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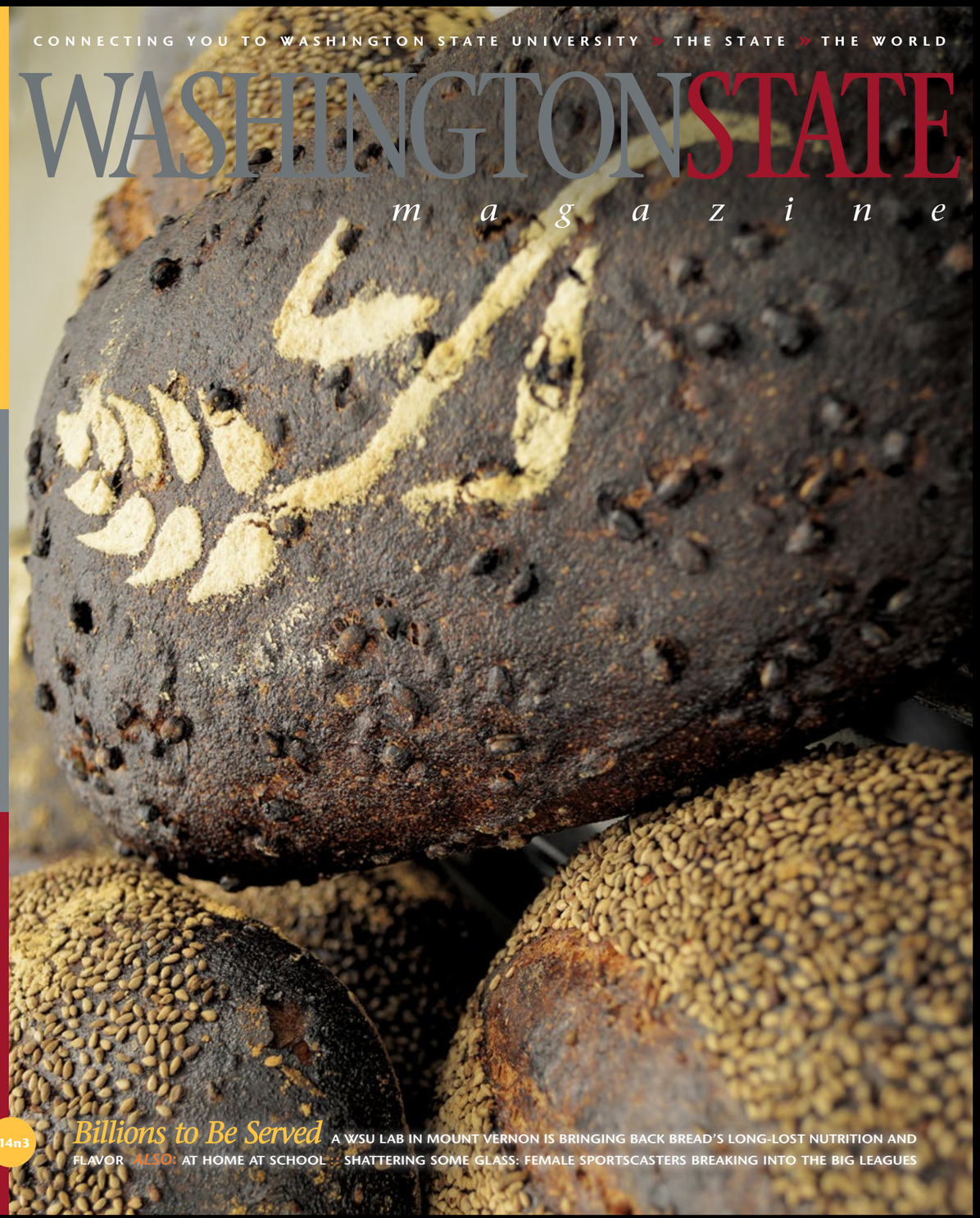
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Billions to Be Served A WSU LAB IN MOUNT VERNON IS BRINGING BACK BREAD'S LONG-LOST NUTRITION AND FLAVOR *ALSO:* AT HOME AT SCHOOL :: SHATTERING SOME GLASS: FEMALE SPORTSCASTERS BREAKING INTO THE BIG LEAGUES

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SUMMER 2015

WASHINGTON STATE magazine

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On the cover: *Malted grains give these WSU Bread Lab loaves their caramelized color and rich sweetness. Photo by Kim Binczewski*

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Washington State University scientist Hans Van Dongen and his team are opening eyes about the importance of sleep to our health.

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first words

The right work :: Vivian Maier worked as a nanny in Chicago for 40 years. She died in 2009 at age 83 and may have faded from memory but for her other, uncelebrated work as an amateur street photographer. After her death, Maier's collection of 150,000 photographs, some of which were on display at the WSU Museum of Art from January to April, was auctioned off and released to the world. By children's reports a fine nanny, her legacy for most will be the images that caught the panoply of people and scenes in Chicago, New York, Los Angeles, and other cities she visited with her Rolleiflex camera.

Those pictures of children, men, and women at bus stops and shops, in buses and on sidewalks show warmth, energy, and ennui of urban life, most taken while Maier ferried her charges through the city. She didn't even develop many of her negatives. She never received a dime for her photographs.

As Maier's story shows, work is not always about making money, although it's necessary to pay the rent and put food on the table. We each define the right work to fulfill our lives, "Each singing what belongs to him or her and to none else," as Walt Whitman said about the work of carpenters and homemakers. It can mean documenting one's surroundings as Maier did, or pushing for a dream job, helping others who need it, or maybe even improving the world.

Sometimes putting a different kind of food on the table can make a better world. In this issue, Eric Sorensen visits the Bread Lab at WSU's Mount Vernon Research Center, where wheat breeder Stephen Jones, his students, and a resident baker are redefining a staple. Sorensen finds a revolution underway, one in which local grains and rediscovered baking techniques can make a better loaf.

To the south, the work of WSU Vancouver professor Susan Finley and others can and will make the difference in the lives of homeless and impoverished children when they are out of school for the summer. Finley's own experiences drive the At Home At School program, an innovative effort to make sure those kids have high-quality summer experiences and, at the same time, inform teachers about the special needs those children might carry into the classroom.

Some people have to jump some hurdles to succeed in the work they want. For women like Cindy Brunson and Jaymee Sire, who broke into the traditionally male-dominated field of sports broadcasting, the extra effort pays off. They and other alumni capitalize on their broadcasting training at the Murrow College of Communication to knock it out of the park.

Our work at times carries us in a new direction, as it has for our content editor and longtime writer Hannelore Sudermann, who wrote for this magazine for over 10 years. We will miss her writing acumen, editorial eye, and her ability to find and tell great stories. Like Maier, like many of us, she has left a mark and continues to follow her muse.

Larry Clark, Managing Editor



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I am... Yadira Olivera, a graduate student from Prosser, Washington. After I earn my Master's degree in Prevention Sciences in 2015, I will pursue my Ph.D. at WSU.

On my research... For many parents, figuring out how to raise healthy, well-adjusted children who are prepared for success in life is overwhelming. We are developing and implementing novel programs to help parents teach their children effective coping skills in Pasco and Prosser, Washington, and in La Habra, California.

On my future... I want to implement and evaluate effective intervention programming to help low-income and underserved populations. I would love to help parents in these communities learn effective skills to build healthy and positive relationships with their children.

To WSU's donors... Your remarkable generosity allows me to tackle these issues head on. Your support empowers thousands of Cougs, like me, to make a tangible difference in the lives of those who need us most. Thank you!

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The GI Generation speaks

[*Editor's note: We received a great response to the spring 2015 article "After the War" from a number of alumni who attended Washington State College in the late '40s and early '50s (and some later). They shared their recollections of the time and wonderful anecdotes of the college. Several of these letters are excerpted below. Please visit Posts for Summer 2015 at* ***wsm.wsu.edu*** *to read the full letters.*]

The article "After the War" in the latest edition was outstanding and really told what it was like back then. It brought back many memories. Bill Fitch was in your report and I know him. One of his best friends was Bob Berry who was my roommate the first year in north housing. He and Bill would anonymously tear apart the *Evergreen* paper with criticism. After a time of this, the staff pleaded with them to come forward and help them with the paper, which they did and both became editors.

Dick Kinney '50
Spokane

Your fine story, "After the War," stirred up some memories that were critical elements of my life. I too was one of the thousands of WW II veterans enrolled at Washington State during the period of time described. Like many of the veterans served so well during those years, my college education was not the result of a typical approach to enrollment. I had not been an outstanding high school student and had been told by a high school counselor that I was not college material. After leaving the service, I went to work in a mobile food service job. While serving customers across the street from the main entrance to the Western Washington Fair, my past high school agriculture teacher walked up, spotted me and said, "What in the hell are you doing, Wolfe?" Two days later I was on the Washington State campus, temporarily living with a friend while completing my enrollment procedures.

I do not know where the "can do" attitude came from that caused me to make the sudden transition in my life. In October of the following year my wife Carol and I were married by a justice of the peace on a weekend and were residing the following Monday in one of the two-story temporary buildings described in your article. Life was not immediately "a bowl of cherries" because that winter was very cold. I studied in my overcoat and our car was buried in snow for months. My wife secured employment in the T.U.B. and I worked parttime on a project in the dairy department on campus to supplement our G.I. Bill income. I majored in general agriculture to become a teacher of vocational agriculture.

Ellsworth Wolfe, EDD '52
Hemet, California

Though not pictured in the photograph used in your article [After the War], a great many of us had the privilege of sitting at President Compton's feet in his living room listening to his guitar and discussing our college with him. An extension of the "Compton Attitude" toward building a campus community was the series of retreats at Luther Haven involving student leaders, faculty, deans and administrative staff.

A correction is needed for the article. You report there that Keith Jackson served as student body president in 1954. Keith was a great guy who was well respected by those who knew him on campus. He focused most of his energy on the campus broadcasting program rather than student government.

Peter W. Weston '54
Birmingham, Alabama

Editor's note: Thank you for the correction. Pete Weston was, in fact, the student body president in 1954. In my source of the information, Going to Washington State, *William Stimson wrote "...George Goudy, president of the class of '52, and Keith Jackson, president of the class of '54, applauding the article..." Jackson was the freshman class president in 1951, when the Compton letter was sent to* LIFE *magazine.*

"After The War" was particularly interesting since I was on campus during the years 1942–1953. No it did not take me that long to graduate! My older siblings began their education before the outbreak of WW II, and then returned in the late 1940s to graduate, and I made the trip from Spokane many times in those years. In fact, my residence was Pine Manor (now demolished), which housed WOMEN during the war years and then had MEN sleeping in triple bunk beds after the war. I enjoyed that "privilege" the fall of '49 when six men shared a sleeping room.

Rich '53 *and* ***Mary Jeanne (Murphy)*** '56 ***Munroe***
Pinetop, Arizona

I enjoyed Larry Clark's article "After the War." Mr. Clark writes that the wartime housing was razed by 1982 but I remember it differently. I was on the rowing team in 1983, '84 and '85. Coach Ken Struckmeyer would rally his troops on Spokane Street, on the downhill side of Pinewood Manor, looking across the street at what we knew as "married student housing." On those early mornings, while waiting for the vans, we would try to lob pine cones down the chimneys of the little houses. Eventually the rain of pine cones on the roof would bring out some angry Dad in his pajamas who would shake his fist at us from across the street.

Both of those housing areas were cleared in the mid '80s and became parking lots, which they still are. But they were definitely standing and occupied in 1983 and 1984.

Roger Crawford '86
Pullman

In your story on the WWII aftermath at WSC (spring 2015 issue) you just presented a side note about the student body election of 1947. But it was a real upheaval on campus. Never before, nor since, have off-campus and dorm students organized to entirely sweep student body and class offices, right down to yell king, from Greek candidates.

As one of those 1946 returning war veterans, yell king and an *Evergreen* columnist, I started the "Indepe" (Independent students) Political Party on campus with my roommate Bud Lester. We spent hours contacting dorm residents, veterans' housing residents and off-campus students wherever we found them and set up political rallies that had people hanging from the rafters. We even had a "limo committee" of drivers to get off-campus students to the polls. Our presidential, and other candidates, didn't even need to campaign. Voter turnout swept them all into office.

Bob Loeffelbein '48
Clarkston

I attended WSC (still!) back in '49-51, when we GIs were still overloading campus facilities. Back then our three 2-story dorms for frosh women, men undergrads and men grads were temps, literally kindling wood firetraps. And we had one veteran setting bulletin board notices on fire; later caught (four more fires believed to be on campus) and wisely sent for therapy.

My room had been a kitchen and now had a double-high bunk with two small desks with chairs. No, that really was the full furnishings for two undergrads. A common big "latrine" and shower room down the hall. Much better than many of our former Army conditions during WWII, so no real complaints that I ever heard, surprisingly not even from the young frosh kids just out of high school.

Eugene G. Duffy '51
Daytona Beach Shores, Florida

Praise for Ernie Kent

Although I always read the magazine, the spring 2015 issue was especially interesting to me, particularly the item on Ernie Kent with whom I have been in contact. I am a 1943 graduate of WSU (then WSC). Last night I watched the Cougar-ASU game and I was thrilled by their win, but also that Ernie Kent style of coaching that showed in the young team. I am hoping that Mike Leach can start having some bright lights himself.

P.S. I played basketball for Coach Friel.

Terry Burns '43
La Quinta, California

What's new?



The Crimson Hub delivers nutritious food to athletes in the Bohler weight room. Read about sports nutrition on page 20. *Photo Robert Hubner*



STAFF ILLUSTRATION

Mashing up new landscapes

by Eric Sorensen :: If avoiding zombies is high on your list of priorities in Pullman, you'll want to steer clear of the Stephenson Towers and the Rogers and Orton residence halls. Wilmer/Davis and Community/Duncan Dunn are pretty dodgy, too.

If you have trouble deciding which you prefer to see, a Sasquatch or aliens, you stand to see plenty of both on the western sides of Snohomish, King, and Pierce counties, particularly Pierce County.

This is no idle musing. This is documented and illustrated research, cast into readily viewable and interpretable form through the wonders of Geographic Information System technology, or GIS. For 18 years now, Washington State University's GIS coordinator, Rick Rupp, has been guiding hundreds of students and other scholars through the joys of mashing up seemingly disparate data sources and viewing them on a map.

"You can take data from completely different sources and the only thing they have in common is they occur on the same point on the face of the earth," Rupp says one afternoon as students churn away in Johnson Hall's GIS computer room. "You can draw some really interesting conclusions based on that. It allows you to compare things you never thought you could compare before."

It's powerful stuff, so much so that Rupp cautions students to keep things simple, to "aim for communication, not complexity." It's ok to bend reality a bit as a classroom exercise, which explains how zombies and aliens end up getting a seemingly scientific treatment. Outside the classroom, most any researcher can put GIS to use. As Rupp tells his students early in the semester, he once sat at a GIS conference between a person who helped refugees and a captain in the Spanish army.

"They're all using the same tools," he says.

Walking around the room, Rupp points to poster upon poster showing the nearly limitless reach of data imaginatively mapped.

"A lot of our coursework, both at the undergrad and grad level, depend directly or indirectly on this man's contribution," says Mark Swanson, an associate professor in the School of the Environment who happens to be using one of the room's computers. "The wildlife faculty and the crop and soil sciences faculty run a lot of programs through this room. Don't let him undersell his program."

He doesn't. Here's just a quick and partial sampling of posters hung and stacked around the room: Native American populations and population densities around the state, by county; distressed home values around Puget Sound in 2011; places in the United States that receive the most nitrogen-laden rain; U.S. places with the most pathogen-impaired water bodies; Gulf of Georgia archaeological sites and nearby salmon and herring waters; the two-month, 500-mile journey of a young wolf as he leaves his pack in Central Washington for British Columbia.



Rick Rupp. *Photo Robert Hubner*

Rupp comes upon a poster about a "wolf-howling survey" in central Italy's Majella National Park and summons its author, doctoral student Azzurra Valerio, to come over and explain.

Data for the map came from teams that traveled around the park and howled, she says. Unlike adult wolves, wolf pups can't tell a human howl from a wolf howl, so they howl back. Researchers could then pinpoint the locations of the howls to count more than two dozen home sites throughout the park.

"The first time was a revelation," says Vallerio, "because we didn't have so many data about the wolf population in that territory."

Across campus in College Hall, anthropologists are using GIS to look back in time, to the pueblo dwellers of the pre-colonial Southwest.

For her master's thesis, Stefani Crabtree, a doctoral candidate, connected archaeological sites with why people were there and what they were doing, running computer simulations in which "agents"—proxies for people—walk around the landscape and exchange food. Different simulations showed different relationships.

"My program helped find clusters on the landscape in the archaeological record as well as in the simulation," she says, "and I could directly compare how clustered those were and talk about what was going on during those times."

Her conclusions found their way into the *Journal of Archaeological Method and Theory*, where she said food-sharing practices were critical for the pueblo people's survival and contributed to their living in clustered settlements.

"We can see this in the simulation and we can see this in the archaeological record," she says. "This is possible through really understanding the landscape with GIS."

Peruse a collection of the maps from the GIS lab at wsm.wsu.edu/extra/GIS-maps.

A perfect vessel for wine research

by Marisa Sandoval Lamb '10 :: "Do you know what kind of wine this is?"

Thomas Henick-Kling, director of the viticulture and enology program at Washington State University Tri-Cities, asks me as he gently places his hand on a wall in the new Wine Science Center.

"Red?" I respond timidly as I quickly realize the limitations of my wine knowledge—especially in front of a leading researcher and professor of wine science.

He offers a small laugh. "It's the perfect kind of red."

The color of the red paneling on the walls of the Wine Science Center on the WSU Tri-Cities campus is an exact match of a "good red wine." It's not too orange or too brown, but a deep red.

The attention to details, down to the exact color of the building, is intentional and precise.

The Wine Science Center (WSC), scheduled for its grand opening on June 4, 2015, was "designed from scratch," says Henick-Kling, and built with the users in mind: researchers, students, teachers, building maintenance, and other staff.

The resulting facility is unique—the WSC is a research and teaching winery. Not only does it address the needs of viticulture and enology researchers, teachers, and students, but it includes industry.

This merging of fields is the WSC's "most valuable attribute," notes Henick-Kling, as it "allows so many synergies." The WSC brings together a wide range of disciplines in the field and fills a gap in research needs to keep the wine industry moving forward.

To do this, location is key. WSU Tri-Cities is an ideal place for the WSC and viticulture and enology program because of the region's grape and wine industry. "Within one hour we can reach more than 80% of the grape production and wine production in the region," says Henick-Kling. This encourages collaboration between researchers and industry partners, and it provides opportunities for student learning and research in commercial vineyards and wineries.

The dry and sunny climate, combined with cool nights, allows wine grape growers to carefully manage irrigation—the amount of water in



Wine Science Center on the WSU Tri-Cities campus. *Photo Zach Mazur*



WINE SCIENCE CENTER AT WSU TRI-CITIES | PHOTO: ZACH MAZUR

vineyards affects grape yield and flavor development. Washington wines are distinct because of their strong fruit flavors, fine acidity, and dense tannins, explains Henick-Kling. Also, the dry climate reduces disease pressure—or likelihood for disease—in area vineyards.

When entering the WSC, visitors step into a bright, spacious entry room flanked with exposed gray block and red paneled walls, highlighted by natural sunlight streaming through the expansive windows and gently reflecting off a sealed concrete floor. The "rough to finish" architectural aesthetics parallel the winemaking process: The rough vines transform into a smooth, finished product.

This place is more than an entryway—it welcomes the public into a comfortable area to meet, mingle, and taste wine and allows for visibility and accessibility to all areas of the facility. WSC visitors tasting wine in the entry can peek into the fermentation room without setting down their glasses.

Directly west of the entryway is the WSC's teaching wing. Designed specifically for viticulture and enology students, as well as wine business students, these classrooms boast perhaps the most carefully considered element, space. Like never before, classrooms have enough of it—tables are wide enough to hold trays of wine glasses, and walkways let students move around and carts travel between tables and chairs without any bumps.

