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SPRING 2014

WASHINGTON STATE magazine

v13n2

Points of views: MOUNTAINS AND RIVERS AND PRAIRIES WITHOUT END :: A TRUE STORY FRAUGHT WITH PERIL :: ON THE ROAD :: A DOSE OF REASON

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first words

This being my last "First Words," I have struggled to conjure something profound and insightful, or at least clever, to leave you with. But I am coming up short. So I'll just skip the philosophical and offer a few observations. Forgive me if I repeat myself. I'll try not to get sentimental.

From *Washington State Magazine's* inception, we have followed the simple principle that we would not produce anything we would not read ourselves. Add that to our tagline—"Connecting you to Washington State University, the State, the World"—and I believe we've created a pretty successful formula.

There are many things we deliberately decided not to be. We are not a long-winded brochure. Neither are we a fundraising vehicle. Most important, we are not produced by committee. Rather, we are a magazine. Which means, as our mission states, that we cover "news and issues of interest to Washington State University faculty, staff, students, and alumni and the people of Washington from Seattle to St. John."

Fortunately, you agree with our approach. In reader surveys and less formally, you have been very clear about what you are most interested in: research, statewide issues, and WSU's involvement in the affairs of the state and world.

I cannot imagine a more stimulating and fascinating challenge.

Beyond a shift in the masthead, not much about the magazine will change, at least immediately. I imagine there's a redesign on the horizon. There will probably be an increasing web presence, but as a complement rather than a substitute. I suspect the voice will change a bit. But not dramatically. You have been hearing that voice through all of us, not just yours truly.

Larry Clark '94 will continue to be "managing editor." But he will also become the one where the buck stops. Hannelore Sudermann will share leadership with Larry and become the "content editor." John Paxson will continue, exquisitely, to art direct and more. Eric Sorensen will continue to report on university research in his unique and lively style. He will also share that overwhelming beat with a new staff member.

Nick Deshais joined us this fall. He will split his time between science writing for the magazine and bringing the popular Dr. W.S. Universe back from her extended sabbatical.

Telling the story of WSU has been a large part of my identity for the past 24 years. Much as I'm looking forward to my new ventures, it will be very strange to shut down my computer and close my office door for the last time. But it's time to direct my attention elsewhere.

In whatever direction my friends and colleagues take this magazine, I am confident it will continue to be lively, beautiful, and adept at interpreting the myriad endeavors of this great university and state. Indeed, I look forward to opening the May issue, having joined you as an engaged and expectant reader.

Tim Steury, Editor

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EDITOR Tim Steury
CONTENT EDITOR Hannelore Sudermann
MANAGING EDITOR Larry Clark '94
ART DIRECTOR John Paxson
SCIENCE EDITOR Eric Sorensen
SCIENCE WRITER Nicholas Deshais
ADVERTISING MANAGER Jeff Koch

Contributors
WRITERS: Eric Apalategui, Julie Eckardt '13, Kathleen Flenniken '83, Tina Hilding, Keri McCarthy, Alyssa Patrick '13
PHOTOGRAPHERS: Bruce Bjornstad, Debra Feinman, Shelly Hanks '88, Robert Hubner, David R. Irons Jr., Ted Jackson, David Kingham, Zach Mazur '06, Peter Prehn, Joseph Rocchio, Koko Sasongko, Drew Sellers, Greg Vaughn, Bill Wagner
ILLUSTRATORS: John S. Dykes, Sheri Pham '13, David Wheeler

PRESIDENT Washington State University, Elson S. Floyd

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Washington State Magazine
PO Box 641227
Pullman, WA 99164-1227
email: **wsm@wsu.edu** fax: **509-335-8734**

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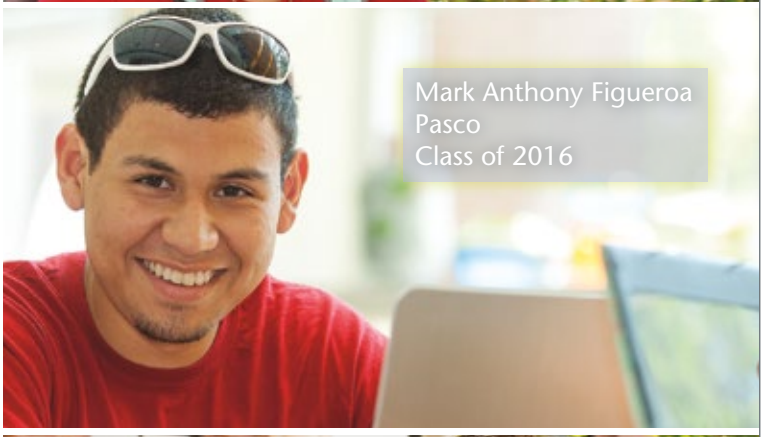
Meet WSU's *CHANGING FACE.*



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David Byrne's take on the @SmithsonianMag 2013 #IngenuityAwards, including #WSU's Michael Skinner. http://ow.ly/rsynd

Garlic could help protect babies from toxin linked to formula http://ow.ly/rcyUL #WSU via @VancouverSun

Veering from sports to physics, @ESPNU takes in #WSU Physics and Astronomy's 9th annual pumpkin drop. http://ow.ly/pOCgG

Saddened to learn

I was most saddened to learn of President Glenn Terrell's death while reading the most recent edition of *Washington State Magazine*.

During the years I was a graduate student and Head Resident of Stevens Hall, President Terrell often would walk by our dorm as he went from his residence to his office. Whenever he saw me, he would smile, make eye contact, greet me by name, and often inquire about my studies. How he knew my name, I will never know. What I do know, firsthand, is the warm feeling of belonging that I felt on those many occasions when we met along the sidewalk.

Terry L Smith '74, '79 EdD

Flood of fond memories

As I read your short article, "Gabriel Fielding" (Winter issue) a flood of fond memories engulfed me.

I was a student of Professor Barnsley (as I called him) for two years (1978-79). Tim Steury's Panorama story made me think of swishing through fallen leaves, or trudging through fresh snow, or just enjoying a breezy day, as invariably on Thursdays we would make a short pilgrimage from Avery to the house on Monroe to hold class in a more comfortable setting.

Dina would offer up English delectables for our stomachs and Alan would have us read aloud from works in progress, or would even read to us from his own current works in progress (delectables for our heads).

WSU's author-in-residence was always warm, but a constructive critic, and sometimes he was brutally honest.

The most important thing, however, was that Alan and Dina brought a sense of culture, of worldliness, and of sensibility, to young students who were still finding their way in the world of both writing and of experiencing.

We could love Alan Barnsley, look up to him, take our measure from him, often even feel a stab of dislike for his frankness, but we always respected him. And afterwards—years later—as we grew and saw more of the world, his pearls of wisdom would come back to us.

Alan Barnsley taught me something that cannot be expressed in words—well maybe one: affection. Thank you Tim Steury for reminding me of Gabriel Fielding, the man on the other side of that name.

Randall Stinson '79
Crestview, FL

Not forgotten

It was a delight to read the article in the Winter 2013/14 about Helen Szablya. I was an assistant professor of military science at WSU from 1963 to 1966. I left Pullman for a tour in Vietnam in August 1966, leaving my family at our home on NW State Street. John and Helen Szablya lived in the nearby Statesman Apartments. Their oldest daughter frequently baby-sat our children.

When I returned to Pullman from Vietnam in August 1967, the Szablyas were among the first to welcome me home. Matter of fact, they invited my wife and me to their home for dinner. They explained that they wanted to do something for me to show how much they appreciated our contribution, albeit small, to try to stem the advance of communism—from which they had suffered and escaped.

Their kindness and appreciation have not been forgotten! When things got tough during my 33-year career, I often thought of the Szablyas and was re-energized.

Thanks again, Helen!

Col. Roy B. Bernd (Ret.)

Apples of my eyes

Love good Washington apples!

When I was growing up in Burien (by SeaTac airport), my high school—Highline HS—had an apple machine that dispensed Washington State delicious apples for a quarter. It was wonderful and very popular. Perhaps the only vending machine at that time. Now that's the kind of vending machines schools today need!

Unfortunately, I am saddened by the apples from Washington we get here in Minnesota. They taste funny and are green inside a waxy dark red skin. It is so sad those here in Minnesota do not get to taste the amazing delicious apple of my childhood in Washington state. They used to be large, juicy, sweet with edible skins. I miss that juice dripping down my chin as I bit into that wonderful apple.

Patricia Kimble '65
Pine Island, MN

Serious consequences

Thank you for printing, "Booze, Sex, and Reality Check" [Fall 2013].

Kudos to the university for mentioning and teaching these subjects that have serious consequences for today and in the future.

Jane Smith '76

What's new?

A fresh Pullman welcome. Last October, the new Brelsford WSU Visitor Center opened its doors on the corner of Spring Street and Main. *Courtesy Benjamin Benschneider/Olson Kundig Architects*

STAFF ILLUSTRATION/ISTOCK

Backyard boarders

by Hannelore Sudermann :: Last fall 10 Washington State University architecture students wandered into Seattle-area backyards to work with the notion of the backyard cottage.

In Seattle, they're called DADUs or detached accessory dwelling units. These spaces could be homes for older family members, rentals for college students and others on a tight budget, or just homes for folk seeking a small dwelling in a big city.

Such structures were approved by the city in 2009 and have been options in communities all around the Puget Sound including Redmond, Shoreline, and Clyde Hill. Because of the high demand for low-cost housing, the Seattle City Council anticipated a flood of permit applications for these backyard cottages. Instead, fewer than 100 permits have been issued.

At the urging of a Seattle architect, associate professor Taiji Miyasaka had the students take this DADU idea and blend it with the need for transitional dwellings for the homeless. During a recent survey, the Seattle/King County Coalition on Homelessness counted more than 2,500 unsheltered homeless people on a particular night and another 8,000 in shelters. Another study, conducted by the City of Seattle, showed that a large portion of the homeless people surveyed said they would pay a monthly rent of $200–$400 to get off the streets.

The ideas of DADUs and affordable homes for the homeless came together. To focus on the primary experience of their potential clients, the students moved into Seattle's Tent City 3 over a three-day weekend early last fall. The residents were more than happy to show them how to live there. "All they wanted to do was help us," says student Cassie Lang.

"It was surprising to see how structured the camp was, how many rules there were," says Shannon Coughlin.

When night came, the students slept on crates covered with cardboard in one big tent, hearing the noises of the camp. Once they were awakened by an ambulance that had come to help someone with a diabetic issue. "It was quite an adjustment to go home [to Pullman] and it was quiet and I could hear crickets," says Marissa Cool.

The project drew a mixed response from the potential clients. The residents who hadn't been at Tent City 3 for long were intrigued, but the long-timers were reluctant to leave. A few said they'd move if they could find a place out of the rain, maybe with a small sink and a toilet and an area to prepare their own food.

Their projects designed over fall semester, the students returned to Seattle in late November to present them to architects and designers at The Miller Hull Partnership.

Working with two different sites the students sought to design structures that were both stylish

and affordable. They also had to follow building codes and a guideline keeping the construction to 150 square feet or less.

Normally people spend an average of 72 minutes a day outdoors, students Coughlin and Ryan Rideout noted in their presentation. The homeless are often outside 24 hours a day. Moving inside would take some adjustment. That's why the pair incorporated a garden into the design, as well as an outdoor kitchen space that made use of the plumbing on the exterior wall of the house. Then they tucked a single room "home" under a second-story deck. The room could be an open space with a chair and table and a bed that pulled down from the ceiling.

The sites offered different opportunities. Seattle architect Rex Hohlbein '81, who has been putting his energies into finding items like coats and sleeping bags and meeting the urgent needs of homeless individuals, offered his Capitol Hill home as the urban option. It has a small yard, is built on a steep slope, and has a number of close neighbors.

Cassie Lang concentrated on one particular client, a man named Arthur who spends a lot of time riding his bike and repairing bicycles for the other tent city residents. Lang focused on converting Hohlbein's existing garage, turning the rafters into a sleeping space and designing an area facing the alley that could be turned into a covered work area.

The second site was north of Seattle in the more suburban neighborhood of Shoreline. There the students had a much larger yard that already had an outbuilding to work with.

To save expense and use available material, Steve Schmitz chose wooden pallets as the framework for his walls and floors. He designed a single-room unit that could tuck under the metal roofed shed in the Shoreline backyard. "It's already pretty sheltered," he says. And one of the requirements was that it could be fairly easy to dismantle and relocate if the owner moved.

When the students visited the Shoreline home, they arrived in a university van and poured into the yard, taking photographs and making measurements. Their actions were interesting enough to lure the neighbors. As the students explained the project, the neighbors started sharing their own stories. One even said that he, too, had been homeless for a time.

Now that the projects are complete, architect Hohlbein, who says he'd be willing to build one of these temporary homes in his own yard, sees great potential. What if there was a library of designs that could be adapted for different yards around the city? Then, instead of relying on shelters and tent cities, people could live in and be part of real neighborhoods, he says. "This could transform the conversation about shelters for the homeless."

To better understand the needs of homeless residents who could make use of transitional backyard dwellings, 10 WSU students stayed in Seattle's Tent City 3. *Courtesy Rex Hohlbein '81*. Inset, a model of one of the students' projects.

Google ranking molecules

by Nicholas Deshais :: When Aurora Clark likened water molecules to webpages, and the hydrogen bonds that connect them to hyperlinks, she knew she was onto something. As she thought about it on a larger scale, billions of water molecules began resembling the World Wide Web. And where else could Clark, an associate professor of chemistry, turn to make sense of such a vast network?

Google, of course.

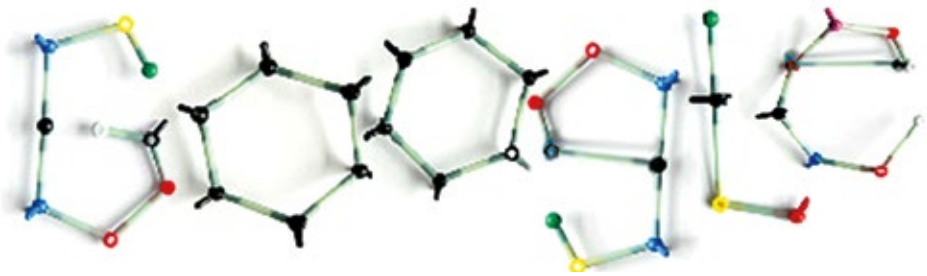
By adapting Google's PageRank to determine how molecules are shaped and organized, Clark started her journey of importing concepts from computer science into her work in chemistry. First she used Google, but recently Clark has employed digital mapping principles and ideas behind social networks to understand the life of molecules.

"I think that is a fundamentally neat concept," says Clark. "You can take all the technology you use in your day-to-day life, and use it in chemistry."

Google's PageRank assigns a number to every page on the web—a numerical rank determined by how many other pages link or point to it. The more links, the better the ranking. With this ranking system, a vast and otherwise chaotic network was given order.

Google was happy to lend Clark its PageRank algorithm, which was developed in the 1990s while the company's founders, Sergey Brin and Larry Page, were doctoral students at Stanford University. They published their algorithm in 1998, the year they dropped out of school and started Google. The Silicon Valley giant eventually began using techniques alongside PageRank to improve its search engine, and Clark has done the same.

Her motivation to expand and improve on her program came when she wanted her work to look at more than just water molecules and the relatively well-understood hydrogen bonds that connect them. She and her team devised



"MOLECULAR" TYPEFACE BY MITHILA SHAFIQ

ChemNetworks, a further iteration of Clark's original program, moleculaRnetworks. The new software program will be discussed in an article written by Clark and Abdullah Ozkanlar, a postdoctoral fellow in chemistry at WSU, in the *Journal of Computational Chemistry*.

The software will help chemists better understand how the physical properties of a chemical system are related to intermolecular interactions—those fleeting but ever-present forces that molecules feel when they come close to each other.

"It's like the seven degrees of Kevin Bacon, but between molecules," says Clark. "How many pathways of interaction do you have? You're finding the shortest path, the linkage, between entities. What's the shortest way to get from here to here?"

Clark's work is helping researchers better understand how the organization of liquid-liquid interfaces influences the ability to purify water and separate complex mixtures of materials.

Typically chemists separate metals by dissolving a molecule that is selective for a specific metal in the mixture, and then bringing it across the interface, or membrane. But they don't really know why this process works. If they did, which Clark's work promises to do, the nuclear and mining industries could be transformed.

Another area of research for Clark and her team deals with biofuel purification.

Understanding solvent organization in a confined environment would help researchers better separate the water and alcohol involved in the manufacture of biofuel. When distilling a mixture of the two, you reach a point where they have the same boiling points and can no longer be separated by distillation. To get around this problem, scientists have begun using porous and hydrophobic materials to force the alcohol and water apart. Clark says her research shows it's not a matter of repelling something from water, but the size of the area into which it is repelled.

"We're showing that the confinement effect itself is contributing to the mechanism behind separation," she says. "That's important. It will change how people design these materials."

Her work could have other implications, she says. In a time when high school and college chemistry labs compete with other school programs for funding, she hopes her program could be used in a virtual lab, allowing students who don't have access to a full laboratory to experience some of the complexity of chemistry.

View a student video on ChemNetworks at wsm.wsu.edu/extra/ChemNetworks.

Keri McCarthy recently traveled to Burma to introduce students there to reed instruments. *Courtesy Keri McCarthy*

Music to a closed country

Keri McCarthy, associate professor of music, traveled to Burma [the Republic of Myanmar] last summer on a project to bring reed instruments to a country that had been politically and economically isolated for many decades. The largest country in mainland Southeast Asia, Burma is a mix of large cities, lush river valleys, steep mountains in the north, spectacular landscapes throughout, and a wealth of distinct cultures.

Political changes in the past three years have caused the country to slowly open to visitors and western culture. With help from a grant from WSU's College of Arts and Sciences, McCarthy not only took advantage of this to take oboes to Burma, she brought home a deeper understanding of a rich and complex musical culture and many great details to share with her students in Pullman.

by Keri McCarthy :: "What a privilege," I thought as I was performing. "I am in rural Burma playing my oboe for people who have never heard this instrument before." I had just a couple of minutes with this thought before the skies opened up and rain came pouring down, drumming on the metal roof of our small shelter and drowning out the sounds of our Baroque duet.

My colleague Michael Garza, my husband Andy, and I had arrived at the Yangon [Rangoon] airport the previous afternoon. The streets were packed with cars and flooded with rainwater, the sidewalks were wildly uneven and sometimes suddenly interrupted by open drainage areas. We were continually soaked as street water splashed up from passing cars. Food carts filled the air with the smells of a variety of Burmese dishes with lots of pickled vegetables, sprouted beans, fried eggs, springrolls and tofu, and various meats.

As we explored our new surroundings, we wondered how we were ever going to find the music center we had come to Yangon to support. Our plan was to spend six days teaching students about western double reed instruments. We had developed lesson plans for teaching oboe and bassoon techniques, reed making, and repertoire, and on our first morning we were excited to get started.

But instead of heading to the music center, we were packed into the back of a small, canvas-covered jeep and we spent the next three hours protecting our instrument cases and our heads as we bumped along rut-covered roads out of the city. We were on our way to a rural Protestant boarding school, where students were learning to play western string and wind instruments. As we arrived the sounds of Mozart Symphony No. 40 greeted us from an open-air gymnasium. And I knew then this trip was going to be extraordinary.

Burma is a country poised for major cultural and structural changes. Until recently, the country has been almost entirely isolated from western culture as well as from its neighboring countries in Southeast Asia.

In 2004, I taught oboe at the Mahidol University College of Music, located just outside of Bangkok, Thailand. There my husband and I made friends with several Burmese music students. ThetSu Oo, a Burmese violinist with a gift for teaching, was returning home to Yangon to help build a music center called Gitameit (meaning "music" and "friendship" in Burmese). The goal of the center was to offer music instruction

Burma's stunning landscapes include the pagodas and temples of Bagan. *Photo Wikimedia*

(including Burmese traditional, western Classical, and western and Burmese popular styles). She asked if we would come help after the school had become more established. I remember feeling a bit guilty saying that we would try. Burma was ruled by a repressive junta that had held political leader Aung San Suu Kyi under house arrest for 15 years; the government was responsible for heinous human rights abuses. Any travel to Burma was widely seen as financial support for this government and its crimes against its people. Over 50 years of history seemed to indicate that nothing would be improving for the people of Burma in the near future. But by 2010 the outside world began to see signs of change, and I watched with hope. Finally, in 2013, everything seemed to come together.

The day after our rural excursion we found Gitameit, which exists in an old three-story home. The music floats from open windows and fills the small compound. The faculty members teach six or seven days each week and students from around the country make music in the eight rooms, on stairway landings, and even in the open-air courtyard. The center recently started a scholarship program for students from rural areas, and the cultural exchange between Burmese students of various regions (the country has over 135 identified ethnic groups) was evident.

One of the new oboists, Margaret (named Ja Htoi Bu by her parents), had come from a far-northern rural province where her family had 11 children. She played flute, sang in the choir, and took theory and history classes. She was very enthusiastic about the oboe, and relished the idea of being Burma's first oboe teacher. It was easy to draw parallels between this 24-year-old student and some of my own students at WSU.

I have spent a fair amount of time trying to understand and reconcile my trip to Burma with my understanding of world culture and politics in general. The people there live simply. There aren't many days off, creature comforts, or extravagant celebrations. But there is a tremendous amount of joy in everyday activities and in sharing those activities with people from other cultures. People were open about the country's current difficulties—an opaque government that could easily return to old habits and a government-sponsored discrimination against Muslims, who have been community members and good neighbors for centuries.

They were cautiously optimistic about the country's future. I am too. What I know for certain about my trip is that it has changed the way I view my own space in the world. I am ready to return to Yangon in March, ready to play oboe and teach oboists, to encourage the love of western music, and to learn more about the traditions of Burmese music.

McCarthy is looking for oboes to bring on her next trip to Burma. Anyone willing to donate an old instrument from their attic or coat closet is encouraged to contact her at kmccarthy@wsu.edu.

The calculus of caring and cooperation

by Eric Sorensen :: Shortly after the September 11 attacks on the Pentagon and World Trade Center, the American Red Cross had to wrestle with an odd sort of philanthropic success. So many people donated blood, there was far more than what was needed for the entire nation, let alone the attacks' survivors. Many people donated money, more than $500 million. And, after covering its immediate costs, the charity diverted most of it to other Red Cross needs.

Feeling they were misled, donors and families of the 9/11 victims were not happy. The head of the Red Cross resigned, but not before being called to account to Congress.

