to Africa, and often builds clients' boats on site. Which is how he found himself in the north Pacific, in the Marshall Islands, and deep into a quest to solve the most enduring of aviation mysteries.

"Right now, to think I'm a leading researcher on Amelia Earhart? A farmer's kid and school teacher from Mount Vernon? Unbelievable," says Spink, a broad smile across his boyish face. He wears a brown fedora, a la Indiana Jones, and a brown leather aviator jacket with a Boeing logo embroidered on the front. Spink says he received the coat when he told his Earhart story to a fascinated group of Boeing Company executives in February.

The story begins at a celebration with his Marshallese hosts. At the feast, an older man—a king of one of the islands—told the guests about Amelia Earhart and her navigator crashing on a nearby atoll in 1937. He said his uncle had watched over Earhart for two days. Spink imprudently laughed, and his close friend Ramsay Reimers chided him for disrespecting the elder man. "You don't laugh at a king," says Spink.

After several apologies from Spink, Reimers and others explained that the Earhart crash was well-known throughout the islands, and that Spink could meet many locals who had heard the recollection of their parents and grandparents.

The Earhart tale grabbed Spink's imagination. "I've been through just about every scenario they talk about. I've read every Earhart book I can get my hands on," he says. "I started taking my movie camera down and started recording these conversations." Spink got more than stories. He came home with aluminum parts that could well be from Earhart's Lockheed Electra.

Amelia Earhart started flying airplanes in 1921, drawn to the daring world of early pilots. In just seven years she became the first woman to fly across the Atlantic, first with a crew, then solo. Her fame grew, and ticker tape parades welcomed her home from her exploits.

Earhart chalked up one aviation accomplishment after another: first person to fly the Atlantic twice; first woman to receive the Distinguished Flying Cross; first woman to fly nonstop across the United States; and a number of speed records.

Her flying exploits weren't the only way Earhart increased her visibility and fame. The charismatic pilot wrote two books, a regular aviation column for *Cosmopolitan* magazine, articles, and essays. She even promoted a line of clothes based on her distinctive attire.

Earhart's husband, publisher George P. Putnam, helped market the aviatrix, and she became "Lady Lindy," an internationally-recognized celebrity who drew crowds of hundreds.

In late 1936, at age 39, Earhart set out to be the first woman to fly around the world. She chose a heavily customized Lockheed Electra 10e, the first twin-engine, all-metal passenger airliner built by Lockheed. Earhart's ground crew ripped out the passenger seats, added more fuel tanks, and covered most of the portholes. Her first attempt failed with a crash in Honolulu after flying over from Oakland, California.

The second attempt worked much better, at first. Heading east, Earhart flew the Electra with top navigator Fred Noonan on board. They departed Miami on June 1, 1937, and traveled through South America, Africa, India, and southeast Asia before arriving at Lae, New Guinea, on June 29. They were set to begin the final stage of the circumnavigation. They took off on July 2, destined for remote Howland Island, one of the Pacific islands under U.S. control by League of Nations mandate. A rugged airstrip was built there specifically for Earhart's flight.

The U.S. Coast Guard cutter *Itasca* was dispatched to communicate with and guide Earhart's plane. Through a series of radio miscommunications, it became clear to the *Itasca* crew that the Electra was not finding its way to Howland. Earhart reported overcast skies and indicated she was barely receiving the signals from the *Itasca*.

"We must be on you, but we cannot see you. Fuel is running low. Been unable to reach you by radio."

AMELIA EARHART WITH HER LOCKHEED 10-E ELECTRA SPECIAL (COURTESY PURDUE ARCHIVES AND SPECIAL COLLECTIONS)

A REPLICA OF EARHART'S LOCKHEED ELECTRA 10E SPECIAL OVER THE TIMOR SEA, FLOWN BY LINDA FINCH AROUND THE WORLD IN 1997. (TONY BACEWICZ/THE HARTFORD COURANT)

The *Itasca* heard one last ambiguous message—that the aviators were traveling north-south—before the plane disappeared.

THE U.S. NAVY AND COAST GUARD SPENT $4 MILLION and sent an aircraft carrier and other ships to search for some trace of the plane or crew, to no avail. They eventually declared Earhart and Noonan lost at sea. Putnam also sent ships on a futile search.

Theories contradicting the official explanation of her disappearance soon began to pop up and increased with the end of World War II, when Pacific Islanders began to tell of a woman and man captured by the Japanese after their plane crashed on an island in 1937.

It was one of these eyewitness reports that led CBS radio journalist Fred Goerner to pursue the Earhart disappearance. His 1966 book, *The Search for Amelia Earhart*, chronicles a six-year quest he and others undertook to determine the facts about Earhart. He gathered a number of reports of U.S. soldiers and island natives who saw evidence or heard testimony of Earhart and Noonan in captivity on Saipan. Goerner even exhumed remains and had them analyzed to determine if they were the aviators. They weren't.

One discredited theory said Earhart returned to the United States under a false name, Irene Bolam. An unproven rumor claimed Earhart was Tokyo Rose.

Another prevailing theory is the Mili Atoll crash. Mili Atoll is a group of islands and reefs in the Marshall Islands, ringing a lagoon formed by the caldera of a collapsed volcano. Near a three-acre island there in 1937, Marshallese natives Lajuan and Jororo said they saw the Lockheed Electra crash. The two were fishing in the lagoon of the atoll when they heard the engine and saw the silver plane glide onto the rocks of the reef, tearing off the landing gear and a wing.

The two men subsequently said that a Caucasian woman and man emerged from the plane, the man injured and the woman with short hair and long pants. The fishermen tried to help but couldn't understand the pair's language.

The islands were part of the mandated Japanese territory, and a number of Marshallese witnesses later said the Japanese eventually came and took both the fliers and the airplane. Postage stamps from the Marshall Islands even show the airplane being transported away on the Japanese trawler *Kosho Maru*.

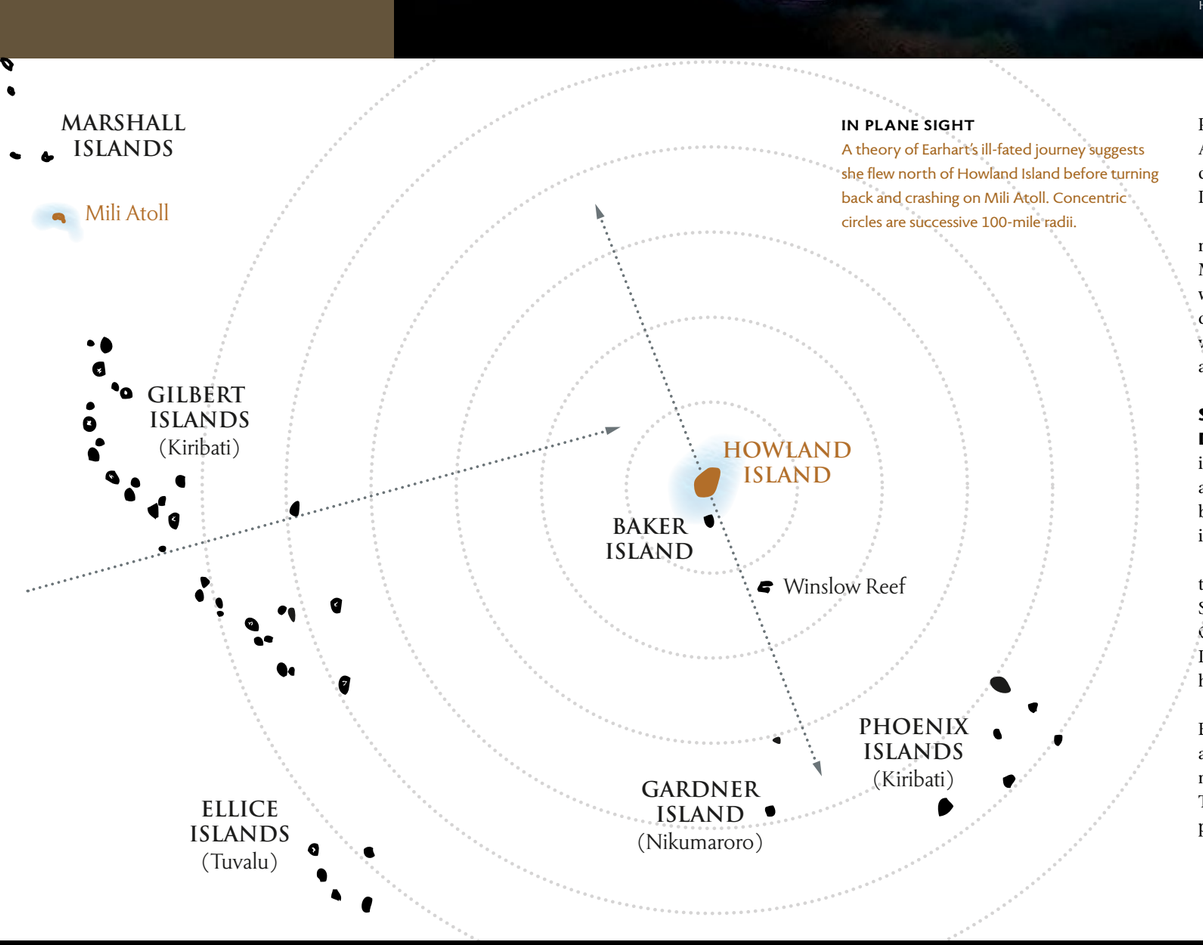
"Generations of Marshallese people have known since 1937 that the famous fliers didn't just disappear in the ocean," Marshall Islands President Christopher Loeak told news agency Agence France-Presse this January. "The aircraft landed on a small atoll in the Marshall Islands and (Earhart and Noonan) survived."

The theory contends that the pilot and navigator were treated at a hospital in the Marshall Islands and then taken to Saipan, where they remained in captivity until they died. The airplane was taken to Saipan as well, the theory claims, and was destroyed after World War II.

SPINK'S BOATBUILDING COMPANY DYNATRAX took him to the Marshall Islands in 2006. He became enamored with the people and culture, visiting several more times for business and vacation, and eventually becoming an honorary Marshall Islands citizen.