Teaching technologies provide real-time links between classrooms, laboratories, conference rooms, WSU Pullman, and commercial wineries, thus allowing people to participate even when they are physically apart. A professor could guide a wine tasting teaching session at the WSC, and students in Pullman could participate. Professors can write directly on clean white walls covered with special paint while projecting images or video links on the same area.

Connected to the teaching wing are the state-of-the-art research areas. Beginning with microscopic materials, plant pathology and physiology researchers and students can move through the analytical chemistry instrument room, wet lab, media prep room, microbiology lab, and microscope room, all clean rooms. This leads to work with bigger materials in the dirty prep lab (think vines and soil), plant science lab, and insulated growth chamber, where plants undergo simulations of weather extremes using information from WSU's AgWeatherNet. Finally, this room opens to the outdoor greenhouses and vineyards.

Following harvest, grapes move to the processing areas and then to the expansive fermentation room and research winery. The fermentation room—where grape juice becomes wine—has 192 fermenters (insulated 55-gallon drums) connected to hot and cold water lines. Probes inserted through the tops of each drum send data wirelessly to winemakers' offices. These fermenters are "size representative," meaning that fermentation can be replicated to scale, for example, in commercial wineries' 20,000-gallon fermenters.

"It's all about collecting good data," emphasizes Henick-Kling. "We work openly with colleagues across the world to make great wine." Colleagues include local wineries, as well as researchers from the University of California, Davis, another leading university research center in wine science.

Finally, WSC research wines move to the sensory testing room and gas chromatography olfactometry room, where they are tested for taste, smell, and color. With their carbon-filtered independent air system, soundproofed walls, and special lighting, these rooms are unique to the WSC.

When ready for consumption, the wine may be enjoyed outside in the WSC vineyards or native plant gardens, where the Columbia River slides slowly by the WSU Tri-Cities campus.

WSU helps provide for industry by training and developing workers, and in return, generous wine industry partners provide infrastructure and financial support. Integral partners to the WSC development include the Port of Benton—which donated the land where the WSC is located—the City of Richland, Ste. Michelle Wine Estates, Washington Association of Wine Grape Growers, Washington State Grape Society, wine industry donors such as Hamilton Cellars, and the Washington State Wine Commission.

By the way, the red color featured in the Wine Science Center *is* a perfect red. In fact, Henick-Kling tells me, "It's a three-year-old merlot—a mature red wine."

It also happens to be crimson.

See photos of the new Wine Science Center at wsm.wsu.edu/extra/Wine-Science-Center.



Seeing Selma

by Hannelore Sudermann :: photos James H. Barker

Fifty years ago, activists in Alabama called for people to come from the far corners of the country to participate in what would become one of the most significant events in the history of the civil rights movement: a five-day march for voting rights from Selma to Montgomery.

Pullman answered.

More than two thousand miles away, the small college town in eastern Washington was buzzing over the news of the day in Selma that came to be named "Bloody Sunday," when state troopers and a local posse attacked 600 marchers on March 7. Two days later, a second march was turned around amid fears of a confrontation. It was called "Turnaround Tuesday." That night a minister who had come from Boston to participate was beaten and murdered by the KKK.

"People throughout the United States were horrified that people were being treated this way," says Jim Barker, a WSU staff member and photographer who found that his skills put him in the path of history.

On March 19, a Friday afternoon, Barker got a phone call from a young minister working with the Koinonia House. A group of citizens from campus and town had pooled their money to send

Seeing Selma

three people to Selma. "They told me as a photographer, it would be my job to bring something back," says Barker.

That night at a meeting, the group also elected to send ASWSU President David Warren '65 and Robert Cole, who was teaching economics.

The men hurried home to pack their bags and two hours later were on their way to Spokane to catch a red-eye to Chicago. From Chicago they flew to Montgomery where they were picked up by a black couple who drove them to Selma.

Adjusting to the new landscape, the passengers were wide-eyed. They noticed a state trooper following their car and Barker reached for his camera. "But we were cautioned not to turn around," says Warren. "We didn't want to be giving the police an opportunity to stop us and harass us."

They later found out that other protesters heading to Montgomery sat down on the floorboards to stay out of view.

They arrived at Brown Chapel, the organizers' headquarters, to join a throng of people. The air was filled with tension, but "at the same time everybody was really friendly," says Barker. "Everybody wanted to talk with each other."

That night the three men from Pullman and about 30 others were ferried to a church across Selma where they slept on bedrolls and took shifts keeping watch.





Close to 8,000 people assembled in Selma, Alabama, on March 21, 1965, to march 54 miles to the state capital of Montgomery in support of the constitutional right of African Americans to vote.















The next morning, they headed to back to Brown Chapel. Cole and Warren milled with the crowd and Barker took pictures, including an image of Martin Luther King Jr. and John Lewis minutes before the march began.

Then it somehow just started and thousands moved onto the highway, says Barker. "We fell in and just followed it all the way that day, about eight miles."

"It was fraught with anxiety," says Warren. "We were constantly harangued by the locals."

Fifty-four miles later, under the protection of the National Guard, the marchers arrived in Montgomery in a downpour. Barker took shelter on a porch and captured the sodden, yet triumphant participants as they moved into the city.

The men returned to Pullman with stories, memories, and about 14 rolls of black and white film. Barker showed his images at the library and they all talked about what they experienced in Alabama.

It was not only a turning point for the civil rights movement, triggering the Voting Rights Act several months later, it was a signal event for the three from Pullman.

"It had a transformative effect on my life," says Warren, now president of the National Association of Independent Colleges, and former president of Ohio Wesleyan University. He has a long history of community service and civic engagement.

Seeing Selma

Barker left his job at WSU to study anthropology and later moved to Alaska, where he now works as a photographer specializing in documentary work. His photos from the march were recently featured in *The New York Times* and *Smithsonian* online and on exhibit in galleries in North Carolina and New York.

The men are now applauded for participating and telling the story of the march from the inside, but 50 years ago, their return to Pullman was met with a mixed response.

"There were some disagreements and dispute as to whether it was proper to have gone," says Warren. "There was a suggestion by some that we were outside instigators, that we went, we observed, and we left, and we left behind people whose lives were going to be affected from that day forward as a result of the march."

But they didn't see it quite that way, says Warren. "If ever there was a time to stand up and be counted, this was it."

See more of James Barker's photographs from Selma at wsm.wsu.edu/extra/Selma.

By the time the march reached Montgomery on March 25, 1965, about 25,000 people descended on the Alabama capitol building. The Voting Rights Act was passed that summer.





Trout, heal thyself

by Rebecca E. Phillips :: Winding its way through southern Idaho, the Snake River sidles along a stretch of dark basalt rising above arid farmland. In the Thousand Springs region, an enormous aquifer sends water bursting from the rock in a cavalcade of waterfalls and creeks. Cold, clear, and full of oxygen, the water is heaven for rainbow trout, and life-giving to some of the world's largest trout farms.

A few hundred miles to the north, water bubbles and roars through pipes at the University of Idaho Aquaculture Research Institute in Moscow. Researchers Kenneth Cain '97 PhD and Douglas Call '87 BS and '97 PhD, gently net young rainbow trout from large round tanks and examine them for signs of coldwater disease.

Cain, professor and associate director of the institute, says that coldwater disease occurs in the wild but is most prevalent in commercial trout and salmon hatcheries, where crowding and stress lead to frequent outbreaks. The deadly bacterial infection eats away the trout's skin, leaving ragged ulcers. The disease kills up to 30 percent of hatchery stock and causes millions of dollars in losses.

After 15 years of effort, Cain and Call have developed a simple and effective method to combat coldwater disease by turning some of the trout's own intestinal bacteria into infection-fighting probiotics. They also showed that the probiotics work by secreting a toxic protein, which does not harm the fish but does kill the coldwater disease organism, *Flavobacterium psychrophilum*.

Call, a professor in the Paul G. Allen School for Global Animal Health at Washington State University, and his graduate student, Carla Schubiger '15 PhD, reported the findings earlier this year in the journal *Applied and Environmental Microbiology*.

"Coldwater disease is the number one bacterial illness affecting U.S. trout aquaculture and to a lesser extent coho salmon," says Call. "Once an outbreak starts, the only way we've had to treat it has been with antibiotics. The problem with antibiotics is that they can lead to bacterial resistance and also contaminate the water and soil."

Call believes the probiotics could be an economical alternative to antibiotics, and welcome news to the global $13.7 billion salmonid aquaculture industry.

He retrieves a vial of dark brown pellets and pours some into his hand. "Fish food coated with the probiotic," he explains. "The bacteria are fast growing, cheap to produce, and easy to feed to the fish—all the attributes of an ideal preventative treatment."

The pellets are part of a new frontier in medicine—use of the body's natural population of bacteria, called the microbiome, to boost health and immunity. The National Institutes of Health estimates that bacteria outnumber our body's cells ten to one. While no one knows the full extent of the microbiome's impact on human health, scientists do know the 370 trillion bacteria in each of our bodies are essential for life.

Livestock producers hoping to leverage the microbiome sometimes feed their animals probiotics like *Lactobacillus* to promote disease resistance and overall health. But Call says most products are unregulated and unproven. "It's kind of the Wild West in terms of claims of what these things can do."



Above: Waterfalls pour seemingly out of nowhere in Idaho's Thousand Springs area. *Photo Anna Gorin.*
Below, from left: Ken Cain examines trout while Doug Call watches. Rainbow trout at UI Aquaculture Research Institute. *Photos Shelly Hanks.* Carla Schubiger in her lab. *Courtesy Carla Schubiger*







Even more valuable is Schubiger's remarkable discovery of the probiotic toxin, which confirms how the bacteria successfully fight the coldwater disease organism.

Many of her research hours were spent in the waters of the Snake River at Clear Springs Foods. Located in Buhl, Idaho, it is the largest trout farm in the world. During a winter snowstorm, Schubiger waded hip deep among thousands of trout as the scientists ran some early trials on the probiotic.

"It's a unique setting with cold water trout farms on one side of the river and hot springs with tropical fish farms on the other side," she recalls fondly. "It is an absolutely breathtaking and beautiful landscape."

Schubiger became involved in the project after Cain painstakingly searched through intestinal bacteria from trout to identify possible probiotic candidates. Field trials confirmed that an *Enterobacter* species called C6-6 helped fish survive coldwater infection, but as is common with many probiotics, the scientists really didn't know how it worked.

Call asked Schubiger if she'd like to try to pinpoint what makes C6-6 so effective. After some frustrating challenges, she determined the probiotic produces a toxic protein that inhibits the coldwater bacteria.

"It was surprising," she says. "The protein had been overlooked and undervalued for 25 years. At first I was skeptical about putting all my effort into testing this one peptide—it was risky, but we were lucky and it panned out."



DEAN HARE

The Nuthouse Improv Comedy troupe performs at Daggy Hall's Wadleigh Theatre in March.

At center STAGE

by Emily Smudde '12 :: While other high school students were worrying about SATs and wondering where to go for college, Benjamin Gonzales was fighting for his life.

Born and raised in Port Townsend, Gonzales spent his junior and senior year of high school battling non-Hodgkin's lymphoma, a cancer of the white blood cells. By the time he left the hospital, applying for college was the furthest thing from his mind.

"I had just been released from the hospital in April after a bone marrow transplant," says Gonzales '04. "I needed time to recover and a majority of my energy was spent just trying to graduate from high school on time."

Conscious of his health, he followed his sister to Pullman and Washington State University to pursue a degree in theater production, after spending his childhood immersed in theater, thanks to his mother.

Now Gonzales is one of the two remaining faculty members who teach theater at WSU and is the advisor to the STAGE Student Theatre Group, which gives students the opportunity to experience every aspect of theater, from writing to directing to set production. The group also sponsors Nuthouse, a student improv comedy troupe.

When he arrived as a student, STAGE existed, but it lay dormant.

"Before I got to Pullman the STAGE group was decently strong, but it was weak when I got here," says Gonzales. "The theater group as a whole spent a lot of time together, most of who were not in STAGE, but it wasn't very organized."

Undeterred, Gonzales took part in the main stage theater production. It was during auditions for the play *Everyman* that Gonzales met Ray Franz, a transfer student from California who was pursuing a degree in education.

"Ben was the first person I met when I got to WSU," says Franz '01. "Eventually we became friends and then roommates."

Gonzales and Franz knew the student theater group was fading out. In the spring of 1999, the end of Gonzales's sophomore year, the theater master's program had no candidates, which meant there would be no student-directed plays that spring.

"There was only the musical that spring. There were no opportunities for people not interested in singing," explains Franz. "There should always be an alternative to the musical."

That year Gonzales decided he didn't want to be someone who just showed up at rehearsal. He took the initiative to find another production for the spring.

Gonzales had written a play about his roommates called *Seeing the Obvious* during his freshman year. He submitted it to the Port Townsend One Act Play Festival the summer before his sophomore year and, without any prior experience in playwriting, won second place.

"It was the first carrot," says Gonzales. "It said I could really do this."

He took his play to the STAGE executives, the only active members of the group at the time, and his play was accepted for the spring show. There was one problem: His play was barely an hour and the performance needed to fill two. Franz had the idea to let the students perform some improv comedy after the show.

Thus, Nuthouse was born.

"Nuthouse was my baby," says Franz. "Ben helped make it part of the community after that."

After the production, Gonzales saw the opportunity to rebuild the group from the ground up. Gonzales and a group of his theater friends joined STAGE and elected new officers. Gonzales rewrote the constitution, clearly defining the roles of the officers, and established a one-act play festival to build participation.

"Ben basically took the reins and formed a new community," says Franz.

The new STAGE group was a success. It gave students the opportunity to express themselves without restrictions or requirements and gave them the support group every student should have on campus.

After graduation, Gonzales and Franz went their separate ways. Fifteen years later they keep in touch, still linked by WSU and STAGE.

Franz, inspired by the WSU group, became director of a high school theater program in California. Before he met Gonzales he only saw theater as a hobby, but now he knows if you're passionate enough anything is possible.

"I always teach my students to follow their dreams," Franz said. "STAGE opened doors for me."

After graduation, Gonzales left WSU briefly and then came back to pursue his master's in teaching. The theater department asked Gonzales to teach the intro to theater class. Eventually his temporary position morphed into three-quarters time, then into an instructor, and finally into faculty.

"They hooked me one class at a time," Gonzales says with a laugh.

When Gonzales returned, STAGE still existed, but the quality had dipped. He again decided to take an active role. More than fifteen years after he rebuilt STAGE from the ground up, Gonzales is now the main faculty advisor to the group.

"For students, theater is learning and having fun at the same time," says Gonzales. "Theater makes you smarter. It makes you challenge yourself and open your mind."

Drawing on Paris experiences

by Katelyn Orum '15 :: People around the world dream of going to Paris, lounging in the shadow of the Eiffel Tower, and strolling alongside the historic Seine River. A group of 14 WSU students, led by design professors Carrie Vielle and Robert Krikac, turned this fantasy into an exciting study experience in the summer of 2014.

After 4,900 miles, and 12 hours, they arrived in the City of Lights facing a blast of jet lag and ready to explore. Hopping aboard a cab, the wide-eyed students dropped their items off at a seventeenth-century hotel near The Louvre, and hit the streets before they fell asleep. With only 12 days to cover the 41-square-mile city, there was little time to rest. Walking around the Parisian streets merely to stay awake, they stumbled upon a centuries-old ribbon and button shop.

"Now, that doesn't sound like it would be anything other than a fabric store, but let me tell you, you walk in and you instantly feel these 300-year-old oak floors creaking under you. As far as the eye can see are these shoots of light coming in from who knows where the windows are, but they're highlighting these fuchsia, turquoise, and teal ribbons that are blowing in the breeze. It's just like out of a movie," Vielle explains.

Sophomore Abigail Metcalf and junior Julie Harvey joined the small group of students for this opportunity. This was not the first time in Paris for Harvey, but joining the study tour brought a whole new light to the city. "To go with Bob and Carrie brings such an educational component to it, and I really cannot say enough about that," says Harvey, "I learned things that you don't even think about. It makes you see design a little differently."

Sketchbooks in hand at every stop, the students documented their voyage with striking illustrations. Sketching can be an intimidating task for those who've never picked up a sketchbook, but Krikac and Vielle offer support and instruction. Art brings a firsthand appreciation for the vast amount of details and uniqueness in each building. "You're just so in the moment when you're sketching. You have to be. You're



studying the whole building in a different way," says Harvey.

Students partook in more than sketching. Metcalf is a photography fanatic, and chose to study the monuments through her camera lens. Studying through the eyes of your passion has the power to make everything more remarkable. As Metcalf reminisces on the most memorable parts of the trip, her face illuminates.

"I was sitting there while Bob was sketching and I took the photo of a few classmates in front of me with Bob standing there and the Eiffel Tower in the background. It just sunk in that I was in Paris having class underneath the Eiffel Tower. I was sitting on the lawn crisscross-applesauce, with my camera. It was simple but truly mind-blowing," says Metcalf.

The students soaked up the knowledge from their leaders. "We'll have breakfast in the hotel every morning: croissants, fruit, and coffee. Then it's usually too crowded in there to talk about things so we find a quiet space on the site and have class about the site we're at," explains Krikac. He and Vielle taught at the Eiffel Tower, Arch de Triomphe, Musée d'Orsey, Château de Versailles, as well as many other French treasures.



Sketches from WSU students capture the Eiffel Tower. Inset: WSU design professor Robert Krikac instructs students on the faculty-led tour to Paris. *Photos Carrie Vielle*

After their studies, the students departed for three days of exploring independently. "That's another really special experience of this specific study tour," says Vielle, "It's a faculty-led tour but students still get to branch out and experience it on their own."

Some chose to revisit their favorite locations, and some chose to leave Paris completely and travel around France. Metcalf traveled 440 miles south to Uzes, France, and returned home with more than she ever imagined. "The tickets ended up being kind of expensive, but I didn't care. I was only here once and I was really excited. I went to Uzes and met a guy that I'm still dating," she says with a huge grin on her face, "and now he lives in the neighborhood next to mine in Seattle."

Letters to the future

by Guy Bergstrom :: In 1989, the state of Washington celebrated its 100th birthday as a young girl sat inside the capitol dome and swore an oath.

That oath involved a two-ton green vault—and secrets that won't be revealed for 300 years.

"From that day on, I was more interested in the great state of Washington," says Jen Estroff '03. "I thought about what our past had been, and what our future would be."

Twenty-five years later, on George Washington's birthday, Estroff stood on the capitol steps surrounded by children who swore the same oath she once did: That they will return to Olympia and fulfil their duty as Keepers of the Capsule.

"I didn't come back to the capitol until 2009 when I was part of a political leadership program," says Estroff, now chair of the board for Keepers of the Capsule. "I proudly led my classmates to the vault and pointed at the explanation of the Centennial Time Capsule Project. I realized that very few people who worked at the capitol knew exactly what the big green box was.

"I had studied science and art and history and racial equity and justice and wanted to make sure all of Washington's innovations and missteps could be studied by future generations. And being a Keeper of the Capsule was how all of those experiences would come together."

Most time capsules are buried once, then dug up decades—or centuries—later. This project is different. When it was designed in 1989, it was the world's first time capsule that could be updated.

From the beginning, writer Knute Berger was involved. He helped start the project and was there on February 22 to open the vault and insert the second capsule, filled in 2014.

"Today is a very special day for Washington state," Berger said. "We're sending a time capsule on an unknown journey on the seas of time."

Two of the 16 slots are now full. Each new entry put inside by the Keepers of the Capsule is made of non-corrosive stainless steel. After the items are put inside, the container is filled with argon gas and sealed by Highline Engineering in Richland.

"They are unique snapshots," says Berger. "They're like letters to the future. Acts of hope and imagination. There's poetry, oral history. Lottery tickets and spare change."

Each container has major books by Northwest authors, archives of newspapers, files of music and art. Or pieces of culture like a Felix Hernandez bobble head. Electronic items are put inside without batteries, which would corrode. Instructions are left inside with the watts and voltage to make those items turn back on.