And Craig Parks started wondering how people decide to support some charities, but pass on and even actively oppose others. "Why can't you predict what kinds of things will people get behind and what kinds of things will people oppose?" he asked.

It's not a purely academic question. When it comes to keeping civilization on its feet, so much depends on a lot of people giving time, money, or other support for little or nothing in return. People approve bond issues for schools and playgrounds they'll never use. They donate to radio stations they don't listen to and people they'll never meet. They volunteer to fight and die in wars.

Yet some people will go to battle over a new park or school.

"What bad is there about a public park?" says Parks, a WSU professor of psychology who, voluntarily, acts as chair-elect of the faculty senate. "Why would you oppose improvement of facilities at a school? What downside is there to making improvements at a school? But people will do that. And these very same people will then get totally behind something else, so you can't just say these are people who are completely uncooperative."

Working with Jeff Joireman in the College of Business and a colleague in the Netherlands, Parks set out to decipher the social and psychological calculus behind caring and cooperation. It quickly got complicated. But their findings, published in the Association for Psychological Science series *Psychological Science in the Public Interest*, distill some common traits among public goods that succeed while others fail.

Parks unearthed 14 models of human cooperation. The "might vs. morality" hypothesis,

Psychologist Craig Parks. *Photo Shelly Hanks*

for example, asserts that people who voluntarily help others view cooperation as rational while "proself" people think it's more rational to not cooperate. Parks and his colleagues incorporated the various hypotheses into a model that can then weigh factors like human values, available resources, and cultural norms.

"The model is complex," says Parks, "but human cooperation is a complex thing. It's hard to explain complex processes with simple little models. So we're incorporating everything that has been discussed in the research literature."

Amid the complexity, the researchers did notice a few ways in which people will be more inclined to cooperate in a public good. A feeling of group identity helps. As the Red Cross's experience illustrates, a sense of trust is also important, if not paramount.

"People who are more trusting, will generally be more cooperative," says Parks. "And that's primarily because you believe that if you cooperate, your generosity is not going to be taken advantage of."

The researchers saw that sacrifices for the sake of future generations can be problematic, as people doubt the long-term effectiveness of their actions and whether they'll be appreciated.

"If we cut back on carbon emissions, how do we know that's going to prevent the catastrophic sea-level rise that's being predicted?" says Parks. "The answer is we don't know."

He suggests looking back to the sacrifices that others made decades ago for benefits we enjoy now. So while we are unlikely to personally meet someone in 2100 and get their thanks for combatting global warming, we can appreciate the efforts of people who fought in the last century's World Wars. They left a legacy, and thoughts of our own legacy can stimulate efforts on behalf of the distant future.

"Those people five generations from now, you're not going to know them, but they're going to know you," says Parks. "They're going to know what you did. And they're going to celebrate what you did. They're going to thank you for what you did."

Writing in an accompanying commentary to their paper, Carsten K. W. De Dreu of the University of Amsterdam says the researchers provide "a sound and insightful basis" for those who want to tackle the challenges of human cooperation.

"Too often," De Dreu writes, "the human capacity for cooperation remains unexploited, leading to ineffective management of common resources such as fossil fuel, failures to negotiate necessary budget reforms, and inadequate leadership behavior that crowds out rather than promotes cooperation among followers."

Sorting debitage from rubble

by Tim Steury :: Up until fairly recently, archaeology of the western hemisphere stopped at about 13,000 years ago. Since the discovery of the beautiful and finely worked Clovis points in 1929, and subsequent discoveries of Clovis technology across the United States, archaeologists generally adopted the "Clovis First" belief, that whoever created these tools must have been the first humans to populate North America.

Over the last few decades, however, a series of dramatic discoveries have pushed the estimated arrival by humans in the Western Hemisphere further and further into the past. Dates that were once considered only on the fringes of academic archaeology are now being discussed seriously within the mainstream.

The further back our archaeological reach, however, the more difficult it can become to identify human-made artifacts.

"We have a huge number of sites … that only have these other kinds of artifacts," says archaeologist Bill Andrefsky, "dated to 20,000, 30,000, with Calico, 150,000 years."

Calico Early Man Site, located in the Mojave Desert, has generated claims of extreme antiquity. Current consensus is more cautious.

Andrefsky, an expert in lithic (stone tool) analysis, has developed a series of controlled tests for differentiating between human-created artifacts and similar objects. His recommenda-

:: *continued page 14*

There is no question about the human origin of these Clovis points from the Richey-Roberts Clovis Cache near East Wenatchee. *Courtesy Mike Gramly/Washington State Historical Society*

WSU Football 2013

Defying expectations, the Cougar football team (6-7, 4-5 Pac-12) doubled their wins from 2012 in Coach Mike Leach's second season at WSU. Redshirt junior quarterback Connor Halliday, a bevy of talented receivers, and a scrappy defensive unit took the team to its first bowl game since 2003. Despite the tough loss in the Gildan New Mexico Bowl, plenty of bright spots emerged from the season. Senior safety Deone Bucannon, the leading tackler in the Pac-12, was named as a first team AP All-American, becoming only the ninth Cougar to receive the honor. Halliday threw 34 touchdown passes, tied with Ryan Leaf for most in school history, and he broke conference records with 449 pass completions and 714 pass attempts in 2013. His six touchdown passes in the New Mexico Bowl also tied the all-time FBS record for bowl games.

This page: WSU defensive lineman Xavier Cooper (96) tackles Utah running back Bubba Poole (34) during the November 23 game. WSU beat Utah 49–37. *Photo Dean Hare/Associated Press*

After the games

Derek Sparks '95 ***(left)*** and Mkristo Bruce '06 ***(right)*** pose with Coug fans on a September weekend when dozens of football players came back to campus. *Courtesy Derek Sparks*

by Hannelore Sudermann :: Some students finish school and never take the time to look back. The same goes, perhaps even more so, for student athletes, who often return to their home states or get caught up in either pursuing pro careers or lives outside of sports.

This year, though, one football player made a special effort to reconnect athletes whose names were once synonymous with WSU.

Wanting to give back to the school that gave him a college career, Derek Sparks '95 approached the WSU Athletic Department and asked if he could be of use in some way. Someone tossed out the idea of his reaching out to his teammates and bringing them back for Homecoming. It had been too long since he had seen some of his old friends, so he jumped on the notion. "I just got out my phonebook and started calling," says Sparks. "I reached out to guys who hadn't been back in 10 years, 15, years, 20 years."

And they came—from Washington, California, and around the west. Some came by plane, some drove with their families—among them, many of the men who made up the Palouse Posse, the legendary 1990s defense secondary players. The homecoming efforts also drew athletes from other sports, including track and basketball.

DeWayne Patterson flew in from Oakland, returning to Pullman for the first time since 1995. Though he didn't really bring it up over the weekend, the trip was particularly poignant to him because it was the 20th anniversary of him breaking the single season sack record, with 17 in 1993. He set the career record for WSU, too, with 37.5 sacks from 1991 to 1994.

It was great to relive some great memories, but the best part was catching up with everyone, says Patterson. "And the old-time guys got to meet up with the new faces around Pullman."

Shaumbe Wright-Fair '92, the running back who sprinted into history during the 1992 Apple Cup, drove from central California with his three teenaged sons. "My kids have heard stories and watched videos of me. But this was different," he says. Showing them his old dorm room, visiting the field, and driving by the apartment where he and his wife Kelly lived during school meant so much more.

"When you're living it, you're just getting through it," says Wright-Fair. "But now you realize the work you put in and how few people get the opportunities that we had."

When Sparks was on campus a week earlier, he ran into former WSU football coach Mike Price and convinced him to alter his schedule to be in town and see some of the players who went with him to the 1992 Copper Bowl and the 1994 Alamo Bowl. The coach agreed. Having a flexible schedule is one of the benefits of being retired, says Price.

What made this reunion particularly special, says Price, was that it was "really kind of a grassroots experience," with a former player doing most of the work reaching out to his teammates and coordinating the weekend. "We just had a blast. It was so much fun seeing everyone." Price relished hearing the stories of what the players had done since leaving WSU, and meeting their wives and children. "It's a special group of people. It's gratifying to see how they've grown up to be fine men."

They met up at the Hilltop Inn on Friday to share food and stories about their college days. To everyone's amusement, former defensive back Torey Hunter, who now coaches at the University of Idaho, performed impersonations of their old coaches. More than 50 former WSU athletes came for the weekend. There were Cougs who had competed in the '60s and '70s, and some who had graduated after 2000. And from the 1990s: Chris Jackson, who went on to play in the NFL, cornerback John Diggs, defensive tackle Chad Eaton, running back Michael Black, and retired Seahawk Robbie Tobeck, to name a few.

Some went on to play professionally, one owns a gym, and others became coaches and athletic directors; still others found jobs in law enforcement, finance, and teaching. Whether they are a paid coach or a volunteer, all have found ways to keep sports in their lives, says Sparks.

And not all the returning alumni had worn helmets and pads. Basketball player Isaac Fontaine '97 and many other men and women who wore the Cougar uniform joined in. "It wasn't just about football," says Sparks. "It was about our bond as student athletes."

Sparks put his energies into organizing the event because he was looking for ways to give back to the school that gave him a college football career and an education. As a high school student, Sparks had been plucked from his childhood home in Wharton, Texas, to play football at a private school in California where college recruiters might find him. He and his family believed that his talent and skill would lead him to a career with the National Football League.

But instead of an all-American high school experience, he was caught up in the manipulations of family members, coaches, and administrators. Sparks found that his simple dream of wanting to play football, finish high school, and move on to college was not an easy one.

"I was just a 17-year-old high school football player who had already taken cash, accepted gifts, and lived in homes provided by two different schools in as many years," he wrote about the experience in his autobiography *Lessons of the Game: the untold story of high school football*.

Rumors about his family's meddling and misinformation about his academic standing spread through Southern California and Sparks was snubbed by USC and UCLA. One school that was interested, even with his low SAT results, was Washington State. The school agreed to take him, and would sit him out until he raised his scores and became eligible.

Today Sparks has a nonprofit youth outreach organization and speaks at corporate events, sports camps and clinics, and high schools and universities, sharing his experiences with audiences, athletes and non-athletes alike. "I never set out to be a motivational speaker," he says. "I don't like that title." He sees himself more as a coach, sometimes a mentor to students, and always a friend to his fellow players. That is why he hopes that this year's reunion will be repeated next year and the year after. He hopes to get more athlete alumni to reconnect with the Gray W and with athletics as a whole.

This year the returning players toured the new facilities, wandered through the new stadium and stands, and even took some time to envy what the student athletes have now. "Even the new uniforms are beautiful," says Patterson.

They also got to experience the game as fans—a first for many of them. "It was my first time being part of a tailgate," says Patterson, who is already planning a return to Pullman next year. "It was great. Not only did I see other players, I ran into people who remember me from 20 years ago." «

:: *from page 11*

tions were recently published in the proceedings of the "Paleoamerican Odyssey" archaeological conference last fall.

His protocol, he says "comes up with results that say these characteristics are uniquely human, these characteristics are uniquely non-human, or these characteristics are both human and non-human." More important, his research isolates the environmental contexts and conditions that influence production of human and non-human made specimens.

There is no question regarding the human origins of the beautifully crafted Clovis tools and those of later cultures. But much of the analysis of a human-occupied archaeological site depends on the byproduct of tool production, the stone chips and failed attempts that collected around a tool-making place, referred to as "debitage."

The favorite material for stone tool craftsmen is brittle, hard rock such as chert (or flint) and obsidian. Such rocks can be cracked to create extremely sharp edges for cutting, scraping, and other uses. However, the properties that make them suitable for tool-making also make them susceptible to natural fracture, through erosion, frost-cracking, and animal trampling.

"When we started out in stone tool analysis 30 years ago," says Andrefsky, "the books all said if it had a bulb of force...or ripple scars on the flake, it's a human-made artifact.

"Well, if you drop a piece of obsidian down the hill, it's going to fracture with the ... ripple marks and all that."

Through an extensive series of experiments that included such procedures as dropping bags of obsidian from a height and trampling over chert laid over a variety of underlying soils, and comparing these to artifacts excavated from ancient sites, Andrefsky was able to distinguish fracture and wear traits caused by human and non-human forces.

Based on his experiments, Andrefsky developed a series of guidelines, based on context and morphology, for distinguishing between human-made and non-human-made objects.

Although archaeological analysis is never easy, the steadily expanding scope of investigation in the western hemisphere will continue to demand more precise analytical techniques such as Andrefsky's.

"When I started out in this business 40 years ago, I thought everything was done, with nothing left to discover," says Andrefsky, half joking.

A wider canvas

by Larry Clark '94 :: A new museum of art on the Washington State University campus in Pullman could be a multi-story glass-walled building in which students, alumni, and community members can venture in to an open and intriguing series of galleries.

The new building, now in the conceptual phase, will have more than twice the space of the current 5,000-square-foot museum and include four distinct galleries. It will rise out of the hillside across from the Compton Union Building on the site of the former fire station and current police station.

"It gives an opportunity to complete Terrell Mall in a way that reinforces the public quality of it," says Chris Bruce, director of the WSU museum. "We wanted to bring to campus a beautiful, distinctive piece of architecture, a world-class art space. It's not just four walls, a ceiling, and some lights."

Seattle-based architecture firm Olson Kundig has taken on the project, led by renowned Northwest architect Jim Olson.

"We want it to be a beacon of the arts," says Bruce. "The architects really took that to their vision. One idea is to surround the gallery spaces and entry pavilion with a translucent glass wall that would engage with the sunlight and literally glow at night. But also it would project images onto the glass wall."

The fundraising for the project was launched last fall with a $5 million gift from arts patron Jordan Schnitzer, a real estate investor from Portland, Oregon.

Schnitzer often lends schools and museums works from his personal collection, one of the nation's largest of contemporary prints. He also supported the 2005 renovation of the University of Oregon art museum, which was renamed in his honor.

Schnitzer is president of his family's Portland-based real estate company, Harsch Investment Properties, one of the largest privately held real estate property and management companies in the western United States. His mother was the founder and curator at Fountain Art Gallery in Portland.

"Museums are a place of refuge for me from my daily life," says Schnitzer. "I run a family business, I have teenage daughters. Art transports me to another place, a place where my mind is spinning."

He began collecting prints as a teenager. He recalls the first show of his prints at the UO and how it changed his thinking. At the opening, Schnitzer stopped near a man and his eight-year-old son looking at a print by Robert Longo in which men were moving to avoid oncoming tennis balls.

"I scooted down there and asked the boy, 'Hey, what do you think's going on there? Is that guy dancing and rocking out, or is he twisting in pain and about to collapse?'" says Schnitzer. "He thought for a minute, and he said, 'I think he's dancing.'

"That's when the light went off."

Schnitzer realized he could do more than collect. He could marry his passion for art with efforts to provide art to underserved communities so that children like that young boy would have a chance to see works by both local and national artists.

Pieces from Schnitzer's collection have been used in 80 exhibitions in 50 museums around the country. That includes WSU, where in 2005 Bruce curated a major retrospective of Roy Lichtenstein's work. "It would be very difficult for

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us to assemble the sweep of an artist like that's entire career," says Bruce. "But Jordan has 100 Lichtenstein prints in his collection, from the very first he ever made to the last one he made."

That exhibit traveled to seven other museums and led to a book distributed around the world.

With Schnitzer's gift, the museum project now has $9 million of the $15 million goal. Bruce says the new museum's galleries will showcase traveling exhibitions and display works from the University's permanent collection. One gallery could have a single focus piece, such as an 1860 George Innes landscape or a video installation. Another gallery will have new work and serve as "almost a laboratory space where an artist is creating something on site," says Bruce. He believes people will find the space far more accessible and dynamic than the existing museum. "Now they come to see the current show. But this new museum is an open door to creative expressions that can be 150 years old or 150 seconds old," he says.

Artist's concept of expansion entrance pavilion with possible sound-art installation. *Courtesy WSU MOA*

Schnitzer is excited about the direction of the new museum plans, especially if it can encourage more frequent public and student visits. "If we can train young people on the Washington State University campus to be world leaders, and also help them to be cultural leaders, then we've succeeded," he says.

"We want students to realize that to build successful communities they need jobs. But they also need to nourish their hearts and souls. That nourishment comes from the arts," says Schnitzer.

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Predictive software helps communication

by Alyssa Patrick '13 :: ALS, or amyotrophic lateral sclerosis, is a terminal disease that attacks motor neurons, causing patients to lose muscle function. Patients gradually lose their ability to move or speak. Since patients can still move their eyes, advances in eye-tracking technology allow them to operate computer programs, including text to speech software. This eye-tracking technology is the person's last link to communication—the key to a social or productive life.

However, existing software and hardware is expensive and not accessible to most people with the disease. Led by Professor Dave

Bakken '85, a group of computer science students is working to develop a less expensive and more effective alternative.

The students are working with Team Gleason, a nonprofit organization that helps raise awareness about ALS and provides support to individuals with neuromuscular diseases or injuries. Steve Gleason '00, a WSU alumnus and former New Orleans Saints football player, is living with ALS.

In addition to high costs, another issue with existing software is how long it takes patients to type with their eyes.

"I can crank out about 20 words per minute," Gleason wrote in SportsIllustrated.com. "For 4,500 words, that's almost four hours to finish this column." This slow typing rate makes it difficult for ALS patients to actively participate in conversations even with the text-to-speech software.

As part of their senior design project, the students are combating that issue by programming eye-tracking software that is predictive. Like a smartphone's auto-complete function, it anticipates a word or phrase based on a couple of letters. Currently, the students are putting the software on PUPIL, a 3-D printed set of glasses that connects to a computer to translate eye movement into computer action. The program will be open source with no royalties, making it freely available to the public.

By May, the students aim to have prototypes and potentially a tablet that ALS patients could test.

"The scope and impact of this project drew me in," says senior Calin Scott. "Traditionally senior projects are done for a company, but this one could be life-changing for ALS patients and their families."

"Making this kind of technology available to all ALS patients is important," says Gail Gleason, Steve's mother, who works for the WSU Athletic Department and is providing support for the senior project. "There is so much despair when a person loses their ability to speak to ALS, and assistive technology that gives them the ability to communicate gives them some hope."

The senior design team traveled to New Orleans in November and visited The Team Gleason House for Innovative Living, a new ALS residential facility that is the second of its kind in the world. Meeting with ALS patients there gave the team a better idea of what factors to consider when working on their project.

"Meeting with Steve was something I will never forget," says student Forest Clay. "I believe we all came away from the trip inspired to keep working on this project."

A sculpture of former WSU Cougar and New Orleans Saint Steve Gleason '00 sits outside the Superdome in New Orleans. *Photo Ted Jackson/The Times-Picayune*

The students have also received support and guidance from ALS patient Eric Valor. With a background in computer science and in the IT industry, Valor tracks developments in technology for ALS and provides support for other patients with the disease.

Working with Valor and spending time with Gleason, the students saw firsthand the difference that predictive typing could make, says Adam Thompson. "Interacting with them really helps us see the whole picture." «

For more information about the project, please visit teamgleason.eecs.wsu.edu.

For more information on Team Gleason and the Team Gleason House for Innovative Living, visit teamgleason.org.

Jason Doss (PharmD '09)

is a pharmacist and vice president for pharmacy programs at the Community Health Association of Spokane (CHAS).

"When I was an undergraduate at WSU I didn't have a major but I always liked science and so I did a summer research project in a pharmaceutical sciences lab and it was there I started to learn more about pharmacy.

I saw that pharmacy is where science and health and people all meet,

and I like all those things, so I decided I wanted to become a pharmacist."

CHAS pharmacists – through collaborative practice agreements – prescribe medications, manage the treatment of some diabetes and HIV patients, refill prescriptions independently, and operate an anti-coagulation (blood clot prevention) clinic.

Careers for pharmacists are expanding and changing. Pharmacists today can expect to be called upon to care for patients with chronic conditions and assure medication is used safely and effectively. If you like science and helping others, pharmacy may be a good career for you.

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WHAT *about* BUCKWHEAT?

:: *by Hannelore Sudermann* ::

"Oh, no, no, no," says Sonoko Sakai as she jets across the test kitchen at the WSU Mount Vernon Research Station to school a student on the proper technique of draining a freshly cooked hand-cut soba noodle.

"Don't stir it. You have to pat it like this," she says as she firmly whacks the bottom of the strainer.

Sakai, a former film industry executive, changed course dramatically a few years ago and left LA for Japan to learn the art of making soba, a traditional Japanese noodle made primarily of buckwheat.

She found her way to soba master Takashi Hosokawa and now travels the country sharing her soba expertise.

One afternoon last fall she led a class of 12 students and a number of onlookers in a soba-making clinic during a bread and grain conference at the research center.

Soba can be made solely with buckwheat flour and water, says Sakai. But it's difficult to form the dough, especially if you're a novice. So on this day she cheats the recipe with a little all-purpose flour. It's still a true soba noodle, she says. But the addition of wheat flour helps the dough bind together more easily. It also affects the throat feel, creating a slippery sensation called *nodogoshi*.

Wheat flour or no, soba is a deliciously sort of nutty-tasting noodle with just a bit of chew. And that texture and flavor is thanks to the primary ingredient—buckwheat. It's a pseudo-cereal, according to WSU's Kevin Murphy, who recently was part of a study examining the nutritional composition of buckwheat groats and husks.

Buckwheat is a bee-pollinated broadleaf plant that produces small triangular seeds that look like grains. The crop is believed to have originated in the Himalayas and is cultivated around the world, primarily in Eastern Europe and Asia, but also in France, Italy, Canada, and the United States. In their study, the WSU team determined there is a growing interest in buckwheat in North America because of the health benefits: It's nutritious, high in dietary fiber and protein. It is also rich in minerals like manganese, potassium, copper, and zinc.

Again, note Murphy and his co-authors, the crop has potential for greater consumer interest, but hasn't been studied much.

Despite its name, the plant has little to do with wheat, says Darrel Otness, who contracts with Columbia Basin farmers to grow buckwheat for sale to Japan. The plant is more related to rhubarb. But the farmers like it because they can plant and harvest it with their grain equipment.

Washington state is the country's largest producer of buckwheat for export to Japan, says Otness. It is a popular crop with the farmers he works with because it's a second crop, one they can plant in mid-summer after they harvest their primary crop of wheat or timothy hay. "They can get a second paycheck from that same piece of ground," he says.

The better Japanese mills won't use buckwheat that has been stored longer than a year. And it's recommended that the flour be used within 30 days of milling.