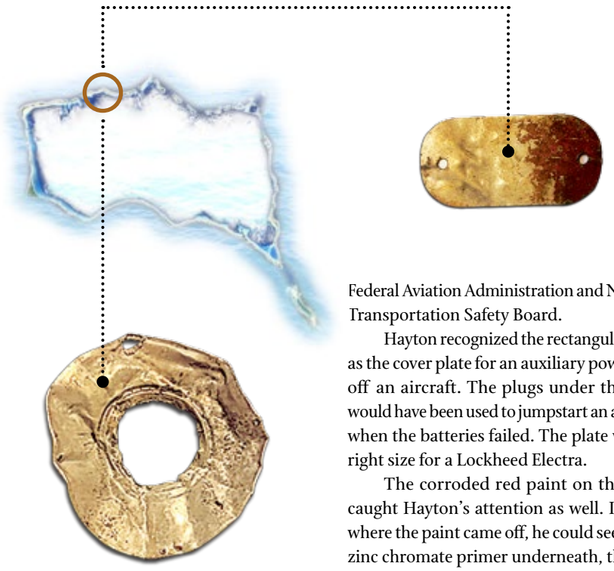
On one of those trips he learned about the Amelia Earhart story and Mili Atoll. Later Spink interviewed Shikaro Lajuan, a United Church of Christ minister on the Marshall Islands, who grew up hearing the story from his father, one of the original fishermen.

When Spink first heard the story about Earhart's plane, people were pretty confident about the location of the crash site. "I talked more and more with Ramsay and my friend Tony deBrum about organizing the first expedition, which we did just two years ago."



IN PLANE SIGHT
A theory of Earhart's ill-fated journey suggests she flew north of Howland Island before turning back and crashing on Mili Atoll. Concentric circles are successive 100-mile radii.

documentary video excerpt: magazine.wsu.edu/video



MILI ATOLL (MARSHALL ISLANDS)
6.1128832, 171.9175815

Two aluminum pieces found by Spink could be from Earhart's plane.

Opposite: Replica of Earhart's Lockheed Electra 10E Special on display at The Museum of Flight, Seattle. (Photo Curtis Smith)

Using metal detectors and ground penetrating radar, Spink and his friends scoured the rocky reef along the tiny island where Lajuan and Jororo said they saw the airplane crash. Their search yielded a number of small aluminum parts, which Spink collected. Among them were a small, thin rectangular painted piece and a bent round piece with a hole in the middle.

When he returned to the Skagit Valley with these parts, Spink took them to Jim Hayton in Sedro Woolley. Hayton runs North Sound Aviation and Spink knew him as an expert on old aircraft, as well as a recognized authority on plane crashes. Hayton has testified before Congress and consulted with the Federal Aviation Administration and National Transportation Safety Board.

Hayton recognized the rectangular piece as the cover plate for an auxiliary power unit off an aircraft. The plugs under the plate would have been used to jumpstart an airplane when the batteries failed. The plate was the right size for a Lockheed Electra.

The corroded red paint on the piece caught Hayton's attention as well. In areas where the paint came off, he could see yellow zinc chromate primer underneath, the kind used on exterior metal surfaces back in the 1930s and '40s.

Spink points out that Earhart had the wings of her plane painted red, just like the cover plate. There were no other known Lockheed Electras with red trim like that.

The round piece surprised Hayton even more. Despite the bent and stressed metal, he knew the part was the dust cover hubcap of an unusual wheel. He says it came off a Goodyear Airwheel, 36 inches diameter by 15 inches wide, built for Lockheed Model 10e planes, like Earhart's.

"It was very soft, had low pressure, to land on a beach or unimproved runway over big rocks," says Hayton. "There were very few ever made."

Hayton's certainty comes from his own Airwheel that matches the dust cover, recovered from a Seattle scrapyard when he was a kid in the 1950s. The two parts line up exactly, down to the five bolt marks between the wheel and hubcap.

Although Hayton's identification of the find was exciting, Spink wanted more proof. He took all of the metal he found to the original manufacturer of parts from Earhart's plane, Parker Aerospace.

The Parker executives were intrigued. "Parker Aerospace became a sponsor and put $100,000 into this trip. They have all the metal and they're going to perform an analysis. They've got Alcoa and their own labs to try to certify the age," says Spink.

From pre-World War II to World War II, aluminum is totally different, he says. "We're trying to date that aluminum. Nobody who has ever been involved with the Amelia Earhart search has ever done that."

On the next few expeditions, Spink and his colleagues found other curiosities near the potential crash site. Despite the lack of a World War II Japanese landing strip on such a small island, they found steel wheels and rails, used to move aircraft and bombs during the war. "There's absolutely no reason why those should be on the island," says Spink.

A portion of the ocean side of the island had also been dredged, which Spink thinks could have been where they moved the plane off the reef over the top of the island and on to a shallow draft barge.

He says the pieces of aluminum they found were in a line from where the plane landed to where the plane was loaded onto the barge.

IN THE COURSE OF EXPLORING THE MYSTERY, Spink met a number of Earhart researchers: Carol Dow, a former pilot and author; Mike Campbell, who also wrote a book and maintains an Earhart blog; Rich Martini, a filmmaker; and Les Kinney, a retired U.S. Treasury agent who lives in Tacoma. Spink made a documentary with Dow about his findings. He also has begun coordinating with Kinney on further exploration.

Despite some disagreements on details, those Earhart experts all agree that the Electra likely crashed on the reef by Mili Atoll, the plane was taken to Saipan, and that Earhart and Noonan were rescued and then imprisoned by the Japanese, and subsequently died.

Spink knows there are doubts about alternative theories of Earhart's disappearance, but he rebuts each in turn, beginning with the Navy's official "crash and sink" theory.

"There are problems with 'crash and sink,'" says Spink. The plane would have floated. "Her airplane had 9,500 pounds of buoyancy on board. Her plane didn't weigh that much."

Despite the largest search in naval history, "they never came up with so much as an oil slick."

Besides, says Spink, "You can't prove crash and sink because you need to find the airplane. They've been sounding for that airplane for decades."

He also doesn't buy the assertion by author and researcher Elgen Long and others that Earhart never had enough fuel for a Marshall Islands forced landing.

"I've got the fuel study by C.L. Johnson, the guy who designed the Lockheed. It says 4,100 to 4,500 miles of travel," says Spink. "That's plenty to get to the Marshalls."

He quickly dismisses claims by Ric Gillespie and The International Group for Historic Aircraft Recovery that the plane landed to the southeast, on Nikumaroro Island. Spink says there's no real evidence the plane landed there, the parts Gillespie found were from a completely different aircraft, and the weather was clear at Nikumaroro at the time of the crash, not overcast.

These competing theories motivate Spink to keep pushing the Mili Atoll idea. "We need to tell this story because of the frauds out there. This muddies the water for people that are serious about this, people like me," he says.

Some of the hardest questions come about the alleged suppression of information by the government about Earhart and Noonan. Using the word "cover-up" evokes cloak-and-dagger agents and political manipulation, making it difficult for people to believe that Earhart was captured and held by the Japanese Imperial Army.

To Spink and other proponents of the Mili Atoll story, the U.S. government before and after World War II could not afford to let the Earhart capture become known. "If the general public found out Japan had Amelia Earhart, think of the political ramifications. That would have put us in World War II, years before Pearl Harbor," says Spink.

Spink says more than 200 eyewitnesses put the aviators on both the Marshall Islands and Saipan. Their stories trickled out, leading researchers like Goerner to investigate. Spink says fear kept all those reports from emerging sooner. "Everybody in the Marshall Islands has a relative who was beheaded by the Japanese, and they were terrified. That's why they never said much about this story. Long after World War II they were still terrified of the Japanese."

In addition to rank-and-file soldiers' reports, Goerner wrote that he had subtle confirmation from high-level Navy officers such as Admiral Chester Nimitz that the fliers were captured. Nevertheless, Goerner never found a smoking gun, or more than stories. Instead there were many slammed doors and missing reports.

Spink and Kinney plan to head back to the Marshall Islands and Saipan this year to exhume any remains from that area, with the idea of getting them tested for DNA.

They will also follow up on a lead from Spink's friend Reimers about a recently discovered underground hospital on Jaluit Atoll, where Noonan was reportedly treated for injuries. Spink says it's a long shot, but could hold some information.

No matter what they find or don't find, Spink says he won't let it take over his life.

The search for Amelia Earhart "destroyed a lot of men's lives. Fred Goerner died a very frustrated man because of this story," says Spink. "It's not going to happen to me. I'm going to stick with the story, make a good push for a couple of years, and if I get nowhere I'll hang it up.

"It'll be one of those mysteries that will remain a mystery."

Meanwhile, he and other Earhart researchers wait for metallurgical laboratory results on the parts he found. Spink knows it won't necessarily confirm the Mili Atoll theory, though.

"If the results come back as pre-World War II, it still won't be a pot of gold. People can say it was another plane," he says, shaking his head. "But there just weren't any other planes there.

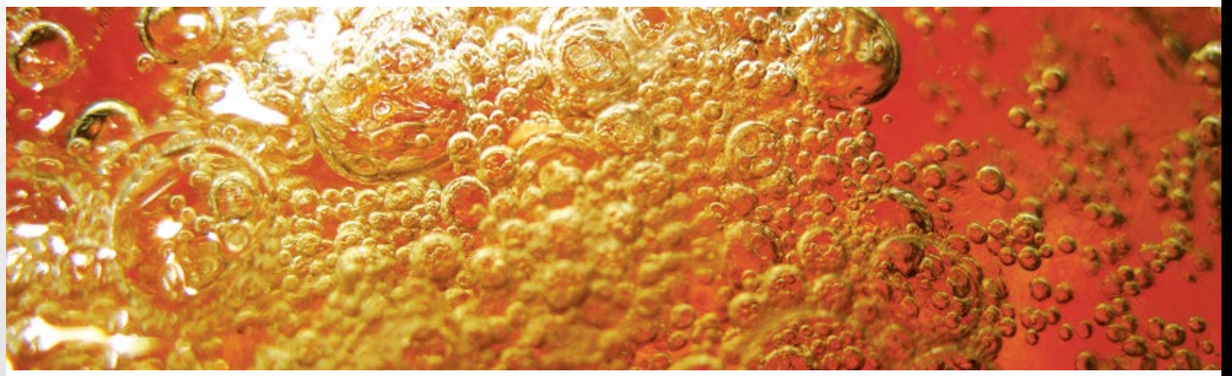
"The more people look at this, the more they research Amelia Earhart, one trip to the Marshall Islands and you'll be convinced. It's part of their history."

Colonial cider mugs: magazine.wsu.edu/gallery

BY SYLVIA KANTOR

The drink that built a nation

BUBBLING A REVOLUTION IN WASHINGTON STATE



OPPOSITE: CIDER MUG, UNITED STATES, C. 1774–1815. FROM THE MALCOLM L. POLIS COLLECTION, COURTESY GLASS INTERNATIONAL. **ABOVE:** CIDER BUBBLES

It's canning day at Tieton Cider Works in Yakima. Tall, red cans of Rambling Route cider pass through a pasteurizing unit as they come off the conveyor belt of the mobile canning truck. Sold in four packs, the company's first canned product is intended to reach the masses, perhaps even enticing craft beer drinkers with a moderately-priced, portable cider.