Berger started this project in his 30s and is now in his 60s. He'd be 85 in 2039.

"Perhaps my clone will attend in 2389," he says.

On this February day, Estroff was joined by other original Keepers of the Capsule, including fellow board member Erica (Mortensen) Gordon '02, to insert and dedicate the new capsule along with boys and girls who'd just sworn their oath, kids from Longview and Spokane, from Vancouver and Ephrata and Renton, all traveling on a sunny weekend to take part in this tradition.

The capsule was opened with a combination from WSU Libraries, who had received it in 1990.



COURTESY WASHINGTON SECRETARY OF STATE

***From left*:** Centennial Time Capsule Project mastermind Knute Berger, Kim Berlin '03, Jennifer Estroff '03, Eric Meadows, Jessica Gordon, and Secretary of State Kim Wyman place the 2014 container.

"The 2014 capsule contains the story of Washington state's past 25 years," says Estroff. "I like the idea of sharing our stories with people 375 years from now."

She told the new generation that it was okay to get one of their Keeper shirts dirty, that it was fine to wear it.

"But put your Keeper medallion up somewhere you can see it," she explained to them. "Ask your family to put your shirt for 2039 away somewhere safe, then make sure you help them remember where that is. Wherever you go, whatever challenges you face, whatever success you achieve, remember that you're part of a larger story. You're part of the story of Washington state.

"And we'll start again in 2038, when we call the Keepers back together to get ready for Washington's 150th anniversary. We'll hear your stories, and it will be your turn to choose which stories we send into the future." «



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STAFF PHOTO/ILLUSTRATION

Eat *like an* athlete

by Larry Clark :: Fuel, train, and dominate is the driving philosophy for student athletes at Washington State University.

"Take care of your body, fuel it with the best foods available," says WSU sports nutrition coordinator Lindsay Brown. "You'll be able to train at your maximum level and reduce risk of injury. Then you'll be able to dominate your competition."

To keep student athletes going strong, they receive free, healthy food at the Gray W Legends Lounge dining room located in the new Cougar Football Complex building through a program called Cougar Express, and, for pre- and post-workout fueling, the Hubs located in the Bohler and Cougar Football Complex weight rooms.

They won't find Snickers bars and pop there. "We are trying to decrease the consumption of pre-packaged items that have a lot of preservatives and are less nutrient dense," says Brown. "We make our own hummus dip. We do granola-yogurt parfaits with high-protein Greek yogurt. We bake our own granola bars and provide those for our athletes."

Brown says WSU Athletics wants to define what "fuel" means, not just for the students' training, but in their daily lives. That might mean snack packs with vegetables, a hard-boiled egg, and cheese, or it might mean a well-balanced meal at the new dining facility overlooking the football field.

"We're here to enhance performance now for our student athletes, but the broader picture is that what we're teaching the athletes will actually enhance their life and well-being," she says.

That attitude, strongly advocated by WSU Athletic Director Bill Moos '73, doesn't just appeal to the students currently at WSU; it helps with prospective student athletes. "I think the parents are the most excited during recruiting trips. They know that their child is going to have access to good quality food," says Brown. It helps that nutritious foods are free, a rare benefit among collegiate athletic programs.

A certified specialist in sports nutrition and a registered dietitian, Brown got into nutrition as a high school athlete in track, cross country, basketball, cheerleading, and twirling. After she got her bachelor's and master's degrees at Oklahoma State University, she went to work at a Colorado hospital because there were only about 15 sports nutrition positions in the country at the time.

Brown never lost her love for sports nutrition, however, and joined WSU in August 2011. As one of the few registered dietitian sports nutritionists at a U.S. university, she leads meal and nutrition planning and organizes nutrition screening assessments that introduce athletes to her services and identify high-risk nutritional deficiencies.

She and her staff do presentations for teams and small groups, have quick post-workout sessions on performance-enhancing nutrition tips, and highlight nutrition topics each week on message boards and newsletters. Brown says they provide recipes, host small cooking demonstrations, and encourage cooking at home. «

How to eat *like an* athlete

WSU sports nutrition coordinator Lindsay Brown educates student athletes on eating well, including some of the tips below.



LINDSAY BROWN, COURTESY WSU ATHLETICS



MAKE SURE YOU'RE ACTIVE LIKE AN ATHLETE

Don't consume an excessive number of calories if the activity's not there.



EAT FREQUENTLY THROUGHOUT THE DAY

Eating 5-6 times throughout the day will ensure your body has energy to call upon for any hard workout and to help keep your metabolism elevated.



BE WELL HYDRATED

Start early in the morning because when the day gets away from you, you can't catch up. A good way to tell if you are properly hydrated is if you are using the bathroom every 1–2 hours and your urine is a lemonade color. If you are using the bathroom every 3+ hours and your urine is darker like apple juice, you are probably dehydrated and need to increase fluid intake.

HAVE A RECOVERY SNACK

If you're going to work out for 60 minutes or longer with moderate or intense activity, you'll want a carbohydrate-and-protein combo for recovery because you need to replenish muscle energy stores and repair and build muscle fiber as you exercise. You have about 30 minutes after you exercise to consume that snack for best effect.



EAT THE RAINBOW

Have a variety of fruits and vegetables in different colors, because each one provides different nutrients, vitamins, and minerals. Eat from all six food groups: carbs, protein, vegetables, fruits, high-calcium, and healthy fats.



BEWARE OF SUPPLEMENTS

A lot of people don't know supplements aren't regulated. A supplement can be on the market without being tested for purity or contaminants. The bottle may say caffeine free, but in fact it contains herbs such as green tea extract or guarana seed which are both central nervous stimulants. Always speak with a registered dietitian nutritionist or health care provider before starting any new supplement regimen.





Right: For a quarter century now, Mary Palmer Sullivan has been trying to get people to eat more barley. *Courtesy U.S. Grains Council.* ***Below:*** WSU barley breeder Kevin Murphy is working on tasty, grower friendly lines of barley for food and for malting. *Photo Janet Matanguihan*

{ *John Barleycorn lives* }

:: *by Eric Sorensen* ::

AMONG THE ONCE-MIGHTY FOODS that have fallen from grace, barley may have fallen the hardest. Kevin Murphy ('04 MS, '07 PhD) and Mary Palmer Sullivan '88 are trying to change that.

Barley was there at the dawn of agriculture some 10,000 years ago, spreading throughout the Old World from the Fertile Crescent between western Asia and northeast Africa. It fueled the gladiators of Rome, known as "hordearii," or "barley men." It gave us the English word "barn." It gave us beer, too, starting some 8,000 years ago in the Middle East and migrating into Europe and throughout the world.

And it's a survivor.

"Barley is arguably the most widely adapted cereal grain species," writes Steven Ullrich, retired Washington State University barley breeder, "with production at higher latitudes and altitudes and farther into deserts than any other cereal crop. It is in extreme climates that barley remains a principal food source today."

But outside of climactically challenged places like the Himalayas, Ethiopia, and Morocco, barley has been edged out over the past two centuries by wheat and rice. In Washington state, the nation's fourth-largest barley producer, some 90 percent of the barley grown is for feed. Only 2 percent is for food, with the rest used for malting. The state's barley production has been dropping since the 1980s, from about 1 million acres to one-fifth of that in recent years.

Which is too bad. As a food, barley is low in fat and rich in minerals, vitamins, antioxidants, and fiber. The presence of beta-glucan, a soluble fiber, can help reduce heart disease by lowering cholesterol levels.

Barley is good for farmland, too. Farmers in eastern Washington, where the bulk of the state's barley comes from, typically rotate crops of winter wheat, spring wheat, and a legume, says Murphy. When they follow winter wheat with barley, it reduces the fungal disease stripe rust and helps suppress weeds. It can also increase the yield of subsequent winter wheat crops.

The problem is, wheat typically pays better than barley. So while Washington farmers routinely plant more than 2 million acres to wheat, they'll plant fewer than 200,000 acres to barley, according to the United States Department of Agriculture.

"We hear from growers that they would grow barley in a heartbeat if they could make a profit off of it," says Murphy. But when feed barley prices are low, that's difficult to do, he says.

Over the decades, WSU barley breeders have produced several successful, if not legendary, varieties. Bob Nilan had the high-yielding "Steptoe" and Ullrich had "Bob," a rust-resistant variety named for the "Barley Bobs," Nilan and Bob Eslick '39, a Montana State University barley geneticist. Murphy has put out "Muir," named in part for Carl Muir ('53, '55 MS Agronomy), the technician who helped Nilan develop Steptoe, and "Lyon," for Steve Lyon ('79, '02 MS Crop Science), the senior scientific assistant at the WSU Mount Vernon Research Center.

But most WSU barley varieties have been for animal feed, which brings a lower premium than food barley. Murphy is now looking at six different food lines high in beta-glucan that are about to get into taste tests from an "A" team of bakers and chefs who work closely with Stephen Jones, director of the Mount Vernon Center and its Bread Lab.

"They're going to do whatever they want to do with it: bake it, cook with it, make it in salads, whatever they want to do," says Murphy. "And then they'll compare them with each other, rate them, give us full evaluations, taste, flavor, sensory, smell, all that kind of stuff... We already know they do really well in the field. But from those six, we still have to pick one or two that we can release."

Sullivan, executive director of the National Barley Foods Council and vice president of the Washington Grain Commission, has been trying to get people to eat more barley for a quarter century. At one point, she thought the beta-glucan issue would help drive increased consumption of barley, much as it had for oats. In 2006, the Food and Drug Administration approved a rule letting manufacturers of dry milled barley products with enough soluble fiber say their product, "as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease."

Sullivan thought that would be "the silver bullet" for barley sales. It wasn't.

"I'm ultimately more hopeful about the malting side and the opportunities with craft brewers," Sullivan says.

Malting barley fetches a better price than feed barley, but in the past it has had to meet American Malting Barley Association standards preferred by the nation's largest brewers. But smaller craft brewers are willing to go outside those standards and are looking for distinctive, local flavors. They also use more barley-fueled malt than larger brewing companies.

The state's young craft distilling industry needs malt too, and has to buy half its raw ingredients under a rule aimed at helping farmers and the Washington economy.

Just as he is doing with bakers and chefs, Murphy is planning to have maltsters and brewers sample malts made from several lines from his test plots.

"I can't tell you how excited I am about that," he says. "We'll be able to breed barley varieties that are specifically adapted to certain regions of Washington that will go to Washington or Idaho or other Northwest malt houses and then go straight to specific brewers. And brewers can pick varieties that they like. I think it will really open up the market and the acreage."

Meanwhile, eat more barley. And drink more barley, too.

"I work on increasing the demand for malting barley every night at my house," says Murphy, whose office door sports a "NO BARLEY, NO BEER" sticker. "I think a lot of people do." «



COURTESY WSU MOUNT VERNON RESEARCH CENTER



PHOTO AHAS

At HOME at School

:: *by Hannelore Sudermann* ::

Early mornings in the summer, a school bus trundles through the neighborhoods of Battle Ground and Vancouver picking up children from homeless shelters and neighborhood schools. On board, the little ones, though groggy, help themselves to nutrition bars. For some, it's the first meal of their day.

The cargo is ferried through the city and up a winding drive to the Washington State University campus, where college students wait to shepherd the children into a classroom. They have their welcome, more food, and a choice of courses for the day. Some may take a nature walk. Others head out for a field trip to a farm where they can garden. A group might visit a museum. Or they can stay on site and create art, or shoot pictures or video, or learn music.

In Clark County, 10 percent of the population lives below the federal poverty level, and nearly half of that group is under 25. According to a recent American Community Survey, more than 13,000 of the county's residents in poverty are between 6 and 18 years old. Economics, cultural barriers, and transience are all impediments to a child's success in school, and ultimately in life.

For the past 13 years, Washington State University Vancouver has sought to change that. While their classmates head off to family vacations or summer camp, a portion of the most vulnerable Vancouver-area children have been part of a special laboratory called At Home At School. With three key missions, the program seeks to help children overcome their social and economic challenges, prepare the next generation of teachers to work with disadvantaged children, and offer a testing ground for teachers and scholars to design and adjust projects for this special population.

At HOME at School



PHOTO AHAS



COURTESY SUSAN FINLEY

Susan Finley

Growing up, Anastasia Kuzmina was both poor and homeless. When she was 10, she and her mother moved across the world from Vladivostok, Russia, to Washington. They were heading to a better life, but, as Kuzmina tries to explain, the next few years were complicated.

"My mother married, then divorced, and we lived in shelters and took advantage of public resources at times," says the WSU human development major. Several years ago she, her mother, and her younger sister moved to Vancouver. Kuzmina's mother worked as a beautician and Kuzmina had to stay home and babysit.

But a seasonal job with the At Home At School (AHAS) program offered an alternative. Kuzmina could spend her summer days away from home, earn money, and gain experience that might help her find another job or even get into college. "I saw an opportunity and I took it," she says. "I didn't want to work at McDonald's."

She was quickly enmeshed in a complex WSU project, and she empathized with her charges. She didn't realize it at the time, but while working with younger children in an arts-integrated academic-support program, she was also benefitting. It has led her toward her degree as well as a certificate program in child case management. She hopes to graduate next year.

The summer job was about meeting the needs of younger children who might otherwise be stuck at home alone in front of the television, or outside without supervision. "They came in dragging in the morning," says Kuzmina. "But we gave them individual attention." They painted, gardened, and learned music. "They loved having someone spend time with them. And at the end of the day they left happy."

For children who may not have much they can control in their lives, at AHAS "they get a lot of control over the day," says Susan Finley, the WSU Vancouver professor who founded the program in 2002. Starting with a simple need to provide something for children living in a shelter, the program now has many layers, from meeting the most basic needs of food and safety to providing students and scholars a place to create and test new programs for underserved children.

Sometimes, when she shares case histories with her students, Susan Finley brings up a child in a low-income family whose father had been incarcerated and whose mother struggled with an assortment of issues. "She experienced homelessness, she had no plans for college, and she was pregnant as a late teen," says Finley. "And then I ask, what are her chances of success?"

"The response is that she has virtually no chance," says the professor. "Then they realize it's me."

In teaching education and public affairs, Finley wants to break the assumptions surrounding poverty and show her WSU Vancouver students that given support, opportunity, and an understanding of their rights to an education, young people with limited prospects can find their way to better lives.

Despite her own challenges, Finley finished college with honors and found a good job as an editor. But she was drawn to the more challenging work of the Detroit Youth Foundation, where she helped open street schools in empty buildings and developed a broad understanding of "kid issues." That led to her role as director of youth services for Washtenaw County in Michigan, where she oversaw the foster program, summer youth offerings, and juvenile detention.

From there she got a doctorate in education at the University of Michigan. Her scholarship focused on the philosophy and history of education as well as research theory, studies, and assessments. The field offered many opportunities for inquiry, but it led Finley away from the children she originally sought to serve.

Her son brought her back into focus. Inspired by Tennessee Williams, he had moved to New Orleans to become a writer. On a visit, Finley walked with him through the city as he pointed out scores of young people living on the streets. Then he turned to her and said, "What happened to you?"

"I realized I needed to get back to on-the-ground efforts to serve children," she says. "I would much rather spend my life on these real issues and kids."

In 2002 Finley came to WSU Vancouver, choosing the job because of the potential for building her own program at the relatively young campus. "This was a new place and I had an opportunity to create something," she says. "Poverty is poverty. But here I had an ability to develop something totally new."

It didn't take long.

"I had been researching street kids all over the country, and when I came here, word got out," she says. "One day at the end of my first year, I got a call." Summer was approaching and a homeless shelter was grappling with what to do with the children who would no longer have school to go to every day. "I was asked to help set up a program for them," she says. That first summer, teachers and volunteers filled the days of 25 children with activities and academic tutoring.

Talking with those children, Finley realized they felt like outsiders in their schools. They struggled to keep up with their classmates and their teachers didn't understand or empathize with their challenges of transience and absenteeism, or being new and out of the group. One teacher, admitting her own predisposition and limited resources, talked about a child who came in without his parents or class materials. She seated him at the back of the class because she knew he wouldn't be there long.

Out of her visits and discussions came the notion of At Home At School, an effort to help the children overcome their lower status at their schools and provide them with the confidence to seek the support to which they are legally entitled.

"The goal is to encourage the students to write their own futures," says Finley. They can use their creativity and critical thinking skills to change their own lives.

The AHAS program quickly outgrew the shelters and moved into Vancouver school buildings vacant during summer break. Forming At Home At School as an arts-based out of school program, Finley expanded it beyond the homeless to include other children with sociocultural and economic barriers. Some were first-generation immigrants who didn't speak English, others were from impoverished and single-parent families.



At HOME at School

PHOTO AHAS

She also focused AHAS on teacher education, offering WSU students and scholars a chance to work with and study a diverse and complex community of children and families. Some of their efforts have resulted in papers on subjects like the role of arts education in social change, bridging homelessness as an experience with homelessness as a public issue, and issues of diversity in teacher education.

Now AHAS has many components, including organizing volunteers in shelters to tutor children during the school year, expanding the initial summer program, and developing a "play school" to acclimate children who haven't had nursery school or kindergarten. It is the source of Back on Track, an effort to help suspended and expelled students re-enter public school. "We piloted it through AHAS and Vancouver public schools took it on," says Finley. Erica Nicewonger '08, a former student, now runs it for the school district. "By putting these things together, we end up modeling programs that others may need," says Finley.

In 2012 the At Home At School summer effort burgeoned with about 600 participants. "And the community need is still growing," says Finley. But a downturn in public support (for example Washington state's No Child Left Inside grant program hasn't received funding since 2009) and a need to streamline resources caused AHAS to scale back to about 50–60 children. As grant money comes in, Finley may be able to add back. The program also relies on funding from area businesses and charitable organizations like the Wolf Family Foundation and the Community Foundation for Southwest Washington.

But Finley isn't content to build something and let it be. "Now, every year, every phase of it is different," she says. Two years ago, the central focus was on food and social justice. Many of the children explored healthy eating, community food systems, and urban gardens. They also worked with an artist and created a four-panel traveling mural exploring the concepts.

This year, they're aligning with science, technology, engineering and math, or STEM, education efforts by blending music and engineering and creating synthesizers. Another group will be pursuing food, nutrition, and outdoor education.

In late spring, as we talk about her plans for the summer of 2015, Finley is waiting to hear on three grant proposals that may open new opportunities for the summer program. Beyond that, and in addition to teaching classes in education and public policy, she is helping students in their late teens find their way to higher education and stay on course. "These are kids whose families may not see a good reason for them to go to college," she says. They finish high school, often with family encouragement. But now their needs, financial and otherwise, have escalated beyond what their families can provide.

One of her students had to break free of the burden of supporting her family. She tried sharing an apartment, but the roommate kept late hours. So she moved to her own tiny place and worked more to pay her bills, says Finley, all the while staying enrolled at WSU Vancouver. She came to Finley one day for help. Expecting to talk about class choices, once they sat down, the professor realized the young woman wasn't just looking for guidance, "she was lonely." She needed a friend, an advisor, and someone who could help her develop her life skills.

While the focus is on the K–12 children in the AHAS program, "I think the imprint is much bigger," says Finley: the high school students who take the summer jobs, the college students earning their bachelor's and master's in education, and the parents and siblings of the AHAS participants who see a possibility for education their own futures.

Like her friend and classmate Anastasia Kuzmina, Irina Mishuk comes from an immigrant family. Moving from Ukraine more than a decade ago, her large family settled into a conservative religious community. She now has 12 sisters and brothers. At home, there's always something to eat and people around, she says. And the focus is the family and the immigrant community. Mishuk had no notion of going beyond high school. But her summer job with At Home At School became her pathway to college. "I think it opened up a lot of doors for me to get in to higher education," she says. When she completes her studies in human development next year, Mishuk will be the first in her family to earn a college degree.