Farmers like Glenn Leland '74 of Mattawa plant their buckwheat seed in July and harvest it in October. "I put it in for the first time in 1984," says Leland. "It was kind of an experiment. But there was a learning curve." That first year, a late planting and some other issues resulted in low yield. Using the lessons of '84, Leland tried the crop again the following year with greater success and has been growing it ever since. "Farmers never give up, you know," he says.

In the Columbia Basin buckwheat is grown under irrigation, but over the rest of the world it's typically a dryland crop. It's fairly easy to grow, but at a ton per acre, the yields are far lower than they would be for corn or wheat, says Leland.

The fields in bloom with white flowers are pretty, but they have quite a smell. It's not sweet so much as off. Kind of "kennel," says the farmer. But that scent may help it attract the bees it needs to pollinate. In fact, the bees need the buckwheat, too. Since it has a long flowering period and it blooms through September, it gives the bees a necessary food source for storing up honey for the winter. Beekeepers are delighted to park their bees near Leland's fields.

While not widely popular in North America, buckwheat features in cuisines world-wide. Beyond the soba noodle, there's the French buckwheat *galette*, the Italian *pizzoccheri*, and the classic Russian buckwheat blini (a famous vehicle for caviar). Throughout Eastern Europe it factors into diets as *kasha*. In China and the mountains of Tibet, where buckwheat

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is believed to have originated, it's eaten as a porridge. There's also dried buckwheat noodles, which may be the only soba most Americans have ever tasted. "Oh they're horrible," says Sakai, who admits that before she started studying soba she resorted to those herself.

Sakai has tried buckwheat milled in the States for her soba, but found it somewhat "sandy." "It's milled for pancakes, right? Not soba quality," she says. On a recent trip from Japan, Sakai talked her sister into carrying a large sack of freshly milled buckwheat flour in her suitcase. The irony is that this buckwheat could have been grown in Washington, says Sakai. "Now I'm bringing it back here to make noodles."

Back in Mount Vernon, Sakai's students use their fingers to evenly distribute water into their carefully measured mixture of wheat and buckwheat flour in large wide metal bowls. Sakai reaches in to test the hydration and urges a couple students to add a little more water.

Then they knead the dough and shape and roll it into a smooth ball with a pointed end. They flatten it into a disk, roll it out into very large squares, and then sprinkle flour, fold it, and fold it again. Then using a board as a guide and a fierce-looking soba knife, Sakai shows them how to cut the thin noodles.

A little more than a minute in boiling water and then a quick bath in a *dashi* broth and the students are happily slurping their handiwork. ⊗

Know your buckwheat:

Groats :: The groat, or whole kernel, includes the germ, the bran, and the endosperm. The hull has been removed.

Kasha (Eastern Europe) :: A porridge made of buckwheat that has been dehulled and roasted.

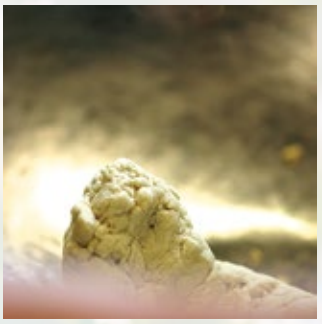
Soba (Japan) :: Long thin noodles made from finely milled buckwheat flour and water.

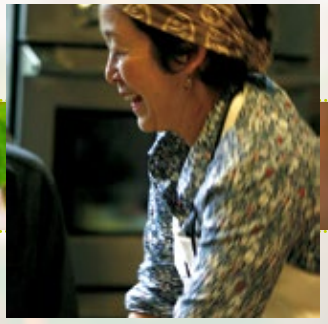
Pizzoccheri (Northern Italy) :: A short square pasta made primarily from buckwheat flour and served with cheese, greens like chard, bread crumbs, and butter.

Galette (France) :: A savory buckwheat crepe from northern France.

Blini (Russia) :: Small buckwheat pancakes, traditional vehicles for crème fraîche and caviar.

For Sakai's soba noodle and dashi recipes, visit wsm.wsu.edu/extra/soba-recipes.





Sonoko Sakai leads a workshop in making traditional Japanese soba noodles during a bread and grains conference at WSU Mount Vernon. The process includes moistening a mixture of buckwheat and all-purpose flour with water, hand-shaping a dough, rolling it, folding it, and then using a soba knife to cut it into long, fresh noodles. The noodles are boiled immediately and enjoyed in a dashi broth. *Photos courtesy Martha Holmberg*

Cascade Pass

PHOTO ZACH MAZUR

MOUNTAINS & PRAIRIES WITHOUT RIVERS

Recollecting *Washington's* landscapes

PHOTO DAVID KINGHAM

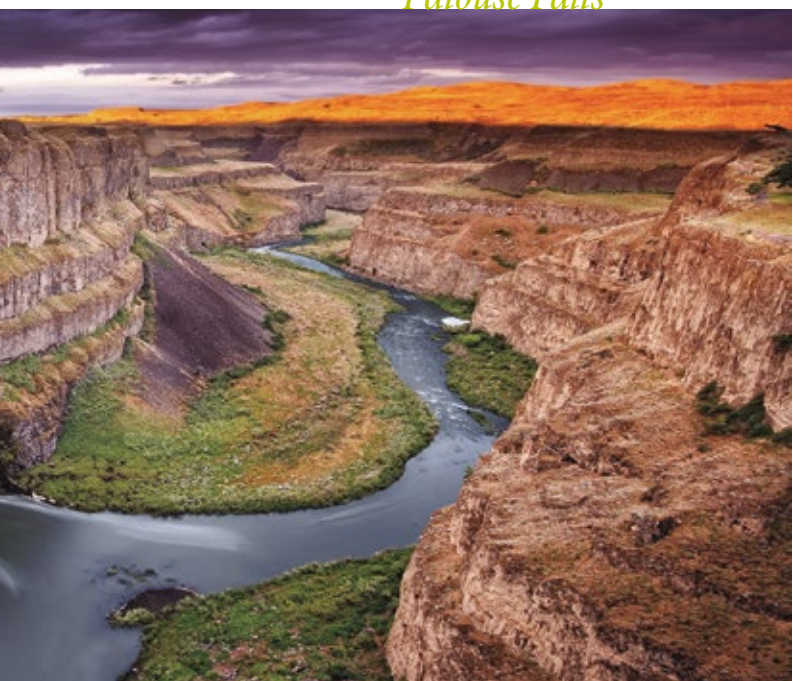
:: *by Tim Steury* ::

Richard Scheuerman ’73 has driven us down a long gravel road to the Palouse River to show me a couple of old settlements and the outline of the Kentuck Trail. The scar of the old trail, which once led hopeful miners to the new gold fields in Montana, angles up the bluff across the river, toward the present day world. Down here by the river, we have entered an earlier place.

Kahlotus Prairie

PHOTO JOSEPH ROCCHIO

Palouse Falls



It is absolutely still down here in the river valley on a crystalline October day, still except for the occasional magpie and the soft murmur of the Palouse and the ghosts that Scheuerman has evoked. To journey down to the Palouse with Scheuerman is to be immersed in his landscape. His Volga German ancestors immigrated to the Endicott area in the late 1800s. They and other families still populate the area.

This is but a shallow immersion, however. Scheuerman’s many books do not begin with European exploration and settlement, but are often about the interaction of European settlers and the region’s native peoples. Even his most recent, *Harvest Heritage*, written with Alex McGregor, which purports to be about “the agricultural origins and heirloom crops of the Pacific Northwest,” embraces native participation. Scheuerman can never exclude the pertinent detail, the context, the predecessors, the meaning.

The Palouse River was a thoroughfare for the native people, he says. After European settlement, they regularly met up at the DeLong farm, upriver, toward St. John.

E N D

STAFF PHOTO

Growing up, Scheuerman wondered who these people were, this parallel culture alongside the growing European settlement.

Having determined to go to the source, one day while he was in high school, Scheuerman and his grandfather drove north to Nespelem, the headquarters of the displaced Colville Confederated Tribes. He announced himself to a tribal secretary, Annie Cleveland George, who directed him to Arthur Tomeo Kamiakin, who gave him the first of a priceless trove of oral histories Scheuerman has gathered from native elders over the years.

Scheuerman's eastern Washington landscape is rich with stories, of his ancestors trading fruit for salmon from the local Indians, of Norwegians and trappers, of Chief Kamiakin and Washington State College scientist William Spillman. All are part of the dense landscape that he narrates.

"It's a magical place," he says as we arrive at another part of the valley, a site that still shows the remains of the settlement he fictionalizes in "The Rainbow Bridge," one of a series of short stories about the Volga German settlers.

fields near Walla Walla

PHOTO GREG VAUGHN

"One of the Ochs family, who had a beautiful voice, he would climb the bluff in the evening and just sing."

CATACLYSM, LIGHT, AND PASSION

If there were a scientific way to measure the grandeur and diversity of landscape within a given area, Washington has the stuff to rival any region in the world. But diversity and grandeur are only a part of that landscape's appeal.

Lovely and unusual as the Palouse hills and its river canyons may be, their deeper beauty emerges only as we learn to interpret their various stories. That, looking backwards, the European migration is but a brief prelude. That the native people, the Palouse and Nez Perce, were here for thousands of years and had summer camps all along the rivers. That the hills themselves are but brief, that they blew in over thousands of years as glacial silt deposited by the unimaginably catastrophic Missoula Flood. That there have been many landscapes here, both physical and temporal. Indeed, if it is the spatial element that gives landscape its body, so to speak, it is the temporal, its story, that gives it its soul.

Scheuerman is a devout member of that society of storytellers and interpreters—historians, ecologists, geologists, archaeologists—who invest Washington's landscape with meaning. Once largely relegated to painting and the study of geography, the idea of landscape is increasingly being adopted by a variety of disciplines as a way of understanding our context.

Historian Rob McCoy has begun to examine how wine has transformed the landscape of eastern Washington, particularly the Walla Walla area. Washington currently has about 43,000 acres planted to wine grapes. Although that is a mere fraction of the state's 14.9 million acres of farmland, the impact of wine on the landscape is profound, starting with the careful geometry of the trellised rows, lending the taste of its terroir to palates and imaginations throughout the world.

Colville reservation view

When a massive ice dam containing the enormous Glacial Lake Missoula broke 15,000 years ago, a wave 500 feet high swept south across eastern Washington at 50 miles an hour. Two thousand five hundred cubic kilometers of water, with a flow 10 times greater than the combined flow of all the rivers in the world, scoured the land to its bedrock foundation. This catastrophic event repeated itself as many as 90 times, as the ice dam formed and failed every 35 to 55 years.

The sediments scoured by the floods settled out and then were carried back north by the prevailing southwest winds, resettling approximately along the floods' path.

"This windblown silt deposited over the underlying volcanic basalt, layered with the ash of intermittent eruptions of Northwest volcanoes from Mazama to St. Helens—this is the literal grounding of Eastern Washington's terroir," they wrote.

The flood story had been puzzled out in the 1920s by the legendary geologist J Harlen Bretz. Meinert and Busacca helped us understand the ancient landscape genesis of what we sip.

Rick Small '69, one of the first farmers in the area to recognize the landscape's potential for wine and founder of Woodward Canyon, understood the basis.

"This is great soil," he said in an interview for our first issue. "I would not be anywhere else in the world."

Indeed, if it is the spatial element that gives landscape its body, so to speak, it is the temporal, its story, that gives it its soul.

Although the southeastern Washington landscape is still dominated by the wheat that first supplanted the sagebrush and bunchgrass, vineyards have further Europeanized our wild western hills.

The first *vinifera* grapes were probably planted by the Hudson's Bay Company at Fort Vancouver in 1825, and French trappers may well have planted wine grapes in the Walla Walla Valley. However, no one really imagined the transformation of the landscape until Walt Clore, Chas Nagel, and others started experimenting.

Clore joined Washington State College in 1934 and was appointed assistant horticulturist at the Prosser research station three years later. Whatever it was that stirred his imagination, Clore immediately began planting wine grapes in variety trials. Convinced though he was of Washington's suitability for wine grapes, however, his vision would not be realized until Chas Nagel arrived in Pullman in 1960. A microbiologist, Nagel arrived from the Napa Valley with a vision of a wine landscape.

In an interview for our first issue in 2001, Nagel recalled touring the state with Clore, talking grapes with farmers, exploring the next phase of Washington's agricultural landscape. Clore had variety trials of *vinifera* growing all over the state.

"Walt was Johnny Grapeseed," said Nagel. "It was a wonderful time."

Though Clore, Nagel, and a few adventurous farmers understood the capacity of the landscape and climate for producing wine, it was Larry Meinert and Alan Busacca who explained the deeper, most elemental aspect of the landscape that would produce Washington wine.

In "Terroirs of the Walla Walla Valley appellation," Meinert, a geologist, and Busacca, a soil scientist, both with Washington State University at the time and wine devotees, took eastern Washington's terroir deeper than amount and timing of rainfall, or the aspect of slopes and amount of heat units and temperature swings. They took our understanding back to the Flood.

WINTHROP TO MARBLEMOUNT – NORTH CASCADES HIGHWAY 87.4 miles

» I was running late, headed for Marblemount over Washington Pass. As it grew darker, I drove through thick, swirling clouds. The clouds would part, revealing a jagged peak, then close quickly, then reveal another. It was dizzying and magical, the road before me disappearing and reappearing. » It was only in 1972 that State Route 20 made the 87-mile drive from Winthrop to Marblemount possible. The highway passes through extraordinary landscape and ecological transitions, from the sagebrush of the Methow Valley to lush semi-rainforest around Marblemount. Be sure to stop at the Newhalem Creek rockshelter. Just a short walk from the highway, the rockshelter was occupied by locals who hunted mountain goats. » *Read "Of Time and Wildness in the North Cascades," Spring 2010*

» All roads lead to Washtucna, so start there. Head south on State Route 260 through Washtucna Coulee, a main channel of the Missoula Flood. Huge as it is, though, it was too small to contain the torrent. Turn left on 261 toward Starbuck and Palouse Falls. » The 200-foot high Palouse Falls is spectacular any time of year, but particularly during spring runoff. You are far from anywhere. » The only sounds you will hear are ravens, magpies, and the falls. You are about four miles upstream from the confluence of the Palouse River and the Snake. Marmes Rockshelter is near the confluence. » Continue through Starbuck, population 129, and along the lovely Tucannon River. You are within a few miles of the site of WSC President Enoch Bryan's short-lived utopian settlement. » Continue through Dayton and Waitsburg, one of the most bucolic of drives in a primarily bucolic eastern Washington. You will undoubtedly stop in Walla Walla to visit some of the 17 winery tasting rooms downtown or just continue to Rick Small's Woodward Canyon in Touchet. » While in Walla Walla, have an onion sausage at Onion World. Then have another. Also, the sycamores in the city park are fabulous. » *Read "Cataclysm, Light, and Passion," November 2001; "An Exquisite Scar," Fall 2004; "Back in the Earth," Spring 2011; "First Words," Fall 2012; "Walla Walla Sweets," Fall 2010*

WASHTUCNA – PALOUSE FALLS – STARBUCK – WALLA WALLA 82 miles

FIRST INHABITANTS

What has made much of Washington's agriculture possible, what has helped create a garden out of a desert, is irrigation—irrigation and cheap hydroelectricity for pumping made possible by dams. Those dams, however, particularly the Snake River dams, obliterated much of the canyon landscapes, including hundreds of village and burial sites.

This destruction, ironically, greatly magnified our understanding of the region's cultural landscape. Money flowed from the federal government to salvage archaeological sites that would soon be under water.

The Marmes Rockshelter was one of those sites. In the late 1960s, Richard Daugherty, Carl Gustafson, Roald Fryxell, and other faculty and graduate students worked desperately through a harsh winter to

Waterville Plateau

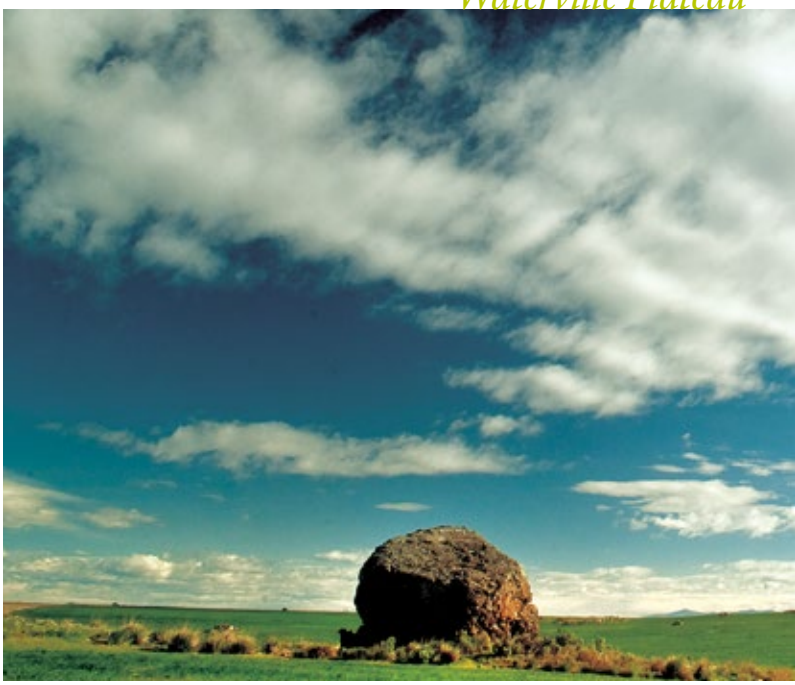


PHOTO ZACH MAZUR

Cape Flattery

PHOTO ZACH MAZUR

glean what they could before the floor of the cave disappeared beneath the dammed Snake's water.

The Marmes shelter is located near the mouth of the Palouse River, where it joins the Snake. Bill Andrefsky, an archaeologist who specializes in lithic technology, or stone tools, cites Marmes in explaining the evolution of archaeology toward an appreciation of the landscape.

"The whole concept of landscape archaeology," he says, "has burgeoned from a very small field that looks at settlement patterns or analysis from a spatial level to one where landscapes not only provide resources for food and how people use the land over time to one where the landscape is part of why people select to live in certain locations, has political meaning, has religious meaning, has all of these other kinds of meaning.

"One of the most interesting things I've come to start believing in," he continues, "there are certain spaces, locations out there, places that

are very special, and people live there, not only their entire lives, and their immediate family's entire lives, but people lived there for thousands and thousands of years."

For thousands of years, residents of the Marmes rock shelter led their lives and buried their dead. Excavation, as far as the archaeologists were able to accomplish, pushed occupation at the shelter back more than 9,000 years, which is considerably older than was thought at the time to be the oldest occupation in the United States.

What intrigues Andrefsky is what kept people at the site for all those thousands of years. Yes, it was a great shelter, at the confluence of two rivers. Food was bountiful.

But Andrefsky feels there is something even more special about the Marmes landscape, maybe simply something we haven't yet discovered.

"Those rocks that were laid down there during the Columbia Basalt lava flows haven't changed much in the last 12,000 years," he says. "That landscape, that vista, is pretty much the same. Maybe the vegetation is different, but definitely that landscape was there."

LANDSCAPE IS US

"Landscape ecology as a discipline," says landscape ecologist Mark Swanson, "if you care to define it in a very liberal sense, goes back to our hunter-gatherer ancestors. They had to understand things at a landscape scale in order to escape harsh weather or escape predators or find water."

Ptolemy, Pliny the Elder, and Pliny the Younger all thought and wrote about how landscapes are structured, he says. But the term was not coined until German geographer Carl Troll introduced the term as part of his work, which consisted of using aerial photography to interpret interactions between environment and vegetation.

The European school of landscape ecology grew out of this work and focused largely on the settled environment. The discipline's interaction of process, pattern, and scale occurs at four primary levels.

First is the geophysical, says Swanson, the topological and lithological. What kind of rocks gird a landscape? For example, granite decomposes as acidic, while limestone decomposes as basic, either of which affect large-scale outcomes such as plant community composition.

Second is the available biota: the plant, animal, and microorganism population of an area.

The third level of interaction is disturbance: windstorms, the Missoula Flood, forest fire, Mount St. Helens.

WENATCHEE – WATERVILLE – GRAND COULEE DAM 96 miles

» From Orondo, north of Wenatchee, head up the Corbaley Canyon grade toward Waterville. Stop at every pull-off for views of the Cascades to the west. Stop in Waterville for lunch at Kopey's Cafe and get the story on the miniature working jet airplane hanging from the ceiling. » On across the Waterville Plateau, a surreal place scattered with erratic boulders left from the southern edge of past glaciers. Brace yourself for Moses Coulee, one of the most spectacular highway descents I know. Moses Coulee, less well known than the parallel Grand Coulee but maybe even more magnificent, was cut by Glacial Lake Columbia. On to Grand Coulee and north, though you might want to take a brief side trip south to the spectacular Dry Falls. » *Read: "Water to the Promised Land," Fall 2013*

PHOTO ZACH MAZUR

Diablo Lake

Finally, there is us. Even though we are part of the available biota and are certainly a disturbance, says Swanson, "We are unique in global coverage."

OF TIME AND WILDNESS

Bob Mierendorf understands that last premise quite well.

"This landscape is my PhD," he said when I first interviewed him about his work in the North Cascades and the upper Skagit River. "I call it Upriver University. A 3-million-acre campus. Colors are green and gray. On a really good day it's all gray."

Mierendorf never finished his doctorate at WSU. "They gave me the tools," he said. Rather than complete his dissertation on campus, he became the first National Park archaeologist in the Pacific Northwest. He set out to reveal the remarkable landscape that reaches along the very wet upper Skagit and up, up to the reaches of the North Cascades, some of the most dramatic landscape in the world.

As well as the most misunderstood.

"Wilderness never existed until 1964, when Congress created it," said Mierendorf. Contrary as he can be, though, he has no beef with wilderness management. He just doesn't like intellectual bias. Wilderness implies that it has always been free from human contamination. North Cascades National Park was created as a wilderness park.

When Mierendorf started at the park in 1984, archaeologists had documented a total of 17 archeological sites, including the remarkable Newhalem rock shelter, just a short walk off the highway near Marblemount. Such discovery did nothing, however, to negate the nearly universal belief that native people never went into the high country, but rather stayed in the lowlands. What little interaction existed between peoples east of the Cascades and west of the Cascades must have been accomplished by a very long roundabout journey.

Since then, he has identified 300 more sites, 45 of which were located between 4,000 and 7,000 feet. The high country seems to be where the local folks went for the summer. And more than that.