The label on a can of Rambling Route cider describes the journey apples made across the country to Washington: "When it reached the land that would be called Washington, the apple knew." It knew it had found a home in the soils and climate of the Pacific Northwest. Today, cider has found a welcoming home here as well.

From new cideries and orchards around the state to cider science at Washington State University, the fermented beverage has come back in a big way.

CIDER IS ARGUABLY THE DRINK THAT BUILT THIS NATION. Not beer, not wine. Once upon a time, nearly every family in colonial America had a small cider press for making their own because cider was considered safer to drink than water. Wherever John Chapman, aka Johnny Appleseed, went he left a trail of trees that would serve as homestead orchards for making cider. Cider prevailed as the beverage of choice in early America until the early temperance movement and then prohibition drove the final nails in its coffin.

The current cider boom began only nine years ago, says British beer writer Pete Brown. "It's as if a cidery shock wave went around the world," he writes, "a psychic pulse hitting the minds of discerning drinkers everywhere, and making them think, 'Hmm. I want some cider.'"

Cider has soared to the top as the fastest growing alcoholic beverage in the nation. Although cider accounts for less than 1 percent of the entire beer category, even the popular craft beer movement has not grown as fast. Compare craft beer's growth of roughly 20 percent annually with cider's steeper curve of 65 percent annually. But as with craft beer, Washington state is at the leading edge of the cider revolution that is sweeping the nation—both in production and consumption. With upwards of 30 cideries, Washington boasts the most in the United States.

CIDER VIEW ORCHARD IN THE YAKIMA VALLEY, PHOTO RINA JORDAN

BUT THERE'S A HITCH IN THE CIDER REVOLUTION. Washington leads the nation in apple production. It's chock full of apple orchards, but few contain cider apple varieties.

Cider apples, often referred to as "spitters" for the sour or bitter tannins they contain, are categorized as sweets, sharps, bittersharps, and bittersweets. New Jersey-based cider writer Chris Lehault says this about the experience of eating one: "In essence, eating a bittersharp apple is a bit like sucking on a black tea bag soaked in lemon juice."

Once pressed into juice, fermented, and blended just so, cider apples impart flavors unparalleled by everyday eating apples, or dessert apples—the predominant source of most ciders today in the United States. Cider makers who want to produce an authentic, artisanal cider that appeals to an increasingly sophisticated palette can't get enough locally grown cider apples.

PLANTING A NEW BUSINESS

In 2008, Craig Campbell '73 and his wife Sharon felt the "cidery shock wave" surface in their eastern Washington orchards. They began experimenting with making cider from dessert apples grown in their 400-acre commercial fruit orchards. Despite naysayers who warned that cider apples required a maritime climate, Craig also planted a two-acre test orchard with 25 varieties of cider apples.

"Everyone told me you can't grow cider apples in eastern Washington, in the Yakima Valley," he says. "I just thought, this is crazy, I can grow every other kind of fruit."

Now the Campbells grow cider apples to supply their own commercial cidery, Tieton Cider Works. They're leading the way in modern cider apple orchard management, and partnering with WSU researchers to help the industry meet the demand for a nation thirsty for local craft cider.

Their two-acre experiment expanded into Cider View, a 30-acre "high-density" cider orchard. With additional blocks of both apple and pear trees for cider, Cider View has become the largest cider orchard in the state. In fact, with 55 acres of cider apples and pears altogether, it's one of the largest in the country. This year, Tieton Cider Works is producing the equivalent of 100,000 cases (160,000 gallons) in kegs, bottles, and cans, but the Yakima facility has room to grow to 500,000 cases annually.

"We were in early on this wave, but we had no notion about this thing taking off," Sharon says. "We just wanted to try it. We thought if we could make 1,000 cases and sell it that would be our business model. We blew past that in year three."

RAISING STICKS AT CIDER VIEW

Craig Campbell, a third-generation farmer and a third-generation WSU alumnus, grew up on his grandfather's farm, the land he now farms near Tieton, Washington. After graduating with a degree in horticulture, his father encouraged him to leave the farm.

"He urged me to go out and learn more about the whole fruit business," he says. "He's the one that really pushed me. Thank God he did that."

Craig headed to California where his father's wisdom paid off in two life-changing ways. The first was the start of his still successful fruit distribution business, a handy background for understanding cider distribution. The second was a blind date with the woman who would become his wife.

"When I brought Sharon to see one of our family's orchards near Pasco, she says, 'Oh my God, we're raising sticks.'" What looked to Sharon like simply sticks in the ground was Craig's passion—newly planted trees. The phrase stuck and became Craig's license plate RAZNSTX.

The Campbells' cider orchard is the latest manifestation of Craig's passion. The 30-acre block of cider apple trees sits on a plateau above the Naches River, a tributary to the Yakima River. Tightly planted rows of trees with names like Golden Russet, Harry Master Jersey, and Yarlington Mill enjoy sweeping views of the river valley and mountains.

In the spring of their third year, the trees are nearly in full bloom—more than mere sticks in the ground. In this modern, high-tech orchard the young trees are planted three feet apart and trellised to support a 12-foot high central leader. The arrangement maximizes yield per acre. The uniform rows are wide enough for a tractor to roll through, carrying workers on a platform to prune or harvest without having to climb up and down ladders. Come fall 2016, Cider View will bear its first load of fruit, which must be harvested by hand. But the orchard is designed to accommodate mechanical harvesting, once the technology is available.

CIDER SCIENCE

Mechanical harvesting of cider apples is one of many cider research projects at the WSU Northwest Research and Extension Center (NWREC) in Mount Vernon. The orchard-to-glass research program led by horticulturalist Carol Miles is one of only four university-based programs in the United States. Though small compared to beer and wine science, Miles says WSU's cider research program is the largest in the country.

With most of Washington's apples growing in places like Yakima and Wenatchee, western Washington may seem like an unlikely place for apple research. But Miles is quick to point out, "the San Juan Islands were the first place apples were grown in the state in the 1800s—long before irrigation water came to central Washington."

SHANNON LOVE

ABOVE, FROM TOP: CRAIG AND SHARON CAMPBELL. TIETON CIDER WORKS CONTINUES TO EXPAND AS CIDER CONSUMPTION GROWS. PHOTOS RINA JORDAN EXCEPT AS NOTED

Spokane's Liberty Ciderworks: magazine.wsu.edu/extra/liberty
local cider making fun: magazine.wsu.edu/video

Cider research at WSU began in the maritime climate of Mount Vernon in 1979 when Bob Norton planted six cider apple varieties at NWREC. Today, under the direction of Miles, a newly-planted research orchard includes 64 English, French, and old American varieties of cider apples. The research spans all aspects of orchard management as well as cider making, including sensory evaluation, marketing, and economic analysis in collaboration with specialists at the Pullman campus.

Besides research, NWREC also offers cider education. Many Washington cider makers, including Sharon Campbell, have taken a cider-making course taught by British expert Peter Mitchell, offered by NWREC in partnership with the Northwest Agriculture Business Center and the Northwest Cider Association. Sharon Campbell, incidentally, helped start the association in 2010, and was president until last year.

The NWREC program also produced a first of its kind manual for cider production and orchard management in the Pacific Northwest, written by Gary Moulton, former WSU tree fruit specialist and cider program leader.

In the Tri-Cities, Thomas Henick-Kling, the director of the WSU viticulture and enology program, is evaluating how that program too might support the cider industry in Washington. He says that fermentation science and sensory evaluation for cider are nearly the same as for grape wine. Currently, students in the program can take electives in tree fruit production and most courses like plant pathology, entomology, soils, and plant physiology would be appropriate for cider and wine science students alike.

At Tieton Cider Works, head cider maker Marcus Robert, a fourth-generation orchardist who hails from the winemaking industry, prefers to hire people with a wine science background. He worries that people who are eager to jump in to the cider industry won't take the time to learn the art and science of it and risk producing bad ciders that could turn off uninitiated drinkers for good.

"It's really important that people know what they're doing and are not just crossing their fingers," Robert says. "It is a scientific field and it's a scientific process that you have to repeat."

As part of a national research team including Virginia Tech, Cornell, Michigan State University, and the University of Vermont, Miles is hopeful that the U.S. Department of Agriculture will fund a robust proposal to boost orchard-to-glass cider research across the country. She also sees cider production as economic opportunity for agriculture in the state.

"Many cider makers are currently importing cider apples from Europe and New Zealand. This is a lost opportunity for the United States," she says. "I see no reason why Washington shouldn't be a leading cider apple grower in the country."

Miles anticipates a day when cider apple varieties are grown in every part of the state. And in Tieton, the Campbells are proving that cider apples don't require a maritime climate.

Wherever cider apples are cultivated, they are ushering in the return of hard cider to the United States. And this time, cider could be here to stay.

A LITTLE *early American cider history*

When English colonists first arrived in North America, they enthusiastically embraced the wide range of wild fruits they found, from grapes to berries. But crabapples were the only native apple species, so colonists started planting edible apples in New England from imported seeds as early as 1623. Apples flourished in the fertile soil and friendly climate, and soon apples were a key part of most colonial farms and menus.

These new orchards were so bountiful that most farmers ended up with a much larger crop of apples than they could actually eat. By fermenting these apples into hard cider, the colonists were able to create a tasty drink that would remain fresh and usable much longer than the raw fruits. Better yet, hard cider may have been a safe alternative to any suspect drinking water supplies.

For the early settlers, hard cider had several advantages over beer. The colonists had a difficult time cultivating hops and barley and had to import these raw ingredients or have barrels of beer shipped across the Atlantic. Meanwhile, apples had no such drawbacks, which cleared the way for hard cider to become the nation's drink.

Hard cider was a key component of the colonial economy since currency was often hard to come by in the colonies. There was plenty of cider to go around, though, so in the absence of money, cider became as good as cash. Colonists would pay their bills with barrels of cider and worked out barter arrangements. Cider and applejack (hard cider that had been further fortified through freeze distillation) were supposedly even used to pay the construction crews that built some of the country's first roads.

Although hard cider was terrific for preserving large apple harvests, it played an important role in colonists' other dietary staples. By further fermenting cider, the Colonists could create apple cider vinegar which became a crucial ingredient and colonial condiment. Most importantly, though, this vinegar created from hard cider allowed colonists to preserve vegetables through pickling, a godsend during long New England winters.