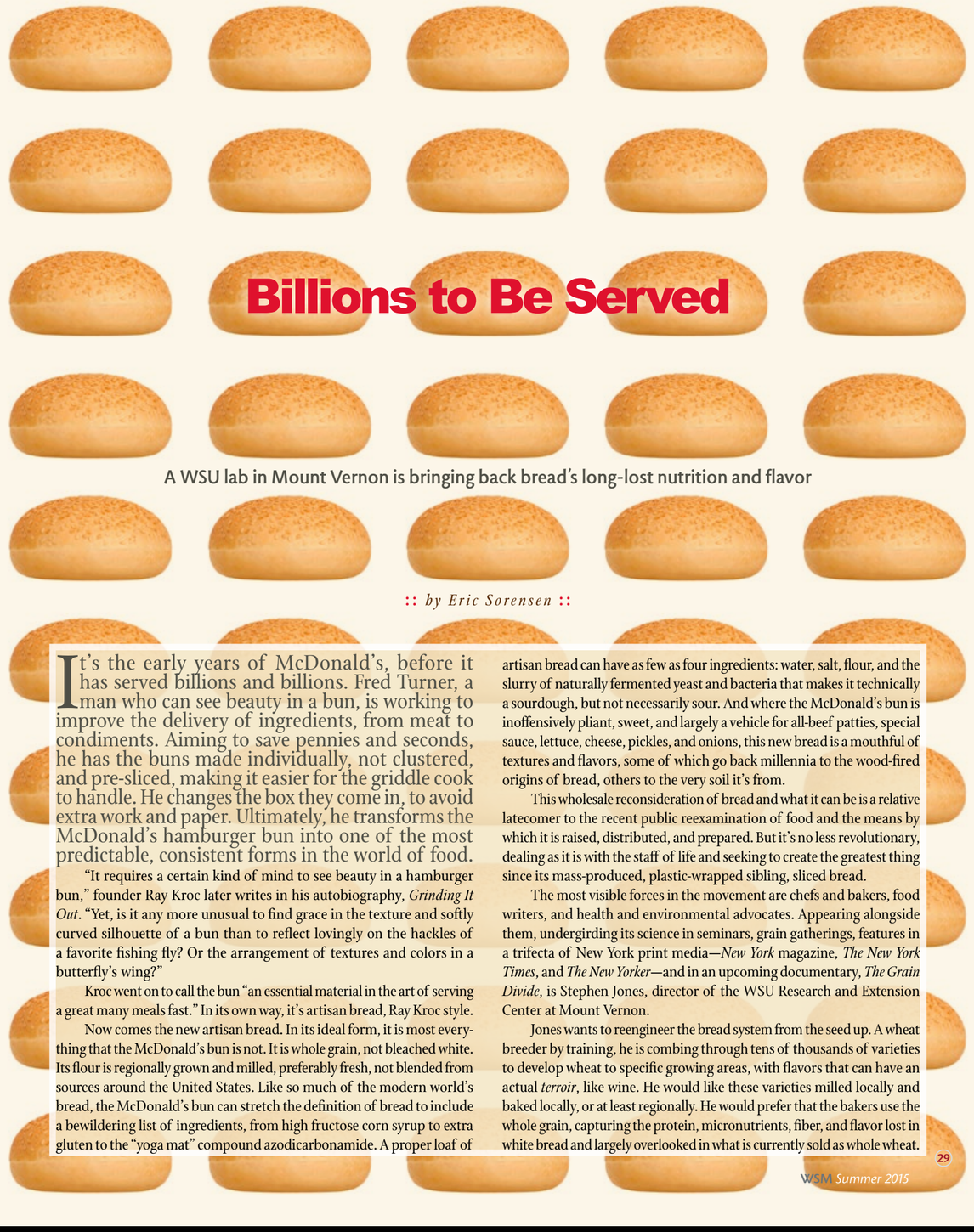
"I thought about working with youth and criminal justice," she says. "But now I'm more interested in public policy. I want to change the system."

That summer several years ago, Mishuk and Kuzmina watched how the creative projects and tutoring sparked something in the children. The summer break turned a liability—without instruction and support the children would have fallen further behind—into an asset.

All of the children have their own electronic portfolios where the students and teachers assemble their projects, their stories, and their accomplishments. The public school teachers who want a better understanding of an individual AHAS student can access the portfolio online. And having a body of work bolsters the child's confidence, say the WSU students.

The children often arrived with issues that the workers would address during the morning welcome session. "If you think of Maslow's hierarchy of needs, their most basic weren't always being met," says Mishuk. Some were hungry, unkempt, or had personal concerns. "The program is like a safe haven for many of the children and they definitely don't take it for granted," she says.

Mishuk found the one-on-one time to be the most rewarding. "The children would draw illustrations which were very personal," she says. "I remember one little girl drew a picture of her 'funnest' thing to do and it was a drawing of her and me."



Billions to Be Served

A WSU lab in Mount Vernon is bringing back bread's long-lost nutrition and flavor

:: *by Eric Sorensen* ::

It's the early years of McDonald's, before it has served billions and billions. Fred Turner, a man who can see beauty in a bun, is working to improve the delivery of ingredients, from meat to condiments. Aiming to save pennies and seconds, he has the buns made individually, not clustered, and pre-sliced, making it easier for the griddle cook to handle. He changes the box they come in, to avoid extra work and paper. Ultimately, he transforms the McDonald's hamburger bun into one of the most predictable, consistent forms in the world of food.

"It requires a certain kind of mind to see beauty in a hamburger bun," founder Ray Kroc later writes in his autobiography, *Grinding It Out*. "Yet, is it any more unusual to find grace in the texture and softly curved silhouette of a bun than to reflect lovingly on the hackles of a favorite fishing fly? Or the arrangement of textures and colors in a butterfly's wing?"

Kroc went on to call the bun "an essential material in the art of serving a great many meals fast." In its own way, it's artisan bread, Ray Kroc style.

Now comes the new artisan bread. In its ideal form, it is most everything that the McDonald's bun is not. It is whole grain, not bleached white. Its flour is regionally grown and milled, preferably fresh, not blended from sources around the United States. Like so much of the modern world's bread, the McDonald's bun can stretch the definition of bread to include a bewildering list of ingredients, from high fructose corn syrup to extra gluten to the "yoga mat" compound azodicarbonamide. A proper loaf of artisan bread can have as few as four ingredients: water, salt, flour, and the slurry of naturally fermented yeast and bacteria that makes it technically a sourdough, but not necessarily sour. And where the McDonald's bun is inoffensively pliant, sweet, and largely a vehicle for all-beef patties, special sauce, lettuce, cheese, pickles, and onions, this new bread is a mouthful of textures and flavors, some of which go back millennia to the wood-fired origins of bread, others to the very soil it's from.

This wholesale reconsideration of bread and what it can be is a relative latecomer to the recent public reexamination of food and the means by which it is raised, distributed, and prepared. But it's no less revolutionary, dealing as it is with the staff of life and seeking to create the greatest thing since its mass-produced, plastic-wrapped sibling, sliced bread.

The most visible forces in the movement are chefs and bakers, food writers, and health and environmental advocates. Appearing alongside them, undergirding its science in seminars, grain gatherings, features in a trifecta of New York print media—*New York* magazine, *The New York Times*, and *The New Yorker*—and in an upcoming documentary, *The Grain Divide*, is Stephen Jones, director of the WSU Research and Extension Center at Mount Vernon.

Jones wants to reengineer the bread system from the seed up. A wheat breeder by training, he is combing through tens of thousands of varieties to develop wheat to specific growing areas, with flavors that can have an actual *terroir*, like wine. He would like these varieties milled locally and baked locally, or at least regionally. He would prefer that the bakers use the whole grain, capturing the protein, micronutrients, fiber, and flavor lost in white bread and largely overlooked in what is currently sold as whole wheat.

To that end, he created the center's Bread Lab. It has its own baker, five graduate students, an annual grain conference, and support from the likes of Clif Bar, the King Arthur Flour Company, and Chipotle Mexican Grill, the flavor-centric fast-casual restaurant chain giving McDonald's a run for its money. He has bred grain for Dan Barber, founder of the farm-to-table Blue Hill at Stone Barns restaurant and education center outside New York City.

The would-be revolution is still largely in the insurrection stage. Jones and company aim to add to the varieties of wheat that are being grown, in turn changing the way bread is made. They have to change the science of bread, which has for decades been bent on production and efficiency, or they at least have to make their way of growing wheat and baking bread reasonably efficient and profitable. And they have to change the marketplace. That might already be changing, with consumer tastes leading the way.

"If you look at a McDonald's hamburger bun, it's so successful because it's the same whether it's made in Tokyo or here," says Jones. While that's not easy to do, "not everyone wants that, and a good model for that are the microbrews. People want something different when they go in a pub. If they go to Portland, they want that to taste different than it does in San Francisco or Pullman or here. That's the same in breads and surprisingly, that could be the same at a very large scale."

THE BREAD REVOLUTION began for Jones in Cupertino, California, when he was six years old and his Polish grandmother taught him how to make bagels. He took to growing wheat as an undergraduate at California State University, Chico, and has grown it ever since, even when he lacked space and had to grow it in a pot. For his doctorate at the University of California, Davis, he studied the genetics of loaf volume.

He led an internationally recognized wheat breeding program in Pullman. But he also chafed at breeding only "anonymous wheat" for use on an industrial scale, thinking there must be other ways to add to its value. When asked to breed wheat genetically modified to resist an herbicide, he bristled at the thought of creating wheat that farmers would, by contract, not be able to replant the next year. He refused, assuming a reputation as a renegade. The Washington Wheat Commission threatened to withhold funding for his winter wheat breeding program.

In 2008, he left Pullman to run the Mount Vernon center, assuming he would be working with cabbages or pickling cucumbers, typical specialty crops in the Skagit Valley. But it turns out that farmers grow wheat in the valley to break weed and disease cycles between tulips, potatoes, and other crops. They asked Jones for his help and he found himself continuing to work in wheat but with more of a focus on the farmer than on commodity-style wheat.

"Once you get out of the commodity market, it's a very freeing experience," he says.

Here he could work with all types of wheat—purple wheat, blue wheat, black wheat, and varieties with unique flavors and baking properties. But to nail down those flavors and properties and prepare them for life outside the commodity marketplace, he needed to test them, so he started the Bread Lab and hired Jonathan Bethony to bake.

In his earlier role, he might be told a certain wheat "doesn't work," even if the farmer would have liked its yield and disease resistance. "So we had something that worked incredibly well for the farmer, but now it doesn't fit that commodity button. In the past, it had no use. Now it does. Now Jonathan and the visiting bakers can say, 'You know what, it makes an incredible tortilla, pizza crust, cookies, dough, baguette, whatever. Yeah, the color is funky but people like that.'"

AN ILLUSTRATION OF A BRAIN hangs on a piece of electrical conduit in the middle of the lab. One hemisphere is on the lab's analytical side, where equipment can analyze a flour's enzymes. Another machine gauges its ability to tolerate mixing and proofing. Yet another is designed to, as Jones puts it, "blow expensive bubbles," inflating dough to measure pressure and volume and gauge elasticity and extensibility, key elements of a bread's structure.



The brain's other lobe is on the baking side, where Bethony and visiting bakers employ the more subjective and intuitive tools of the hand and palate. Clear plastic containers hold dozens of different wheats, with names like Sonora and Bobtail, Colonia and Soisson, and Bethony routinely bakes them into flavor-packed baguettes, boules, and other products in the lab's massive four-deck oven.

On this day, Blue Hill baker Louis Volle is visiting to practice for the Coupe du Monde de la Boulangerie, the World Cup of artisan baking. Joining him are Lacey Thompson, who is opening a bakery in nearby Acme, and Dawn Woodward, who is expanding her Toronto-based Evelyn's Crackers to include sourdough-based, whole-grain breads. They're part of the lab's regular traffic of visitors, the list of which includes renowned bakers like Jeffrey Hamelman and Chad Robertson, as well as business visionaries like Chipotle founder Steve Ells and Patagonia founder Yvon Chouinard.

Readying for the day's bake, Volle asks for some white flour. Bethony hesitates before digging out a bag that hasn't been touched since the annual Grain Gathering six months earlier.

"We'll let him use a little white flour, only because it's the World Cup," Bethony says.

Whole grain, long maligned as the domain of hippies and hairshirts, is a major focus of the lab. It can easily produce a dense, dry brick, and the fats in commercial whole-grain can turn rancid, making the loaf bitter. People taste that and assume it is inherent in whole wheat, says Bethony.

But in the right hands, it can produce a full-bodied, flavorful loaf. It is also elegantly nutritious, as Jones and doctoral student Bethany Econopouly detailed last year in a *Huffington Post* piece called "Redefining Bread."

"Whole-grain breads do not need extra gluten, salt, fats, sweeteners, or unfamiliar, unpronounceable ingredients to taste good," they wrote. "[They] need unrefined flour, true fermentation, and skilled bakers."

The article takes to task a regulatory system that forbids the adulteration of so many other foods while in effect looking the other way at what goes into bread. Anything less than 100 percent juice has to be called a "drink,"







Opposite: Stephen Jones. *Photo Matt Hagen*. ***This page, top to bottom:*** WSU Senior Scientific Assistant Steve Lyon ***(left)*** explains wheat hybridization to Chad Robertson, owner of Tartine Bakery, San Francisco. Jeffrey Hamelman of King Arthur Flour (in the white chef's hat) leads a local grains workshop at the Bread Lab. Naturally leavened and 100% whole-grain breads. *Photos Kim Binczewski*

"beverage," or "cocktail." Emulsified cheese has to bear the name "process." But even if you bleach your flour with acetone peroxide, chlorine, or benzoyl peroxide—yes, the one used to treat acne—you can still call it bread.

Food and Drug Administration rules also permit shortening, sweeteners, coloring, potassium bromate, refined vital gluten, and azodicarbonamide, the aforementioned "yoga mat" compound used as a dough conditioner. Such additives are largely in service to speed and automation, wrote Jones and Econopouly, with the final product having a higher glycemic index, more undigested gluten, and less available micronutrients than naturally fermented bread.

"No wonder so many people now consider a food that has always been a staple, relied upon by countless people for daily nourishment, as unhealthy," Jones and Econopouly wrote.

Gluten, the key protein in bread's structure, can't be digested by the 1 percent or so of people with celiac disease, and many other people have taken to blaming it for other health problems. But the problem



Baked dark, boules and baguettes in the Bread Lab have a rich, complex flavor missing from most breads. *Courtesy JD McLelland/ The Grain Divide*. ***Opposite:*** Bread Lab collaborator Chad Robertson has introduced thousands of bakers and diners to the wonders of a naturally leavened loaf. *Courtesy Tartine Bakery*

could well lie with the additives in commercial breads, particularly vital gluten. Meanwhile, Italian researchers have shown that gluten can be nearly eliminated as naturally leavened bread develops.

"One hypothesis is that the fermentation process starts kind of digesting the bread, it's breaking down gluten," Econopouly says one afternoon outside the lab. "It's why you can over-ferment your bread, because you'll have no strength to make a nice loaf."

Which is where the baker's hands come in. As a loaf rises, an experienced baker will see and feel changes in the dough's character and adjust accordingly—cooling it to slow its development and build flavor, or changing its water content for more holes in the crumb. Bethony has experimented with removing a flour's bran, softening it in water, and returning it to the dough, where it is now less likely to slash the dough's bubbles. Working with a chef in the La Conner schools, he has baked with a white whole wheat that goes undetected by the students. He calls this "stealth health."

Compared to most bread, even the quasi-artisan breads frozen and reheated in supermarkets, the loaves from the Bread Lab are immensely flavorful. They're baked dark, making the most of the browning process that can serve up a rich, musky scent that permeates the crumb—the part that's not crust—as the bread cools. The crumb is moist, with large, glossy, gelatinized holes created by degassing yeast and bacteria. The smell is intense, like fresh cut wood burned by a saw blade.

The challenge now is to get this product into more bakeries, homes, and mouths.

Econopouly studies breeding for yield, adaptability, and improved nutrition and baking quality. Before coming to Mount Vernon, she was a research analyst for the Bill & Melinda Gates Foundation, learning about the challenges faced by small farmers in sub-Saharan Africa as they try to sustain their families and send their children to school. It was a big-picture task, involving agronomics, breeding, food policy, and market access.

The Bread Lab takes a big-picture approach, too, breeding wheat, baking bread, but also exploring ways to make a wholesome loaf a greater part of daily life for a greater number of people.

"One of the problems we come across is how can we get these really beautiful artisan, really nutritious whole wheat breads to more than just the people who can walk to one of these nice bakeries in the city in some hip neighborhood and spend more than $12 on a loaf of bread," says Econopouly. "I'm not saying those loaves of bread aren't worth $12. I'm saying everyone should be able to have a loaf of bread like that."

CHAD ROBERTSON HAS DEVOTED his career to perfecting such loaves. People line up outside his bakery in San Francisco's Mission District to pay $8.25 for one. He has sold tens of thousands of copies of his first cookbook, *Tartine Bread*. The basic recipe consumes 38 pages.

"With this recipe, some matches, and a knife, you could start a civilization," says *Vogue* magazine, which calls Robertson "the cult prince of American breadmaking."

The core of the recipe is unbleached white flour, with a hint of whole wheat. Last year he put out a book centered on the flavor and aesthetics of whole grains and more diverse grains, like kamut and fermented oatmeal. He did much of his research in Denmark and Sweden, which is seeing a revival of heirloom Nordic grains.



"I come home and I would love to have some of these varieties growing in the States and see what happens," he recalls one day in Bar Tartine, a restaurant around the corner from his Tartine Bakery. "I say that to Steve. That was maybe two years ago and they're growing it now. I'm going to be able to use some of that stuff."

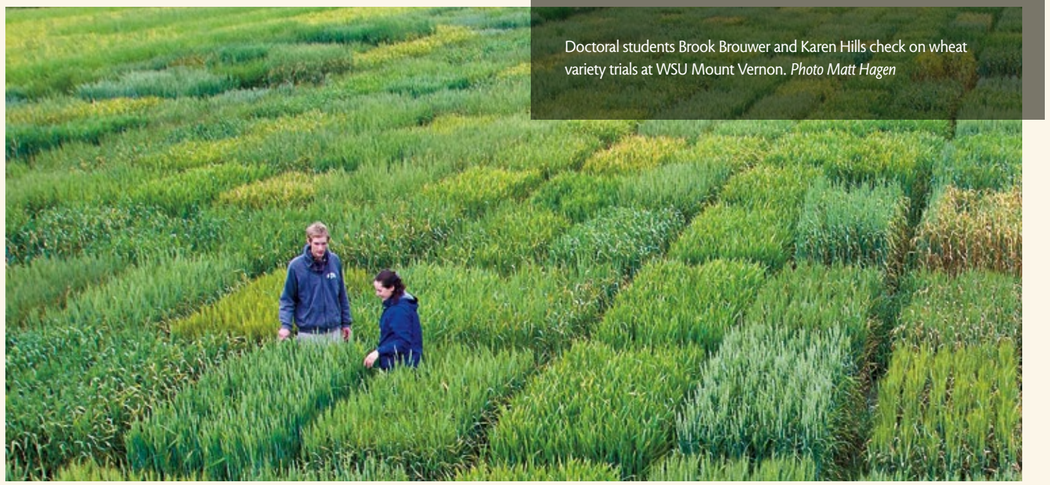
Barber, the Blue Hill at Stone Farms chef, worked with Jones to develop his own wheat, a descendant of a Spanish variety named Aragon 03. It's now growing at the Stone Barns farm in New York after a test plot near the Skagit Valley produced the equivalent of an astounding 156 bushels per acre.

"I would bet that we're just at the beginning of something that won't stop," Barber says by phone one evening. "As people taste this stuff, there's no way they're going to settle for anything without the flavors they taste, because it blows your mind. To me it's a no-brainer. That's what changes everything, flavor."