"Cascade Pass easily makes the short list of the most beautiful places in the world," I wrote upon hiking to the pass with Mierendorf. "The pass is a saddle between drainages. The east side is the watershed of the Stehekin and Chelan rivers, which flow to the Columbia. The west side is drained by the Cascade River, a tributary of the Skagit. Peaks around us range between 8,200 and 9,200 feet. Forbidden Peak. Mount Formidable. You get the picture."

The idea that Indians did not travel up here is understandable, at least to the exercise averse, which most archaeologists are not. Even so, it's tough going.

But Mierendorf has shown that Cascade Pass was a veritable Grand Central Station back in the day. Back as far as 10,000 years.

OZETTE — How far? Who knows?

» There is no road trip to the old Ozette, of course. But you can certainly drive to Neah Bay, the current headquarters and community of the Makahs. Their excellent museum displays the incredible collection of artifacts excavated from the buried longhouses of Ozette, everything from spears and baskets to children's toys. Definitely take the short but dramatic and elemental walk out to Cape Flattery. » There's also a place in the middle of town with unbelievably good smoked salmon. Just drive around and look for a lot of smoke. Oh, and they might also have "salmon candy." » Neah Bay is a long way from anywhere and makes a great trip no matter where you start. But *from* Neah Bay, you can drive to Lake Ozette. And from there you can always hike the few miles out to Cape Alava, an easy day hike. » All trace of the old village of Ozette is gone, as is the settlement that housed WSU archaeologists during its excavation. But if you squint and let your mind go, you might hear the children playing amongst the longhouses and watch the hunters weave their canoes in amongst the rocks to shore. » *Read: "Home of My Family," Spring 2008*

This landscape may be wild, Mierendorf argues, but it is no wilderness.

THE HOME OF MY FAMILY

Ed Claplanhoo really didn't understand at first what the young hippie teacher was trying to tell him over the phone in the winter of 1970. That "people" were taking "artifacts" from the "house."

As chairman of the Makah tribe, Claplanhoo kept close track of things and knew his territory well. The persistent pleas from the teacher made no sense. But then, finally, he realized it was not Neah Bay, current home of most Makahs, that the young man was talking about, but Ozette, an ancestral village down the coast, on Cape Alava, reachable only by boat or a four-mile hike from the nearest road.

Until archaeologist Richard Daugherty set out in the late 1940s to explore the Washington coast, no systematic survey had yet been done of archaeological sites. One of the sites he noted was Ozette, and in the late '60s, he began a preliminary excavation. But diverted by the Marmes excavation back in eastern Washington, and convinced that the Ozette site was exceptional and would need full-blown attention, he returned to more urgent work.

Makahs had lived at the Ozette site until the 1920s. But oral history told of an older village that had been buried by a landslide, probably when a magnitude 9 earthquake released the saturated hillside above it in 1700.

In 1970 a winter storm uncovered a longhouse.

Now, forty-some years later, if you hike the four miles from Ozette Lake down to the coast, you will find no trace of the village or the 11-year excavation that revealed an extraordinary wealth of knowledge about the Makahs and the coastal landscape. Their ancestors had lived at Ozette for probably 2,000 years. Their knowledge of the sea and of whales, their craftmanship in toolmaking and skill in hunting gave them a rich and wondrous life on a dramatic coast humming with centuries of stories.

WHAT ENDURES

Remember the first time you drove across Washington from east to west on State Route 26 and Interstate 90. Or more likely west to east. Regardless, that first time is a study in contrasts. East and west. Dry and wet. Lonesome and populous.

From the Palouse, through the Scablands and Columbia Basin, the annual precipitation as you push west drops by an inch every 10 miles.

And then starts rising: Columbia River. Foothills. Cascades. Seattle.

And then maybe you realize, now five or six hours later, you're still nowhere near across Washington. So you keep going, by ferry or down through Olympia and west. If you continue all the way to Long Beach or Grays Harbor, what is just a coy and crooked scratch across the map, the drive has become an overwhelming primer on our state, offering glimpses of, even insight into, the enormous and complex landscape that is Washington.

The second time across, things look a bit familiar. The Scablands, still scarred and scabbed from the Flood, stretch into Washtucna—and if you hit it at the right time, in mid-April, it is a transcendent green, wisps of fog stretched across the coulee in early morning.

But on to the vastness of the Columbia Basin, frighteningly endless and mesmerizing. The radio drifts from NWPR translator to translator up until the plateau. And then it's Christian talk and Mexican music.

Beyond Othello, the ridge of the Saddle Mountains to the south parallels the traveler down the long Royal Slope to the Columbia, the ridge splitting abruptly, Sentinel Gap, for the Columbia into which all the rivers of the Columbia Basin flow.

The Columbia, dammed and dammed and dammed and threatened by the plume of Cold War waste downstream, is still wild and mighty.

That ten-mile climb back up to plateau and then maybe, if the weather is right, the surprise of Rainier. But we could go on forever.

For the curious traveler, there is still a near-infinite landscape to learn. For the focused and ubiquitous land-grant university, there is much landscape not only to learn, but to re-imagine and shape, just as it has done, with deliberation, trial, and error, during the brief, brief moment of its life and effect on a landscape full of meaning, stories, and wonder. ⊗

Columbia River at Vantage

WILD HORSE MONUMENT, PHOTO DAVID R. IRONS JR.

:: by Eric Sorensen ::

A *True Story* Fraught with Peril

As disaster-obsessed scientists go, geologists must be near the top of the list. They deal with time scales spanning billions of years, so a set of catastrophes occurring 10 million years ago is like *yesterday*. Something in the last century comes close to being, well, *now*.

And they see catastrophe all over the place.

Take the roadcut near the Old Moscow Road. It's a modest pile of crumbling rock, but John Wolff and Rick Conrey can see in its surrounding rock a thick blanket of hot lava inundating southeast Washington.

"It covers an area that goes from here to Spokane to The Dalles, buried at 60 feet deep," says Conrey. "That's the scale that you're talking about. It would be a devastating thing if it happened today. Unbelievable event."

Now imagine that happening, oh, 300 times.

In the natural history of the state, the volcanic and tectonically tortured west side gets all the ink. Sure, it has a few stories to tell—the Nisqually earthquake of 2001, the Mount St. Helens eruption of 1980, the megathrust of 1700, the Seattle fault quake in the early 900s. On a clear day, you can see Mount Rainier and imagine a volcanic blast melting its glaciers and sending a torrent of mud and trees toward Puget Sound.

But if you're looking for repeated, horizon-to-horizon, fire-and-brimstone destruction, you'll want to give good weight to the devastating backstory of our region's basalt. Time and again, vents opened up on the eastern edges of Oregon and Washington and poured hot lava across the gently sloping plain to the west. It moved slowly enough that most animals could outrun it, even out-walk it. But most trees and plants in its path were incinerated.

In a matter of weeks, if not days, one of the flows could reach across the state to Portland. It could take 50 years to cool, with its rising heat drawing moisture from the Pacific to create tremendous storms and monsoonal rains. Sulfurous gases could block out the sun, changing the earth's climate and dramatically altering habitats around the world. The change was most dramatic

across whole swaths of Washington state, where time and again, hot lava paved the late Miocene paradise of exotic hardwoods, replacing it with a vast, hot, black parking lot.

"By the time the lavas cooled," says Steve Reidel '78 PhD, "you would have had nothing from Pullman to the coast but wet lava rock."

Now, Columbia River flood basalts cover roughly half the land area of Washington and Oregon. On average, it is a kilometer thick. In Pasco, it is more than two miles thick.

"I like to tell visitors here that we're actually in the Rocky Mountains," says Wolff, head of Washington State University's Peter Hooper GeoAnalytical Laboratory and coeditor with Reidel and others of a new scientific tome on the Columbia River basalts. "You just don't know it because they've been covered up by basalt."

BASALT IS ONE of the most common rocks on Earth, making up the bulk of the sea floor and having a hand in some of the planet's most spectacular catastrophes.

Siberian flows coincided with the epic Permian-Triassic "mass dying" that wiped out 96 percent of the earth's marine species 250 million years ago. A mass extinction at the end of the Triassic Period 200 million years ago coincided with lava coming out between what is now northeastern South America and eastern North America. Gases from flows on India's Deccan plateau started a mass extinction some 65 million years ago. The Yucatán meteoroid credited with wiping out the dinosaurs then may have simply been a coup de grâce.

The Columbia River basalt province is among the smaller, but it's the most studied in the world, in large part because federal officials in the mid-'70s thought all that deep rock might be good for storing radioactive nuclear waste. It helped that the Hanford Nuclear Reservation is parked on top of some of the deepest basalts.

But first, scientists and regulators needed to know just what they were getting into, particularly if they risked putting waste where it might leak into an aquifer or the nearby Columbia River.

"You can't do that without knowing the architecture of the whole pile," says Wolff, "and that means being able to identify the layers."

Buried in hundreds of layers of rock are tales of fire, brimstone, destruction, and fragility

Columnar basalt at Steamboat Rock State Park in Grant County. *Photo Greg Vaughn*

RICK CONREY PHOTO ROBERT HUBNER

For years, one of the main tools for identifying different basalt flows had been the orientation of magnetized particles in the rock. Every few thousand years, the Earth's magnetic pole wanders around the geographic pole and even reverses. By tying the orientation of a rock's magnetic particles with the location of the magnetic pole, geologists can estimate the age of the rock and, in the case of the Columbia basalts, which flows they are a part of.

The federal Basalt Waste Isolation Project brought chemical identification into the mix by funding WSU's GeoAnalytical Laboratory, led by the late WSU geologist Peter Hooper. The nation's search for a nuclear waste repository turned to Nevada's Yucca Mountain in the late '80s, but by then the Hooper lab was firmly established, with the lab analyzing numerous basalts from throughout the region while taking on enough other work to become self-sustaining.

"In the process, we did learn an awful lot about the basalts," says Wolff.

For 40 years now, one part of the lab has been analyzing basalt that has been ground and melted to create quarter-sized beads that Wolff calls "atoms in a glass." A fluorescence machine can then bombard the beads with x-rays. This causes electrons to jump to a higher energy level. As they return to a lower level, the basalt's various elements give off a unique "x-ray fingerprint" used to discern the original rock's makeup.

"The whole CRB stratigraphy has been developed using this technique," says Wolff, using the shorthand for Columbia River Basalt. "It's not the only technique, of course. There's field relations and so forth, but it couldn't have been done without this."

For even greater detail, two mass spectrometers can measure trace elements to fractions of a part per million, while an electron-probe microanalyzer can analyze the individual grains in a rock. Crystals can also trap gases from an eruption.

"If you have an estimate of that, you can then go on and try and calculate what the environmental effects of the eruption would be," says Wolff.

Forty years of science on 10 million years of volcanic eruptions can turn up some impressive revelations.

Perhaps the biggest is that nearly three-fourths of the Columbia Basin basalt is from a series called the Grande Ronde. Starting 16 million years ago, it served up 100 or so flows over a few hundred thousand years. They sunk the Earth's crust, creating the Columbia River Plateau. They are the largest known flows on Earth.

Three years ago, Reidel and Hooper, working with a colleague at Britain's Open University, found the main pulse of eruptions happened much more quickly than previously thought, and with an intensity that may have changed the earth's climate.

To get some idea of just how awful that might be, you only have to look back two or three centuries. You know, yesterday.

There was the 1815 eruption of Mount Tambora in Indonesia, which contributed to the subsequent "Year Without a Summer"—frozen crops, icy Pennsylvania rivers in August, food riots, famine. Iceland's Laki eruption, a succession of lava flows and eruptions starting in 1783, produced an acidic rain that wiped out the island's grass. More than half the livestock died. In the ensuing famine, the country lost one-fourth of its population.

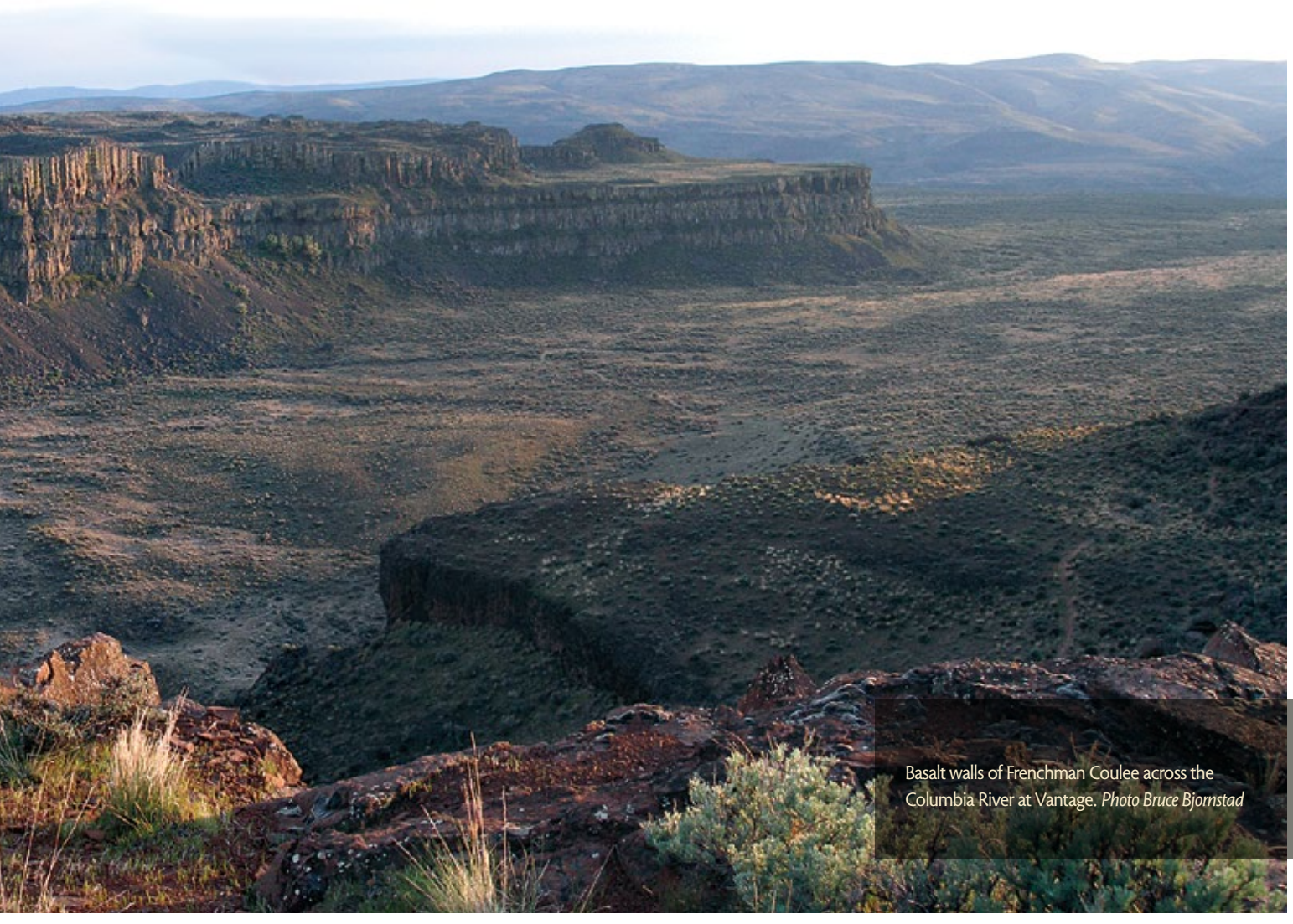
The eruption's atmospheric emissions, says Wolff, were one-tenth to one-hundredth of some of the Columbia River basalt flows.

But for major firepower, you only have to look back two million years and a little to the east, to the Yellowstone Super Volcano. A paper published in 2012 by Ben Ellis, then a postdoctoral researcher in Wolff's lab, found that the volcano's biggest eruption was actually two eruptions 6,000 or so years apart. The first blast remains

JOHN WOLFF PHOTO SHELLY HANKS

one of the largest known on Earth, producing 2,200 cubic kilometers of ash. That's more than 2,000 Mount St. Helens. It darkened skies from California to the Mississippi River.

In a way, it was yet another iteration of the Columbia basalt flows, stemming from the same magma hotspot that migrated eastward over 16 million years.



Basalt walls of Frenchman Coulee across the Columbia River at Vantage. *Photo Bruce Bjornstad*

STEVE REIDEL, COURTESY PNNL

Calorie for calorie, the basalt flows packed more punch.

"The amount of heat that was coming out during these eruptions was even more than the activity seen at Yellowstone," says Wolff. "It's just that basalt is much more fluid than rhyolite, which characterizes the Snake River plain in Yellowstone. So it doesn't blow up as much. It just forms rivers of lava. But worldwide or at least continent-wide it may have had just as devastating consequences, because basalts put more sulfur into the atmosphere and sulfur is the major pollutant from volcanic eruptions."

THE UPSIDE to all this mayhem is that we are now left with what could be, pound for pound, the state's most abundant natural resource.

"Columbia River basalt makes great road metal, because it's really tough," says Rick Conrey, a research tech with 30 years in the geoanalytical lab. He's referring to basalt's use as a road surface, like the spectacular chip-sealed carpet he's standing on alongside the Snake River, with thousands of feet of flows rising on each side.

Indeed, the state Department of Transportation reports using basalt on virtually all its roads south of the Spokane and Columbia rivers. It's also used for road ballast, base rock, garden paths, gravel roads, driveways, rip rap, structural fill, ornamental boulders, and the occasional decorative hexagonal column.

People have struggled to find other uses for basalt and Steve Reidel has had a front seat to many of the attempts. He got his doctorate in Hooper's lab just as the Basalt Waste Isolation Project was getting started. After a period of fieldwork in Alaska, he went to the Tri-Cities to work on the project for Rockwell, then Battelle. Between research with the Pacific Northwest National Laboratory and consultant work, he has sampled basalt throughout the region. He figures he has camped out, or at least slept in the back of a pickup truck, one-fourth of his life.

He once served as the *Tri-City Herald*'s roadside geologist, writing columns later compiled in the book, *Big Black Boring Rock: Essays on*

Basalt butte-and-basin channeled scablands of the Drumheller Channels National Natural Landmark in the Columbia Plateau. *Photo Bruce Bjornstad*

Northwest Geology. It's a tongue-in-cheek title. The rock is black to begin with, but browns as its iron oxides weather to hematite, picking up an oxygen atom and, in effect, rusting. And he's yet to be bored, smitten by a landscape that in itself is a book that slowly reveals the stories of an ancient past.

Over the years, Reidel has seen entrepreneurs try to make fiberglass from basalt, which is less expensive than silica but harder to melt. He's seen oil companies drill into the basalt at enormous expense, vainly seeking economic quantities of natural gas that might be trapped in sediments from before the earliest flows.

Working with the Bonneville Power Administration, he has looked into converting wind power into compressed air that could be stored in basalt for later use. He is still working on a project to inject liquid carbon dioxide into basalts, where the rock's calcium and iron can convert the CO_2 into calcite and siderite. If it works, a coal-fired power plant could turn its greenhouse-gas emissions into rock.

Like most geologists, Reidel is a fan of roadcuts. Pausing at one near the Twin Sisters—two monoliths near Wallula Gap—he points to a band of red, crumbly rock. It's called an interflow, a section of crumbled basalt and ancient soil between the Grande Ronde and Ginkgo flows.

"By the way, this is where water comes from," he says, pointing to small holes in the rock. "This is where all the water comes out of the basalt."

For all our local basalt's uses, its most vital is as a water source for Spokane, Pullman, and dozens of smaller, drier towns deeper in the Cascade rain shadow.

And for all that researchers have learned about the basalts, their water-bearing ability remains one of their greatest mysteries. More than 1.3 million people get their water from the Columbia Basin Regional Aquifer System, including agricultural irrigators. A recent U.S. Geological Survey report found water levels in nearly three out of four wells were declining, with an average drop of nearly two feet a year. Meanwhile, the system gets only an average of 17 inches of rain a year, with parts that are downright arid.

In the long term, says Guy Gregory ('79 Geology), it's unsustainable.

"Basalt is a good water-storage medium in that where you encounter water in basalt, it tends to yield it fairly well, so you don't have to spend a lot of energy and engineering to get water out of it," says Gregory, technical unit supervisor for the water resources program in the Department of Ecology's eastern regional office. "Wells yield pretty well. But it's kind of fickle. You have a well that's 800 feet deep and most laymen think, 'Wow, 800 feet of water.' Well, no, there's only maybe

Basalt layer overlying interflow—ancient soil between Grande Ronde and Ginkgo flows. *Photo Evolving Earth Foundation*

Example of an active basalt lava flow. *Courtesy United States Department of the Interior, United States Geological Survey*

30 feet or 80 feet of that 800 that yield water. The rest of it is pretty bloody solid."

Researchers have gathered data from thousands of wells to plot groundwater flows, vertical gradients, and the general underground geology. Asked when some supplies might run out, Gregory said the right question is, "When are you going to start doing something?"

"From a municipal standpoint," he says, "it's a lot easier to plan for needs now and finance them over a number of years than it is to have to respond in an emergency. And nobody can do without water. Communities dry up pretty fast when they run out of water. That's why they call it 'drying up.'"

For his part, Reidel is willing to conjecture when some communities might indeed meet such a fate.

"My guess is that within 10 or 20 years, towns like Othello are just going to dry up and blow away," he says. "Same thing with Ritzville and Connell. All these cities in eastern Washington, they're relying on groundwater."

THE REGION'S BASALTS do perform at least one other function, providing some of the Pacific Northwest's most striking vistas. There's the Gorge Ampitheatre above the Columbia River, Wallula Gap, Palouse Falls, Moses Coulee, Oregon's Multnomah Falls, and Yaquina Head, whose original lava flowed 300 miles from Kahlotus.

They too come from catastrophe, not of fire, but of ice and water.

As recently as 10,000 years ago, in the waning days of the last Ice Age, as much as 500 cubic miles of water broke through an ice dam in western Montana and surged across the Columbia Plateau. Dozens of floods swept away topsoil and all but the most resolute and protected pieces of basalt. The floods' handiwork is particularly striking at Frenchman Coulee, where the waters made a final plunge to the Columbia River, working around a rib of basalt into two alcoves.

The coulee sits just off Interstate 90 and Silica Road, the route to the Gorge Amphitheatre. A two-lane road follows the edge of its northern alcove, serving up an expansive view of a flat bench fringed by massive cliffs of stout and occasionally twisted basalt columns.