FROM *11 WAYS HARD CIDER SHAPED AMERICAN HISTORY*, MENTAL_FLOSS.

old-time Northwest cider apples: magazine.wsu.edu/gallery

ALUMNIpedia

STEVENS RESIDENCE HALL IN SNOWY TWILIGHT, PHOTO SHELLY HANKS

BY JONATHAN SHIPLEY '95

Dream maker

"My earliest memories of school were full of hope," says Amy Eveskcige '13 EDD, the new superintendent of Chief Leschi Schools and the first Puyallup Tribe member to hold the position.

She's eager to instill that same hope to the kids attending her schools. Chief Leschi Schools, operated by the Puyallup Tribe, is one of the largest Bureau of Indian Education schools in the nation. That she even became superintendent took support of her own teachers.

As a child, her hopes were slim. Her dreams, muted. Her father died when she was three. Her mother was an X-ray technician but spent most of her time in preschools, mentoring children. This was in the Hilltop neighborhood of Tacoma. This wasn't a neighborhood for a child. There was gang violence, crack dealing, gunfire, and sirens at all hours. "As a teenager," she recalls, "I didn't think I'd live to be 20, so 'growing up to be something' never entered my thoughts."

She was surviving. She dropped out of school. She bounced around foster homes. She was lost. "The only thing I knew for sure was that if—and that was a big if—I made it, I would listen and be the voice of the voiceless because I never felt as though I had one."

But educators saw something in her and heard the voiceless tribal girl from Hilltop. Like Mr. Johnson, a teacher and gymnastics coach who believed in her. Like former Leschi superintendent Linda Rudolph who suggested Eveskcige go to college. Like former Vashon superintendent Monte Bridges who appreciated, as she did, social justice programs and integrated curriculum.

When the superintendent position opened at Chief Leschi and she got the job, Eveskcige couldn't imagine being anywhere else. "My journey took many twists and turns, but it led me back home. It is my home, the future of my child and her children. My actions today will impact seven generations into the future." As for making history, being the first tribal member to hold the title of school superintendent, she doesn't think much of it. "I'm not making history, I am just a part of the historical line that started with all my ancestors that came before me."

Teachers, school administrators, and her own education—a bachelor's from the University of Puget Sound and a doctorate in educational leadership from Washington State University Vancouver—all helped shape her, and all of those forces are shaping what she wants to do for the school district, the tribal children, and herself. "I am part of being a dream maker, hope provider, and the future of our children."

Her work isn't easy. Textbooks come from publishers that don't represent the cultural values or experiences of the children using them. There are also standards required nationally to meet the needs of the twenty-first century. She hopes to turn the learning inside out—start with the core cultural values of the students and then place the educational necessities around it.

"I want to provide a place of cultural relevance and identity, where it is okay to be a Native youth while striving to be the best in whatever field they choose," says Eveskcige.

Perhaps a generation from now, or two, or seven, a child will go into education because of her. "My greatest reward each day is to see the smile that is accompanied with the knowledge that it was a direct result of their awareness of their own accomplishments."

AMY EVESKCIGE, COURTESY THE NEWS TRIBUNE

BY ERIC SORENSEN

Take to the sea

Four years ago, at a wedding in Spokane, Cathy Simon '71 was seated across from a woman named Kay LeClair. Like Simon, LeClair was in her 60s. Unlike Simon, she had recently climbed to the 29,035-foot summit of Mount Everest.

It made Simon think, "I'm not done. I need to do something more."

A sailor, she started exploring her options and lit upon the World Cruising Club's World Atlantic Rally for Cruisers, a 26,000-mile circumnavigation of the earth. Speaking to her husband, Charles Simon '89 MS, she said, "We're going to need a new boat."

This May, the couple sailed their 58-foot sailboat into Rodney Bay, St. Lucia, crossing their outgoing path of 15 months earlier and completing one of the most singular accomplishments on the planet.

"What were we going to do otherwise?" says Cathy, 67. "We needed to do something that was an equivalent to climbing Mount Everest. You realize you can do these things."

The Simons first met in 1978 on a flight to Hawaii and first sailed on their return when Charles, the great-grandson of a ship owner, took them out on San Francisco Bay. She was a banker; he was busily running a software startup. To get him out of the office at least one day a week, she bought him a 33-foot Ranger 33. That led to a 46-foot Beneteau, which they twice cruised to Alaska.

For the circumnavigation, they bought a Taswell 58. After a trip to Nova Scotia, they filled 14 pages with things they wanted to change: adding solar panels that could run a fridge and autopilot, replacing sails, getting bigger anchors, replacing electronics.

"The hard part of the trip was getting the boat ready to go for a year and a half," says Cathy. "Actually doing the trip seemed a lot easier."

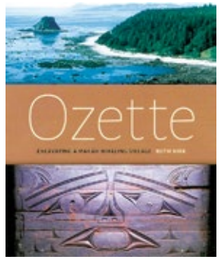
The history of circumnavigation would suggest the Simons were still in for an ordeal. Ferdinand Magellan, while often credited as the first to circle the world, actually died halfway around. Only 18 of the expedition's 270 or so original crewmen made it. Joshua Slocum, the first to sail alone around the world from 1895 to 1898, contended with pirates and a four-day gale west of Cape Horn. In 1969, Robin Knox-Johnston became the first to sail non-stop around the world, competing in the *Sunday Times* Golden Globe race. Seven other competitors said uncle before finishing; one of them committed suicide.

The Simons had to tough it out through several stretches in which they took turns at six-hour watches. But their route through the Panama Canal and following the trade winds made for mostly smooth sailing, as did timing the journey to avoid stormy seasons. They hit squalls but never a storm, and some big but largely tolerable seas.

"Cathy and I have sailed a bunch and after a while you learn that it becomes really, really uncomfortable long before it gets dangerous," says Charles. "It gets uncomfortable and then it gets really unpleasant and I don't think we hit seriously unpleasant."

"We could always have soup," he adds.

COURTESY CATHY AND CHARLES SIMON



Ozette: Excavating a Makah Whaling Village

RUTH KIRK

UNIVERSITY OF WASHINGTON PRESS: 2015

Although the professional literature is rich and extensive, not enough had been written for the public on the extraordinary archaeological exploration at Ozette, the ancient whaling village on the Olympic coast between Neah Bay and La Push. There is *Hunters of the Whale*, by Northwest chronicler Ruth Kirk, written for young readers in 1974 when the expedition was barely half finished. *Archaeology in Washington*, coauthored by Kirk and WSU archaeologist Richard Daugherty, included a section on Ozette.

But this new work by Kirk is what everyone with any interest in Ozette has long waited for.

Ozette had been occupied by the Makah, probably continuously for at least two thousand years, until the 1920s. Makah oral history recalls centuries of a rich whale-hunting culture centered at the village. They had no choice but to abandon their ancient home when the federal government insisted that children at the site must enroll in school.

Following his identification of the site as the most significant in a coastal survey of archaeological sites in the late 1940s, Daugherty finally gathered funding to begin the excavation of Ozette in 1966.

"Archaeology is not a search for things…," Kirk writes. "The actual goal is to study relationships between objects and the people who made and used them."

To realize this goal, Daugherty drew on colleagues across a range of disciplines.

Geologist Roald Fryxell directed the project and coordinated the WSU scientists. Zoologist Carl Gustafson identified mammal bones from the excavations. Ecologist Rex Daubenmire examined how buried organic material might affect soil acidity. Plant pathologist Shirl Graham studied soil samples to understand favorable preservation conditions. Palynologist Cal Heusser studied fossil plant pollen at the site and what climate conditions it reflected.

Initial excavation over the course of two field seasons exposed a rich history: thousands of animal bones, cedar-bark mats, baskets, stone and bone tools. Fryxell also found evidence that confirmed tribal memory of mudslides that had destroyed several houses.

In spite of Ozette's dramatic promise, however, work was interrupted by the urgent need to salvage important interior archaeological sites about to be inundated by rising waters behind the Snake River dams.

But in 1970, a winter storm uncovered a house at Ozette, and waves and pilferers were making off with artifacts. Tribal chair Ed Claplanhoo '56 asked Daugherty to assess the situation.

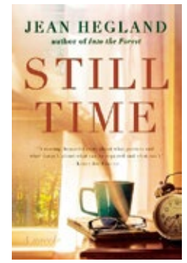
Daugherty immediately drove ten hours to the coast to begin a remarkable 11-year recovery of Makah history and culture, one in which the Makahs themselves participated and would establish that the Makahs were indeed longtime whalers, confirming the memories and stories of their elders

Ozette would result in nine doctoral dissertations and ten master's theses, on subjects such as basketry, stone tools, woodworking technology, ethnobotany, and the use of fish at the site.

Ozette is a beautiful and profound book, befitting the beauty and profundity of Makah culture. And Ruth Kirk is uniquely qualified as its author. In addition to her being widely respected as a scholarly and captivating storyteller of Pacific Northwest natural history and archaeology, as Makah cultural leader Meredith Parker writes in her foreword, "There is no one better suited or trusted to tell this story than our friend Ruth Kirk. She was at Ozette, she was at Neah Bay, she was at our weddings, baby showers, and funerals."

Also, after a decades-long professional relationship, Kirk and Daugherty married in a longhouse at Neah Bay, and spent his last seven years together.

—Tim Steury



Still Time

JEAN HEGLAND '79

ARCADE PUBLISHING: 2015

Still Time, a new novel by Jean Hegland, explores dementia through the eyes of aging Shakespearean scholar John Wilson. Unsettled by life in a residential care facility and a surprise visit from his estranged daughter, Wilson finds solace and structure in the plays and poetry that so captivated his life.

Hegland, who shares poetry at a memory care center near her home in California, says she was inspired by her own responses to the Bard of Avon. "After attending a performance of one of Shakespeare's plays, I am haunted by a collage of lines and phrases that echo through my mind for hours afterward," she writes.

So too, does Professor Wilson evoke the witty, brash, or contemplative words of Shakespeare as he navigates the confusion of Alzheimer's disease. Retreating into "green worlds"—scenes often played out in a fantastical environment away from day-to-day life—Wilson regains a bit of clarity. The interplay is especially poignant as father and daughter struggle with forgiveness and reconciliation.

> "Do you remember me?" Wilson's daughter asks when she first enters his room. "I remember thine eyes well enough," he replies, borrowing lunatic King Lear's reply to eyeless Gloucester as a ploy to buy more time. "I'm your daughter, Miranda," she says.
>
> "Miranda, his mind echoes, Admir'd Miranda, and, worth What's dearest to the world, and, my daughter, who Art ignorant of what thou art." Despite his spurt of hope, he studies her face cautiously, searching suggestions—her eyes, her lips, her hair.

