

CONNECTING YOU TO WASHINGTON STATE UNIVERSITY » THE STATE » THE WORLD

# WASHINGTON STATE

*m a g a z i n e*

*A seat at the table*

THE ASCENT OF PATTY MURRAY '72

**ALSO IN THIS ISSUE:** SEARCH FOR LARGE ANIMAL VETS :: STRAIGHT SHOT TO A BREAKTHROUGH? :: HOME EC REVISITED

v8n3

# WASHINGTON STATE

m a g a z i n e

## FEATURES

### 22 :: Living Large: *In search of the elusive large animal veterinarian*

Nearly 500 counties in the United States have large herds of cattle, but no veterinarians to care for them. Although veterinary student Sam Nielson claims that it's the life of the large animal veterinarian that he's after, not money, fewer and fewer feel that way, moving to other types of practices that offer both better working conditions and compensation. *by Hannelore Sudermann*

### 29 :: A Seat at the Table

When Patty Murray '72, after a year as a state legislator, set her sights on the U.S. Senate, she got little encouragement. "You haven't paid your dues," they said. "You don't have enough money. You don't know the right people." None of that made any difference to Murray. *by Hannelore Sudermann*

### 36 :: Straight Shot to a Breakthrough? *Don't count on it*

There are two sides to everything, says entomologist William Snyder of his biocontrol research. Along the way to developing a "practical" approach for crop defense, he answered a fundamental evolutionary question: Why are there so many species? *by Cherie Winner*

## PANORAMAS

**9** Mixing it up :: **10** In from the fields :: **11** Conexión rises to a burgeoning market :: Bring on the boron :: **15** A runner's worlds :: **16** Picture this  
**18** Ramping up in rural Washington

## DEPARTMENTS

**3 FIRST WORDS** :: **7 LETTERS** :: **13 SPORTS:** Rowing 101 :: **20 IN SEASON:** Spring is the season for chèvre :: **43 SHORT SUBJECT:** Home economics revisited  
**47 CLASS NOTES** :: **49 IN MEMORIAM** :: **54 NEW MEDIA**  
**56 LAST WORDS:** Art still at large

## TRACKING

**47** Nadia Daud—No place like home :: **49** Harley Cowan—Chicken sedan  
**50** Jacqueline van Wormer—Advocacy for juveniles

*Cover photo: Senate Majority Whip Richard Durbin, Senator Patty Murray, and Senator Edward Kennedy speaking to reporters at the Capitol by Michel du Cille/The Washington Post.*





# Because Everyone Needs Safe, Reliable Electric Power

Schweitzer Engineering Laboratories invented the world's first digital distance relay 25 years ago, improving how the power system provided you with electric power. Today, we offer a complete range of solutions for virtually any electric power system used in utilities, industry, and commerce. SEL innovations help solve today's challenges, from the economy to establishing environmentally friendly energy sources. Our mission is simple—make electric power safer, more reliable, and more economical. Visit [www.selinc.com/5wsu](http://www.selinc.com/5wsu) to learn more.



*Celebrating*  
25 YEARS OF INNOVATION

[www.selinc.com](http://www.selinc.com)  
[info@selinc.com](mailto:info@selinc.com)  
+1.509.332.1890

cleantech.wsu.edu



# Creating a Clean Technology Future

**imagine** a future in which wind and solar energy are fed efficiently into our nation's electric power grid. Or a day when agricultural waste products such as wheat straw are easily converted into biofuel sources.

Turning those dreams into reality is one of the big ideas occupying Washington State University researchers. They're pursuing clean-tech solutions ranging from the creation of sustainable communities to powering cars with hydrogen and improving climate-friendly farming practices.

Serving the state. Providing economic stimulus. It's all part of Washington State University's mission.



*World Class. Face to Face.*

# first words

**Interesting times** :: We were having a long midweek dinner at Le Pichet in Seattle, a sort of anticipatory wake for the *Seattle P-I*, where my friend Tom had worked as a reporter for 20-some years. Tom's pretty crusty and tends to brush even the most irksome things off with a joke. But being a fifty-something journalist facing a post-newspaper era in a town awash in laid-off reporters, reality had started to sink in. Even so, referring to the demise of his employer and the economic times in general, at one point Tom gestured outside to First Avenue and said, "But this is no crisis. Somalia has a crisis. We don't."

With sufficient perspective, of course, that's true. Relatively speaking, Seattle has no crisis in spite of losing a daily newspaper, Washington has no crisis in spite of a \$9 billion shortfall, and Washington State University has no crisis in spite of facing its worst budget cuts since the Depression. But that kind of perspective can admittedly be difficult to maintain in such times as these.