It is the roadcut of roadcuts, a frozen, crystalline reminder of a world overrun by molten rock, then rent by hydraulic forces bordering on the biblical.

"You're looking at about a million years here," says Reidel. Toward the top sits the Roza

***Clockwise, from left*:** Frenchman Coulee's basalt formations are a favorite of rock climbers. *Photo Koko Sasongko*. Columnar Basalt. *Photo Peter Prehn*. The Feathers at Frenchman Coulee. *Photo Debra Feinman*

Member, the result of about five flows from just under 15 million years ago. Below that is the Wanapum basalt, which had some 68 flows between 15 and 15.6 million years ago. At the bottom, flat and defiant, sits the 15.6- to 16-million-year-old Grande Ronde, whose massive, 100-plus flows came so frequently that one might still be warm when the next arrived, letting material from one flow weld to the next.

"The Grand Ronde is like a set of bricks cemented together," says Reidel.

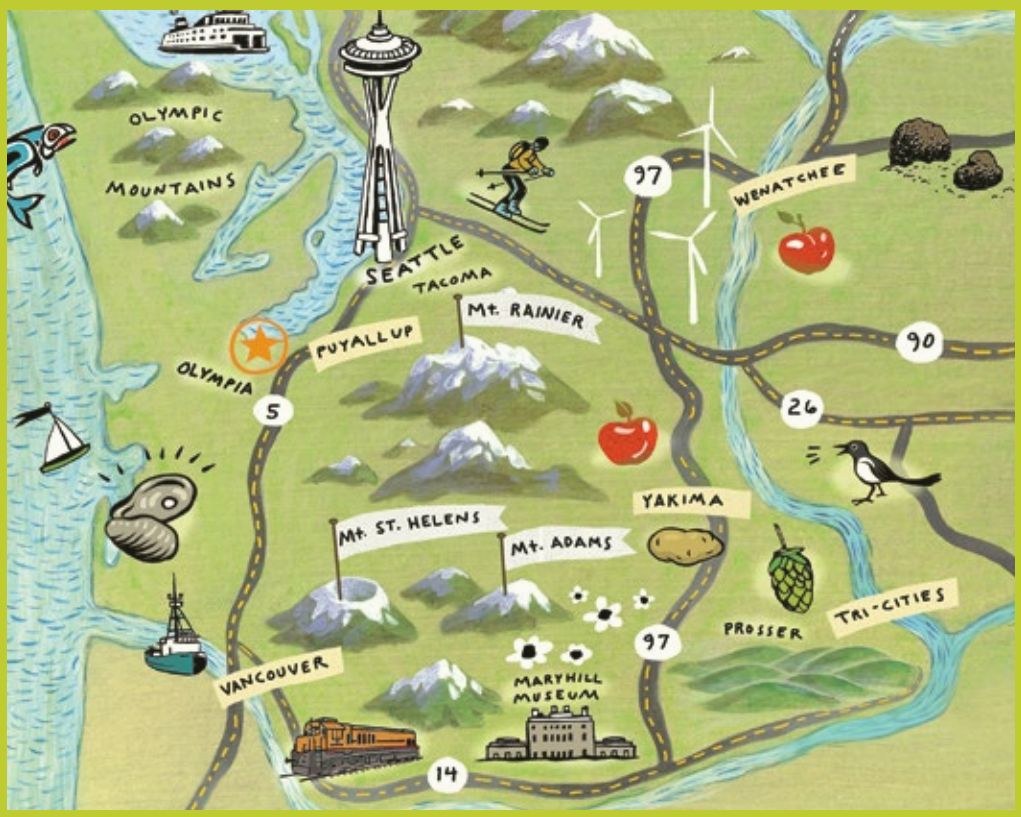
Greater cataclysms may someday come this way, but in the battle of old basalts and young floods, the Grande Ronde won out.

"It must have been spectacular," says Reidel. "Certainly a place you would not want to be." ⊗

Read more about roadside geology at wsm.wsu.edu/extra/basalt.

» A trip out of the Tri-Cities that goes from a small volcano near the Ice Harbor Dam to the Twin Sisters and Wallula Gap. *See the route at wsm.wsu.edu/extra/Ice-Harbor-trip.*

ICE HARBOR DAM – TWIN SISTERS/WALLULA GAP 22.1 MILES



On the Road

Washington's Poet Laureate *brings poetry to*, and *discovers it in*, each of the state's 39 counties

by Kathleen Flenniken '83 :: detail from cover illustration by John S. Dykes

ALTHOUGH MY PARENTS lived in the same house in Richland, Washington—my hometown—for 50 years, they never stopped being proud, relentless Oregonians. But in 1989 Mother and Dad celebrated Washington's centenary in a big way. They dreamed up one of those projects that makes sense to retired couples but bemuses their children: visiting and photographing all 39 Washington county courthouses. They were even written up in the *Tri-City Herald* for achieving their goal, and photographed paging through their album. A family friend rediscovered the newspaper clipping more than twenty years later, more than ten after my parents had passed away, and sent it to me; I carry it in my wallet and am startled to think they had a good idea after all.

I think of my parents whenever I pull out of my driveway for one of my road trips as Washington State Poet Laureate. Though they didn't live to see it, Mother and Dad gave me the idea and the conviction to visit all 39 counties with poetry programs. I've traveled more road miles and seen more of my state in the last 18 months than I have since childhood. In those days, the 1960s and '70s, Dad would occasionally come home early from work and take Mother and me along as he followed the back roads to some favorite fly-fishing stream, which for me meant not just missing all those precious TV reruns and staring unappreciatively at the passing scenery, but pastimes that mostly

elude children: bird-watching, wildflower identification, and listening to classical music on the radio (fortunately, mostly out of range in those days). And I had a tendency toward carsickness. As I've aged, time has sped up, and I'm the one steering, so those once interminable drives are so much quicker and infinitely more interesting.

My appointment is two years and to date I've visited 22 counties. This fall and winter I will reach the final 17. The counties in eastern Washington are generally more dependent on the happy fact I can offer my programs for free, thanks to Humanities Washington and ArtsWA (formerly the Washington State Arts Commission), who jointly manage the Poet Laureate Program, and who have secured private and federal funding (no state funding) to support my position.

Many of my travel opportunities come to me like gifts. In April 2012 I attended a monthly poetry-and-music open mic in Goldendale after a great day in the local elementary and middle schools and another spent celebrating "Put a Poem in Your Pocket Day" with my generous hosts at the Maryhill Museum of Art. I was approached by Jackie McManus from Bickleton, a community of fewer than 100 just 35 miles east of Goldendale. Jackie taught in the Bickleton School and wondered if I could visit them next year. We firmed up our plans over the next months. I invited Juniper White—a lovely poet, the force behind Dwell Press, and owner of a "portable" printing press perfect for projects in the schools. Bickleton School is a K–12 school housed in a beautiful new building at the outskirts of town. Juniper and I worked our way through every classroom, grades 1–12, which are taught in two-grade splits—1–2, 3–4, etc., including 11–12. The students were curious and great fun, and I had the sense, as I so often do when I'm working in the schools, that the way to really learn about a community is through their children. While "all children are the same," they're not living the same lives. Some write about wheat, or abandoned farms, others winter beaches, bus rides, or Minecraft. And some—and this goes back to the magic ingredient of class chemistry—are easier than others to convince, Hey, let's play a little with language! That's my task and I enjoy it, though I never fail to feel a little nervous walking in.

Despite a little snow, the town of Bickleton came out that evening to the warm, wood-paneled Grange Hall, and a crowd of 60 listened attentively to Juniper and me as we read our poems. The rest of the program belonged to the locals: the old poems of an original homesteader, read by his gray-haired granddaughter, and several recitations—"The Cremation of Sam McGee" and "Gallipoli" by a local farmer, and—no doubt the reason the crowd was so large and young—five high school students reciting marvelously Yeats and Wordsworth and others, followed by cookies and coffee and a lingering crowd. Jackie put Juniper and me up in the local bed-and-breakfast, and because the town restaurant was under repair, we found a homemade casserole in the fridge along with plenty of milk, juice, coffee, and breakfast makings.

I think of my Bickleton trip often, and of that young high school teacher, Silvia Navarre, whose classroom was full of art and who inspired her students to memorize great poetry and really think about our English language (and—small school, teachers wearing many hats—German too). It's clear to me that my greatest contribution to the community of Bickleton and several others has been the promise of my visit, that date on their civic calendar, which galvanized teachers and students and locals to create an evening program around poetry that proved to be a great success. Maybe they will do it again?

I offer a number of programs, but one is especially gratifying—and fulfills my matchmaking instinct: a poetry reading that includes me, yes, but also two or three other established Washington poets. It's a chance to bring a variety of voices to an audience that might not be entirely accustomed to poetry readings. I acknowledge that even well-read citizens who are frequent supporters of the arts do not often attend poetry readings, and even those who can recite and speak with pleasure about Dickinson and Whitman and "J. Alfred Prufrock" may feel a little lost where contemporary poetry is concerned. That's why readings like these work so well—they bring in poets all writing at a high level and all very different, and provide a "Whitman's Sampler" of voices.

One reading I will never forget was held in the cafeteria/public meeting area of the Washington Women's Correctional Facility at Purdy. This and another very moving prison visit were arranged by an inspired state librarian in charge of prison libraries, Laura Sherbo. I knew, when given this opportunity, that I wanted to offer up women's voices and poems that really engaged with social justice, so I went to two treasures: Merna Ann Hecht and Storme Webber, who immediately agreed to take part. Laura kept us updated as the reading approached—50 women were signed up, there was a waiting list, inmates kept asking. When we finally got through security that afternoon, and after an unscheduled lockdown, our audience came in, smiling, excited. I have to say I've never heard an audience listen as hard as those women did that day, like their lives depended on it. I began by reading poems by a variety of Washington women poets, and handed the program to Merna and Storme, who in turn wowed the audience with their powerful poems. I sat behind the readers facing the crowd and could watch the nodding heads, tears, laughter. Afterward, a number of women came up and visited with us and begged for more poetry, workshops please, more poets, more books. The librarian informed me that their poetry section gets vigorous use. I was able to supply a number of poetry collections donated by the poets themselves, which felt good. When my appoint-

ment is concluded in 2014 I intend to work on a grant to bring those women the workshops they're so hungry for. I wouldn't be much of a poet laureate if I didn't believe poetry can change lives, help us to understand ourselves, let us try on somebody else's shoes, take in deeply—through the senses—the human experience. That afternoon at Purdy was profound proof.

I try to tailor my presentations to my audiences, and that means being flexible. Most commonly I am invited to read poetry, either my own or poems by Washington poets. It turns out even civilians who are afraid of poetry enjoy being read to. (The fear, I suspect, has something to do with line breaks and cranky literature teachers from a dark past.) It's very common after an event at a Rotary luncheon, fundraiser breakfast, or seniors lecture, that I receive the most satisfying sorts of response: I had forgotten I love to hear poetry read aloud. What great poems! Can you tell me again who wrote the one with all the anagrams? (That would be Peter Pereira.) Sometimes I pull out a few guaranteed-to-wow gems by third-, fourth-, and fifth-graders to demonstrate how capable young writers can be, and how important it is to include poetry in the curriculum to hone students' ears, imaginations, and writing skills—precision, musicality, discipline, logic, surprise.

I bring hands-on programs too. Very active poetry communities (and there are many in Washington: poets, contrary to myth, tend to seek out other poets) ask for writing workshops. I spent a sunny April afternoon at the Port Angeles Public Library with two dozen poets asking informed questions, writing intensely to a prompt I provided, and sharing their drafts—which were remarkable: poet after poet proving again that talent is among us and everywhere. Sometimes my most important contribution is drawing renewed attention to local poets in small communities. It's hard to come out as a poet in a culture that doesn't quite know what to make of us or whether to take us seriously. If the poet laureate thinks my neighbor Abbie Miller is good (and she's very good), maybe it's time to break down and buy Abbie's book.

Road trips have turned out to be one of the great pleasures of my poet laureate appointment, especially when I have the privilege of purpose, and when each mile seems to take me deeper into my future and past. A chance to be alone with my thoughts, a chance to watch the landscape change and see myself riding its undulations, driving beneath its forest canopies or through miles of wheat fields, basalt outcroppings, imagining the lives inside those farmhouses, both dilapidated and tidy, counting wineries, river views, climbing mountains while I steer, and alders, almost stopping for roadside cherries, roadside strawberries, roadside dahlias, $3 per bouquet, please don't take the vase. And when I arrive at my destination, there is someone there waiting for me—a librarian, teacher, someone who wants to write a poem, hear a poem, share a great poem—that's meant the world to me. ⊗

On the Road

THREE PASSES (*cf. detail page 36*) ›› I crossed three passes one early November morning. My worry about weather was unfounded: It was even sunny that first day. Starting in Seattle, I crossed Snoqualmie, then Umtanum Ridge (a Washington scenic byway) between Ellensburg and Yakima, and then, taking Route 97 south, windy but glorious Satus Pass through Goldendale and past the Maryhill Museum to Wishram, a small railroad town at the edge of the Columbia. Then on to Bingen and White Salmon by way of Highway 14. ›› After two nights in the warm company of my new White Salmon friends, I visited Stevenson just 40 minutes further west (but in a new county) for a day and night, and then on to Cathlamet. The drive between White Salmon and Vancouver is breathtaking, and the color, even in November, was gorgeous. ›› The quiet stretch between Longview and Cathlamet was like a painting—still and reflective. Rather than remnants of fall, these roads wore full-on glory—golds and yellows against the blue of November firs, thick mist hugging the river, but breaking open too. I don't think New England has anything on our colors, at least not this year, and cannot touch the mythic beauty of our river and gorge. Hard to keep my eyes on the road—but necessary! It's mostly two lane. —*Kathleen Flenniken*

Kathleen Flenniken '83 studied engineering at WSU, then worked as a civil engineer and hydrologist, including three years at Hanford. Her first collection of poetry, *Famous* (U. Nebraska 2006), "flirted with the sublime" and featured characters as various as Marianne Moore and Flenniken's deceased parents. *Plume* (UW Press 2012) is a powerful meditation on Hanford. For more about Flenniken and to read some of her poems, visit kathleenflenniken.com. *Video frame courtesy Humanities Washington*

A Dose *of* Reason

Pediatric specialists advocate *for* vaccines

by Hannelore Sudermann :: illustration by David Wheeler

AS THE CHIEF OF PEDIATRIC INFECTIOUS DISEASES at the University of Chicago's Comer Children's Hospital, Ken Alexander '82 is no stranger to the measles, pertussis, or chicken pox.

He also works with children with HIV-related illness, pneumonia, and respiratory infections. He and his colleagues identify and treat infections caused by the typical viruses and bacteria as well as the little-known parasites and even fungi.

But when we sit down to visit near his offices on the north end of UC's campus, Alexander wants to talk about something that isn't a children's disease at all.

He leans a little forward, with the gentle manner of, well, a children's doctor. He answers questions about his childhood in Pullman, growing up watching his father work in the College of Veterinary Medicine, his decision to have his own career in medicine before even enrolling at Washington State University, and his life as a pediatric specialist. But then Alexander steers the conversation to his subject.

This is where it gets—to use a term particular to Alexander's patients—icky.

Alexander wants to talk about a vaccine for adolescents to prevent human papillomavirus (HPV), a sexually transmitted disease with many serotypes, two strains of which are known to cause cervical cancers. Recently HPV has been connected to a suite of other cancers affecting both women and men. The vaccine was introduced in 2006 and was recommended for girls before they're sexually active. In 2011, it was recommended for boys as well. The vaccine is widely accepted and encouraged by the Centers for Disease Control and Prevention and our nation's medical community in general. But since its introduction, the rate of HPV vaccination has leveled off. The general notion of vaccination has been brought into question with the spread of anti-vaccination rhetoric on the Internet.

And then there's the idea of immunizing children against a sexually transmitted disease that won't likely be a health issue until they become adults.

"But we should talk about it," Alexander insists. Vaccines can prevent misery, he says. They can save lives.

THE STATE OF WASHINGTON

In 2011, Washington's vaccination rate was dangerously low. According to the CDC, 6.2 percent of children in kindergarten had not been fully immunized. The national average that year was less than 2 percent, and Washington had come in last.

Why was the rate so low? Washington is one of 20 states that allow parents to opt out of vaccination requirements and the rate may reflect a general distrust of government and the medical industry.

But the more members of a community who go unimmunized, the greater the potential for an outbreak. In 2012, Washington led the nation in the worst whooping cough outbreak in 70 years. In 2013, measles made its way to the Puget Sound region.

Since that CDC report of 2011 and the outbreaks, our numbers have greatly improved, says Karen Caines, a pediatric nurse practitioner and assistant professor in the WSU College of Nursing. Now, before parents can opt out, a new law requires them to discuss it with a medical provider.

Some refuse vaccines out of concern for their child's health and safety, says Caines. They're worried about side effects, the ingredients, and how effective it will be. And they may be misinformed about the danger of vaccinations and the severity of the diseases they're meant to prevent. "Parents can feel overwhelmed," says Caines.

Anti-vaccine movements are nothing new. In the 1800s in England and America, anti-vaccination leagues formed to oppose mandatory smallpox vaccination. The 1970s saw opposition to the tetanus, diphtheria, and pertussis vaccine (Tdap). And in the 1990s, the focus turned to the measles, mumps, and rubella vaccine (MMR). A British doctor, who has since been denied the right to practice in England, published a report that MMR vaccine might be linked to autism and bowel disease. Celebrities like Jenny McCarthy went public with their concerns, linking autism and vaccines. And there are many websites devoted to making similar points, notes Caines.

Despite numerous studies, no association has ever been made between autism and vaccines. One need only look at the reduced infection and mortality rates of diseases like measles and whooping cough to see the value of vaccination, says Caines, whose research interest is health literacy related to vaccinations to increase on-time immunization coverage.

For those who are still concerned, more information from their doctors and nurses or some research into how the vaccines are produced may relieve their worries, she says. There are two types of vaccines. The live attenuated vaccine modifies a bacterium or virus in a laboratory, rendering it able to trigger immunity, but not cause illness. Vaccines in this realm include those for measles, mumps, and chicken pox.

Then there are inactivated vaccines, which are created by growing the bacterium or virus and then rendering it inactive with heat or chemicals. These vaccines include polio, hepatitis A, pertussis, and HPV. These vaccines always require multiple doses, with the first dose priming

the immune system, and the second and/or third dose prompting the protective immune response.

As Caines and I look over copies of the CDC's *Morbidity and Mortality* reports on vaccination coverage among children, two nursing students make their way into her WSU Spokane office to talk about a project to help new parents learn more about immunization.

"We like kids. We all want to do pediatrics," says student Haley Tellesbo. "We tried to think of a problem and who we could talk to." She and her classmates landed on the notion of immunization. "Vaccines are a key issue in pediatrics," says Tellesbo. Knowing that Washington had a larger number of parents opting out, the students decided to reach out to families who had refused vaccines. They communicated with a number of people in Washington and Montana willing to talk about why they chose not to vaccinate their children. "For some it was religion, others their individual philosophy," says Tellesbo.

Some of these families may have made different decisions had they talked about it more with their health care providers, the students note. "Mostly, people were getting their information from family, friends, and providers," says Krystina Sturdevant. "Friends and family may have the highest impact, but they're not always reliable."

In some cases "they thought they were correct, so why even ask," says Tellesbo. One mother believed the shots triggered allergies in her children. Another was concerned multiple vaccinations at once would be hard on her infant. A few parents said they did not trust the pharmaceutical industry. "And some said they thought the vaccine was more dangerous than the actual disease," says Tellesbo.

The students decided to focus their project on a large Spokane hospital. They are contacting administrators and doctors, asking them to provide information about vaccines to new parents. And for those families who want to do more research, offer them reliable sources for more information.

"Many parents would like to do some research before they introduce a vaccine," says Caines. "That's fine, if they're going to credible sources."

It's not always about choice, says Alexander. Some parents simply lack the resources and access. "They have the desire to do it," he says. "But they just can't get it done."

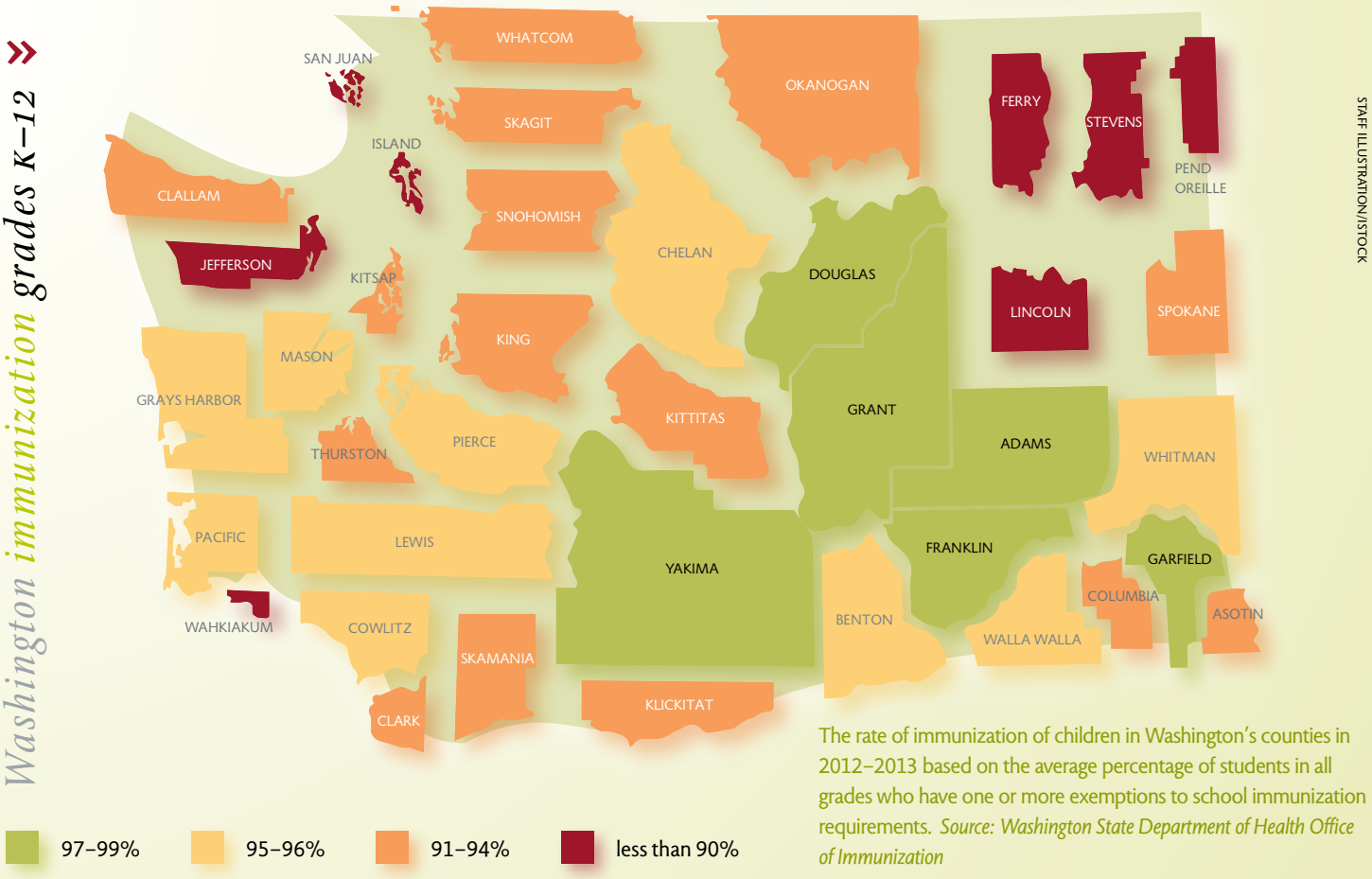
WHO IS MORE ROBUST THAN AN ADOLESCENT?