Hegland's 1996 novel, *Into the Forest*, was recently adapted for film. The post-apocalyptic drama stars Ellen Page (*Juno*) and Evan Rachel Wood (*Once and Again*) as teenaged sisters homeschooled in a remote forest in northern California. The girls are forced to survive by their wits as society and their idyllic lifestyle slowly collapse around them.

—Rebecca Phillips

The Adderall Empire: A Life with ADHD and the Millennials' Drug of Choice

ANDREW K. SMITH '14

BOOKTROPE: 2015

Smith's memoir, *The Adderall Empire*, gives you a look into his life and struggle with ADHD (attention deficit hyperactivity disorder). Diagnosed in late high school, Smith was prescribed Adderall and was catapulted into what he calls the "Adderall Empire." This empire is a world in which Smith believes people lose their creative minds to the drug.

"Being inside the Adderall Empire is like being in a lighthouse across the water: I can see my house, and all my friends and family can see me there, but when they see me they don't really notice me, like when I get a haircut," writes Smith.

With three narrative arcs, this book documents Smith's life before Adderall, his time inside the "Adderall Empire," and his experiences with Cogmed (an alternate method of treating ADHD). Throughout the book, Smith provides complete transparency to his readers, even to the extent of including his own medical records, to give an even deeper look into his struggle.

The brutally honest way in which Smith depicts his own struggles makes this book a page-turner, and it will leave you questioning the "Adderall Empire" as a way to treat ADHD.

—Ainslie Kellas

BRIEFLY NOTED

A Formative Decade: Ireland in the 1920s

Edited by JASON KNIRCK '96 MA, '00 PHD, MEL FARRELL, and CIARA MEEHAN

IRISH ACADEMIC PRESS: 2015

Knirck, a history professor at Central Washington University, and his fellow editors and contributors chronicle the events in Irish history during the '20s, when Ireland underwent transformations in national identity and allegiances. Knirck's contribution examines the role of the loyal opposition, the Irish Farmers' Party.

Zen and the Art of Dog Walking

By G. RAY SULLIVAN JR. '73

DEEDS PUBLISHING: 2015

Sullivan authored this collection of photographs and musings as a simple descriptive journey of how he discovered natural beauty and spiritual peace by walking his dog.

Kafka's Architectures: Doors, Rooms, Stairs and Windows of an Intricate Literary Edifice

By AYAD B. RAHMANI

MCFARLAND: 2014

Using Kafka as a lens, WSU architecture professor Rahmani examines modern concepts in architecture and literature.

60

BRUCE WERNER ('64 MS P.E., '74 EDD Educ. Admin.) was inducted into the California Community College Sports Hall of Fame. He taught physical education and served as the men's tennis coach and assistant football coach for 13 years at Chabot College. He then worked at Cosumnes River College as dean of athletics. In 1979 he moved to American River College, where he remained for 22 years. He served as vice president of instruction at Folsom Lake College from 2001 until his retirement in 2004. He also held numerous leadership roles in California community college athletics.

70

THOMAS MEYER ('73 MS Zoo., '78 DVM) was named president-elect of the American Veterinary Medical Association. As president-elect, Meyer will also serve on the AVMA Board of Governors. KCTS 9 announced longtime journalist **ENRIQUE CERNA** ('74 Comm.) as director of community partnerships. Cerna has 40 years of experience in Seattle area broadcasting. **BOB GUPTILL** ('74 Comm.) will retire after 14 years as the Great Northwest Athletic Conference's information director. Guptill has been in college athletics for 35 years. **RODNEY NORTON** ('74 Poli. Sci.), with civil defense law firm Hart Wagner, was selected as 2016 "Lawyer of the Year" for legal malpractice law in the Portland, Oregon, area. **LARRY CLARK** ('76 Acc.) was named vice president for finance and administration at Clover Park Technical College. Clark has worked at CPTC since 2012 and has 35 years of relevant experience from a variety of administration roles in higher education. **DENNIS POPPE** (x'76 Bus. Ad.) serves on the board of directors for the Master Builders Association of King and Snohomish Counties. Poppe is also the owner of Builders Insurance Group based in Bellevue. **RANDY MORGAN** ('77 Music) retired after teaching in Enterprise for 38 years. He taught instrumental music, grades 5-12, and high school choir at Enterprise High School since his graduation from WSU in 1977. He also taught math, from seventh grade math through pre-calculus, and coached junior high football and basketball, high school football and softball. **DON WHITEHOUSE** ('78 Civil Eng.) retired after 38 years with the Washington State Department of Transportation. Whitehouse worked as the administrator of the south-central region for 14 years. He oversaw highway projects from Snoqualmie Pass to Clarkston. A professor in the political science department at Western Washington University, **VERNON JOHNSON** ('79 MA, '85 PhD Pol. Sci.), was appointed director of the Ralph Munro Institute for Civic Education at WWU. Johnson has been a professor at the university since 2002.

80

ED SCHLECT ('83 Civil Eng.) has joined Avista Corporation as vice president and chief strategy officer. He will evaluate growth opportunities and innovative services. Counsyl, a health technology company that performs DNA screening for diseases, hired **DAN PUCKETT** ('86 Acc.) as the company's chief financial officer. With 25 years of experience, Puckett will be in charge of financial management and strategy. Porch.com named **BOB BARTON** ('88 Bus.) as chief financial officer. Porch.com is a data-driven home services network for homeowners. Barton's 20 years of industry experience will aid the company as it continues to grow. **ERIC BENEVICH** ('88 Bus.) joined Neurocrine Biosciences Inc. as chief commercial officer. Benevich's experience in marketing, neurology, psychiatry, and pharmacy will help him in this new position. Pershing Gold Corporation, a Nevada gold producer, appointed **ALAN BRANHAM** ('88 Geo.) to the company's board of directors. The company's goal is to re-open the Relief Canyon Mine. Branham has more than 20 years of experience with mines. Former U.S. Ambassador to Moldova **ASIF CHAUDHRY** ('88 PhD Ag. Econ.) returned to WSU as vice president of international programs in June. He held numerous positions in the State Department, including foreign policy advisor to the chief of the U.S. Navy. Chaudhry also received the WSU Alumni Achievement Award in August.

Volunteers drive the Cougar Nation (really)

Organizing a trip to a Major League Soccer game for 100 people could intimidate anyone. Not to mention a community garden, a networking meeting for young alumni, or even a WSU football viewing party. Fortunately, there's an engine that drives the Cougar nation and its events: volunteers.

Ashley MacMillan '05, president of the Oregon Chapter of the WSU Alumni Association, has seen that engine work. "We have so many people here who are passionate about being involved with other Cougs, we've been able to diversify our events," she says.

That includes the hottest sports ticket in Portland: MLS soccer team the Timbers, which is one of the chapter's family-friendly events. Her chapter also partners with the southwest Washington chapter on everything from Cougar football viewing parties at Tom's Pizza and Sports Pub to regional wine tours.

One volunteer, Jenna Newcomb '03, has taken on annual wine tours as her project. "She's learned the logistics, so every year she has the contacts and know-how. She's also mentoring other volunteers," says MacMillan.

Kim Mueller '91, director of alumni engagement at the WSUAA, says the sheer volume of alumni events is only possible with dedicated people like MacMillan and Newcomb.

"The Alumni Association runs on our volunteers," she says. "We plan about 500 events a year. There's no way our team of four could do that, so we rely on people who want to connect with Cougars."

More volunteers are always needed at chapters all over the country, says Mueller.

A volunteer leadership conference offered twice a year keeps people connected to campus, she says. They see what's new and hear about research—such as WSU Spokane Chancellor Lisa Brown on the medical school, and a visit to concussion researcher Kasee Hildebrand's lab.

"We pay for travel for our chapter leaders to come to Pullman," says Mueller. "They can go back to their communities and say, 'You won't believe what's happening on campus!'"

The conference also imparts ideas for how to plan and promote events, and how to bring in more volunteers.

"The training has been wonderful in expanding our chapter," says MacMillan. "We're really learning how to seek out new volunteers and how to plan for the coming years."

Mueller loves to hear about the events: "I get chills from seeing pictures of community service projects, from Habitat for Humanity to a garden for a food bank."

MacMillan says everybody can help, no matter how much time they give. "Don't be afraid of the time commitment. With a one-year-old daughter, I understand it's as much or as little as you can."

If you would like to volunteer with the Alumni Association, or would just like to learn more about the opportunities, you can email wsuaa.volunteers@wsu.edu or visit alumni.wsu.edu.

ALUMNI VOLUNTEERS, COURTESY WSUAA

(IN PHOTOS, LEFT TO RIGHT) TOM MONROE, RICHARD WAGNER, AND JIM ROCKEY—AGES 9 IN 1948, AND AGES 75 IN 2014

TOM MONROE '63, RICHARD WAGNER '61, and I started first grade together in Okanogan, ninety miles north of Wenatchee and thirty miles south of the Canadian border. Born at Elsie McDonald's Maternity Home since there was no hospital then, we three boys began a lifelong friendship together at Grainger Elementary School while America was still battling World War II.

We all became Cougars in the fall of 1957. At first we were "Independents": Tom and Richard roomed at Kruegel Hall, me at Stimson Hall. Tom and Richard became "TEKEs" (Tau Kappa Epsilon fraternity) their sophomore year, but I was a hardcore loner, staying on to be elected Junior Independent Man of the student body.

Tom and Richard married their respective spouses as juniors and moved into University mobile homes. Associating with influential people has always been part of the Cougar experience: I took a speech class with Phil Crosby, son of Bing Crosby, and roomed one year with John Rosellini, son of Washington state Gov. Albert Rosellini.

Tom majored in business administration, Richard in mechanical engineering, and me in English with a minor in speech and theatre. I toured throughout Washington performing for numerous high school assemblies and meetings of civic organizations.

Every summer it was back to the Okanogan country for us three guys, where all worked for the U.S. Forest Service, fighting forest fires and working on other projects. Tom had the only glamorous forest service job; he was a smokejumper from 1958 to 1962, "jumping" in Washington, Oregon, Montana, Arizona, and New Mexico. Richard and I were known as "ground pounders" on forest fires. Eventually I worked as a fire lookout for ten seasons in Washington and Oregon.

After graduating, we went our separate professional ways, but never lost touch with each other. Richard worked in engineering, ultimately as research engineer for Weyerhaeuser Company. He is also on the Auburn City Council—1989 to present—and was deputy mayor 2013-2014. Tom stayed in business management and added computer expertise, eventually working as computer programmer for the Seattle Seahawks. I served as university professor for a few years and then went into theatre directing, professional fundraising, gambling management, and writing and photography.