Steve Ells, the founder of Chipotle Mexican Grill, learned about the lab after tasting bread made with Dan Barber's wheat. He has since worked with the lab to tinker with a whole-wheat crust in Pizzeria Locale, an expanding Neopolitan pizza restaurant partly owned by Chipotle. The company is also looking at a whole-wheat tortilla. It's in the early stages, but should this come to pass, it would have the Bread Lab's work reaching the palates of one million people a day.

There's an even bigger picture to this as well, as Jones aims to see the lab's work stretch across scientific disciplines and generations.

As a graduate student, Jones spent five years at a microscope, a working definition of tunnel vision. Now he has five graduate students exploring, among other things, small-scale crop systems, barley, buckwheat, and perennial wheat. In the process, they're looking at history, economics, the environment, and politics.



Doctoral students Brook Brouwer and Karen Hills check on wheat variety trials at WSU Mount Vernon. *Photo Matt Hagen*

This is not your classic bench science. As Jones puts it, while much of the lab's research is peer-reviewed, it's not putting out a paper on "the perfect baguette."

It's more like a large, iterative, communitarian effort in which farmers, millers, bakers, and chefs bake and break bread, giving and taking inspiration to bring it to the larger world. It's science in the throes of cultural change.

The lab's bread work, says Jones, is as much about the art as it is about the science. "I think that's real important," he says. "If Chad Robertson and Marc Vetri and these other chefs and some bakers and Dan Barber help us figure out what's good, that's good for that end."

Late last year, just three years after opening, the Bread Lab announced that it had outgrown its space and was moving to a 12,000-square-foot building at the Port of Skagit County. Large donations quickly flowed in from the likes of Acme Valley Foods and King Arthur Flour. The Vermont-based King Arthur, the oldest flour company in the United States, will use one-fourth of the new building for a baking education center, its first footprint outside its home state of Vermont.

"There's five years ago, I didn't want any more students, because I didn't know where they would go," Jones says. "Now I want 20."

Last year, the lab worked with two high school sophomores on a science fair project on the effect of fermentation on gluten strength, or, as the project was titled, "The Correlation Between Fermentation Time and the Rheological Properties of Bread Dough." They took first place in the food sciences category at the Washington State Science and Engineering Fair.

That was nice, but what really got Jones was how much the experience turned the students, Susanna Andrews and Sophia Romanelli, on to science.

"All of us in the lab say that one of the most gratifying parts of our careers was they both said they now want to be scientists," says Jones. "It was super cool. I couldn't talk. I would cry when I talked about it.

"That's the bread lab," he says, "and that's access and that's knowledge. That's teaching. That's outreach." ⊗

Find a recipe for artisan bread at wsm.wsu.edu/extra/artisan-bread.

by Matthew Avery Sutton :: illustration by David Wheeler

{ Global War *and* Christian Nationalism }

Christian apocalypticism has a long and varied history. In his 2014 book American Apocalypse: A History of Modern Evangelicalism, *Matthew Avery Sutton, Edward R. Meyer Distinguished Professor of History at Washington State University, writes how its most prevalent modern incarnation took shape about a century ago, among the vast network of preachers, evangelists, Bible-college professors, and publishers who established the fundamentalist movement. Baptists, Methodists, Presbyterians, pentecostals, and independents shared a commitment to returning the Christian faith to its "fundamentals." Their analysis of contemporary events built on a complicated reading of the biblical books of Daniel, Ezekiel, Matthew, and Revelation. They masterfully used the Bible's most cryptic passages to explain the past, understand the present, and predict the future.*

The faithful understood Jesus's command to "occupy till I come" (Luke 19:13) as an unambiguous call to engage in this world. And occupy they have. Evangelicals' apocalyptic sensibilities have instilled in them a confidence and a sense of determination that demands constant action. They believe that they have to wield their influence and power as effectively as possible to prepare the world for the end of days. Evangelicalism, perhaps better than competing faiths, provides millions of people navigating a chaotic and seemingly meaningless world with purpose, significance, and incentive for action.

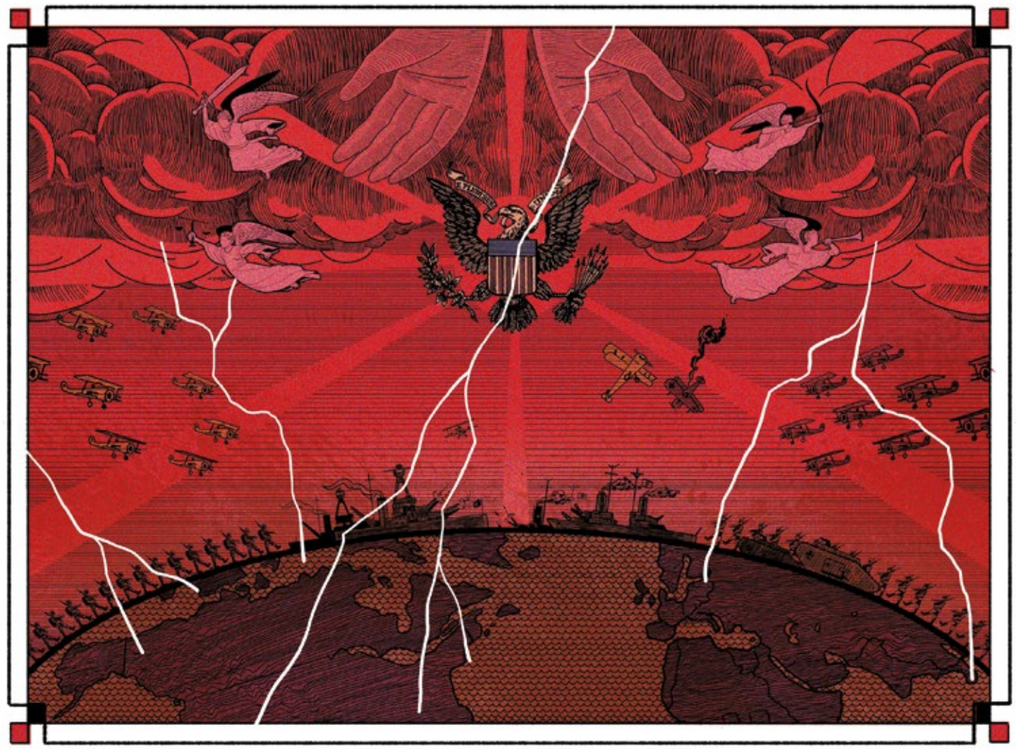
Influential Seattle minister Mark Matthews, part of whose story is excerpted below, demonstrated that fundamentalists and evangelicals have never been indifferent to the world around them. This is why Matthews preached Armageddon while simultaneously asking for Congress to send cash to the Pacific Northwest. His legacy remains as the influence of evangelicals, from Aimee Semple McPherson to Billy Graham to Jerry Falwell, has grown into the twenty-first century. While they felt sure that the global apocalypse is imminent, they believed that it is never too late for the individual, the nation, or the world to be reborn.

EMERALD CITY DIVINE MARK MATTHEWS loved God and he loved Woodrow Wilson. The tall, lanky, Georgia-born minister, who looked more like a stern plantation overseer than a warm cleric, relished the fact that a fellow southerner, Presbyterian, and Democrat had won the White House. Matthews believed that with Woodrow Wilson at the helm the United States would finally return to the sea of righteousness. During the early decades of the twentieth century, Matthews became one of the most powerful religious leaders in the United States. His Seattle congregation was the largest Presbyterian church in the world, with over ten thousand members at its peak. He played an important role in denominational politics and served as moderator of the General Assembly of the Presbyterian Church U.S.A. In 1924, the *New York Times* named Matthews in a poll of twenty thousand ministers as one of the most influential preachers in the nation.[1]

Like so many radical evangelicals of his generation, Matthews saw troubling signs at home and abroad. As European nations armed for war in the 1910s, the minister shifted from postmillennialism to premillennialism. While he had believed in the power of the Social Gospel to bring to fruition the kingdom of God, he now feared that the world was careening toward an inevitable apocalypse. Yet his growing premillennial sensibilities did nothing to curtail his political engagement. He worked closely with community organizers on a variety of issues and he cultivated relationships with state and national leaders, none more important than Wilson.

Matthews routinely wrote the president with advice and to ask for favors for himself and his friends. He even promised Seattleites that through Wilson he would get congressional pork flowing back to the Pacific Northwest. The president occasionally sought Matthews's opinions as well. Their correspondence demonstrates that Matthews had the ear of the president and that he had no reservations about speaking boldly to men in power.[2]

The Presbyterian's messages to Wilson often strayed far from his expertise as a preacher and community servant. Revealing the ways premillennialism had transformed him, some of Matthews's letters mixed prophecy, politics, and even foreign policy. The cleric believed that the Bible had clearly outlined the United States' responsibilities during World War I. He admonished Wilson not to "discuss peace any more. The infamous forces against which we are contending," he asserted, "must be



DAVID WHEELER

crushed. We do not want peace until they are crushed. We do not want them to break. We want to strike them down." Then he turned to the Bible to justify his strident, uncompromising militarism. "Prophecy is clear on this question," he insisted. How it was clear he did not say. He concluded his letter by confiding in Wilson that he hoped to "have the privilege of shooting the Kaiser" himself.[3]

World War I represented a major turning point for Matthews and for those like him in the growing premillennial movement. For decades, radical evangelicals had believed that contrary to the claims of creedal conservatives, Social Gospel liberals, and political progressives, humankind was not improving. Although premillennialists did not necessarily rejoice over the outbreak of war, they could not help but find some satisfaction in international turmoil. As the British promised to establish a homeland for Jews in Palestine and Wilson consolidated power in the executive branch, premillennialists knew beyond any doubt that the beginning of the end had commenced. The global cataclysm signaled to them that they had read prophecy accurately and that they could offer a viable, realistic alternative to the rosy religion of Social Gospel optimists. While most radical evangelicals believed that the rapture would occur before the unveiling of the Antichrist, they believed that they would see global developments unfolding as the Bible foretold to set the stage for the seven-year, final tribulation. They used the war to promote their gospel and their movement. Their ability to anticipate conflicts around the rapidly changing world with total confidence and to explain their meaning captured the souls of thousands of Americans. At the same time, World War I forced radical evangelicals to reconcile their beliefs about the future with the realities of their obligations to a nation at war. That premillennialism might seem inimical to good citizenship made the faithful politically and socially vulnerable. ⊗

1. "8 New York City Preachers among the 25 Voted as Leaders by American Clergy," *New York Times*, December 22, 1924.
2. "Political Notes and Comments," *Seattle Argus*, March 1, 1913.
3. M.A. Matthews to Woodrow Wilson, March 8, 1918, folder 12, box 4, accession 97-2, Mark A. Matthews Papers, Special Collections, University of Washington, Seattle.

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View historical photos of Mark Matthews and Seattle's First Presbyterian Church at wsm.wsu.edu/extra/Mark-Matthews.



STAFF PHOTOILLUSTRATION

shattering some glass

women sportscasters breaking into the big leagues

:: by Larry Clark ::

AT 11 YEARS OLD, Cindy Brunson '96 knew she wanted to talk about sports on TV or to at least be at the games talking about sports. She just had to get over a few hurdles.

At the time, her dad would have a group of friends over to watch football on Sundays at their Tacoma home.

"They would be whooping and hollering in the rec room and having a good time," recalls Brunson. "Somehow my mother anointed me 'beverage girl' and I'd have to take them drinks and collect their empty potato chip bowls. I thought, 'This is lame. I want to be with them.'

"I grabbed an encyclopedia and I memorized the referees' signals. The following Sunday I went down and they were hollering, and I said, 'That was not a hold! I can't believe the ref threw that flag.' And I was in."

After that, Brunson and her father regularly attended home Seahawks, Sonics, and Mariners games, further fueling her dream to go to Washington State University and into sports broadcasting. Now, with 13 years as a sportscaster on ESPN and a couple of years with Pac-12 Networks, Brunson is most definitely in.

Brunson, Jaymee Sire '02, Beth O'Donnell '13, and a number of other WSU alumni women have answered the call to enter sports journalism, paving a way in a field of broadcasting long dominated by male voices and personalities.

It's not always an easy road. When Andy Rooney said women sportscasters "don't know what the hell they're talking about" back

in 2002, it echoed what even recent studies show: For many viewers, a credibility gap exists between female and male sportscasters. Through their effort, training, and determination, however, women sportscasters continue to climb to the top of their chosen profession, pushing aside questions of credibility and worn-out assumptions about gender and the ability to report on sports.

At WSU's Edward R. Murrow College of Communication, both men and women continue the long tradition of sports broadcasters from WSU, with CBS veteran Laura Dubowski and other faculty training them for the field. For women in particular, that education combined with practical experience prepares them to establish their authority and understanding of sports.

Fans watching the WSU women's basketball game versus Colorado in late January had Brunson's familiar voice and face on Pac-12 Networks to guide and inform them. She didn't just sit down and call the game, though. Her work started hours before with writing and research on players.

"We try to make it look as easy as possible," she says, "but I always have to do homework." She's downstairs at Beasley Coliseum. Cheers from players and visiting WSU women's basketball alumni echo faintly down the hallway. The Cougs have just notched a come-from-behind victory over the Colorado Buffaloes.

Originally, Brunson was slated to be on the women's basketball team. She came here to play, earning a partial scholarship, but she was also drawn by the reputation of legendary sportscaster Keith Jackson '54.

A third torn ACL kept her off the court, so Brunson poured her energy into broadcasting, studying to be both on-camera and behind the camera. She also worked on news and other programs at the WSU television station Cable 8, but she really wanted to do sports.

"At Murrow we were supposed to take turns on who would do weather and who would do sports and anchor. I was always that one making trades to get that *extra* sportscast," she says.

Her effort paid off, first with an internship in Spokane under then-KHQ sports director Dan Kleckner, followed by a job as weekend sports anchor and weekday news reporter at Portland's ABC affiliate. A year later, Brunson headed east to work at ESPN, where she spent 13 years as a reporter and a *SportsCenter* anchor. The transition surprised her.

"I was used to being the only gal who might have known Alex Rodriguez's batting average in the local newsroom, but to be the only gal in a room of 150 colleagues was a little jarring," says Brunson. On the other hand, "[fellow anchor] Linda Cohn and I never had to wait to use the ladies room," she says.

Despite the gender imbalance, ESPN staff cared more about who had the knowledge and who could communicate it, Brunson says. "If I could spout Steve Largent's yards-per-catch average, I was OK, because I knew my stuff."

In 2012, Brunson's husband and fellow ESPN anchor Steve Berthiaume accepted a position as play-by-play announcer for the Arizona Diamondbacks, so the couple left ESPN and moved to Arizona. The move opened the door for Brunson to work as a host and reporter covering the Diamondbacks for Fox Sports Arizona. In the winter, she does play-by-play and analysis for women's basketball, as well as sideline reporter duties for men's hoops, on the Pac-12 Networks.

She says working for Pac-12 Networks really fits with her, since basketball is in her DNA. "They want alumni from the schools to be associated with the broadcast," says Brunson. "They're appreciative that I don't want to do softball or volleyball. I want to stay in my lane."



Cindy Brunson anchoring ESPN 's *SportsCenter*. *Courtesy John Atashian/ESPN*. ***Below:*** Jaymee Sire prepares to host *SportsCenter* with co-anchor Kevin Neghandi. *Courtesy Joe Faraoni/ESPN*. ***At right, from top:*** Jane Chastain; Lesley Visser; Gayle Gardner with fellow NBC broadcaster Bryant Gumbel. *Photos courtesy CBS Sports, NBC Sports*

Back at ESPN, another Coug joined Cohn and the team of anchors in 2013. Jaymee Sire '02 found early success at WSU—she won the 2002 Judith Waller Award for Outstanding Senior Woman in Broadcasting. She jumpstarted her career while interning as a WSU student for a television station in her hometown of Great Falls, Montana.

Like Brunson, Sire wanted to get into broadcasting from a young age. "I always knew I wanted to get into television," says Sire. "I was a drama geek in high school and I've always been into sports." That brought her to WSU, where the combination of training and experience at Cable 8 got her into the industry.

After Great Falls, Sire worked in sports reporting at a San Diego television station for four years. She moved to the San Francisco Bay area for Comcast SportsNet, where she covered the San Francisco Giants and Oakland



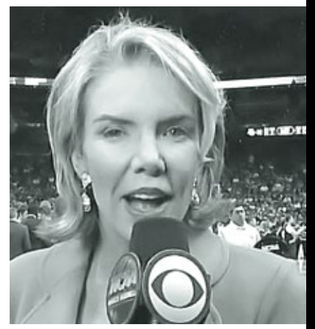
A's, along with other professional and college teams, winning a regional Emmy for her work. That broad experience took her across the country to ESPN.

It's a huge operation, and a lot of work. To prep for anchoring at *SportsCenter*, Sire says the team of producers, on-air talents, researchers, and technical staff meet hours before the show, and then she sits down and writes. "At ESPN, we write a lot of our own stuff. People don't often know that," she says. "I want to have that input. It sounds more like what I would say."

In addition to *SportsCenter*, Sire has hosted *NFL Live*, *NFL Insiders*, and *Fantasy Football Now*, and has contributed to the network's Major League Baseball and Little League World Series coverage.

Brunson and Sire follow in the footsteps of several pioneers, women sportscasters who had to overcome powerful stereotypes of "just another pretty face" and prejudices that "women can't understand sports" while they established their credibility.







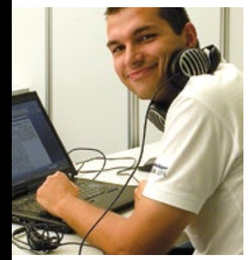
Jane Chastain became one of the first woman sportscasters when she took over as sports anchor at a Miami TV station in 1967. She was the first woman to work for a large network, CBS Sports, beginning in 1974. Even though her sport knowledge brought grudging respect from the likes of Joe DiMaggio and the Miami Dolphins, her stint at CBS didn't end well. She was told to not talk like a woman, then not to talk too technically like a man. She was fired in a year.

In the mid-1970s, Lesley Visser tried to interview Pittsburgh Steelers quarterback Terry Bradshaw, only to have Bradshaw grab her notebook, sign his autograph, and hand the notebook back. Yet even in male-only sports like football, she made an impact. She became the first female National Football League analyst on TV, the start of a string of firsts for her: first woman assigned to Monday Night Football, first woman reporter on the Super Bowl sideline, first and only woman enshrined in the Pro Football Hall of Fame. She was the only sportscaster, male or female, to work on the network broadcast of the Final Four, the Super Bowl, the World Series, the NBA Finals, the Triple Crown, the Olympics, the US Open, and the World Figure Skating Championship. She was voted by the American Sportscasters Association as the number one female sportscaster of all time. She's now a CBS Sports reporter.

Gayle Gardner also showed the way for women professional sportscasters as the first female sports anchor to appear weekly on a major network. She worked for ESPN and then NBC from 1983 to 1997. Laura Dubowski, clinical associate professor at the Murrow College of Communication and a 37-year veteran from CBS News, knew Gardner at television station WBZ in Boston in the late '70s.

At the time, Gardner, then Gayle Grannock, was a production manager who wanted to be a sports broadcaster, says Dubowski. Gardner made it into sports, but it took a while.





"She had to break into being on the air—she was very pretty and she could write—and then she had to convince the news director to give her a chance. From there, it was trailblazing for her," says Dubowski.

Gardner also became the first woman to do televised play-by-play for a Major League Baseball game, calling a Colorado Rockies and Cincinnati Reds game in 1993.

Dubowski now teaches broadcasting students at WSU, including a new sports reporting class, where she dips into her long experience in the television field. She didn't make it onto the football field herself, though. When NBC had football games in Boston, they'd get a crew from WBZ and Dubowski would volunteer. "I always wanted to be on the field, but I was five feet tall and so I ended up with the broadcasters in the booth."

She did end up working some in sports broadcasting when she went to CBS and helped produce the 1998 Olympics in Nagano, Japan.

Dubowski grew up a sports fan, following the Boston Celtics in her native Massachusetts. She also has a long admiration for sports writing, calling it "some of the best writing around. They still have the luxury to just let it go."