Early-childhood vaccines are just half of the challenge, says Caines. Far less attention is given to the series of shots recommended for pre-teens and teens.

"Around 10, kids get pretty healthy," says Caines. "It's pretty exciting." They don't get every cold, they grow out of some of their early issues like ear infections, they have strong bones, good metabolisms, and tend to heal quickly.

"Teenagers don't go to the doctor because they're healthy," says Alexander. "But that's the problem."

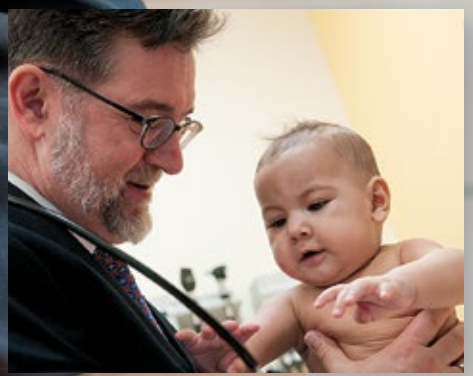
It's exactly the critical age for a flight of vaccinations: one protecting them from diphtheria, tetanus, and pertussis (Tdap), one for meningitis, and one for HPV. The CDC recommends these



STAFF ILLUSTRATION/ISTOCK

The rate of immunization of children in Washington's counties in 2012–2013 based on the average percentage of students in all grades who have one or more exemptions to school immunization requirements. *Source: Washington State Department of Health Office of Immunization*

An inquiring mind



Ken Alexander '82 is chief of pediatric infectious diseases at the University of Chicago's Comer Children's Hospital. *Photos Zach Mazur*

"Kenneth was interested in everything," says Alexander's mother Marilyn. When her son was four or five, "He would climb on his [father's] lap and I remember Jack reading radiochemistry out loud to him."

Once, a small telescope triggered a fascination for the stars and "his dad spent some cold nights outside with him," says his mother. He also loved music, played the trombone, and as a teen, made frequent trips out of town to play with the local orchestra.

Jack Alexander was the first radiologist hired at WSU's College of Veterinary Medicine. He was also head of medicine and surgery. Science, medicine, and the stories of interesting patients often worked their way into dinnertime conversation. It's no wonder that Ken and two of his sisters have gone into medicine and the third is in special education.

"I decided I was going to do an MD/PhD my junior year of high school," says Alexander. He had several choices for college, but "I grew up in Pullman. I was very much a small town boy."

At WSU he studied biochemistry with D. Max Roundhill and worked in his lab. "It was a beautiful situation," says Alexander. "The program was big enough to have access to cutting edge stuff, but small enough that I could have the attention as an undergraduate of a full professor."

From Roundhill's perspective, Alexander was clever and energetic. "He was bright enough and his instincts were good enough that I trusted him to do my lab work."

He graduated from the honors program and had a choice of medical schools and fields.

"I grew up in an interesting time for infectious disease," says Alexander. While he was in medical school at the University of Washington, the early cases of HIV and AIDS were appearing.

Alexander had started medical school with the goal of being an internist, but then he had a fascination for chemistry, and for infectious disease. He ultimately found his calling during his pediatric rotation. "I liked these doctors," he says. "We had the same values."

"My dad said pediatrics is very much like veterinary medicine," he says. "You have non-verbal patients and very worried parents."

As a medical student, he met his wife-to-be Michelle Buchholz, '83 Nursing. The Alexanders now have two grown daughters and Buchholz is a teacher and practitioner at Rush University's College of Nursing.

After medical school, Alexander completed a residency in pediatrics and infectious diseases at Harvard Medical School and then moved to Duke University for his postdoctoral work, eventually joining the faculty there before moving to Chicago.

He now performs research, teaches, runs clinics, and consults with other doctors. He has expanded the hospital's HIV clinic to serve 100 families. And he has created a program for international adoptees. "We see children with health issues like a cleft palate or cerebral palsy," as well as acute medical concerns like worms and tuberculosis.

Alexander is now working on an immunization program with Chicago Public Schools and the city's health department to provide children with affordable vaccinations and the personnel to administer them. "If we can do it in Chicago, we can do it in Detroit or Seattle."

vaccines for children aged 11 to 12. "And while all three are included in the Recommended Childhood Immunization Schedule, only the Tdap vaccine is a school immunization requirement," says Caines. "Providers really need to make the case that all three are needed. And that's difficult if you're doing it in a 10-15 minute office visit." Most of the time, the kids come into the doctor for a sports physical and the provider has to squeeze in a number of other points.

"We take on so much during this visit: sexuality, safety, sports participation, peer issues," says Caines. "Where does vaccination fit into all the priorities?"

In an exploration of vaccine decision making, Caines recently set up an in-house pilot study with junior and senior nursing students to look at how providing more information might affect the parents' decision about vaccination. The seniors were lectured on basic safety questions and concerns about vaccination, and then they met up with the juniors who were prepared to ask questions. The result was that the juniors who may or may not have thought vaccination was important had moved toward thinking it was more important as a result of the encounter with the more knowledgeable seniors.

"We're not talking about arm twisting," she says. "We want them to give good information and feel comfortable giving that information."

Nurses can also advocate for vaccinating, sharing their own personal decisions, something Caines advises her students and colleagues to do. "If you vaccinate your child, you should tell your patients."

"We need to shift immunization best practices," says Caines. For a long time the discussion between provider and parent was brief and about making sure the parent was aware of the side effects and benefits of the immunization, and staying on schedule. "But we need to have more of a conversation around vaccines. We need to address their safety concerns, explaining how the vaccines are developed and how they are put through rigorous safety tests.

"These types of questions can be answered by nurses if they have the right training," she says.

Nurses, who provide the immunizations and often spend the most time with patients and parents, "are probably more important advocates in this than doctors," says Alexander.

THE NEWEST VACCINE

More than 5 percent of cancers worldwide are caused by persistent infection of human papillomavirus. It affects at least 50 percent of the world population. There are more than 100 types known. Two are linked to cervical cancer. Often people who contract the virus never know they have it, says Alexander. Or if they have symptoms, they often clear up on their own.

With support from the National Institutes of Health, Alexander has researched the development of HPV infections. He has also worked on developing antiviral agents. He has authored and coauthored studies on both the scientific and sociological sides of the virus and vaccination against it. He has served as a paid advisor and consultant for the pharmaceutical company Merck & Co., Inc. He also leads continuing medical education clinics for doctors and nurses on preventing HPV-related disease.

Left to right: WSU Spokane nursing students Haley Tellesbo, Krystina Sturdevant, and Shelby Wahlberg are working on a project to reach new parents with clear and accurate information about vaccination. They are pictured here in front of the College of Nursing building. *Photo Robert Hubner*

"Part of the problem," says Alexander, "is that this virus isn't something that children get." It's not like chicken pox or measles, or even meningitis, that you might associate with childhood, he says. It's something people encounter as adults, after they are sexually active.

The release of the vaccine, one that could prevent cancer, was big news a few years ago, with national impact. A series of three shots could prevent 90 percent of cervical cancers. It made the evening news. But that was eight years ago, when the HPV vaccine was introduced for girls.

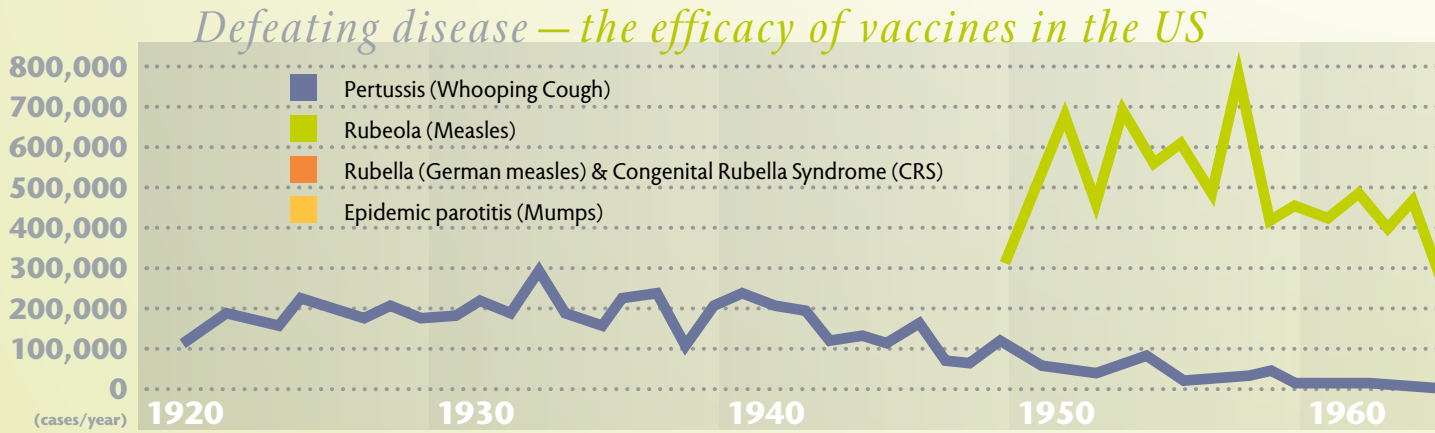
Now the virus has not just been linked to cervical cancer, but also anal cancer, and head and neck cancers, says Alexander. Last September the CDC released a list of cancers associated with HPV to include throat, tongue, and tonsils. A third of throat cancers show the presence of the HPV virus. According to the CDC there are about 33,000 cases of HPV-associated cancers each year.

But the number of children receiving the vaccine has not increased. With most other new vaccines, the rates at which people get them increase as much as 10 percent every year. But not this one.

As a graduate student in the College of Nursing at WSU in 2009, Kristi Ridgeway looked at the issues of perception and immunization for her master's thesis. Ridgeway, now a health care administrator in Oregon, focused on vaccination rates of college-age females, a group for which HPV infection is prevalent due to their sexual activity. At the outset she noted that there hadn't been much study as to whether this group found the HPV vaccination acceptable. She wanted to look at their personal health beliefs and see if there were changes to be made to encourage more to seek or accept the vaccine.

Ridgeway focused on freshman women. The participants in her study filled out a 54-question anonymous questionnaire. About a third of them had received at least one dose of the vaccine, though only 12 percent had completed the series. About half of the respondents said they thought they were not at risk of getting HPV. Forty-three percent were unsure whether the vaccine would be risky to their health. Many thought they had the ability to prevent HPV infection by other means.

"Marketing of the immunization does not tell females of their susceptibility," she noted. She, too, drew the conclusion that nurses could play a vital role in helping young women develop a realistic view of the virus and of cervical cancer. The nurses could also encourage them to put a high value on their health and recognize their authority to make their own health decisions.



"There's a lot of people who are going to say it's about sex," says Alexander, who has encountered people who worry the vaccine may trigger an increase in unsafe sexual behaviors or give teenaged girls a notion of becoming sexually active.

"But I think this grossly underestimates the intelligence of women," says Alexander. "Making the vaccine available won't affect their sexual behavior." A recent study published in the journal *Pediatrics* supports his statement. The study found that of nearly 1,400 girls, those who received the HPV vaccine did not show any increase in sexual activity.

"It's not about sex, it's about health," he says. "We need to take the judgment out of it.

"Let's take it out of the realm of sexually transmitted infection and put it in line with the normal flora … like the flu," he says. "Who wouldn't want to protect their children from getting sick?" ⊗

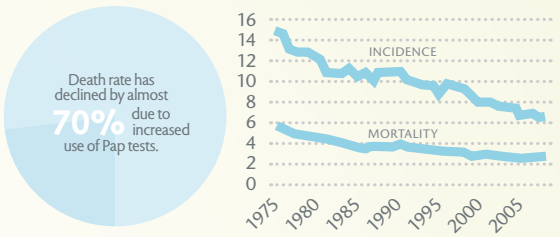
Control HPV — control cervical cancer

CERVICAL CANCER

begins in cells on the surface of the cervix.

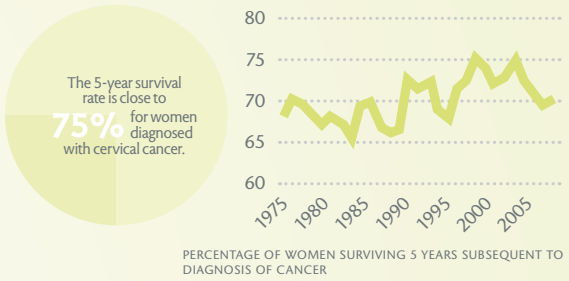
It is usually a slow-growing cancer that has few symptoms but can be detected with Pap tests.

Declining rate of Incidence & mortality



RATE PER 100,000 WOMEN OF ALL RACES AND AGE-ADJUSTED AT YEAR OF DIAGNOSIS (INCIDENCE) AND DEATH (MOERTALITY)

Increasing 5-year survival rate



PERCENTAGE OF WOMEN SURVIVING 5 YEARS SUBSEQUENT TO DIAGNOSIS OF CANCER

Death rate continues to decline by about 3% each year due to increased screenings.

2006 The HPV vaccine is approved by the FDA for women ages 9–26 to prevent infection by two high-risk strains of HPV known to cause about 70% of all cervical cancers.

Late 1990s The FDA approves two new liquid-based Pap tests that allow for more accurate diagnostics.

1900s | 1920s | 1940s | 1960s | 1980s | 2000s

1905 radical hysterectomies are used to treat cervical cancer patients, surgically removing the uterus, cervix, and nearby lymph nodes.

1928 Scientist George Papanicolaou develops the Pap test, the first widely-used cancer screening test.

1943 The Pap test is introduced aspart of routine screening enablingearly detection and treatment of cervical cancer.

1983–1984 Researchers discover that specific strains of human papillomavirus (HPV) are the cause of most cervical cancer.

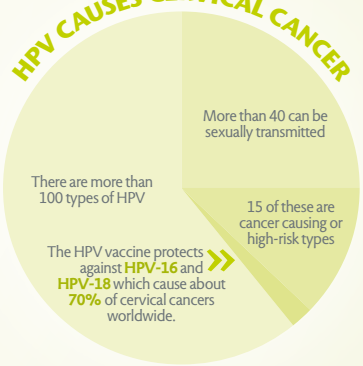
2011 A CDC advisory committee recommends that boys also get the HPV vaccine, helping prevent the spread of the virus to women, and also protecting against anal, penile, and oral cancer.

1999 The FDA approves a new DNA-based test to better detect the high-risk strains of HPV that are known to cause cervical cancer.

RISK FACTORS INCLUDE

- HPV infection
- Weakened immune system
- Lack of exams and Pap screening
- Smoking
- Family history of cervical cancer

HPV CAUSES CERVICAL CANCER



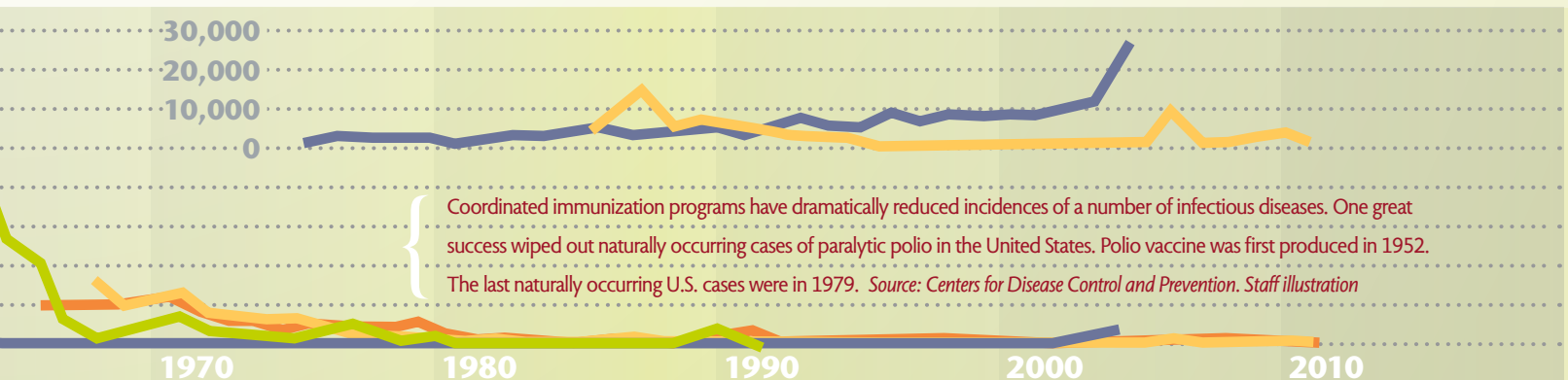
In 2013, an estimated 12,340 women were projected to be diagnosed with cervical cancer.

Cervical cancer causes about 4,000 deaths in women each year in the United States.

The vaccine is recommended for girls and boys aged 11 or 12.

Young adults aged 13 through 26 should get the vaccine if they did not receive it or complete it earlier.

STAFF ILLUSTRATION BASED ON INFOGRAPH BY PREVENT CANCER FOUNDATION | SOURCE: NATIONAL CANCER INSTITUTE



Coordinated immunization programs have dramatically reduced incidences of a number of infectious diseases. One great success wiped out naturally occurring cases of paralytic polio in the United States. Polio vaccine was first produced in 1952. The last naturally occurring U.S. cases were in 1979. *Source: Centers for Disease Control and Prevention. Staff illustration*

Three Great Ways to Belong to One Great Organization.

There are over twice as many members of the WSU Alumni Association (WSUAA) today than there were just a few short years ago. They joined to support student scholarships, take advantage of all the incredible member benefits, and connect with other Cougars. We extend our thanks to all the alumni, students, friends, faculty, and staff whose membership has helped the WSUAA claim its rightful place among the finest and fastest-growing alumni associations in the country. We salute our Annual, Life, and now Platinum Life Members.

New: Platinum Life Membership.

Platinum Life Membership is the newest way to belong to the WSUAA. It was suggested by and created for Cougs who want to help the WSUAA do even more for WSU. Platinum Life Members enjoy all the same great benefits and services as Annual and Life Members, plus a growing suite of extras.

If you have not yet joined, or you are a current member interested in one of the other membership types, please sign up today. Your membership—regardless of which type—is vital to the continued success of the WSUAA and WSU.

Membership Matters.
Join Today.

ALUMNI ASSOCIATION

1-800-ALUM-WSU
alumni.wsu.edu

Class notes are also online

wsm.wsu.edu/mystory

myStory

CLASS NOTES

1930s

Florence Dorothy Picha Wade ('38 Home Ec.) celebrated her 100th birthday in August, proclaiming her slogan, "Don't let the rocking chair get you!"

1970s

Bill Gordon ('70 Hotel and Restaurant Admin.) was appointed by Governor Jay Inslee to the board of Columbia Basin College.

Sara (Sally) Bartrum ('71 Soc.) was honored as Washington's Head Start/Early Childhood Education and Assistance Program Director of the Year in October.

Ronald F. Marshall ('71 Phil.) recently published two books: *Hunger Immortal: The First Thirty Years of the West Seattle Food Bank, 1983-2013* and *Kierkegaard for the Church: Essays and Sermons*.

Judith Bense ('72 PhD Anthro.) was honored as a "Grad Made Good" by the Florida State University Alumni Association and the FSU Circle of Omicron Delta Kappa National Leadership Honor Society on November 16. She is president of the University of West Florida.

Barbara Stevenson Jackson ('76 Ani. Sci.), co-owner of her family's 30,000-head southern Arizona feedyard and ANCW president, spoke at the Washington Cattlemen and Cattlewomen's Convention in Pasco in November.

Rick Rogers ('76 Ed.) has retired from his position as superintendent of the Oakley School District in Oakley, California.

1980s

Peter Anderson ('81 DVM) was selected for a Fulbright Specialists project. He will lead faculty-development programs and hands-on-workshops at the Tzu-Chi University College of Medicine in Taiwan for two weeks.

Veterinarian Robert Franklin has helped change Oregon animal welfare laws. *Photo Bill Wagner*

Robert Franklin '75, '76, '79

A new leash on life

by Eric Apalategui :: Over more than three decades, veterinarian Dr. Robert Franklin has advocated for animal welfare—even when those animals never set a paw into his specialty practice in Beaverton, Oregon.

Franklin '75 BS, '76 BS, '79 DVM is on the frontlines of animal wellbeing and companionship issues in the Pacific Northwest, whether he's working behind the scenes to save a stray or squarely in the spotlight ensuring that famed orca Keiko was getting appropriate medical care.

"The animal welfare movement is waiting for veterinarians to lead it like we should," says Franklin, who recently received Washington State University's Distinguished Veterinary Alumnus Award. "We've got to look at what's in the best interests of the animals we take care of."

"I think he's somewhat of a pioneer," says David Frei, an admirer who is best known as the cohost of the Westminster Kennel Club's annual dog show in New York City.

Frei says Franklin always seems to be out front with new ideas in the pet world, actively supporting endeavors such as hospice care for terminally ill animals and grief counseling for their human companions, setting up pet blood banks, and pairing at-risk children or prison inmates with shelter animals.

"He's making it a better world for animals, and he's making it a better world for people," says Frei, who met Franklin when they both served on the board of what is now Pet Partners, a Bellevue-based nonprofit organization that promotes pet companionship, therapy, and service to improve people's lives.