Now, as we pass our seventy-fifth birthdays, we can look back on a lifetime of achievements and careers catapulted from the small town of Okanogan by an outstanding education at WSU.

BY JIM ROCKEY '63

Read Jim, Tom, and Richard's full story and see their portraits through the years at magazine.wsu.edu/extra/Okanogan-Cougs.

90

ANDI DAY ('91 History) was appointed to the Washington Tourism Alliance board of directors. Day is currently the executive director of the Long Beach Peninsula Visitors Bureau. Capstone Nutrition appointed **PARTHA KUNDU** ('91 MS Food Sci.), as chief executive officer. Partha has over 25 years of experience in the nutrition industry, including Starbucks and sports nutrition producer Dymatize. Ellie Mae, a mortgage software company, appointed executive vice president of technology at Visa, **RAJAT TANEJA** ('92 MBA), to their board of directors. Including his years at Visa, Taneja has over 20 years of experience in global technology. Washington State University College of Pharmacy named **MERRIE KAY ALZOLA** ('93 Pharm.) the 2014 Outstanding Alumna of the Year. Alzola helped establish WSU's alumni and student mentor program for future pharmacists. **RYAN HART** ('93 Comm.) has been named the new chief of external affairs for the Port of Vancouver USA. He previously worked as district director for U.S. Rep. Jaime Herrera Beutler. **JOYCE STARK** ('94 MS Bio.) was named Educational Service District 105 Regional Teacher of the Year for 2015-2016. She is currently teaching science at Sunnyside High School. Joyce began her career at Sunnyside School District in 1977. Marketing and personalization company Monetate named **MICHAEL WASYLUKA** ('94 Acc.) vice president of sales and marketing. He will be in charge of creating Monetate's go-to-market strategy, using his more than 20 years of experience in sales and marketing. Voice of the Idaho Steelheads, **WILL HOENIKE** ('97 Comm.) is the recipient of the 2014-2015 ECHL hockey league "Broadcaster of the Year" award. Hoenike has been the hockey team's broadcaster since January 2011. **RICK LIBRA** ('97 MS Eng. Mgmt.) was named vice president of Exelon Generation's Limerick Generating Station site. Libra will come into the job with over 30 years of experience in the U.S. nuclear industry. As vice president, Libra will manage all plant operations, as well as lead a team of 800 employees. **STACY PRITT** ('97 DVM) was awarded the Ron Orta Memorial Award from the Laboratory Animal Management Association for best presentation at their annual meeting located in New Orleans in April. Following that she was awarded the Founders' Award from the Laboratory Animal Welfare Training Exchange. At the American Veterinary Medical Association meeting in July, she announced her candidacy for the AVMA vice presidency. Pritt is currently the president-elect of the Women's Veterinary Leadership Development Initiative and will take over as president in January 2016.

JAMIE (HO) HSU ('98 Arch.) is an active member of the Master Builders Association of King and Snohomish Counties as well as the Remodelers Council. She is also president of Lakeville Homes. **MARK FRAZIER** ('99 Fin.) was appointed head of Atlantic Trust's Austin office and promoted to managing director. Frazier has more than 15 years of experience in the industry. Northwest Commercial Advisors added **CHAD HAMILTON** ('99 Const. Mgmt.) to their staff. Hamilton will specialize in investment and development services. **MICHAEL PICKERING** ('99 MS Geol.) was hired by Maul Foster & Alongi, Inc. Pickering is a senior geologist who has project management experience in the Northwest.

00

ELS Architecture and Urban Design promoted **RYAN CALL** ('01 Arch.) to associate principal and director of urban design. Call has been with ELS since 2001. He was also recently awarded the Urban Land Institute's Apgar Award for co-authoring "New Suburbanism: Reinventing Inner-Ring Suburbs." Franklin Public Utility District hired **HOLLY DOHRMAN** ('01 Soc. Sci.) as power manager for the utility. Dohrman's responsibilities will center on managing power resource acquisitions. After 15 years of working in the eDiscovery services industry, **JOHN MUNRO** ('01 MIS) has joined the company's senior leadership team. Munro will be vice president of managed services operations. **ADAM DROKER** ('04 MBA Fin.) has been promoted to chief investment officer of WaterRock Global Asset Management. Droker will assume day-to-day oversight of the firm. Guild Mortgage named **JORDAN FLOWERS** ('06 Mktg.) manager of their Kirkland branch. Flowers heads into this new position with ten years of experience in the mortgage industry. **ERIC STONES** ('06 EDD) was recently appointed director of the Moses Lake School Board. Stones and his family have lived in the Moses Lake School District since 1996. **ANDREW SOMERS** ('07 Socio.) was appointed as the new court administrator for Island County Juvenile and Superior Court in March. Former WSU men's basketball standout. **ARON BAYNES** ('09 Kines.) signed with the Detroit Pistons. He previously played two and a half seasons with the San Antonio Spurs. In 2014, with the Spurs, Baynes became the second Cougar to win an NBA Championship.

10

Former WSU women's basketball player **KATIE GRAD** ('12 Kines.) recently joined the Cougar Athletic Fund for the Puget Sound region. The CAF is focused on covering the annual costs for student-athlete scholarships. **RANDY BOLERJACK** ('14 Poli. Sci.) will return to Cougar country as he was recently named new director of communications and public relations at Washington State University North Puget Sound at Everett. Most recently Bolerjack worked with the Mercer Island School District as communications and public relations director, where he received state-wide recognition for his work.

CLASS*notes*

Philanthropists, business leaders, and WSU supporters **MICHAEL AND VIRGINIA JESSEMEY MCCARTY** received the WSU Alumni Association Alumni Achievement Award in September. Virginia graduated in 1974 with a broadcasting degree, and Michael earned his degree in recreation in 1975. He recently retired as chief executive officer of the Association of Washington Cities. She is the owner of McCarty & Associates marketing firm, which she founded in 1986.

Michael has been manager of the Thurston Conservation District, administrator for the City of Shelton, past president of the Washington City Management Association, and board member for the National League of Cities. He was appointed by former Gov. Chris Gregoire to a select committee on the state budget and was invited to be part of a state delegation that met with President Barack Obama and his cabinet.

Virginia is founder and owner of Events at 16 Maples. She has worked for WSU Athletics sports information, Sunkist Inc., and *Swimming World* magazine. She is a founding member of the Centennial Guild to support Mason General Hospital in Shelton.

Lifetime members of the Alumni Association, they created the Jessemey/McCarty Family Scholarship in WSU's Edward R. Murrow College of Communication. Virginia is also a member of the professional advisory board for the Murrow College.

IN*memoriam*

40

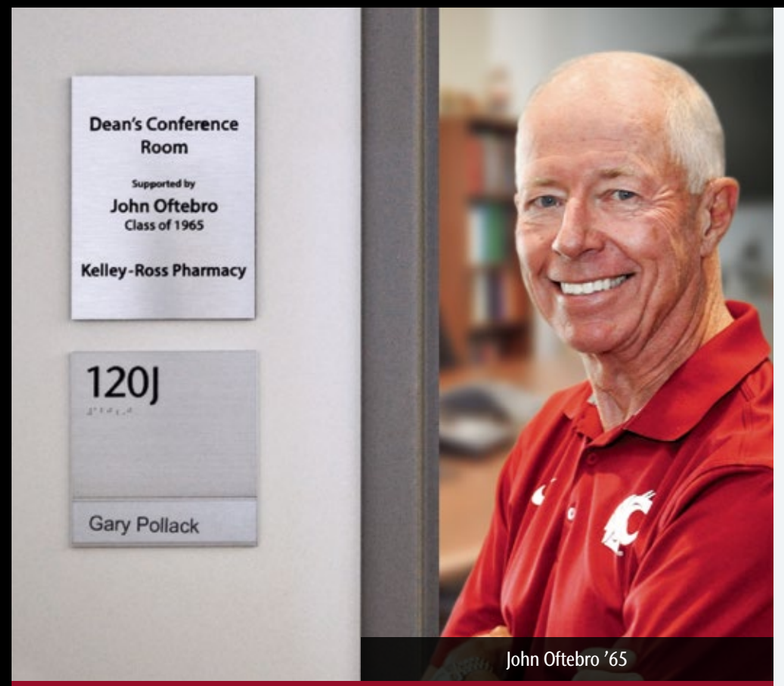
PAUL A. KLAVANO ('41 Chem., '44 DVM), 95, June 10, 2015, Pullman. **RICHARD D. BARTRAM** ('43 Hort.), 94, February 19, 2015, Wenatchee. **MARYHELEN STEPHENS** ('43 Pharm.), 93, August 20, 2015, Portland, Oregon. **FORREST W. JOHNSON** ('44 Wildlife Eco.), 94, August 19, 2015, Yakima. **HELEN F. STOWELL** ('44 Phys. Ed.), 93, June 30, 2015, Spokane. **BARBARA LEE (LEIGHTY) HANGER** ('45 Nursing), 91, April 4, 2015, Dayton. **DOROTHY RUTH HINK** ('45 Microbio.), 94, April 14, 2015, Cashmere. **NYDIA JANE OLIVER** ('47 Fine Arts, Delta Gamma), 89, July 14, 2015, College Place. **ZILDA UTZMAN CARLSON** ('48 Pol. Sci.), 89, July 26, 2015, Boise, Idaho. **PAUL H. GOMULKIEWICZ** ('48 Elec. Eng.), 91, June 12, 2015, Wenatchee. **MARY PETR NANCE** ('48 Acc.), 90, August 16, 2015, Great Falls, Montana. **DAVID JOHN POWELS** ('48 Civ. Eng.), 93, May 5, 2015, San Ramon, California. **ARLENE EDNA GOHEEN PRICE** ('48 Fine Arts, '51 Ed.), 90, December 28, 2014, Vancouver. **MARJORIE EDWARDS STAGE** ('48 Eng., '50 Ed., Kappa Kappa Gamma), 89, July 22, 2015, Seattle. **DONALD AESCHLIMAN** ('49 Lib. Arts), 91, September 24, 2015, Woodinville.