Dubowski says the situation for women sports broadcasters and writers seems to be improving, at least beyond the locker room access controversies detailed by sportswriter Susan Fornoff, who wrote in her 1993 book *Lady in the Locker Room*, "The road to acceptance for women is lined with the men declaring, 'We don't want you here.' … When the women respond, 'Too bad, I'm here,' then the tests of manhood begin."

Simon Ličen, a WSU sport management assistant professor, studies sociology and media in sports, and brings his experience as a basketball player and journalist in his native Slovenia to the enterprise. Ličen says he looks forward to having women do play-by-play for men's games, especially in basketball or soccer, where "the rules are the same, the games are the same."

Credibility for women in sports broadcasting is not a problem unique to the United States, he says. In Australia, a well-known woman sportscaster took over play-by-play for Australian rules football, a men's sport. She "would even lower her voice when she commentated on those games, in order to sound more similar to male sportscasters," says Ličen. "Nonetheless, the network received criticism from fans. They did not have her do those broadcasts anymore."

Even today, the field lacks women in management and hiring positions at networks. Visser told a researcher that she has never been hired by a woman in her 30-plus year career. It can change as women move up in management, says Dubowski, which is beginning to happen at the local level.

To move forward in the occupation, women have "got to get the right person to listen to them," says Dubowski. "They should say, 'If I can do play-by-play for women's games, I can do it for men.' But there's no room for mistakes. There's a little more leeway for men."

Women in sports broadcasting aren't just challenged by sub-par assignments and salary differences. Several studies show many television viewers still think females are less credible and authoritative than males, says Ličen. Even women judge female sportscasters more harshly than men. Moreover, how viewers rate the attractiveness of the female sportscaster affects perceptions of credibility.

These troubling findings emerge publicly at times, such as the impromptu on-camera outburst by Andy Rooney in 2002, "The only thing that really bugs me about television's coverage is those damn women they have down on the sidelines who don't know what the hell they're talking about."

While Rooney received criticism from all directions for his sexism, and many wrote it off as a generational problem, studies as recent as 2007 show a lingering disconnect between how viewers perceive the ability of women sportscasters.

At ESPN, Brunson learned about the fickleness and ignorance of some viewers early on. She had a cubicle near the office of Stuart Scott, a longtime *SportsCenter* anchor who recently passed away, and often asked his advice. When Brunson prepared to anchor the show for the first time, Scott encouraged her and said, "You're here for a reason. Just go be you."

"The next day I'm playing my voice mail messages. There are three 'get back in the kitchen, who do you think you are?' messages. People said, 'You're too pretty. I didn't listen to a thing you said because you were mesmerizing,' and, 'What kind of lipstick were you wearing? What were you thinking? That was terrible.' Crud like that," she says and then laughs. "Nobody was talking about the fact that I was doing sports."

Brunson played the messages for Scott. He said that was nothing and played back ugly and racist messages left for him, an African American. Scott had kept the messages as a motivator. "It gave me perspective," says Brunson. She kept the first "get back in the kitchen" message for her own reminder.

Sire agrees that a double standard exists. "If I say something slightly wrong, even an honest mistake, people are quick to say, 'She doesn't know what she's talking about because she's a girl.' If a guy made the same mistake, it wouldn't be an issue," she says.

For recent alumni in sportscasting, like Beth O'Donnell, lessons passed on by Brunson and others give a clear sense of the work involved.

Attending Los Angeles Kings hockey games at ten years old, "I became obsessed with hockey, and football shortly after. My dad said, 'You know what you'd be really good at? You could be a sports broadcaster,'" says O'Donnell.

She agreed and found WSU to be the perfect fit. In addition to her coursework, O'Donnell worked her senior year in the WSU Athletics communications office as a sports broadcaster, covering football games, interviewing student athletes, and producing televised reports.

O'Donnell graduated in 2013 with degrees in communication and sport management, then headed almost 2,500 miles north of Pullman to Anchorage, Alaska, to work as a sports reporter at KTUU, the city's NBC affiliate. While it might seem an odd fit for southern California native O'Donnell, she jumped at the opportunity, where her love of hockey fit perfectly.

It still meant a lot of study. When O'Donnell studied at WSU, Cindy Brunson visited her class and gave the advice to learn everything you can about sports you don't know.

"That really resonated with me," says O'Donnell. If she doesn't have the knowledge, "that's when the credibility will get cut and people start to say, 'That person doesn't know what she's talking about.' Sometimes it's a little overwhelming, so you drink a lot of coffee and stick with it."

In Anchorage, she says, they have to cover everything locally, as well as report on national sports. She spends hours learning about events like the Iditarod and Yukon Quest sled dog races, the top mushers, the dogs, and the course. O'Donnell also covers the Iron Dog Race, a snow machine competition with racers traveling 60 to 80 miles per hour along the Iditarod course. "It's so cold they have to put duct tape on their faces," she says. The race will be featured on an NBC Sports documentary, so O'Donnell's work will get national exposure.



She also reported on the Native Eskimo-Indian Olympic games, which took a lot of study. "There are these games you've never heard of and it's a culture shock," she says.

The culture of Alaska also lends itself to opportunity for women, says O'Donnell. "In Alaska, the fan base is very happy to have women in sports. We get told the fans like us more than the boys," she says.

O'Donnell and Sire received advice as students from Brunson, but all three credit their success to education at WSU and one instructor in particular, the "Voice of the Cougars" and now-retired broadcasting professor Glenn Johnson.

"When I first got to campus, Glenn Johnson's booming voice was very identifiable and it was one of the first sounds I heard in Murrow. I just thought, I need to get to know that guy and take every class that he offers and put myself in a position to succeed," says Brunson.

Sire also admires Johnson and his practical advice from 30-plus years of teaching broadcasting students. "I love, love, love Glenn Johnson. I couldn't imagine my college experience without him as a professor and mentor. He was very straight with us from day one and told us we had to put in our dues," she says.

At WSU, students who want to become sportscasters will soon have more options. In addition to Dubowski's sports reporting class in the spring, the college will offer a new sport and media class taught by clinical assistant professor Ben Shors next fall. "We certainly anticipate that we will formalize those courses and expand our offerings down the road into a degree," pending approval, says Murrow College Dean Lawrence Pintak.

For women coming into the field as sportscasters, says Sire, it's become a little easier. Particularly at ESPN, there's a real effort to have women on shows, even with two women hosting *SportsCenter*.

Brunson agrees, but cautions that real achievement for women in sportscasting requires diligence.

"I put the onus on myself and my fellow women who are out there," says Brunson. "We have to be good. We can't give the viewer or listener an excuse to say, 'get back in the kitchen.' I always shoulder that burden, particularly when I was at ESPN because I didn't just feel I was Cindy Brunson. I felt like I was Linda Cohn. I felt like I was Hannah Storm. I just didn't want to be the weak link in the chain." ⊗



Opposite: Laura Dubowski. *Photo Robert Hubner.* Simon Ličen. *Photo Mateja Mir.*
This page, left to right: Anchorage-based sports broadcaster Beth O'Donnell. *Courtesy KTUU-TV.* Brunson calling a WSU women's basketball game for Pac-12 Networks. *Photo Dean Hare*

Watch videos of WSU sportscasters at wsm.wsu.edu/extra/sportscasters.



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CLASS NOTES

1940s

Edward "Mike" Reuter ('48 Phys. Ed.), a WWII veteran, was presented with the Knight of the Legion of Honor, France's highest military award for his contribution to France's liberation in the war.

1960s

Robert Healea ('64 Bus. Ad.) retired after 20 years of service as the vice president and chief financial officer at telecommunications firm TEC.

Steve Montgomery ('66 Comm.) was honored with the lifetime achievement award and the annual media award by H1 Unlimited for his public relations and broadcasting work in unlimited hydroplane racing.

Stan Albrecht ('68 MA, '70 PhD Soc.) was the first Utah State University president named to the USU Athletics Hall of Fame.

1970s

Karen Childress-Evans ('71 EdD) retired as director of visual and performing arts for the San Diego Unified School District.

Bradley Carlson ('75 Comm.) was appointed president and general manager of Evergreen Memorial Gardens Cemetery by Riverview Bancorp, Inc.

Michael Hubbard ('76 MBA) has been appointed to the BioPharmX board of directors.

Jim Wegner ('76 Food Sci.) retired as president and CEO of the Northwest Dairy Association and its subsidiary Darigold Inc.

Dan Newhouse ('77 Ag. Econ.) was elected as U.S. representative for central Washington's Fourth Congressional District.

Dan Castles ('78 Fin.) will continue as CEO of his 17-year-old digital video tools company Telestream, which was recently acquired by Genstar.

John E. "Jack" Pelo ('78 Bus.) has been appointed vice chair of the Federal Reserve Bank of San Francisco's Economic Advisory Council.

Rich Tomsinski ('78 Bus.) has accepted a fellowship position with Results Washington, part of the Washington state governor's office.

Susan Rahr ('79 Crim. Jus.) was appointed to the "Task Force on 21st Century Policing" by President Barack Obama.

1980s

Shari H. Freidenrich ('82 Bus.) was reelected as the Orange County, California, treasurer. This is her second term.



Sorority alumna Martha Copp leads husband Howard '57 away from the Alpha Gamma Delta house as members (*from left*) Lexi Knutzen, Mia Portuese, and Kirsten Fischer look on. *Photo Shelly Hanks*

Howard Copp '57

From houseboy to husband

by Richard H. Miller :: His job was to light the candles. And set the tables. And serve the food twice a day.

In 1953, being a houseboy at a sorority was a plum post.

"I put myself through college for three years doing that," Howard Copp ('57 Civil Engineering), says sipping a beer during a recent Pullman pep rally. "That was back when tuition was $65 a semester."

He could have worked there for four years. But Martha Putnam came along.

It was a fall day. Howard was in Alpha Gamma Delta, wearing the requisite waitstaff blazer and slacks, serving a meal to 60-some sorority women under the watchful eye of the cook when he saw Martha. He wanted to ask her on a date. He needed to ask her on a date.

"There was a rule that houseboys couldn't date women in the sororities," Martha said. "When he asked me out, the housemother said 'You have to choose between dating an Alpha Gam and keeping your job here.' "

Howard quit.

Their first date? "I'm not sure where we went," says Martha. "It was a long time ago. Probably The Coug or a movie. The Coug was only Cokes and coffee then."

Howard found a houseboy job at a different sorority and kept seeing Martha. They married two years later, and Martha left college. Not finishing her business degree is one of her few regrets. "I made sure our two children graduated," she says.

The Copps stayed in Pullman. Howard became a professor of civil engineering at WSU. He specialized in hydraulic engineering, and represented the University on hydrology and water-quality planning committees in the Columbia River Basin. He was also part of the first team behind the Washington Higher Education Telecommunication System, which helped branch campuses stay in touch with the main campus and laid the groundwork for WSU's online degree programs.

Martha worked for several WSU departments, including Campus and Community Relations, where she helped plan the first Lentil Festival in 1989 and organized the celebration for the first-day issue of the Edward R. Murrow commemorative stamp.

The Copps retired in 1996 and just celebrated their 59th anniversary.

All those years ago, when Martha first saw Howard, did she think his houseboy skills would translate into husband skills?

"Not at the time," she says. "But they did."

Elaine Thomas '76

Showing some metal

by Tina Hilding :: Elaine Thomas '76 is a pioneer in her field, but she still is doing what generations of women have done in more traditional roles—bake.

She just happens to do her cooking at 3,000 degrees—with carbon and alloy steels as her ingredients.

The first woman to graduate from Washington State University with a degree in metallurgy, Thomas also recently became the first woman to receive the Steel Founders' Society of America's (SFSA) Charles W. Briggs Memorial Technical & Operating Medal for her career contributions in the field of metallurgy. The award includes a scholarship donation, which Thomas gave to WSU.



Elaine Thomas works at a Tacoma foundry as a top metallurgist. *Courtesy Bradken-Atlas*

When she came to WSU, Thomas initially planned on being a music major. After returning home from college after her freshman year, she spent some time with a neighbor, who was chief metallurgist for the Boeing company and who encouraged her to pursue metallurgy.

Chemistry and math came easily to her—she was at the top of her class in high school—and Thomas liked the subjects. She considered several engineering fields but settled on metallurgy and changed her major that fall.

"This was something I could do," she said. "It didn't involve working under the hood of a car or standing out in the rain. It was about using your brain instead of your brawn."

Her metallurgy major only included four students, and they struggled through their difficult classes together. She sometimes studied with the handful of women who were taking engineering and science classes at that time. Her professors, including Servet Duran and Bruce Masson, were supportive of her efforts.

Shortly after graduation, she went to work at Battelle before joining Atlas Foundry. The Tacoma-based company, which later became part of Bradken, makes high quality, high-specification parts for energy producers.

According to her nominators, Thomas is a top metallurgist in the steel casting industry, where she developed procedures and processes for sophisticated steel castings. Bradken-Tacoma is one of the few foundries in the world that is qualified to make metal castings for nuclear facilities.

There, again, she was often the only woman on the job site. Recently, in fact, she found her application letter for Atlas. It said, "No G," meaning no girls, on the letter. But Duran, her WSU advisor, called the person who was doing the hiring and strongly encouraged him to hire Thomas.

Horace A. Young ('83 MA Music) joined Santa Fe University of Art and Design as chair of the university's contemporary music department.

Ronald Turco ('85 PhD Soils Sci.) was selected as director of the Purdue University Global Sustainability Institute.

Mark A. Mone ('88 PhD Bus. Admin.) was named the new chancellor at the University of Wisconsin-Milwaukee.

Kim Zentz ('88 MEM) was named director of WSU's engineering and technology management program.

1990s

Kevin Christie ('90 Acc.) has been named vice president for customer solutions at Avista Corporation.

Scott Holt ('91 Ag. Bus.) was promoted to North American marketing manager at Allflex USA Inc.

Max Baker ('92 MA Theatre Arts) wrote and directed his play *Live from the Surface of the Moon*, which was presented at The Wild Project in New York City.

Jennifer Goldston ('93 Comm.) was named vice president of communications at FarmLink.

Scott Scholes ('93 MED) has been named vice president of enrollment management at Idaho State University.

Joanna M. Silverstein ('94 Psych.) was elevated to shareholder status at the world's largest employment and labor law practice, Littler.

Jim Horner ('96 Crim. Jus.) returned for his ninth season with the Mariners organization, and second season as manager of minor league baseball team Jackson Generals in Tennessee.

Dhiraj Kacker ('96 MS Elec. Eng.) has been recognized as one of the 10 most influential people in photography by *Asian Photography* magazine.

Guy Birkenmeier ('97 Bio. Chem.) was named a partner at law firm Baker and McKenzie LLP.

Bennie Seltzer ('97 Socio.) was chosen for the 2014-15 class in the Pac-12 men's basketball Hall of Honor.

Shannon Hunt ('98 Ed.) was inducted into Battle Ground's Prairie High School Hall of Fame. She is an assistant volleyball coach at WSU.

2000s

Clifford Smith ('02 Comm.) was hired as U.S. Congressman Gary Palmer's communication director.

Andy Hurst ('04 Comm.) is now the producer of *The Record*, the daily news magazine on KUOW 94.9 public radio in Seattle.

2010s

Kerri Dieken ('10 MFA) has been selected to have her art exhibited in the sixth annual Governor's Biennial Art Exhibit in Rapid City, South Dakota.

Brenden Koch ('10 Hum.) has been hired as the managing editor of *Walla Walla Lifestyles*.

Bryan Klingele ('11 Crim. Jus.) was promoted to corporal at the Federal Way Police Department.

Justin Rammer ('11 Bus.) is now the general manager at Sullivan's Steakhouse in Seattle.

IN MEMORIAM

1930s

Doris Agnes Colvin ('35 Bus. Admin.), 102, February 11, 2015, Oakesdale.

Alma C. Galbreath (x'35 Lib. Arts), 100, December 5, 2014, Ritzville.

Stephen C. Saunders ('35 Bus., Phi Delta Theta), 101, December 2, 2014, Sandpoint, Idaho.

John E. VanAmburgh ('35 Ani. Sci.), 102, January 15, 2015, Bellevue.

Jane West ('35 French), 100, December 9, 2014, Mount Vernon.

Judith Schafer Chevalley Hiss ('37 Home Econ.), 99, January 5, 2015, Ann Arbor, Michigan.

Lois W. Clark ('37 Ed.), 98, January 7, 2015, Seattle.

Del Rowland ('37 Busi.), 100, February 17, 2015, Pullman.

Klemens F. "Kem" Johnson ('38 DVM), 99, December 31, 2014, Lacey.

Norman D. Coulter ('39 Electical Eng.), 103, December 31, 2014, Spokane.

1940s

Violet "Vi" Maxine Powers ('40 Office Admin.), 96, December 28, 2014, Colfax.

Margaret E. Schalow ('40 Busi. Admin.), 95, March 28, 2014, Omak.

Kenneth M. Chaplin ('41 Eng.), 92, January 8, 2015, Spokane.

Jean Goldsworthy (x'41 Lib. Arts), 95, January 16, 2015, Spokane.

Raymond Hurbert Irby ('41 Elec. Eng.), 96, November 17, 2014, Kirkland.

Lorne G. Taylor ('41 Civ. Eng.), 96, October 16, 2014, Omak.

Shirley Holland Olsen ('42 Home Econ.), 94, January 19, 2015, Thornton.

Virginia Helen Beck (x'44), 92, January 19, 2015, Modesto, California.

Kenneth M. Chaplin ('44 Civil Eng.), 92, January 8, 2015, Spokane.

Cecile P. Owens ('44 Nursing), 93, January 25, 2014, Spokane.

Josephine J. Fancher ('45 Phys. Ed.), 92, January 3, 2015, Okanogan.

Geraldine "Jerry" V. Burke ('46 Busi. Ad.), 76, December 16, 2014, Concord, California.

Elsie Boozer MacDougall ('46 Microbio.), 90, November 21, 2014, Port Angeles.

Darlene Hulda Turner ('46 Hort.), 84, August 16, 2014, Hope, Idaho.

Mary Louise Wallace ('46 Fine Arts), 89, July 8, 2014, Seattle.

Robert Wallace Young ('46 Ag.), 89, November 2, 2014, Pullman.

Fern B. Christensen ('47 Home Econ.), 89, January 15, 2015, Everett.

Billie Ruth Dunne ('47 Speech & Hearing Sci.), 89, November 25, 2014, Portland, Oregon.

Cora L. Gardiner ('47 Busi.), 92, December 22, 2014, Tonasket.

Over the years, the worksite wasn't always friendly to women, and Thomas suffered plenty of harassment in the male-dominated world. Looking back, many instances were not acceptable, she says. Sometimes she literally trembled when she confronted discrimination as she worked at her job. But she also had many wonderful cohorts who looked after her, says Thomas.

"I thought I lived in modern times. In retrospect, I was wrong," she says. "So you just have to stand your ground. I was pushing the snow out of the way to make the path."

These days Thomas enjoys mentoring students and has seen the number of women in materials engineering grow.

"Hopefully, I have made it better for them, so they can inherit a freer path," she says.

In her job, Thomas works primarily with the melt shop and heat-treating operations as well as managing the chemistry and mechanical testing labs. She has also worked as a welding engineer.

The work that she has done to modify specs and design procedures for high performance



Elaine Thomas. *Courtesy Bradken-Atlas*

metals is used around the world. Her work led to the Brigg's medal from SFSA, which is almost entirely made up of men. She says she feels privileged to have worked with the top people in materials engineering in the world.

"The SFSA group is primarily men and a handful of incredible women. They are the nicest people on earth," says Thomas. "I have been very fortunate to deal with brilliant minds in this industry."

She's looking forward to letting a scholarship provide support and guidance for the next generation of young men and women.

"It's important to me to help other people," she says. "It's paying it forward, which I love."

The Clark Family

Pets, vets, and architects

by Larry Clark '94 :: Lew and Alma Clark opened the doors to their veterinary clinic in 1961, when Kirkland was a quiet town and it wasn't a surprise to see a horse or cow as a patient.