"The benefit of animals is far more a reality than I think the human medical community is willing to admit," Franklin says.

When he served on the executive board of the Oregon Veterinary Medical Association (OVMA), including a term as president in 1998, he helped convince state legislators to make animal abuse a Class C felony. He also

helped change the state law for dogs who kill livestock, giving them a chance to avoid a death sentence if they could be resettled out of temptation's way. Franklin later pushed for a law that required veterinarians to report suspected cases of animal abuse.

"We do know that there is a direct relationship between people who abuse animals and their tendency to be violent" to people, says Franklin.

"He's always challenging the profession to reconsider our points of view on animal welfare," says Glenn Kolb, executive director of the OVMA. In 2013 the association awarded Franklin its highest honor, a Meritorious Service Award. "Bob was really at the forefront of getting the organization to move in the right direction," says Kolb.

Franklin was leading the state veterinary board when Keiko was at the Oregon Coast Aquarium, following his star turn in the movie *Free Willy*, recovering from living in poor conditions at a Mexican amusement park.

A rift over his medical care developed between the Newport aquarium's vet and a California-based vet for the Free Willy-Keiko Foundation, which was planning to release him back into the North Atlantic Ocean in 2002, where he was captured as a youngster in 1979.

Franklin and the OVMA demanded that an independent veterinarian give Keiko a checkup. Even though that exam showed Keiko's health had improved significantly in Oregon, Franklin disagreed with the plan to release an animal that had spent its entire adult life as an aquarium entertainer.

"This whale was like a pet. He was sitting off the coast of Norway, playing with kids" after his release, says Franklin, who believed Keiko was doomed well before the orca died in 2003, in part because the animal didn't belong to a pack like his wild kin. "There was no way he was going to survive."

Franklin shows the same passion for his patients at Oregon Veterinary Specialty Hospital, where he is a partner and specializes in internal medicine.

"This is a guy (who) will turn things upside-down to get to a proper diagnosis," says Trish Clark, a psychologist who started out as a pet-owner and now teams with Franklin to help homeless cats in the Portland area. "He's just unbelievably dedicated."

Born on Long Island, New York, and raised for a time in Bellevue, Washington, Franklin has always kept pets and longed to be a veterinarian from his earliest memory. At WSU, he fell under the influence of Professor Leo K. Bustad '49 DVM, a groundbreaking researcher of the human-animal bond and cofounder of the organization that would become Pet Partners.

"We think Leo would be looking down and be quite proud of Bob Franklin," says Frei.

Franklin with a patient at the Oregon Veterinary Specialty Hospital. *Photo Bill Wagner*

Iris Bombelyn ('83 Eng.) was presented with the Career Achievement-Industry Award at the 2013 Women of Color STEM Conference in Dallas, Texas, in October.

Washington State Athletic Hall of Famer **Jack "The Throwin' Samoan" Thompson** ('84 Bus. Admin.) will be inducted into the Polynesian Football Hall of Fame as part of its inaugural class.

Chang Oh ('85 PhD Chem. Engr.) received the Technical Achievement Award from the American Nuclear Society for his work at the Idaho National Laboratory.

The Wine Alley, owned by **Allison Helfen** ('88 Hotel and Restaurant Admin.) and her husband, won "Best Wine Shop" in King 5 *Evening Magazine*'s Viewer's Poll for the sixth time.

1990s

Idaho State University has named **Laura Woodworth-Ney** ('91 MA Hist., '96 PhD Hist.) as provost and vice president for academic affairs.

Keith Balderston ('94 Sport Man.) attended the Cannes Film Festival for the showing of the film *Revenge*, in which he plays a bartender.

Dewight Hall ('96 Bus. Admin.) is CEO of Columbia Fresh Produce, which was honored with the Washington Secretary of State's Medallion Award recognizing civic engagement, voter education efforts, government services, and a commitment to giving back. The company sells apples and fresh produce around the country. The staff includes Alison Bruggeman '05 and Julie Sievertsen '95 MA.

2000s

Aimee Do ('02 Eng. Man.), a manager at Boeing, was honored at the 2013 Women of Color STEM Conference in Dallas, Texas, in October.

2010s

CG Engineering in Edmonds hired **Dirk Rogstad** ('11 Civil Eng.) as a design engineer.

Teirney Hall ('12 DVM) and **Jesse Olsen** ('13 DVM) joined the team at Alpine Veterinary Services in Laurel, Montana. They are also engaged to one another.

Boeing honored **Scott Button** ('13 MS) with the company's annual Special Invention Award for his work helping the company meet delivery

commitments on large-scale, complex product development programs.

CG Engineering in Edmonds hired **James Ellis** ('13 Civil Eng.) as a civil engineer-in-training.

Jennifer Leach ('13 Bus.) joined the Olympia Lacey Tumwater Visitor and Convention Bureau as its special projects and events manager.

IN MEMORIAM

1930s

Robert Siegfried ('37 Bus.), 100, September 30, 2013, Bellevue.

George B. Hamill ('38 Bus.), 98, September 4, 2013, Tacoma.

1940s

Bernice Nederhood ('40 Soc.), 95, October 26, 2013, Yakima.

Beverly Marie Graff ('41 Hist.), 96, November 12, 2013, Modesto, California.

Evan "Scotty" Hamley ('41 Comm., ROTC), 93, September 30, 2013, Washougal.

Alfred Byron Coppers ('43 Engl.), 92, August 21, 2013, Yakima.

Joseph A. Cochran ('44 Bus., Phi Sigma Kappa), 91, September 29, 2013, Spokane.

William Floyd Hull ('46 For. Lang., Lit.), 89, October 18, 2013, Syracuse, New York.

Anna Lea E. Jackman ('46 Nurs.), 90, October 22, 2013, Spokane Valley.

Austin Ellis Larsen ('46 Vet. Med., '49 DVM), 89, August 28, 2013, Salt Lake City, Utah.

Gordon Keith Mercier ('46 Civ. Engr.), 89, August 7, 2013, Bellevue.

Hoyoko M. Yahanda, MD ('46 Bact., '48 MS Bact.), 88, August 27, 2013, Sterling, Virginia.

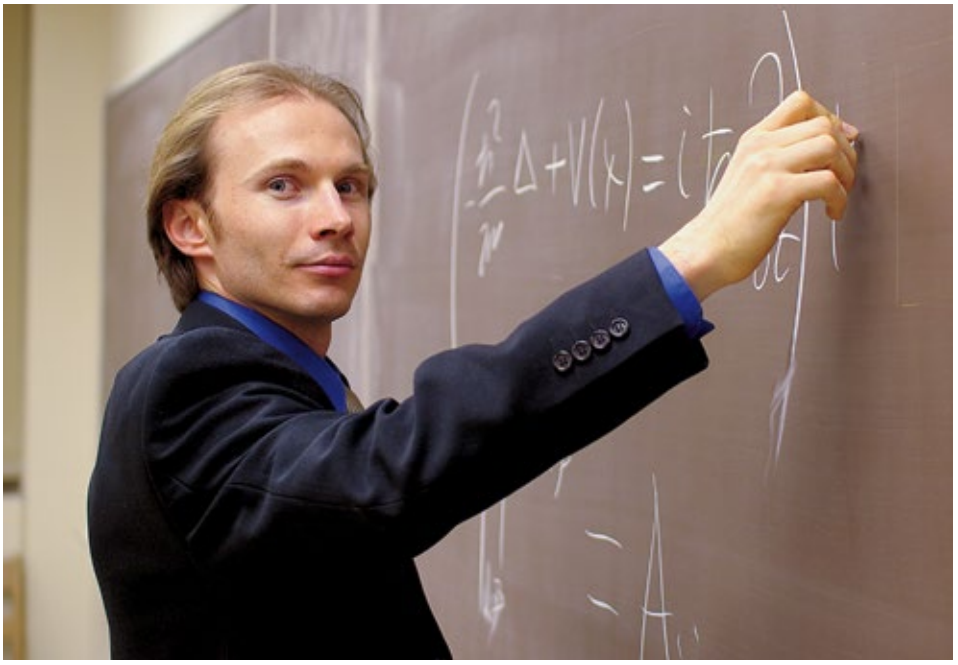
Charles M. Breckenridge ('47 Ag. Engr.), 90, May 24, 2013, Spokane.

Charles Allen "Al" Cole ('47 Civ. Engr.), 90, September 25, 2013, Pullman.

Clifford Frank McNeal ('47 Elec. Engr.), 91, October 22, 2013, Wenatchee.

Theodore C. Hall ('49 Bus. Admin.), 90, August 29, 2013, Spokane.

Virgil Marv Irwin ('49 Bus. Admin.), 87, October 25, 2013, Ventura, California.



Pavlo Rudenko is producing a lubricant with nano-scale particles. *Courtesy Hydro Research Foundation*

Pavlo Rudenko '09

As fast as he can go

by Tina Hilding :: Imagine particles that can self-assemble at the nano-scale, so that machinery can delay its need for repair. Or that your 20-year-old truck could suddenly become more fuel efficient than today's model.

Two years ago physics graduate student Pavlo Rudenko '09 MS started his company, TriboTEX LLC, to develop bio-based super lubricants. He found that nanoparticles of ceramic powders in lubricants can, at high temperatures, create a film on metal surfaces that reduces both friction and wear behaviors.

He bought used analytical equipment off eBay and is running the business on a shoestring out of his home in Colfax.

Last summer he won a highly competitive Small Business Innovation Research grant for $150,000 from the National Science Foundation. The money is to support his development of ceramic nanosheets used to form a self-generating coating to improve lubrication in machinery.

Rudenko explains his life as a start-up entrepreneur with an analogy. "Trying to do business without money is like seeing how fast you can ride in a car without fuel," he says. "You can push it, but you're not going to go as fast as you should go."

Originally from Ukraine, Rudenko came to the United States to attend graduate school at Washington State University. He began his research into lubricants with Amit Bandyopadhyay in the School of Mechanical and Materials Engineering.

In 2011, he was one of only 80 students in the nation to participate in Singularity University, a privately funded corporation that offers a 10-week summer program for graduate students. The program brings together specialists in academia, business, and government to harness technology for addressing critical global challenges.

Rudenko has found his business ideas have widespread appeal, taking prizes in WSU's business plan competition in 2012 and being one of about 150 semifinalists in a national clean technology business competition, the Clean Tech Open. He is quick to credit several WSU faculty members and alumni advisors for mentoring and helping him to get his company off the ground.

To be a successful entrepreneur, Rudenko says, you have to have passion and drive. Maybe be a little crazy and not afraid to fail—a lot. "But," he adds, "it's only valid if what you do is going to change the world."

And he is certain that what he's doing could change the world. "Every moving part can use our technology," he says. And, yes, there are a lot of industrial moving parts.

In cars, for instance, one-third of an engine's mechanical energy is lost to friction. If that energy

could be conserved and his technology used in existing transportation systems, it would provide more energy than all that is generated by wind, biomass, geothermal, and solar sources combined or from all U.S. oil imports, he says. When the lubrication is improved, it will dramatically reduce fuel consumption and costs.

For now, Rudenko has put pursuit of his doctorate on hold in favor of developing his business. And he has worked to hone his entrepreneurial skills.

"If you go into an unknown country and try to dance on their national holiday, you will look awkward," he says, as he explains his efforts at selling his ideas. "People expect you to do things in a certain way."

With the support of the SBIR grant, Rudenko is building his idea into a business. The highly competitive grant program provides seed money for high-risk, high-reward private sector ventures.

Rudenko envisions starting off by targeting gear boxes in windmills. The gear boxes notoriously wear out quickly, and to replace or repair them is extremely difficult, requiring at least a crane and a whole lot of expense. If the lubricant can delay the need for repair or replacement, then it may be widely adopted by the energy industry.

If his work goes as planned, Rudenko hopes that people are using his product in the next two years.

See more about how the lubricant works at wsm.wsu.edu/extra/Rudenko.

Nancy Gillett '78

The business of science

by Larry Clark '94 :: When pathologist and researcher Nancy Gillett '78 decided to leave Genentech, a major medical biotechnology firm, for a small contract research company, her colleagues called it professional suicide. But Gillett had made life-altering career decisions before, moving from being a practicing veterinarian to a research scientist and then to a top-level business executive overseeing 5,000 people at 13 sites around the world.

Gillett's significant success as a researcher and executive has led to accolades, including the 2013 Regents' Distinguished Alumna Award from Washington State University. Her path to the University's highest honor started as the young student from Las Vegas, Nevada, came to WSU to become a veterinarian.

Inspired by the novels of James Herriot and the work of Jane Goodall, Gillett loved animals and came to WSU on the basis of its reputation as a practical education.

"I remember being told early on that WSU was grounded. If you hear hoof beats, they are horses, not zebras. It did a really good job of preparing me as a practitioner," she says.

She also felt fortunate to be part of the first freshman class with Leo Bustad as dean. As a charismatic leader, he influenced Gillett as a student and she stayed in contact with him later through professional associations.

After WSU, Gillett returned to Nevada as a practicing veterinarian. However, "the romanticism that Herriot portrayed was starting to wear off," she says. She knew she wanted to make a change when, on the same day in 1979, one older woman wanted a kidney transplant for her dog in renal failure and another owner wanted to know if it was cheaper to lance his cat's abscess or euthanize the animal. The euthanasia was cheaper, but Gillett lanced the abscess for a discount.

After completing her doctorate in comparative pathology at UC Davis in 1984, Gillett was recruited by Roger McClellan '60 DVM to work at the Albuquerque, New Mexico-based Lovelace Inhalation Toxicology Research Institute.

"Dr. Gillett was one of the most productive scientists among a highly talented group of more than 50 scientists I recruited to the Lovelace Institute," writes McClellan in his nomination of Gillett for the WSU award.

While at Lovelace, she published 37 papers for peer-reviewed journals or book chapters, many of them with multiple authors in different disciplines. She also contributed significantly to knowledge of the effects of inhaled radionuclides, especially their ability to cause cancer. At that time, Gillett passed the rigorous examination of the American College of Veterinary Pathologists.

She left Lovelace and joined Genentech in 1990. Over the next few years, her research there aided the development of in situ hybridization techniques for studying tissue damage and repair.

In the mid-1990s when Gillett left for Sierra Biomedical in Sparks, Nevada, contract research companies were considered the domain of second-class scientists. But Gillette and her colleagues had a different vision and staffed the company with experts in multiple disciplines such as comparative medicine and pathology.

1950s

James Wallace Colpitts ('50 Chem. Engr.), 85, November 7, 2010, Albemarle, North Carolina.

Hugh P. Crawford ('50 Agro.), 87, July 12, 2013, Ontario, Canada.

Donald Bruce Deierling ('50 Mech. Eng.), 86, October 2, 2013, Seattle.

James A. Moore ('50 Mech. Eng.), 87, October 5, 2013, Kent.

Betty Marjorie (Spiegleberg) Nyman ('50 Soc., Delta Gamma), 85, September 29, 2013, Spokane.

Harold Theodore Berven ('51 Bus. Admin.), 90, August 22, 2013, Vancouver.

Donald James Goettel ('51 Mech. Eng., ROTC), 84, November 10, 2013, Spokane.

Norma Sylvia Winkler ('51 Soc.), 84, September 11, 2013, Reno, Nevada.

William Baxter Bowen ('52 Engl.), 82, October 27, 2013, Barrington.

Bradley Harald Logan ('52 Ag. Mech.), 85, October 28, 2013, Colorado Spring, Colorado.

Richard A. Moser ('52 Ag.), 82, September 7, 2013, Spokane.

B. Russell Smith ('52 Arch. Eng.), 84, November 2, 2013, Deer Park.

Milton Cameron Pratt ('53 Animal Sci.), 82, July 7, 2013, Rockford.

Mary Sue Thompson ('53 Pharm.), 82, September 28, 2013, Colfax.

Merle Wayne Haffner (x'54), 82, October 31, 2013, Sun Tan Valley, Arizona.

Norris Campbell Guy ('55 Elect. Eng.), 80, August 29, 2013, San Clemente, California.

Janet Lee Lancaster ('55 FA), 80, October 29, 2013, Neenah, Wisconsin.

Carlos Colmenares ('56 MS Chem. Eng.), 81, September 8, 2013, Tri-Valley, California.

Donald Sanford Olson ('56 Arch. Eng.), 79, August 26, 2013, Seattle.

John C. White ('56 Econ., Sigma Phi Epsilon), 91, September 13, 2013, Southbury, Connecticut.

Jack H. Whiteley ('57 Eng.), 82, Deary, Idaho.

Melvin J. Woehl ('57 MA Ed.), 89, August 13, 2013, Spokane.

John Menzies Burke ('58 Phil.), 81, August 26, 2013, Sudden Valley.

Halford J. Tye ('58 Ag. Econ., Alpha Kappa Lambda), 78, October 25, 2013, Vancouver.

Thomas Richard Munck ('59 Engl.), 82, July 2, 2012, Athena, Oregon.

Frank Robinson Zahniser ('59 Civ. Eng.), 77, September 1, 2013, Spokane.

1960s

John Kingsley Novell ('60 Bus. Admin., Sigma Nu), 76, October 2, 2013, Spokane.

C. David Burgess ('61 Ag. Econ.), 74, November 7, 2013, Walla Walla.

John Ernest Montoure ('61 PhD Anim. Sci.), 86, September 4, 2013, Pullman.

Jan Slade Oberg ('62 Ed.), 73, August 30, 2013, Milwaukie, Oregon.

Barbara Ann Wikoff ('63 Music), 72, October 29, 2013, Oakdale, California.

Alda Lucille Morris ('65 Ed.), 70, September 17, 2013, Spokane.

Kathleen Lesell (Stober) Guillame ('66 Music), 68, September 26, 2013, Elkhart, Indiana.

David Scott Stewart ('66 Bus. Admin.), 70, July 26, 2013, Kirkland.

Otto Kruusma Mattson ('67 Poli. Sci.), 68, September 3, 2013, Seattle.

Dean Arnold Haugen ('68 MED Couns.), 77, October 22, 2013, Tacoma.

1970s

Suellyn Norma Olson ('70 Pharm.), 66, October 21, 2013, Renton.

Jack A. Thomas ('71 Ag. Econ.), 64, August 29, 2013, Montesano.

Kenneth T. Maehara ('72 PhD Bacteriology), 71, August 26, 2013, Reno, Nevada.

Thomas L. Weber ('73 Elect. Eng.), 65, September 2, 2013, Pullman.

James A. "Jim" Hill ('75 MS Comp. Sci.), 70, October 9, 2013, Pullman.

Douglas Craig Mohney ('77 Vet. Sci., '80 DVM), 59, September 30, 2013, Spokane.

Pathologist and business executive Nancy Gillett. *Photo Shelly Hanks*

"At Sierra, we did try to cherry-pick and make a better kind of CRO," says Gillette. "It was a matter of being at the right place at the right time."

She liked the immediacy of the small company. As the only pathologist at Sierra for three years, she could make sure the work was done correctly. It wasn't meant to last, though, as her life and career changed again.

In 1999, Sierra Biomedical was acquired by Charles River Laboratories, a supplier of clinical services and animals for research. The management at Charles River recognized Gillett's talents and she advanced to chief scientific officer and senior executive vice president.

Gillett and her colleagues at Sierra joined Charles River Laboratories as it sought to diversify from research animals to broader comparative medicine services. Gillett's experience and strengths fit well in that strategy.

"We tried to take our vision of scientific excellence to Charles River," she says. "They have that ethos in their research models."

Gillett advanced through the company to become a senior vice president and in 2011 was named to the newly-created position of chief scientific officer. Her combination of research credentials and business savvy was an asset to Charles River Laboratories.

"I'm the only scientist who reports to the CEO at Charles River," says Gillett. "Having been a pathologist, having been in the lab and having run those studies myself in the pharmaceutical business, it's important to have someone like myself as well as someone with a business background.

"I'll never have the financial acumen, but I understand what we do and what our clients want."

She sees her role as protecting the scientists and the integrity of the work at Charles River, and ensuring that "the work we're doing is scientifically valid and cutting edge. I want to make sure science has a seat at the table."

She remembers her most gut-wrenching experience during the financial crisis of 2008 when she had to stand in front of 350 people and tell them Charles River was closing their site.

Still, says Gillett, "I try to protect the research. Many times scientists are not very practical and we can't afford everything they want. So I'm trying to understand the science enough and balance that with business needs."

She has also tried to balance her work with her personal life. One of the main reasons she left Genentech was to have time to focus on her son and daughter when her husband Charles Dickson retired from the military.

As a woman and an executive, she sees more diversity in the workplace, but it's still not enough. "Sometimes women tend to back off," she says. "I think we need more women because you need that perspective in business and academia."

Another of Gillett's challenges comes from her employer's main business: research animals. She understands the controversy around using animals in developing new drugs, and has seen progress in reducing the use of animals.

"I can't wait for the day when we don't need animals," says Gillett. "I do think animals are essential to make drugs for people. It's our moral responsibility to use them extremely ethically and continue to decrease their numbers."

She says Charles River is focused on the three R's for animal research: reduction, refinement, and replacement. They want make sure they use the right animal models and find alternatives. "I don't want people in my company that don't care about animals. We're the number one provider of research animals but people are there who care about giving them the best possible life we can," she says.

As an experimental pathologist, research manager, global business executive, and veterinarian, she has worked to improve the lives of animals and people, while fearlessly accepting the changes in her own life. «

Deborah Jan Peppones ('79 Animal Sci.), 55, March 16, 2013, Deer Park.

1980s

Robert Craig LeBeau ('80 Psych.), 55, November 5, 2013, Mount Vernon.

Theodore T. Yamanaka ('82 Bus. Admin.), 60, February 10, 2012, Hilo, Hawaii.

Lynn Murdock Dudley ('83 PhD Soils Sci.), 58, September 2013, Logan, Utah.

Dale C. Mar ('86 Elec. Eng.), 50, September 22, 2013, Dallas, Texas.

Charles Anthony Barthel ('88 Dig. Elect. Eng.), 49, July 25, 2013, Tacoma.

William John Kimball ('88 Bus. Admin.), 48, November 5, 2013, Salem, Oregon.

Conrad Paul Suhadolnik ('89 Engl.), 47, September 7, 2013, Kennewick.

1990s

Lisa Ann Gauthun ('92 Pharm.), 45, September 21, 2013, Colbert.

Cheryl Joy Norman ('96 Mech. Eng.), 42, October 18, 2013, Portland, Oregon.