50

LEROY T. DESILET ('50 Comm.), 89, March 27, 2015, Sequim. **DAN LESLEY FRANCE** ('50 Wildlife Bio.), 90, July 7, 2015, Soldotna, Alaska. **WILLIAM FULTON MOODY** ('50 Ed., '52 MED), 90, August 7, 2015, Spokane. **WILLIAM O. BELMONDO** ('51 Phys. Ed., Phi Kappa Tau), 87, July 18, 2015, Renton. **ARNOLD CLYDE SLATER** ('51 DVM), 88, August 9, 2015, Olympia. **GENE T. THOMPSON** ('51, '66 MS, '74 PhD Ag. Eng.), March 28, 2015, Lewiston, Idaho. **EUGENE A. DAMMEL** ('52 Anth.), 85, June 20, 2015, Placerville, California. **DOROTHY D. HAUENSTEIN** (x'52), 84, July 15, 2015, Reardan. **JOEL HANS MAGISOS** ('52, '62 MS Ag. Ed.), 85, May 3, 2015, Sequim. **GEORGE M. MARUGG** ('52 DVM), 94, October 27, 2014, Albany, Oregon. **PETER STEELE** ('52 MS Ag.), 89, June 29, 2015, Seattle. **JUANITA JOANN HIGBY** (x'53), 86, June 3, 2015, Richland. **KENNETH M. JOHNSON** ('53 Busi.), 83, July 26, 2015, Kent. **DAVID ROBERTS** ('53 Pharm., Phi Sigma Kappa), 84, May 10, 2015, Gig Harbor. **ALYSON COOPER SMALLEY** ('53 Home Ec.), 84, August 17, 2015, Bremerton. **EDWIN "WALT" SMITH** ('53 Nat. Res.), 90, December 31, 2014, Omak. **JAMES LEIGHTON BLANIE** ('54 DVM), 90, July 19, 2015, Spokane. **SALLY ANN HELMER** ('54 Ed., '58 MED, Alpha Gamma Delta), 82, June 7, 2015, Spokane. **ALONZO ELLIET HOWARD** ('54 DVM), 86, February 7, 2015, Mt. Angel, Oregon. **WILLIAM LEE SUTTON** (x'54, Pi Kappa Alpha), 83, June 15, 2015, Peshastin. **JOHN RICHARD COLLEY** ('55 Nat. Res.), 91, January 27, 2015, Bainbridge Island. **JACK W. ESKEBERG** ('55 Ed.), 90, June 5, 2015, Spokane. **SHEILA WALSH GUENTHER** ('55 Fine Arts), 81, June 3, 2015, Vancouver. **ARTHUR H. MCDONALD** ('55 Comm.), 82, August 20, 2015, Freeland. **CARL EVERETT MUIR** ('55 Ag., Farmhouse), 84, July 8, 2015, Edmonds. **ALICE MARIE SWANGER** ('55 Nursing), 82, June 8, 2015, Chewelah. **LARRIE ANN (SMITH) CLARK** ('56 Home Ec., Ed.), 81, August 13, 2015, Snohomish. **FLOYD C. DANIELSON** ('56 Pharm.), 81, May 22, 2015, Bandon, Oregon. **PATRICIA ANN EMERY** ('56 Music), 80, June 9, 2015, La Conner. **EDWARD F. KOESTER** ('56 Civ. Eng.), 80, May 27, 2015, Trout Lake. **RAY DEWEY TURNER** ('56 DVM), 83, June 26, 2015, Lewiston. **BENJAMIN A. WILCOX** ('56 Mat. Sci & Eng.), 80, March 15, 2015, McLean, Virginia. **HOWARD JAY CHILDERS** ('57 MED, '71 PhD Ed.), 86, February 5, 2015, Prosser. **ALFRED J. FLECHSIG JR.** ('57, '59 MS Elec. Eng.), 79, August 28, 2015, Pullman. **JESSE TRUAX DAVIS** ('58 Ag. Ed. '65 Ag. Econ.), 90, July 2, 2015, Lewiston, Idaho. **DONALD GEORGE FARR** ('58 Pharm.), 78, March 25, 2015, Spokane. **NEIL E. HALEY** ('58 DVM), 86, July 7, 2015, Chico, California. **MARY RUTH HORNEY** ('58 Busi.), 83, May 16, 2015, Payson, Arizona. **MARVIN COLIN ABRAMS** ('59 PhD Chem.), 80, June 7, 2015, Pomona, California. **CHARLES FRANK ACTOR** ('59 Ed., '63 MED), 78, July 13, 2015, Sherwood, Oregon. **RAY FORREST CHAPMAN** ('59 English), 83, July 20, 2015, Missoula, Montana. **OLIVER LINCOLN CLICK** ('59 Ag.), 84, July 31, 2015, Ephrata. **TERRILL E. HUNT** (x'59 Lib. Art.), 79, June 24, 2015, Spokane. **GERALD FRANK SWAN** ('59 Civil Eng.), 79, July 29, 2015, Olympia.

60

DANA BRUCE TAYLOR ('60 Elec. Eng.), 81, November 28, 2013, Allyn. **JOHN L. GRANT** ('61, Lambda Chi Alpha), 75, October 3, 2014, Walla Walla. **DON PIELE** ('61 Chem.), 76, October 12, 2014, Tucson, Arizona. **EDWARD GLENN POOL** ('62 Mech. Eng.), 77, June 15, 2015, Spokane. **DAVID ANDERSON MITCHELL** ('64 DVM), 77, August 21, 2015, Monroe, Georgia. **DONALD ORMOND CORDES** ('65 MS Vet. Sci.), 85, August 7, 2015, Auckland, New Zealand. **FRANCES "BETSY" HILL** ('65 Ed.), 72, August 5, 2015, Vail, Colorado. **JOHN RICHARD (RICH) STIPE** ('65 Ag., Alpha Tau Omega), 72, August 8, 2015, Arizona. **DANIEL CHARLES CLEMENT** ('66, '68 MA English), 70, May 28, 2015, Seattle. **TODD MARTIN MARTENSEN** ('66 Biochem.), 70, June 18, 2014, Bethesda, Maryland. **ROBERT JOSEPH DAVIS** ('67 Psych.), 70, July 10, 2015, Pullman. **KAREN KAY HOWES** ('67 Ed.), 79, June 26, 2015, Nampa, Idaho. **RONALD DEAN POSHUSTA** ('67 Chem.), 80, July 25, 2015, Spokane. **GARY MICHAEL CLARK** ('68 Psych.), 66, April 1, 2014, Spokane. **DENNIS REED GILLIS** ('68 Ed., '70 MS Human Dev.), 74, May 5, 2015, Pomeroy. **THOMAS LAREW KENNEDY** ('68



John Oftebro '65

CREATE A LEGACY, SUPPORT EXCELLENCE

Something very special is happening at the College of Pharmacy, and this is your chance to be part of it. The opening of our new building on the WSU Health Sciences Spokane campus has created a rare opportunity for you to have a permanent legacy in the College of Pharmacy by naming a teaching area, conference room, student gathering area, or laboratory in the Pharmaceutical and Biomedical Sciences Building. For more information contact 509-368-6675 or gocougs@pharmacy.wsu.edu.

COLLEGE OF PHARMACY PARTNER HIGHLIGHT JOHN OFTEBRO '65

"I have chosen to give back to a program that provided me with a foundation for creating a wonderfully rewarding professional practice. I am extremely grateful for the financial aid I received during my undergraduate years, and am glad to now assist our students. Go Cougs!"

John Oftebro contributed to name the dean's conference room the "John Oftebro, Kelley-Ross Pharmacy Dean's Conference Room."

College of Pharmacy
Washington State University

PHARMACY.WSU.EDU

History), June 5, 2015, Pullman. **MARIAN E. PETERSON** ('68 Pol. Sci.), 89, May 30, 2015, Pullman. **WILEY LEE WILSON** ('69 Physics), 79, July 23, 2015, Albion.

70

MICHAEL THOMAS COLLINS ('70 Fin., Phi Delta Theta), 67, July 23, 2015, Spokane. **EUGENE C. DOLPHIN** ('70), 67, June 3, 2015, San Diego, California. **PETER J. ELLEDGE** ('70 Comm.), 69, August 3, 2015, Everett. **FRED LOUIS STOBB** ('71 Hosp. Busi. Mgt. , Tau Kappa Epsilon), 65, April 2, 2015, Seattle. **GEORGE LANCE WEGRICH** ('71 Arch.), 68, June 22, 2015, Edmonds. **GORDON D. BARKER** ('72 Pharm.), 69, August 1, 2015, Bend, Oregon. **RONALD ELDON HERMANSON** ('72 Ag. Eng.) 82, August 21, 2015, Pullman. **ROBERT S. MARSHALL** ('72 Ed.), 72, August 3, 2015, Washtucna. **ADOLPH JOHN FERRO JR.** ('73 PhD Microbio.), 72, March 25, 2015, Ridgefield. **GUY F. HUESTIS** ('73 Arch.), 64, June 6, 2015, Great Falls, Montana. **VERNON THOMAS JUDKINS** ('73 Fine Arts, '93 Ed.), 67, July 20, 2015, Tucson, Arizona. **MICHAEL L. MILLER** ('74 Ag.), 67, October 5, 2014, Sunnyside. **DOUGLAS VAWTER** ('74 Gen. St., '76 Busi.), 78, December 1, 2012, Benton City. **DAVID ARVIN ANDERSON** ('75 Microbio.), 61, September 29, 2014, Benton City. **NANCY GREIG BALDWAIN** ('75 Home Ec.), 84, May 24, 2015, Flat Rock, North Carolina. **AMES C. STOTT** ('77 Pharm.), 67, July 29, 2015, Reno, Nevada. **DON LEE CHRISTENSEN** ('78 Pharm.), 60, June 10, 2015, Fircrest. **STEVEN C. LUCKSTEAD** ('78 PhD Physics), 67, October 27, 2014, Walla Walla. **TIM QUINN** ('79 Crim. Jus.), 57, February 16, 2013, Kennewick.

80

GREGORY F. ALLEN ('80 Home Ec., Kappa Sigma), 58, July 16, 2015, Seattle. **ZARA DEBRA ABRAHAM** ('82 Ani. Sci., '86 PhD Nutr.), 62, June 11, 2012. **VIRGINIA ANN ALBARADO** ('82 Psych.), 71, May 18, 2015, Spokane. **LIZBETH ANN GRAY** ('85 PhD Coun. Psy.), 62, September 7, 2013, Corvallis, Oregon. **JOY LYNN MOCK** ('86 Human Dev.), 52, August 12, 2015, Kenmore. **PHYLLIS ANNETTE THONNEY** ('87 Soc. Sci.), 86, June 29, 2015, Pullman. **KURT G. WAGNER** ('88 MED, '97 EDD), 55, April 13, 2012, Port Orchard.