In the 1933–35 biennium, the state legislature hit Washington State College with a 36.5-percent budget cut. But that was following earlier cuts. Reading through the early 1930s minutes of the WSC regents meetings, it's tough to follow and tabulate the continuous economic blows not just to WSC, but to the University of Washington and the "normal schools," also. It's actually a fascinating, if depressing, narrative. Unfortunately, it does not offer the balm of historical perspective that one might hope for. For we live in different times.

In 1932, a meeting of higher education representatives decided to meet legislative cuts with salary cuts, applied as equitably as possible. Those making \$3,600 and up would take a 10-percent cut. Those making \$2,600 and up would take a seven-percent cut. Those making \$2,100 to \$2,500 would take a five-percent cut. And those making less than \$2,100 would suffer no cut.

President Holland, who earned \$12,000 a year, had his salary reduced to \$10,800. Ida Lou Anderson, mentor of Edward R. Murrow, continued to earn \$1,600 for her nine-month appointment. (Only two people at WSC making more than \$2,100 did not take a salary cut: football coach O.E. "Babe" Hollingbery, who made \$8,000 a year, and assistant football coach and baseball coach A.B. "Buck" Bailey, who made \$3,750 a year.)

By the fall of 1932, Holland and the Regents realized they would have to make further, more drastic, cuts. Those making \$1,200–2,100 would take five-percent cuts. Campus janitors, who made \$97.50 a month, took a \$5 cut.

The following spring, 1933, everyone was hit with additional salary cuts with totals ranging from 15 to 25 percent. (Hollingbery and Bailey had mysteriously disappeared from the roster, if not from campus.)

What might we learn from our history? Maybe nothing. But it might be fruitful to ask how Holland managed to hold the campus together in spite of such hardship. How did he retain such eminent faculty members as Claudius Johnson, Hannah Aase, Herbert Kimbrough, and Edward Gaines in spite of slashing their salaries by 25 percent? Actually, the relevant question is more likely, "how did he maintain any morale whatsoever?"

For the Depression offered the retention solution. They had nowhere better to go.

*Tim Steury*, Editor



# Catapult Your Career

## Introducing WSUAA Career Support Services

When you join the WSU Alumni Association, you'll gain instant access to our new Career Support Services and these valuable benefits:

- **LinkedIn with Cougars:** Join the most popular and expansive online networking tool around
- **Cougar CareerBeam:** Launch yourself into a massive job-search database and resource center, and find Cougars in management roles
- **WSU CareerLink:** Discover a growing suite of web-based resume, job posting, and recruiting tools
- **Kaplan Test Prep:** Receive discounted rates on preparation courses for advanced degree and professional licensing exams
- **Cougar Business Network:** Find Cougar-owned businesses across the state, nation, and world

Join today and connect with thousands of Cougars, advance your career, prepare to achieve your professional goals, and enhance the success of Cougar-owned or managed businesses.

[www.alumni.wsu.edu/careersupport](http://www.alumni.wsu.edu/careersupport)

WASHINGTON STATE UNIVERSITY  
ALUMNI ASSOCIATION



EDITOR Tim Steury  
ASSOCIATE EDITOR/SENIOR WRITER Hannelore Sudermann  
ASSISTANT EDITOR/WEB EDITOR Larry Clark '94  
ART DIRECTOR John Paxson  
SCIENCE WRITER Cherie Winner  
PHOTOGRAPHERS Shelly Hanks '88, Robert Hubner

### Contributors

WRITERS: Eric Apalategui, Bryan Corliss '86, Jason Krump '93, Richard H. Miller, Marisa Sandoval '10  
PHOTOGRAPHERS: Chris Anderson, Kate Baldwin, Ingrid Barrentine, Michel du Cille, Richard Dickin, John Froschauer, David Iliff, Daniel Kaynor, Karen Kuehn, Ray Lustig, Brian Maki, Melina Mara, Jason Reed, Elaine Thompson, Bill Wagner, Tobias Walther '09, Alex Wong  
ILLUSTRATORS: Susan Farrington, Rhiannon Jones, Emerson Taymor, David Wheeler

PRESIDENT Washington State University, Elson S. Floyd  
VICE PRESIDENT University Relations and EXECUTIVE DIRECTOR Alumni Relations and Washington State University Alumni Association, Tim Pavish '80  
ASSOCIATE VICE PRESIDENT University Relations, Barbara B. Petura