Now Lew and Alma's son, Michael Clark '80, '85 DVM, sees the descendants of their first patients in a building designed by his architect brother Jeff '83 and opened last year on the original site overlooking Lake Washington.

When Lew Clark '56 DVM, who passed away in 2008, came to Kirkland with the family, he probably couldn't anticipate the growth of the area or the role he would take as a community icon. Judi Clark '79, '81 MA, Michael's wife and manager of the Juanita Bay Veterinary Hospital, remembered Doctor Clark as her family's vet when she was five.

"I used to walk by there to swim in the lake," she says. "People, old clients, know the history of the place. It's definitely part of the community."

Alma Clark, who studied fine arts at WSU, worked as the veterinary assistant in the hospital as the boys grew up. They lived the first five years in the temporary clinic, building a loyal clientele. They opened a new building on the site in 1969.

"My mother-in-law talks about the time she woke up and looked out her window, and there's this guy on his horse asking if the doc is in," says Judi. She and Michael started seeing each other in high school and have been together for 40 years.

Michael and Judi, and then Jeff, followed Alma and Lew to Pullman and WSU. The brothers were in the Sigma Nu fraternity; Judi pledged at the Gamma Phi sorority. While Michael worked on his veterinary doctorate, Judi taught early childhood development classes as a faculty member at the University. Jeff met and married Sharon '80, an art major, Judi's roommate and Gamma Phi sister at WSU.

Judi and Michael returned to Kirkland, where Lew had opened a second veterinary clinic. Michael joined the practice at that second location. When his dad was getting ready to retire, they sold the second place and consolidated at the old clinic on Juanita Bay. Michael and Judi bought the hospital in 2005 and renamed it Juanita Bay Veterinary Hospital.

Jeff followed a different path into architecture. "Michael and I both worked in the vet

hospital from the time we were 12. I loved the animals but I didn't love the science side," he says.

He joined the firm Architectural Werks in 1983, where he is now president and a principal. Although Jeff's work has covered a variety of commercial areas, one speciality is in animal health care. His firm has completed more than 250 large and small animal veterinary hospitals, boarding and day care centers, emergency specialty centers, rehabilitation facilities, and animal shelters.

His family background serendipitously led to his architectural work in veterinary medicine. "One of my dad's friends found me and thought I might know more about veterinary facilities than anybody else in the area," says Jeff.

Jeff and Michael's paths converged at Juanita Bay two years ago. Michael's practice was growing along with the need for a new facility as the 1969 building aged. "The facility was getting tired. We kept trying to remodel it, but it made no sense," says Jeff.

Using his knowledge of veterinary and medical architecture, Jeff designed a new building on the same property as the old clinic. They







Above, from left: Sharon, Jeff, Michael, and Judi Clark at their combined architectural office and veterinary clinic building with Hudson in the foreground. ***Below:*** The Juanita Bay Veterinary Hospital is on the first floor, Architectural Werks on the second. *Photos Matt Hagen*

Rodney Giske ('47 Hist, '48 Ed.), 92, October 14, 2014, Chehalis.

Claude Jackson Douty ('48 Mech. Eng.), 90, March 21, 2012.

Richard J. Klansnic (x'48 Civ. Eng.), 92, January 26, 2015, Cottage Grove, Oregon.

Gloria F. Pollard ('48 Nursing), 87, November 24, 2014, Butte, Montana.

Jacquelyn Hansen Basso ('49 Music), 88, January 22, 2015, La Grande, Oregon.

Keith C. Bergevin ('49 Int. Des., Phi Delta Theta), 92, December 5, 2014, Kirkland.

Janice J. Dorman ('49 Ed.), 88, January 26, 2015, Walla Walla.

Mildred C. Elmgren ('49 Hist.), 91, January 8, 2015, Walla Walla.

Robert G. Gleason ('49 Econ.), 90, October 3, 2014, Yakima.

Robert B. Lyons (x'49 Poli. Sci.), 87, December 26, 2014, El Paso, Texas.

Robert W. Robbins ('49 Soc.), 91, October 11, 2014, Tacoma.

1950s

John Thomas Brannan ('50 Elec. Eng.), 89, December 27, 2014, Mount Vernon.

George Henry Connell ('50 MS, '52 PhD Microbio.), 96, September 5, 2014, Inglis, Florida.

M. James "Jim" Hein ('50 Ag., '53 Ed.), 86, December 7, 2014, Reardan.

Edgar Wayne Hempleman ('50 Chem.), 93, November 19, 2014, Great Falls, Montana.

Jack A. Luher (x'50), 88, February 16, 2015, Spokane.

W. Richard Philpott ('50 Gen. Stud.), 89, November 12, 2014, Spokane.

James L. Simmons ('50 Geol.), 84, October 16, 2014, Baker City, Oregon.

George Tomlinson ('50 Elec. Eng.), 89, May 3, 2014, Seattle.

Ralph E. Corkrum Jr. ('51, '53 MA English), 86, November 10, 2014, Tacoma.

George "Dale" Don ('51 Acc.), 86, January 18, 2015, Albany, Georgia.

James Earl O'Neil ('51 Elec. Eng.), 86, February 2, 2015, Anacortes.

Charles C. Parsons ('51 Hort.), 88, October 25, 2013, Spokane.

Beverly J. Patterson ('51 Pharm.), 87, December 30, 2014, Spokane.

Lyle Raymond Woolf ('51 Gen. St., '54 Pharm., Alpha Tau Omega), 85, December 1, 2014, Yakima.

James C. Ashton Jr. ('52 Police Sci.), 85, December 18, 2014, Cottonwood.

Margaret Elizabeth Fox ('52 Pharmacy, Chi Omega), 85, January 28, 2015, Sacramento, California.

Jack E. Frets ('52 Arch.), 90, January 13, 2015, Arlington.

Robert Lee Johnson ('52, '59 MA Ani. Sci.), 84, December 22, 2014, Everett.

Richard Potter ('52 MS Zool.), 88, November 12, 2014, Northridge, California.

William H. Roffler (x'52), 84, January 20, 2015, Spokane.

Milton D. Schmutz ('52 DVM), 90, November 23, 2014, Bradbury, California.

Bernice M. Shapley ('52 Fine Arts), 84, January 17, 2015, Bothell.

George T. Daniel Jr. ('53 Soc. St., '70 EDD), 84, January 30, 2014, Bermuda Dunes, California.

Boyd A. Hardesty ('53 BS, '56 MS), 82, January 22, 2015, Rosalia.

Patricia Ann Quann-Baker ('53 Home Econ.), 83, February 1, 2015, Puyallup.

William C. Seidle ('53 Ani. Sci), 85, November 6, 2014, Arlington, Texas.

Marian Hartman ('54 MS Phys. Ed.), 92, November 22, 2014, Everett.

Robert W. Leach ('54 Civ. Eng.), 87, November 1, 2014, Sequim.

Guy Robert Fairbrother ('55 DVM), 85, November 23, 2014, Lewiston, Idaho.

Jay Wilbur Helm ('55 Chem. Eng.), 81, October 19, 2014, Yakima.

Francine Jay Kamba ('55 English), 80, September 10, 2014, Aurora, Colorado.

Ernest Doyle Montgomery ('55 DVM), 88, January 22, 2015, SeaTac.

Richard H. Lundberg ('56 Bus. Admin.), 84, December 3, 2014, Spokane.

William M. Schroeder ('56 Gen St.), 82, January 3, 2015,Yakima.

George C. Tostevin ('56 Bus. Admin.), 83, October 24, 2014, Seattle.

Eva Mae Benally ('57 Ed.), 80, January 30, 2015, Shiprock, New Mexico.

Theodore "Ted" Francis Cooley ('57 Communication), 84, January 26, 2015, Tacoma.

Robert Larson ('57 Pharm.), 82, October 28, 2014, Spokane.

Mary Eleanor Bailey ('58 Bus. Admin.), 80, December 5, 2014, Oakland, California.

Marylyn E. Donnelly ('59 Phys. Ed.), 77, January 1, 2015, Olympia.

Nancy Jo Garred ('59 Pharm.), 77, January 30, 2015, Seattle.

Patty Clark Gerard ('59 Ed.), 77, December 20, 2014, Mercer Island.

Ray Alanson Harding ('59 MED Higher Ed. Admin.), 88, December 14, 2014, Walla Walla.

Rod M. Kvamme ('59 Hort.), 77, January 23, 2015, Ketchum, Idaho.

1960s

Evan J. Van Antwerp ('60 HBM), 76, January 23, 2015, Palm Springs, California.

John L. Grant ('61 Ag. Econ., Lambda Chi), 75, October 3, 2014, Walla Walla.

David Van Ringler ('61 Gen. St.), 75, November 28, 2014, Cornelius, North Carolina.

Richard E. Boggio ('62 MED), 81, March 7, 2014, Burlington.

Barbara Ann Dahmen ('62 English), 76, October 28, 2014, Kingston.

WSU Connections



decided to do something different, though, with the veterinary hospital on the first floor and the architecture offices on the second. Early in the process, they weren't sure it could work.

"When we started, we had a dinner and asked ourselves, 'Is it worth it? Should we keep going?'" says Judi. But they kept moving ahead with the plan.

The resulting new home for their businesses exceeded expectations. The modern structure opened up the veterinary practice and allowed them to double the staff and the number of operating rooms.

Sunlight pours into the waiting room and high-ceilinged exam room, and patients can see through the trees to Juanita Bay. The dogs really enjoy that, says Judi. "Between outside distraction and the half-door, dogs don't feel closed in and we rarely hear the defensive bark," she says.

Cats have different needs, says Judi, so they have a quiet cat ward inside the building. A surgery room, observation area, and doctors' and staff offices are all accessible by polished concrete floors and stocked with digital X-rays and monitors. The practice does dental work, and has incorporated alternative medicine like animal acupuncture as well.

Behind the building, a fenced-in run with easily cleaned artificial turf gives the doctors a chance to keep tabs on dogs moving and making movements. Throughout the hospital, the doctors and staff can keep the animals active and happy. "It's so much easier to get things done with more space," says Judi.

Alma took up art after she retired from the veterinary practice, and her paintings decorate many of the walls throughout the hospital.

Upstairs at Architectural Werks, Jeff gave the offices an open, industrial flair, with ductwork visible in the tall ceilings. Plenty of natural light from surrounding windows helps when Jeff and his staff show materials to clients.

In Jeff's office, photos of classic cars cover the walls. A car buff, he restores the vehicles with a WSU and Sigma Nu friend, Rod Epps '80.

Judi says the move to a single building has been very successful. "We're all having fun," she says. "It's also great for clients. They love having a community-based clinic."

Michael and his staff have embraced the community as well. They've started popular presentations every Thursday evening for pet owners, bringing in external speakers on topics like dog and cat behavior.

Guillermo "Billy" Pimentel '99

On the biodefense

by Cheryl Reed :: When the Ebola epidemic began in 2013, there were limited laboratories in West Africa capable of detecting Ebola. So in August 2014, the World Health Organization put in an official request to the U.S. Embassy in Liberia for laboratory assistance. A month later the Department of Defense flew in Commander Guillermo "Billy" Pimentel '99 PhD, a leader in biodefense research for the Navy, to look for a location where two of his four mobile laboratories might be placed. Within 14 days the labs were set up and fully operational.

"Before we arrived in Liberia, it was taking at least seven days to get Ebola lab results back to the physicians at the Ebola treatment units," says Pimentel. "With my labs, the results took only four hours."

Within three weeks, confirmed cases of Ebola dropped significantly. A new program is now helping train lab technicians in Liberia to conduct their own testing for infectious diseases.

Pimentel's work with the Navy ultimately earned him the public recognition of President Barack Obama. Coming from a life of poverty to the pursuit of an education and eventually to a leadership role in the Navy, Pimentel says he ultimately owes his success to Washington State University.

Pimentel grew up poor in Puerto Rico with little concept of life beyond poverty. At 17 years old, he joined the U.S. Navy Reserve as a hospital corpsman and served during the first Gulf War. With GI Bill funds in hand, he earned a bachelor's degree in industrial microbiology and a master's degree in biology from the University of Puerto Rico. Still wanting more, he began searching for a doctoral program in plant pathology.

"Doctors Lori Carris and Jack Rogers of WSU invited me to apply to their program, and even though my GRE scores were low because English is my second language, they believed in me. I never thought I would have that opportunity," says Pimentel.

According to Carris, Pimentel was an outstanding student at WSU, but adjusting to life in a cold climate was tough at first.

"My wife and two young children had never been out of Puerto Rico and that first winter was pretty cold," says Pimentel. "But the people were so friendly and nice. My oldest son at the time was 3 years old and within just three months was speaking English. Our four years at WSU were the best for our family."

After he earned his doctoral degree in plant pathology, with an emphasis in mycology and population genetics, Pimentel became a lieutenant and head of the microbiology department at the U.S. Naval Medical Center in Portsmouth, Virginia. In 2003 Pimentel was deployed to the Naval Medical Research Unit in Cairo, Egypt, for nearly seven years, where he managed more than 25 research projects to implement and strengthen laboratory-based disease surveillance capacity. He is currently the only mycologist in the Navy.

As part of his duties, Pimentel traveled extensively to develop joint collaborative research projects on health protection, and conducted laboratory assessments of hospitals and public health laboratories. He trained hundreds of clinicians, researchers, and technicians in biosafety and provided laboratory support during the H5N1 outbreak in Africa and the 2009 H1N1 pandemic, backing up health ministries in 20 countries.

In 2011, Pimentel was selected as deputy director of the Biological Defense Research Directorate, where he was responsible for the only four rapid deployable mobile laboratories responsible for the detection of biowarfare agents and infectious diseases. Weighing only about 1,100 pounds and fitting in five cases, these mobile labs—including power generators, freezers, and supplies—can load quickly into a commercial cargo plane and deploy anywhere in the world, as they did for the Ebola response.



Pimentel lecturing to science and math high school teachers from Maryland. *Courtesy Guillermo Pimentel*

In February of this year, President Obama recognized Pimentel for his role in fighting the Ebola epidemic. The first thing Pimentel did when he found out was call his mom in Puerto Rico.

"She could not believe it," he says. "I never thought I would be shaking the president's hand. I come from a poor family in Puerto Rico and was a first-generation college student. This was too surreal."

During the press conference at the White House on February 11, Obama said, "Last summer, as Ebola spread in West Africa, I said that fighting this disease had to be more than a national security priority, but an example of American leadership. We are here today to thank the troops and public health workers who headed into the heart of the Ebola epidemic. They represent what is best about America."

Pimentel is proud of the WSU education that helped him merit the president's recognition. "Earning a PhD is not about becoming an expert. It's more about learning how to think and solve big problems. My mentors at WSU were dedicated and believed in me. Dr. Carris said that with strong dedication, you can do

1960s

Louis Dean Narancich ('62 DVM), 76, August 20, 2014, Oklahoma City, Oklahoma.

Martha Lee Tate ('62 Police Sci.), 74, November 17, 2014, Marquam, Oregon.

Jose Gabriel Shdo ('64 PhD Chem.), 83, December 28, 2014, Renton.

Sue Carol Buettner ('65 Ed., Delta Delta Delta), 71, March 2, 2014, Oro Valley, Arizona.

William S. LaCounte ('65 BS Math., '67 MS Comp. Sci.), 71, December 19, 2014, Coeur d'Alene, Idaho.

Robert Norris Lynch ('65 Arch.), 78, January 5, 2015, Gig Harbor.

Gordon B. Anderson Jr. ('66 Poli. Sci.), 71, February 13, 2014, Seattle.

Robert R. Anderson ('66 Speech & Hearing Sci.), 88, January 24, 2015, Spokane.

Donna Mae Hamilton ('66, '68 MA English), 60, September 22, 2014, Coulee Dam.

Fredrick Neil Hogg ('66, '68 MA Comm.), 72, January 8, 2015, Odell, Oregon.

Van Dale Holladay ('66 MA Police Sci.), 81, December 13, 2014, Warrenton, Virginia.

Lynn Dale Reno ('66 DVM), 75, December 6, 2014, Bakersfield, California.

Denney G. Rutherford ('66 Gen. St.), 72, February 11, 2015, Port Townsend.

Kathleen Ann DesJardin ('67 Phys. Ed., Coman Hall), 69, December 10, 2014, Olympia.

Donald Joseph Kees ('67 EDD Coun. Psy.), 87, March 1, 2014, Moscow, Idaho.

Michael C. Kinyon ('67 Civil Eng.), 74, December 22, 2014, Deer Park.

Sally Lois Short ('67 Ed.), 69, December 19, 2014, Spokane.

Thomas J. Hedemark ('68 Ed., History), 72, February 22, 2015, Spokane.

Carleen Marie Jackson ('69 Poli. Sci.), 67, December 23, 2014, Dupont.

Thomas E. King ('69 Comm.), 67, January 21, 2015, Kingsford, Australia.

Albert H. Watenpaugh ('69 EDD), 86, May 22, 2014, Issaquah.

1970s

Kenneth Alan Covell ('72 Bio.), 64, January 6, 2015, Henrico, Virginia.

David W. Rodin ('72 Hort.), January 28, 2015, Ridgefield.

James C. Forrest ('73 Gen. St.), 79, January 23, 2015, Sequim.

Timothy McAdam Clark ('75 Crim. Jus.), 52, January 19, 2015, Dublin, Ohio.

Gary L. Troyer ('76 MS Comp. Sci.), 68, November 19, 2014, Richland.

William B. Goeres ('77 Ag.), 60, November 11, 2014, Satsop.

Shirlee Hyde ('77 Bus.), 82, November 20, 2014, Everett.

Bruce B. Manning ('78 MS Pharm.), 80, January 24, 2015, Doddsville, Mississippi.

Craig D. Renschler ('78 Fine Arts), 64, February 10, 2015, Seattle.



miracles, and when I'm working, I sometimes think, 'What would Dr. Carris do?'" he says.

Pimentel's next assignment will be as second-in-command at the Naval Medical Research Unit in Lima, Peru, where he will serve for two years. When he retires from the Navy, he thinks that teaching at a community college would suit him. «



COURTESY ERIC CHO/U.S. NAVY

Clinic staff prepares the Naval Medical Research Center mobile lab for Ebola testing in Liberia.

WSU alumni serving as microbiologists in the U.S. Navy

Capt. Marshall Monteville '03 PhD, executive officer at NAMRU-Southeast Asia (Singapore)

Cmdr. Matthew Doan '97 MS, Duty Under Instruction at Penn State University

Lt. Cmdr. Brent House '03 PhD, lab director at the Naval Medical Center in San Diego

Lt. Kimberly Edgel '97, Naval Medical Research Center, Silver Spring, Maryland (working in malaria)

Lt. Robert V. Gerbasi '00, NAMRU-6 in Lima, Peru (working in malaria and deployed to Liberia)

Lt. Rebecca Pavlicek '03, NAMRU-Southeast Asia (Singapore)

View the President's press conference about the Ebola response on C-Span at www.c-span.org.



Sheri Sue Stoker ('78 Ed.), 57, August 12, 2013, Hesperia, California.

Michael Godfrey Lamb ('79 English, '81 MED), 78, January 6, 2015, Warwick, New York.

David Robert Lee ('79 Comm.), 58, December 14, 2014, Torrance, California.

1980s

Jeffrey T. Files ('82 Zool.), 55, December 12, 2014, Sammamish.

Sandy Braucht ('83 Information Systems), 53, December 5, 2014, Spokane.

Melinda L. Hendrickson-Jordan ('84 Psych.), 53, December 14, 2014, Kennewick.

Michael Robert Sweet ('85 Const. Mgmt. & Bus.), 58, August 18, 2014, Spokane.

Brian John Day ('87 Gen. St.), 53, January 15, 2015, Kennewick.

John E. Armour ('88 Poli. Sci.), 50, February 3, 2015, Bend, Oregon.

Michelle Ann Johnson ('88 App., Des., Merch., Textiles), 49, December 15, 2014, Kodiak, Alaska.

Dan F. Laughlin ('88 Soc. Sci.), 50, November 23, 2014, Issaquah.