90

ARTHUR HERBERT HIMMLER ('90 PhD Ed.), 68, February 7, 2013, Omak. **BRADLEY KENNETH WILLIAMS** ('90 DVM), 54, May 23, 2015, Coeur d'Alene, Idaho. **SUSAN MARIE BROZIK** ('94 PhD Chem.), 47, January 27, 2015, Albuquerque, New Mexico. **BRIAN J. BURNETT** ('95 Pol. Sci.), 43, July 4, 2015, La Center. **GWEN LEE COMFORT** ('95 Comm.), 43, August 9, 2015, Bellingham. **CHRISTINE MORRIS** ('97 Comm., Kappa Delta), 40, August 6, 2015, Bellevue.

00

SUSAN MARIE FINKBEINER ('04 Ed.), 58, August 11, 2015, Kennewick. **ADAM RAYMOND ARVIDSON** ('06 Hist.), 48, November 2, 2014, Waimea, Hawaii.

10

ARIC MATTHEW KLEPPIN ('15 Spanish), 26, May 30, 2015, Pullman.

FACULTY AND STAFF

EDWARD BARTON, 84, Facilities Services, 1989-1996, August 29, 2015, Uniontown. ✻ **ROBERT J. DAVIS**, 70, Libraries, 1986-2005, July 10, 2015, Pullman. ✻ **ALFRED FLECHSIG**, 79, Electrical Engineering and Computer Science, 1960-2002, August 28, 2015, Pullman. ✻ **WALTER H. GARDNER**, 98, Soil Physics, 1950-1983, June 11, 2015, Provo, Utah. ✻ **PAUL A. KLAVANO**, 95, Veterinary Medicine, 1944-1986, June 10, 2015, Pullman. ✻ **D. CRAIG LADWIG**, 76, Facilities Services, 1976-2001, July 25, 2015, Moscow, Idaho. ✻ **SHERI RAE MILTENBERGER**, 72, WSU Vancouver, 1989-2010, July 31, 2015, Battle Ground. ✻ **CARL E. MUIR**, 84, Crop and Soil Sciences, 1982-1995, July 8, 2015, Edmonds. ✻ **RONALD POSHUSTA**, 80, Chemistry, 1967-2000, July 25, 2015, Spokane. ✻ **JAMES "JIM" QUANN**, 82, Registrar, 1970-1996, May 22, 2015, Spokane. ✻ **JACK C. STONE**, 74, Facilities Operations, 1972-1999, July 5, 2015, Pullman.

CORRECTION

Dorothy (Teel) Harless '53 was incorrectly listed in the August 2015 "In Memoriam."

DEARreader

Did a story inspire you or stir a memory? What's your own story? Do you have a photo to share?

We'd love to hear about your life, your thoughts about the magazine, and your WSU experiences.

VISIT magazine.wsu.edu/contact

EMAIL US at wsm@wsu.edu

SIGN UP for our email newsletter at magazine.wsu.edu/email

POST your class note at magazine.wsu.edu/mystory

CONNECT with *Washington State Magazine* on social media:

Facebook, Twitter, Google+, Pinterest, Instagram, YouTube

MILEstones

A billion reasons to celebrate

WSU's fundraising efforts reach a lofty goal

BY LARRY CLARK

PHOTO ROBERT HUBNER

WSU STUDENT SELENA ALVARADO is heading to Costa Rica, but it isn't for a vacation. As part of the Backpack Journalism program in the Edward R. Murrow College of Communication, she will investigate issues that face Costa Ricans, then send back videos and print stories for Pacific Northwest media outlets. The hands-on program wouldn't exist without scholarships and support from a number of donors.

At the WSU Tree Fruit Research Station in Wenatchee, apple breeder Kate Evans and her research team identify traits that can improve Washington's signature fruit. Using genetic markers and research orchards, they seek an apple that tastes great and keeps well. Evans's research will move forward with help from a historic $27 million gift from the Washington tree fruit industry.

Alvarado's on-the-ground training as a journalist and Evans's apple research represent just two of many efforts made possible by the recently concluded *Campaign for Washington State University: Because the World Needs Big Ideas*. The campaign brought in over $1.06 billion, which will make a significant difference in student success, research, and WSU's ability to serve the state. Just as impressive is the number of donors: 206,259 donors made over 800,000 contributions.

The sheer size of a billion dollars can seem overwhelming. Scott Carson '72, a retired Boeing CEO and WSU regent, described it physically: "If you laid every dollar end to end, it would stretch around the world four times."

More importantly, he says, every dollar given to the University improves the ability for WSU to meet its land-grant mission of student access, service, and research.

Carson headed up the fundraising effort—the largest comprehensive capital campaign in WSU history—since its start in 2006. At the outset, the University's academic leaders put together a wish list of scholarships, research initiatives, and endowed professorships, which were then distilled to the most relevant needs for the state and WSU.

President Elson S. Floyd gets the credit for setting a high target, says John Gardner, vice president for development. "He determined within his first couple of months that, despite objections, the goal was a billion," says Gardner. Floyd's enthusiasm, and his personal efforts, for the campaign continued until his untimely death in June.

So what does a billion dollars bring to WSU, students, faculty, and supporters?

For students, the money will fund scholarships, for example, to train new medical professionals, students with working families, and backpack journalists. In research, it will go toward developing sustainable food systems, investigating biofuels, addressing global infectious diseases, and more. On all the WSU campuses, part of the money will build labs, classrooms, even a new WSU Museum of Art.

The campaign concluded successfully on June 30, 2015. It culminated in a September 2015 event on Terrell Mall in Pullman, as students, faculty, alumni, and University leaders gathered for a barbecue and a chance to celebrate a significant milestone for the future of WSU.

2006-2015

the CAMPAIGN *for* WASHINGTON STATE UNIVERSITY

PULLMAN | SPOKANE | TRI-CITIES | VANCOUVER | EVERETT | GLOBAL

Thank you!

Since it began in 2006, *The Campaign for Washington State University: Because the World Needs Big Ideas* created opportunities for thousands of WSU students and advanced the teaching, research, and outreach mission of Washington State University. To everyone who contributed to *The Campaign for WSU,* thank you for empowering big ideas and for inspiring tomorrow's Washington State University.

44.6%
ALUMNI PARTICIPATION RATE

ALUMNI DONORS WORLD-WIDE
78,370

$383 MILLION
FOR FACULTY & RESEARCH

$344 MILLION
FOR PROGRAMS & FACILITIES

$1,065,091,919
TOTAL PRIVATE SUPPORT FOR WSU STATEWIDE

32%
($338m) FOR STUDENT SUPPORT

WSU AREAS IMPACTED
3,358

645
endowed funds established

206,259
GENEROUS DONORS

campaign.wsu.edu

ASK DRuniverse

A citizen-science project bringing together communities and friends at Seattle Parks and Recreation is helping WSU researchers track and conserve important pollinators in our backyards and farms. Find your own citizen-scientist field guide at askdruniverse.wsu.edu/bee-guide.

ILLUSTRATION ROB MCCLURKAN

WHY DO BEES MAKE HEXAGONS IN THEIR HIVES? WHY NOT ANY OTHER SHAPE?

—Aditya, 10, New Delhi, India

Dear Aditya,

When bees make hexagons in their hives, the six-sided shapes fit together perfectly. In fact, we've actually never seen bees make any other shape. That's what I found out when I visited my friend Sue Cobey, a bee researcher at Washington State University.

Cobey showed me some honeycombs where the female bees live and work. Hexagons are useful shapes. They can hold the queen bee's eggs and store the pollen and honey the worker bees bring to the hive.

When you think about it, making circles wouldn't work too well. It would leave gaps in the honeycomb. The worker bees could use triangles or squares for storage. Those wouldn't leave gaps. But the hexagon is the strongest, most useful shape.

Don't just ask the bees. Cobey explained that humans have recently used math to find out why hexagons make the most sense.

"The geometry of this shape uses the least amount of material to hold the most weight," she said.

It takes the bees quite a bit of work to make the honeycomb. The wax comes from glands on the bees' bellies, or abdomens. Honeybees have to make and eat about two tablespoons of honey to make one ounce of wax. Then they can add this wax to the comb as they build.

The hexagon might just save bees some time and energy. They can use the energy to do another really important job: carry pollen from flower to flower that allows new plants to grow. It's my cat instinct to swat at a bee, but I try not to because bees are really important. They make it possible for us to eat food.

"The honey bee is an amazing animal, really fun to work with," Cobey said. "And she is responsible for pollinating your fruits, vegetables, and nuts."

Having a sturdy and useful hive can help bees get the job done.

Not too long ago, some scientists wondered how exactly the bees build these hexagons. They found certain bees would start out making circles in the wax using their body as a tool. Scientists don't really know why it happens, but the bees seem to be using their body heat to melt the wax from a circle shape into a hexagon shape.

Hexagons and honeycomb shapes are also useful for building things humans use, too, like bridges, airplanes, and cars. It gives materials extra strength.

After all, materials made with hexagon shapes can also handle a lot of force, even if they are made out of a lighter material. That's what I learned from my friend Pizhong Qiao, an engineer and professor at WSU.

"We learned it from the bee," he said. "Hexagons apply to everything you can build."

For having never done a day of math homework in their lives, bees sure seem to use some creative geometry and engineering to build their headquarters.

Sincerely,
DR. UNIVERSE

WASHINGTON STATE UNIVERSITY

WASHINGTON STATE MAGAZINE
PO BOX 641227
PULLMAN WA 99164-1227

Washington State MAGAZINE

WHAT'S ONLINE ✻ WINTER 2015

magazine.wsu.edu

WEB EXTRAS
Alex Kuo reading excerpts, master chef recipes, Foley Institute alumni, a Spokane cider maker profile

ORIGINAL VIDEOS
Amelia Earhart documentary highlights, vintage Rose Bowl footage, cider making

PHOTO GALLERIES
Vintage apple watercolors, colonial cider mugs, Northwest cider apples

FACEBOOK
Like the WSM page on Facebook for extra content

PINTEREST
Gift guides for Cougs, art, and WSU-themed pins on our WSM boards

TWITTER
Follow us on Twitter for frequent updates

INSTAGRAM
Photographs from WSU campuses and around the state

mystory
Post your class note and browse news from fellow Cougs

eLetter
Subscribe to WSM's monthly email newsletter

eMAG VERSIONS
Read the magazine as you like it, on your tablet, phone, computer, or e-reader

GOOGLE+
Join us for more stories and updates

{ *Navigation tools* }

COVER / BACK PAGE

ENLARGE QUADRANT

RETURN TO SPREAD VIEW

PREVIOUS / NEXT PAGE

IN THIS ISSUE
CLICK ON PAGE # TO GO TO STORY

SCROLL PAGE
(IN ENLARGED VIEW)

WEB LINKS
URLS IN TEXT & ADS ALSO CLICKABLE

CLICK HERE TO EXIT
OR USE ctrl/cmd-Q