Darin Richard Pedersen ('98 Civ. Eng.), 39, September 14, 2013, Spokane.

2000s

Isamu Lee Jordan ('01 English), 37, September 5, 2013, Spokane.

Jeffrey Allan Collins ('04 Bus. Admin.), 32, August 25, 2013, Vancouver.

Alex Cole Pickering ('09 Crim. J.), 28, August 2013, Blaine.

2010s

Rebeca Lynn Harvey ('13 Bus.), 23, October 22, 2013, Veradale.

Faculty and Staff

Delbert "Deb" Acuff, 88, Physical Plant 1957-1986, August 30, 2013, Pullman.

Warren A. Bishop, 92, Vice President for WSU Business and Finance 1965-1979, October 27, 2013, Lacey.

Lynn M. Degerstedt, 90, Southwest Washington Joint Center for Education 1984-1985, October 27, 2013, Vancouver.

Joselyn Druschel, 80, Libraries 1967-1987, October 19, 2013, Pullman.

Murrell Eggers, 94, Housing and Food Service 1968-1981, September 2, 2013, Pullman.

Edwin A. Helmstetter, 65, College of Education 1985-2005, 2007-2011, November 5, 2013, Potlatch, Idaho.

Jeffery Henry, 59, WSU Prosser and WSU Wenatchee 1994-2013, November 4, 2013, Wenatchee.

Deborah Holdren, 58, College of Nursing 2001-2013, October 31, 2013, Spokane.

LaVera A. Kirkwood, 100, Engineering Design 1963-1977, August 19, 2013, Moscow, Idaho.

Helen H. Koehler, 92, Food Science and Human Nutrition 1958-1987, October 12, 2013, Pullman.

Nancy L. Madsen, 73, Animal Sciences 1984-2001, August 30, 2013, DeSmet, Idaho.

George W. Pratt, 71, Facilities Operations 1977-2005, October 15, 2013, Pe Ell.

Gary Rhoades, 65, Housing and Dining Maintenance Services 2003-2013, November 1, 2013, Troy.

Ruth R. Vanderwall, 97, Division of Sciences 1960-1982, September 22, 2013, Pullman.

Christopher J. Von Baeyer, 72, School of Music and Theatre Arts 1972-2004, October 21, 2013, Pullman.

Thomas L. Weber, 65, Civil & Env. Eng. 1973-2009, September 2, 2013, Pullman.

Patrick E. Wilkins, 73, WSU Fire Chief, November 16, 2012, Pullman.

Thelma Willett, 75, Civil & Env. Eng. 1986-2002, August 27, 2012, Pullman.

Edward B. Wilson, 79, Physical Plant 1977-1997, November 9, 2013, Garfield.

Kenneth W. Wright, 68, Recycling 1973-1992, September 21, 2012, Spokane.

WSU Alumni Association News

Two alumni recognized for their contributions to food and agriculture

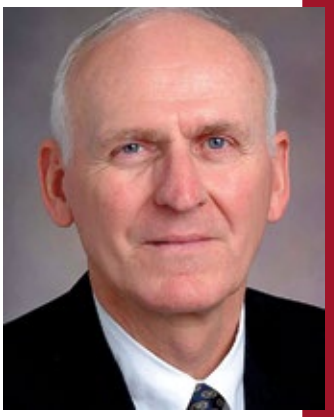
In recent months, the Washington State University Alumni Association honored United Nations Food Safety Officer Masami Takeuchi and Louisiana State University Professor Gail L. Cramer with WSU Alumni Achievement Awards.

A native of Japan, **Masami Takeuchi** earned her first bachelor's degree in 1994 from Kwassui University in Nagasaki, Japan. At WSU, she completed a bachelor's degree in 1999, a master of science degree in 2001, and a doctorate in 2004, all in human nutrition.

Based in Rome, Takeuchi is one of a small group of food safety and quality officers working for the United Nations Food and Agriculture Organization's Nutrition and Consumer Protection Division.

From 2007 to 2010, Takeuchi worked with the Ministry of Agriculture in Bhutan to develop and implement an integrated, environmentally sound approach to food safety and animal health. The program's success prompted the FAO to develop similar programs in eight other countries—five in Africa and three in Asia. Takeuchi continues to travel to Africa and Asia to ensure the continued success of the programs.

Last August Takeuchi was the guest speaker for the School of Food Science Distinguished Lecture Series, sponsored by Washington State University and the University of Idaho.



Gail L. Cramer was honored for his outstanding contributions to agricultural policy, research, and global agribusiness.

Currently head of LSU's Department of Agricultural Economics and Agribusiness, Cramer is the recipient of a number of research grants from the USDA and other entities for agricultural research and the author of over 220 scholarly articles, book chapters, and volumes in his areas of expertise.

He earned a bachelor's degree in agriculture economics from Washington State University in 1963 and a master's of science degree from Michigan State University the following year. He earned his doctorate from Oregon State University in 1968. His academic posts include visiting associate professor at Harvard University, where he founded the International Agribusiness Management Association in 1992. He was named to his current position at LSU in 2000.

Cramer has been recognized with numerous awards and honors in his field. In 2004, he received the prestigious Gamma Sigma Delta Distinguished Achievement in Agriculture International Award. He was honored with the Sustainable Agriculture Education Association Lifetime Achievement Award in 2002. In 1989, he was appointed to the White House Agribusiness Commission.

In 2007, Cramer, with his wife Marilyn '63 and their son Bruce '92 and his family, established the Gail L. Cramer and Marilyn J. Karlenberg Cramer Endowed Scholarship at WSU. Cramer's community service roles include service with Kiwanis Club, Key Club, and Babe Ruth baseball.

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

Soldiers of Paint

by Doug Gritzmacher '98 and Michael DeChant Jr. DOUBLE SIX PRODUCTIONS, 2013 :: *Review by Larry Clark '94* :: Through clouds of smoke, soldiers call out to each other at Omaha Beach in the Normandy fields they recreated in Wyandotte, Oklahoma. Paintballs fly through the air as Allied troops storm toward concrete pillboxes filled with Axis troops intent on preventing the invasion.

It's a hot, humid June day at the world's largest paintball game, an annual reenactment of D-Day on 710 private acres. Thousands of paintball enthusiasts gather for this monumental event, captured in all of its chaos and camaraderie in the documentary film *Soldiers of Paint*. Hailing from New Orleans, Chicago, Norway, England, Germany, and numerous other places, men, women, and teenagers come together for this massive event where they fight for strategic points from the historical battles in Normandy. In real life, they are IT consultants, DJs, even real soldiers, but when they get to D-Day, the players become World War II troops, generals, tank drivers, and spymasters.

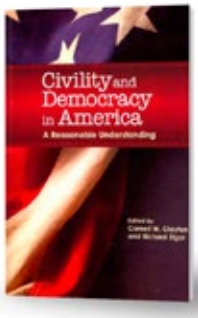
The film's gripping "you are there" approach to the paintball combat infuses drama into the crackle of paintball guns and the improvisation of commanders when plans go awry. The camera follows soldiers jumping from landing boats from the "English Channel" (a small reservoir), climbing hills, and falling in the trenches as they're struck with paintballs. The elaborate 52-foot reconstruction of a French church at Colleville, along with other buildings, make the battlefield feel like the epic 1944 invasion, as do Panzer tanks built from beater trucks, paintball bazookas to shoot those tanks, and even a restored WWII-era plane to do reconnaissance during the battle.

Interviews with the event's founder Dewayne Covirs and players show the daunting logistics of planning an event of this magnitude. For a game with no money or trophy to win, the participants spend significant amounts of time planning strategy, preparing replica materials, and trying to spy on each other, even before the day of battle. This is not a true reenactment, though. While the locations and layout reflect the conditions at D-Day, the Germans here have a good chance of beating the Allies.

Much of the drama is due to the camera work of Gritzmacher, an experienced cinematographer and director of photography with credentials in filming for the National Geographic Channel, Discovery Channel, Travel Channel, and a number of other programs like *The Amazing Race*, in addition to his documentaries. His ability to portray the combination of recreation and spectacle in playing war makes the film stand out as a view into an extraordinary event.

Gritzmacher wanted to be a filmmaker since high school, but migrated toward print journalism at *The Daily Evergreen* at WSU. He pursued his film career after graduate studies at American University. When they heard about the D-Day competition, Gritzmacher and his colleague decided to undertake *Soldiers of Paint* because they saw a chance to make an action-adventure film in the form of a documentary. ⊗

Soldiers of Paint *can be purchased through soldiersofpaint.com, and is available on iTunes, Amazon, and Netflix.*



Civility and Democracy in America: A Reasonable Understanding

edited by Cornell W. Clayton and Richard Elgar :: WSU PRESS, 2012 :: *Review by Larry Clark '94* :: This collection of essays from WSU professors and other scholars takes a hard look at the historical and contemporary state of civility in the country, probing the complexities and the causes of the current "crisis."

The articles cover not just history, but religion, architecture, ethics, philosophy, and media studies, as the writers discuss the context of incivility and heated rhetoric surrounding major issues of social movements, civil rights, immigration, and other matters long affecting American democracy.

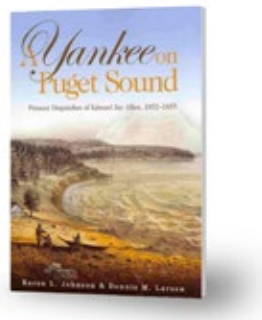
The collection of essays emerged from a 2011 conference on civility and democracy held under the auspices of WSU's Foley Institute for Public Policy and Public Service. The conference was one of four that brought together academicians and professionals from many disciplines to probe the rise of contentious political discourse.

The volume is edited by Cornell W. Clayton, WSU political science professor and director of the Foley Institute, and Richard Elgar, assistant director of the

institute and a doctoral student at WSU. They also wrote the foreword and Clayton's introduction, which capably places the rise of political incivility in historical context and bursts the illusion of a "golden age" of democratic discourse by pointing out that rhetoric (and sometimes violence) rises in times of major transition.

Matthew Avery Sutton, an associate professor of history at WSU, writes about faith and religious influences on democracy and civility. WSU architecture professor Ayad Rahmani shows how architecture plays a part in democratic interactions beyond mere bricks and stone, by giving spaces for citizens and lawmakers to interact. Lawrence Pintak, dean of the Edward R. Murrow College of Communication, introduces the fragmentation and changing landscape of media and its role in civility.

The book also includes the work of scholars from Stanford University, Georgetown University, the University of Chicago, and other institutions, as well as professional journalists and architects. ⊗



A Yankee on Puget Sound *by Karen L. Johnson '78 and Dennis M. Larsen '68* WSU PRESS, 2013 :: *Review by Nicholas Deshais* :: Pioneer Edward Jay Allen lived near Olympia when the Oregon Territory was split in two and federal politicians elected to name the new territory Washington, rejecting the local suggestion of Columbia. Allen helped survey a wagon road over Naches Pass, a backcountry route still in use by those who favor mud and adversity over miles per gallon and speed. Future Union general George B. McClellan shared a cabin with Allen one summer, leading to a fast friendship a decade before the nation went to war with itself.

But Edward Jay Allen is not a name most people will recognize. As is the case in much of history, momentous occasions have many witnesses, but we don't always know their names. Most times we don't hear their telling, either, but thanks to Allen's prodigious letter writing, and some historical sleuthing by Karen L. Johnson and Dennis M. Larsen, we know what transpired during Allen's three years in the Pacific Northwest in *A Yankee On Puget Sound*.

The book is a good read, built on the lively first-person narrative from Allen's letters home to Pittsburgh. Although it is hard to match Allen's adventurous storytelling, the authors' own story of searching high and low for Allen ephemera is no trifle. They easily located Allen's letters collected in a scrapbook in Yale University's rare book collection. But letters Allen received from friends and family weren't known by scholars until a New Jersey man serendipitously searched for Allen's name online, found Johnson and Larsen, and then showed them the letters he had discovered in two discarded trash bags outside an estate sale more than 30 years ago.

As Allen's story illustrates, history is made by the adventurous. But sometimes it takes luck to hear the whole tale. ⊗

new & noteworthy

Operation Cody: An Undercover Investigation of Illegal Wildlife Trafficking in Washington State *by Todd A. Vandivert '79* :: 2013 :: Undercover game wardens Todd Vandivert and Jennifer Maurstad posed as husband and wife businesspeople in 2010 to bring down commercial poachers and black market dealers in wildlife parts. This first person account by former Washington State Fish and Wildlife Detective Vandivert tells of their success as they risked their lives to reduce wildlife destruction in the Pacific Northwest. ⊗

Isaiah Shembe's Prophetic Uhlanga *by Joel E. Tishken* :: PETER LANG PUBLISHING, 2013 :: During South Africa's colonial era, Zulu Zionist prophet Isaiah Shembe and his Nazareth Baptist Church congregants saw themselves as God's chosen people, with Shembe as an anointed prophet. Tishken, an assistant professor of African and world history at Washington State University, examines the church's world-view and use of prophecy to provide explanations of the conditions of British imperialism and colonial Africa. ⊗

The Business of Android Apps Development/ Taking Your Kindle Fire to the Max/LEGO Technic Robotics/ Practical LEGO Technics *by Mark Rollins '94* :: APRESS, 2011–2013 :: Technical writer Rollins covers topics that include the Technic line of the construction toy LEGO, Android app marketing, and how to use your Kindle Fire. He provides clear and practical tips in these books for professionals and aspiring amateurs. ⊗

illustration by Sheri Pham '13

Everyone could use a lift

by Julie Eckardt '13 :: It's 9:58 a.m. and Josie Tarr is running late for her 10:10 digital storytelling class.

Getting off the bus in front of the new Northside Residence Hall, the digital technology and professional and technical writing double major sprints up the stairs between Bohler and the PE Building to get ahead of the crowds heading in the same direction: the CUB elevator.

Too late. She groans. A crowd of about 35 is already waiting.

Briefly considering her alternatives, both lengthy sets of stairs, one running up near the elevator structure and the other wrapping around it, the junior from Tacoma drops the idea as the weight of her books digs her backpack straps into her shoulders.

She'll wait.

"How did they manage to do those stairs before the elevator went in?" she says. "They must've just sucked it up."

After watching two more groups use the elevator before her, she pushes in with a crowd that includes four super-sized athletes, a bike, and a bundle of odors. She notes a fragrant plume of lavender perfume, a bit of workout sweat, and a men's body spray that shouldn't be used after middle school.

Crossing her fingers that the elevator doesn't break down mid-ascent—it sometimes does—Tarr and her fellow sardines finally make it to the top and peel out of their can. "It really is a hassle," she says. "But it's worth it to get up onto campus."

It's no secret that WSU's a hilly site. In this town, even the hills have hills. Spanning a massive mound characteristic of the Palouse, the campus landscape allows all graduates to tell their children that to get to class they hiked uphill in the snow both ways.

Some hills are steeper than others, of course, but it seems like no matter the point of origin or the destination, the elevation change is a brutal reality that students and faculty must face daily. But this generation of students has developed some tricks, tactics, and techniques to skirt some of the steepest of climbs.

A few are unavoidable. Off of Stadium Way, B Street, with its uneven sidewalks and lengthy route through Greek Row, clocks in with a grade of 14 percent at its steepest. The hill up from Reaney Park, appropriately named "Suicide Hill" because of its sporadically staircased sidewalk and overall unpleasantness, is made especially painful by its average 11 percent grade. Those who continue up this path all the way to Thompson Hall face a grade of 13 percent.

On campus is no better. With an average grade of 8 percent, Wilson Road, between Martin Stadium and the Fine Arts Building, is a slope that just does not meet ADA regulation. Coming up from Stimson, Library Road only passes ADA requirements if travelled a very specific way, achieved by zigzagging up the ramped areas. Otherwise, straight up you face a grade of 12 percent.

While no one is quite sure why WSU was built on top of a rather steep set of hills, Dave McCarroll, campus planner at Capital Planning and Development, says that, in general, buildings are placed on top of a hill as a sign of importance, but also for the practical reason of being out of the way of flooding.

Aesthetically speaking, it's wonderful. As you drive into town from the west, WSU seems to gleam in the sunlight on a distant hill.

But that comes with the steep price of a physically challenging campus. Still, if anything, Cougs are resourceful. To avoid the hills, or at least their steeper parts, many students and some faculty have adopted a series of shortcuts so they don't have to dash into class breathless and sweaty, or spoiled by the elements. Some involve climbing aboard a bus and skirting campus instead of hiking over the hill. Others include cutting through buildings instead of walking around them. And quite a few involve elevators.

The elevator from the parking lot beneath the Fine Arts building, and its sister transport next door in the CUE building, provide an excellent means of shooting up the east side of campus.

Joleen Magers, program coordinator at Maintenance and Utilities Services, said the CUE elevator sees the most traffic. "CUE has classrooms that are used throughout the day, large groups of students are coming and going at the same times as classes start and end. It's in the heart of campus so students use them to go up or down the hill to get to their next class, and there's only one elevator in the building to accommodate everyone," she says.

Tarr's favorite, the CUB elevator, runs from the football practice field up past a steep slope and two stories of the CUB. But this elevator can be crowded and temperamental, especially if people try to be courteous and hold the door too long.

Some of the most resourceful have discovered an alternative, a special secret elevator that originates deep inside the parking garage under Terrell Library and goes right up to the mall, one of the highest outside points on campus. While the physics and geography of this elevator may confuse riders the first few times—it seems that you enter the elevator on the north side of campus and exit in the center—eventually they just accept the Cougar magic.

When traveling from Webster Physical Sciences Building to Glenn Terrell Mall, many consider rocketing through Todd Hall in its elevator. However, the wise are wary of the building's heat during the colder months; they soon develop a habit of removing their jackets during the ride.

Some elevators are just elevators, while others have their own character. Rather than take the seemingly endless stair to the fourth floor in Bryan, students and faculty opt for the elevator across the foyer from the portrait of Dr. E.A. Bryan. Much like its similarly aged friends in Avery, Johnson, and Commons (the oldest elevator on campus, installed in 1924), this elevator could be in a horror movie. Creaky, with flickering lights and old carpet, riders are left thinking, "When will they find my body?" Tearful attempts at phone communications are sometimes met with an unsympathetic no signal warning.

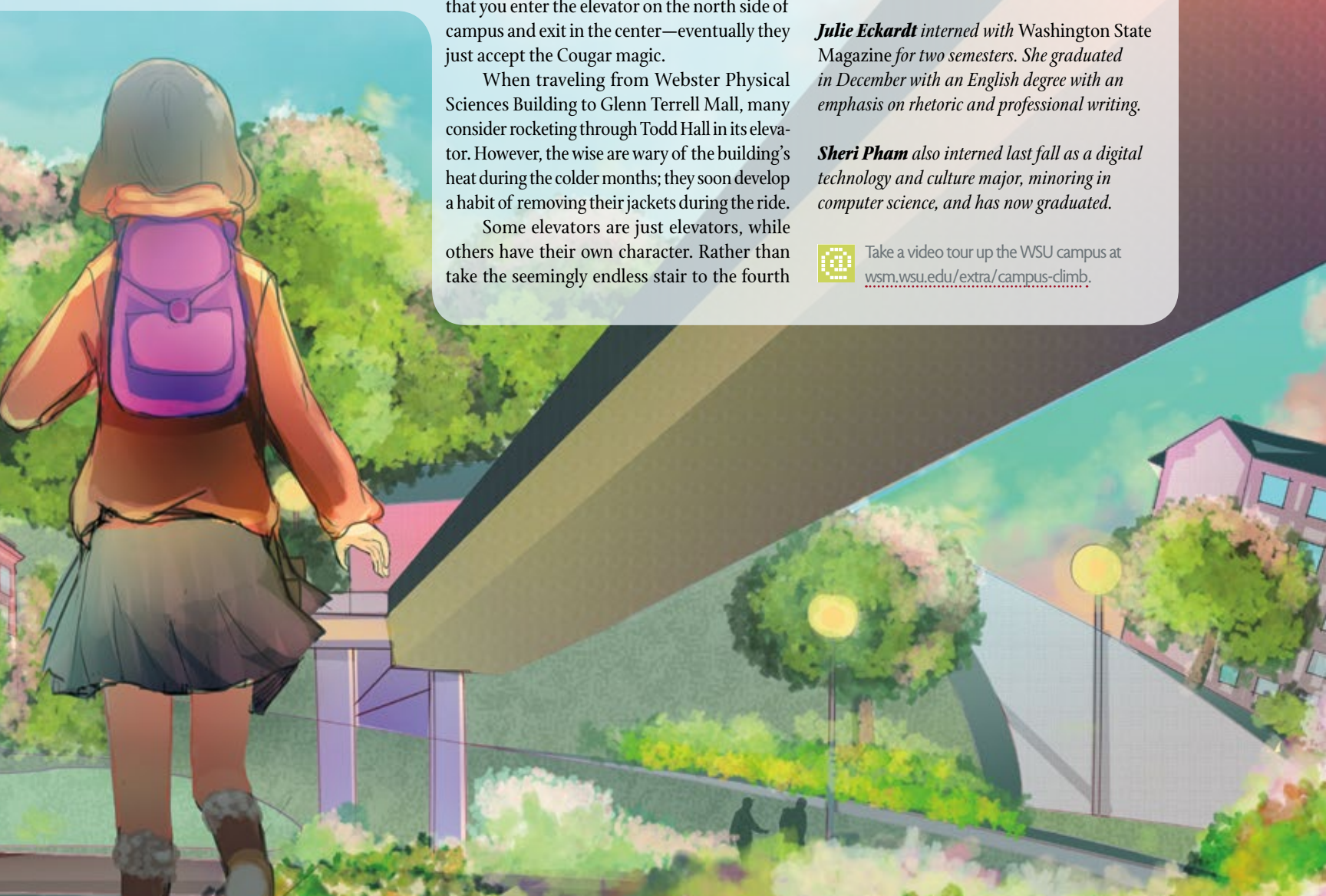
While it takes a few years, and the development of a good set of "Cougar calves," eventually students learn the best routes to almost everywhere on campus.

"I think by now I have all the shortcuts figured out," says Tarr. "But I'm always amazed by the places people will go just to avoid the hills or stairs." ⊗

Julie Eckardt *interned with* Washington State Magazine *for two semesters. She graduated in December with an English degree with an emphasis on rhetoric and professional writing.*

Sheri Pham *also interned last fall as a digital technology and culture major, minoring in computer science, and has now graduated.*

Take a video tour up the WSU campus at wsm.wsu.edu/extra/campus-climb.



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