Lori A. (Krahn) Allen ('89 Bus.), 48, December 21, 2014, Pullman.

1990s

Christopher Edward Dyko ('90 Sport Sci., '96 MED), 48, December 28, 2014, Spokane.

Pauline (Washington) Seals ('90 Elec. Engr.), 70, January 13, 2015, Seattle.

Gwendolyn Fae Wierman ('93 Hum., '95 MIT), 63, December 15, 2014, Kennewick.

Kimberly Jill Dabbs ('96 Comm.), 40, December 24, 2014, Vancouver.

Gwen Dean Gilroy ('96 Comm.), 41, December 7, 2014, Boise, Idaho.

Scott Clifford Bradley ('97 Env. Sci.), 44, January 23, 2015, Seattle.

Gary P. Nelson ('98 Comm.), 36, August 30, 2011, Belfair.

James Robert Johnson ('99 Hum.), 40, December 29, 2014, Vancouver

Aimee E. Zeff ('99 Anth.), 37, November 27, 2014, San Francisco, California.

2000s

Steven S. Clark ('03 MS Env. Sci.), 54, January 12, 2015, Chicago, Illinois.

Tori Johnson ('03 HBM), 34, December 15, 2014, Sydney, Australia.

Christopher Robert Senn ('05 Comm.), 31, October 29, 2014, Seattle.

Nina F. Wager ('06 Human Dev.), 66, August 11, 2014, Vancouver.

Kristofer Kim Goold ('09 Crim. Jus.), 34, March 12, 2013, Kent.

Faculty and Staff

Daniel K. Andrews, 90, WSU Puyallup, 1963-1990, November 19, 2014, Auburn.

Ann H. Berry, 73, English, 1989-2006, January 20, 2015, Yachats, Oregon.

Darrel R. Bienz, 88, Horticulture, 1959-1989, January 23, 2015, Pullman.

E. Jane Bloomfield, 77, Financial Services, 1981-1999, December 10, 2014, Pullman.

E. Ruth Brands, 83, Entomology, 1975-1991, January 11, 2015, Coeur d'Alene, Idaho.

Thelma L. Cleveland, 82, Nursing, 1970-1997, December 27, 2014, Clayton.

Herbert J. Cross, 80, WSU Vancouver, 1972-1998, August 8, 2014, Pullman.

Leonard A. Davies, 93, Housing and Dining Services, 1966-1987, January 9, 2015, Pullman.

Rita C. Fisher, 73, Libraries, 1978-1999, February 18, 2015, University Place.

Louis N. Gray, Sociology, 76, 1966-2006, December 17, 2014, Pullman.

Terri L. Grzebielski, 61, Student Health and Wellness, January 10, 2015, Moscow, Idaho.

Paul A. Hedler, 83, Police Services, 1985-1997, February 20, 2015, Moscow, Idaho.

Erich J. Lear, 66, Music, 1989-2011, February 18, 2015, Lynnwood.

Bernard A. Loposer, 84, Director of Development, January 30, 2015, Spokane.

Bruce B. Manning, 80, Animal Sciences, 1962-1990, January 24, 2015, Stoneville, Mississippi.

Fredy E. Martinez, 73, Health and Wellness Services, 1978-2003, January 1, 2015, Pullman.

Winston C. "Bud" Nelson, 71, Facilities Operations, 1987-2007, December 20, 2014, Elk River, Idaho.

Denney G. Rutherford, 72, Hospitality and Business Management, 1978-2004, February 11, 2015, Port Townsend.

Steven A. Schierman Sr., 69, Facilities Operations, 1989-2004, November 30, 2014, Moscow, Idaho.

Joseph M. Wetherington, 93, Western Washington Research and Extension Center, 1966-1982, December 25, 2014, Orting.

Naomi E. Worthman, 91, Audiovisual department, January 24, 2015, Pullman.

Roger C. Wiley, 91, Physical Education, Sports, and Leisure, 1963-1989, February 14, 2015, Bellingham.

B. Mary Wysong, History, 91, 1970-1988, December 18, 2014, Palouse.

WSU Alumni Association News

Cougar pride on the road and into scholarships

EVERY TIME A VEHICLE passes by with crimson WSU license plates, Philip Behrend and Kayla Leinweber can say, "Thanks."

Leinweber and Behrend are two recipients of scholarships funded by the Cougar license plate program, each receiving $3,000 towards their education. Due to the success of the program, that amount will increase to $5,000 next year. Each person who gets a plate for their car, truck, or motorcycle contributes $28 to the scholarship fund.



ROBERT HUBNER

And that's a lot of vehicles. Over 19,500 plates are on the road in Washington state—more than twice the number of University of Washington license plates, more than all other university license plates combined, and even more than the Seahawks plates. The number of WSU plates increased almost 7 percent from 2013 to 2014, raising more than $500,000 in scholarship funds.

Behrend, a math and Spanish major from Newport, says he's honored to benefit from all those plates. The 20-year-old junior says receiving the Alumni Association Leadership Scholarship Award was very motivating. "When people invest in you, it gives you more of a sense of personal responsibility," says Behrend.

He plans to go into waste management operations, where he can apply his statistical and mathematics education. Behrend honed his Spanish with study abroad in Monterey, Mexico, and also worked in Guatemala during his spring break this year with a group that provides cleft lip and palate surgeries. He plays piano at a local nursing home, does CrossFit workouts, and participates in environmental and business case competitions.

"I'm really thankful to have WSU community support," says Behrend. "Coming from the small town of Newport, I thought it would a tough transition. You don't get lost in the shuffle here."

Leinweber agrees that the scholarship is a good motivator. The junior math education major from Walla Walla, who also studies Spanish, says the financial assistance helps offset the costs of going to WSU, even though she also works as a tutor for student athletes.

"I worked hard through high school to get here," she says. "I have five younger siblings, so it helps my parents, and I can focus on school without having to worry about a certain number of hours of work. It really relieves the stress and opens opportunities for the rest of my family."

Leinweber wants to be a middle school math teacher. In addition to her coursework, she is active with her Alpha Delta Pi sorority, her church, and in the student affiliate of the National Council of Teachers of Mathematics. She also went on a mission trip to El Salvador during her spring break.

If you would like to get a WSU license plate and help students like Behrend and Leinweber, see the Department of Licensing website, dol.wa.gov, visit a DOL office, or contact the Alumni Association.

For those of you with Cougar license plates, we'd love to have you post a photo on the Alumni Association Facebook page at facebook.com/WSUAA.

For more information about WSUAA and alumni chapters go to alumni.wsu.edu *or call* 1-800-258-6978.

INSPIRING COURAGE

Famed news broadcaster Edward R. Murrow discovered a world of possibilities at Washington State University.

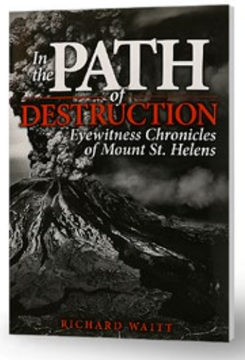
Here he was inspired to excel in the classroom, broaden his world view, and hone his speaking skills. That created the foundation for a 25-year career in which Murrow's name became synonymous with personal courage, integrity, and an unending quest for truth.

A bold approach? Definitely. But, after all, you've counted on us to give voice to the underdog since 1890. And you always can.

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In the Path of Destruction: Eyewitness Chronicles of Mount St. Helens *by Richard Waitt* WSU PRESS, 2014 :: *Review by Larry Clark '94* ::
Like the eruption of Mount St. Helens on May 18, 1980, the personal stories of campers, loggers, airline pilots, Forest Service workers, and geologists came pouring out before, during, and after the cataclysm. One of those geologists, Richard Waitt, gathered anecdotes and recollections of the volcanic eruption over the course of three decades, now compiled in this tome.

Waitt blends his own scientific expertise as a researcher who had been on the mountain since its early rumblings with hundreds of eyewitness reports that lend human drama to an already dramatic phenomenon. Their experiences, narrated to Waitt, benefit not just the reader's fascination with the history but can contribute to the science. As he writes, "I know no geologist scrutinizing the deposits could glean what they had witnessed being almost in the eruption."

The sheer volume of stories speaks to Waitt's dedication to the historic event and adds a significant piece to the literature and study of St. Helens's eruption 35 years ago. These wrenching, terrifying stories of hot ash, mud flows, and panic carry the reader into the thick of the action. For example, Jim Scymanky, a logger twelve and a half miles from the volcano, told Waitt:

> Then up in the trees I saw the top of a tall one jiggle and fall, and another nearer, then another. Rocks zinged through the woods, bouncing off trees… . It grew louder, like a giant locomotive, or like ocean waves but very loud. … Suddenly I could see nothing. I'd been knocked down and my hard hat blown off. It got hot right away, then scorching hot and impossible to breathe. The air had no oxygen, like being trapped underwater.

Some of us who experienced the volcanic disaster, even from a couple of hundred miles away, at times struggle to tell what it was truly like, even while its images and ash are seared into our memories. Waitt has accomplished an exceptional feat by pulling together the stories of people who lived through the event—and a few who did not survive—with the patience and thoroughness of a scholar and the devotion of someone who himself witnessed an extraordinary natural disaster.



Coal Wars: Unions, Strikes, and Violence in Depression-Era Central Washington *by David Bullock '85 MA* WSU PRESS, 2014 :: *Review by Tim Steury* :: There was a time, it's been recalled, when each home in Roslyn had three pictures on its wall: of Jesus, FDR, and John L. Lewis, the powerful head of the United Mine Workers of America, or UMW. But labor conflicts in the coal-mining town during the 1930s would severely strain and replace the loyalties reflected by the latter two. In *Coal Wars*, David Bullock recounts the bitter struggle in 1933-34 between the UMW and the more radical Western Miners Union in the mining communities of Roslyn, Cle Elum, and Ronald.

Coal production in the area hit a high of 1.8 million tons in 1920, the year Herman and Anna Swanson moved to Roslyn. Swedish immigrants, the Swansons were the author's grandparents.

"Washington was the second-largest coal-producing state in the West during the first third of the century," writes Bullock. "And the Roslyn coal field was the largest single coal-producing region in the state, generating 40 to 50 percent of the state's annual coal yield during that era."

The other coal regions lay on the west side of the Cascades.

Following the establishment of the region's first mine in 1886 by the Northern Pacific Railroad, the Northwestern Improvement Company eventually established nine major shafts in the Roslyn-Cle Elum area. Roslyn's population peaked at nearly 4,000 at the height of production, but by the early 1930s, its population and economy had steadily declined.

A shrinking market for coal and the shadow of the Great Depression led the Washington industry to reflect the struggles of the larger coal-producing area back East. The major industrial component of the New Deal, the National Recovery Administration, established protections for workers to join unions of their own choosing. A result of the legislation was to accelerate the number of work stoppages nationwide, which doubled from 841 in 1932 to 1,695 in 1933.

Central Washington miners actively pushed for two major things, banning electric coal-cutting machines in gaseous mines and a six-day workweek. Miners believed the electric machines could spark gas explosions. An underlying

For more reviews and sample tracks, go to wsm.wsu.edu

objection, though, and understandably so, concerned the replacement of men with the more efficient machines.

Although the Washington legislature actually passed a law forbidding the machines in the mines, it was soon overturned. This disappointment, along with no progress toward shorter hours and corresponding cuts in wages, exacerbated the miners' unrest. Disillusion with the effectiveness of the UMW led to the eventual formation of the more radical Western Miners Union of America.

However, because many, including Herman Swanson, remained loyal to the UMW, the stage was set for a new type of labor confrontation, which pitted miner against miner as well as against the company.

Animosity erupted with the shooting death of a Cle Elum miner in 1933. Sporadic violence continued up to a vote by WMU miners to strike against the company. Picket lines formed at each of the mines, and the situation quickly became ugly. Even though all of the NWI mines opened, only a third of their usual workers reported.

As picketers became more volatile and violent, the state police used tear gas to disperse the crowds. The result of the dispersal, however, was to create more disturbances throughout the community.

Although the WMU's failure to shut down operations and the arrests of many instigators led to its dissolution in the summer of 1934, the damage to the community was irreparable: "The actions taken on the picket lines and in neighborhoods throughout the upper county—the name-calling, the physical abuse, the threats and taunts—had taken an intense emotional toll on the community as well."

Not only does Bullock's history provide a fine addition to our understanding of Washington's culture and history, it offers a personal and local example of the national strife of the early 1930s. Using his grandfather as a narrative participant, though awkward at times, by and large results in a very readable, even gripping, labor history. ⊗

Key to My Cage *by Michael Kirkpatrick '01*

2014 :: *Review by Eric Sorensen* :: The human voice is our oldest acoustic instrument and it's still one of the most captivating. Add a few well struck strings—just a few chords even—and you have a remarkable symphony of bass, harmony, lyrics, and emotion.



This is the beguiling formula of Michael Kirkpatrick '01. He's a troubadour, both self-described and according to the 2014 Telluride Troubadour Competition, which he won. Performing some 150 dates a year from his Fort Collins, Colorado, base, he writes his own tunes and for the most part plays all the instruments. His eighth album, *Key to My Cage*, which he also produced and recorded, has him playing mandolins, guitars, harmonica, lap steel, percussion, and tape echo, with accompaniment on just four of the 11 tracks.

They're all supporting characters. The voice—deep, resonant, confident, and graceful—is the star as he ranges over songs about nature, love, and personal reflection. "Come Back Home to Me" brings them all together in vigorous, joyful tribute to singing from the heart. ⊗

The Awakening *by Allen Johnson '85 PhD*

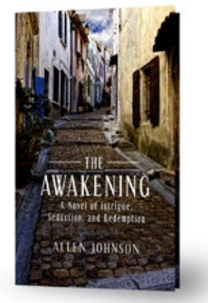
SKYHORSE PUBLISHING, 2014 :: *Review by Katelyn Orum '15* :: *The Awakening* weaves effortlessly through time, from the battle-scarred streets of Spain in 1936 to nearly 60 years later as it tells the life story of Diego Garcia and his descendants.

In this unconventional romance novel, Diego Garcia dropped everything to be with the Moroccan beauty of his dreams, Lupe. The two newlyweds headed to Granada, Spain, to start a life of their own in the 1930s. The two loved each other immensely, and where there is love there is compassion. The story leaps forward almost 60 years to Diego's granddaughter, Lupita, a young physician. Diego is now a Spanish Civil War veteran with an enduring desire to save people in honor of the ones he couldn't protect in the war.

In 1990, Diego stumbles upon an unconscious American man lying helplessly in the road. The man is in critical condition, and is too battered to survive the ride to the hospital. Diego doesn't have the heart to leave him behind, so he brings him to his home where he lives with Lupita. She takes care of the man as he lays in a restless coma, and the young doctor wonders what he could possibly be reliving in his agitated dreams.

The man awakens with amnesia, and spends the next four months trying to recall what happened to him, but some things are better left unknown. As the story unfolds Diego, Lupita, and the beaten man, whom they named Antonio, journey together in a story of life, love, and redemption. Weaving through the life of Diego Garcia, the author brilliantly illustrates the restorative power of time.

Johnson graduated from WSU in 1985 with a doctorate in counseling psychology. He has published several books. ⊗



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INSPIRING ACHIEVEMENT
Honors student Bree Berg discovered a world of possibilities at Washington State University.
Here the biochemistry major was inspired to excel in the classroom, immerse herself in prostate cancer research, and tutor dozens of classmates. Joining a medical mission trip abroad is on her to-do list. Recently, the future medical practitioner was one of just 10 students nationwide selected for the Bardos science award, recognizing exceptional prospective scientists.
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ASK DR UNIVERSE

Why did people invent movies?

–Danielle, Latrobe, Tasmania

Movies not only took the ideas and inventions of people, but also the work of a horse. Her name was Sallie Gardner and the debate of her day was whether or not horses ever had all four hooves off the ground during a gallop.

The human eye moved too slowly to see what was going on with horses' hooves, so in 1872, the governor of California hired photographer Eadweard Muybridge to find out.

Muybridge set up big cameras around a track to capture Sallie Gardner in motion. He discovered in one of the photos that, for a moment, she was in mid-air.

Now, Muybridge not only had the answer, but also a whole series of Sallie Gardner photos to work with in his studies. He placed her photos around the edge of a glass plate that was divided up into sections like a pizza, a different picture on each slice.

Then, Muybridge used what he knew about theories from Greek mathematicians and physicists to build a new movie machine called a zoopraxiscope. With a crank and a light source, he could spin the disc and project a moving picture onto the wall.

My friend Jon Hegglund is an English professor at Washington State University who studies movies and how people tell stories.

He said kids in the Victorian era even played with zoetropes, toys that looked like a hollow drum with several vertical slits around the outside. When the drum spun quickly, the viewer could see pictures drawn on the inside start to move.

"Partly, people invented movies because they could join the technology of photography with an interest in seeing pictures move," says Hegglund. The history of movies has a lot of inventions that end in "trope" (to turn) and "scope" (to see).

Michael P. Allen researched films at Washington State University. He told me it took both inventors and dreamers to create the movies we have today, but Thomas Edison engineered the pieces that brought it all together.

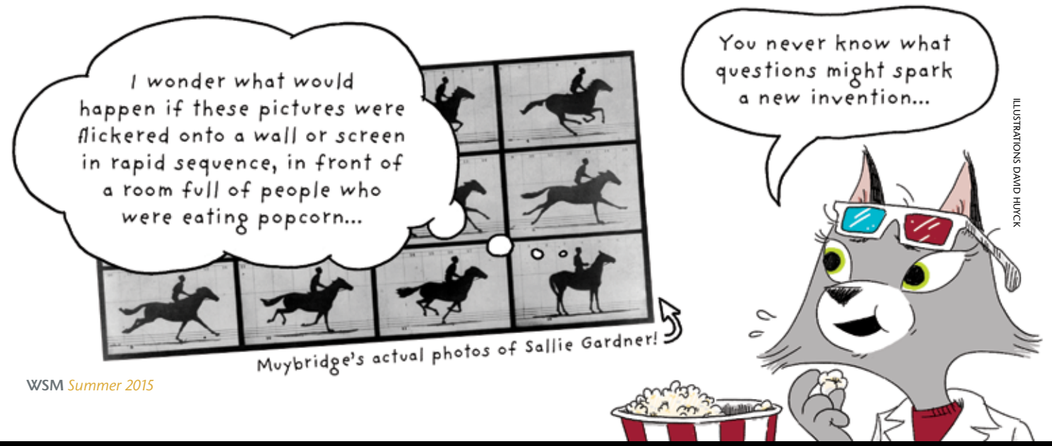
"Edison's first films were very short clips of boxing matches, dancing, and acrobats that could be viewed by a person looking into a viewing machine called the kinetoscope," Allen says.

He explained how the world began to change dramatically when the two Lumière brothers made the first motion picture people could watch on the big screen. They rented a room in a Paris café basement and people could watch a 15-minute movie for just a few cents.

"In any case, the answer to the question is money," Allen says. "Films may be art, but they take money to make and they are made to make money."

This summer, you can create a movie or flipbook and let me know if there are other reasons why you invented it. If cats like me could time travel, maybe we could get answers from the inventors themselves. Until then, I'll leave the history of movies to the experts and ideas of time traveling to the moviemakers.

Sincerely,
Dr. Universe



ILLUSTRATIONS DAVID HUYCK



UNTITLED, VIVIAN MAIER

Images iconic and intimate

The WSU Museum of Art's winter exhibit, "Through the Lens, an American Century: Corbis and Vivian Maier," showcased 32 of the nation's most iconic photographs from the Corbis collection, alongside 50 images taken by Vivian Maier—an artist whose work wasn't discovered until after her death.

The exhibit also included work from photography students at WSU and colleges across the nation. The students took the idea of social realism and urban photography and produced contemporary photographs to help bridge the Corbis and Maier exhibits.

The student photography project *Hidden in Public View: Exploring Urban Photography and Social Realism* can be viewed online at **hiddeninpublicview.org**.

SELF-PORTRAIT BY VIVIAN MAIER

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