LETTERS: *Washington State Magazine* invites letters on its content or on topics related to the University. Letters for publication must be signed and may be edited for style, length, and clarity. Shorter letters are more likely to be published due to space limitations. Writers should include an address and daytime phone number. Letters may be submitted online at [wsm.wsu.edu/feedback.html](http://wsm.wsu.edu/feedback.html) or sent to:

*Washington State Magazine*  
PO Box 641227  
Pullman, WA 99164-1227  
e-mail: [wsm@wsu.edu](mailto:wsm@wsu.edu) fax: 509-335-8734

*Washington State Magazine* is published quarterly by Washington State University, PO Box 641227, Pullman, Washington 99164-1227. Editorial offices are located at Washington State University, Information Technology Building, Room 2013, Pullman, Washington 99164-1227.

Views expressed in *Washington State Magazine* are those of the authors and do not necessarily reflect official policy of Washington State University. Alternate formats will be made available upon request for persons with disabilities.

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

**SUBSCRIPTIONS:** *Washington State Magazine* is distributed free of charge to graduates, donors, faculty, and staff of Washington State University. With a gift of \$25 or more, you can have WSM sent to someone who is not on our mailing list. For details, go to [wsm.wsu.edu/send.html](http://wsm.wsu.edu/send.html) or contact Sherri Peters at 509-335-1686, [coug4ever@gocougs.wsu.edu](mailto:coug4ever@gocougs.wsu.edu).

**ADVERTISING:** For information about advertising in *Washington State Magazine*, contact Barb Olson, advertising manager, at 509-335-7628, [bjolson@wsu.edu](mailto:bjolson@wsu.edu), or go to [wsm.wsu.edu](http://wsm.wsu.edu).

**Changed your address?**  
Please send current address information to Sherri Peters, PO Box 641927, Pullman, WA 99164-1927, e-mail [coug4ever@gocougs.wsu.edu](mailto:coug4ever@gocougs.wsu.edu), or call 509-335-1686. Thank you!

Board of Regents, Washington State University ©2009.

*Washington State Magazine* is printed at a facility and on paper that is FSC (Forest Stewardship Council) certified, using soy-blended inks on at least 10 percent post-consumer-waste recycled, elemental-chlorine-free paper.



Mixed Sources  
Cert no. SW-COC-002954  
© 1996 FSC









## Think of Us as the Alumni Association Equivalent of Sliced Bread.

At the Washington State University Alumni Association, innovation is at the heart of all we do. We've launched cutting-edge programs, introduced exciting new services, achieved record-breaking membership growth, and pioneered meaningful ways for alumni and friends to become involved with WSU.

Since 2004, we've increased the number of benefits members enjoy by ten-fold. From discounts at local and national retailers to special Cougar rates on hotels and cell phones and the first-of-its-kind Alaska Airlines Cougar Visa Signature Card. Learn more about these and the other discounts, services, and programs our members enjoy by visiting our benefits Web site: [www.alumni.wsu.edu/benefits](http://www.alumni.wsu.edu/benefits).

Is the WSUAA the greatest thing since sliced bread? 98% of our members think we come close. Join today by calling 1-800-ALUM-WSU or visit [www.alumni.wsu.edu/join](http://www.alumni.wsu.edu/join).

**Membership Matters.  
Join Today.**

WASHINGTON STATE UNIVERSITY  
 ALUMNI ASSOCIATION



# letters

## Celebrated lentils

We at the Pullman Chamber of Commerce were so delighted to see your article in the most recent issue, titled "Local, Delicious, Neglected," about our lovable legume: the lentil. We sincerely agree that lentils are local and delicious and having worked at the USA Dry Pea & Lentil Council before starting at the Chamber, I can indeed verify that all information you printed about the agronomic qualities is accurate and the recipes you printed are indeed delicious.

However, as the National Lentil Festival Director, I was disappointed to see the word "neglected" applied to lentils which have an entire festival devoted to them. This festival, of which WSU is a major sponsor, consumes two days and is free to anyone who wishes to participate, which last year included nearly 25,000 lentil fans. At the 2008 Festival, 200 gallons of lentil chili were consumed in just under 45 minutes. One hundred fifty recipes for the Legendary Lentil Cook-off were received from 37 states. We hope you will join us at this year's event August 21-22 in downtown Pullman to enjoy lentils: "Local, Delicious, Celebrated."

**Mary Barstow**

## Xerpha Gaines

I thoroughly enjoyed your article "Love Letters" in the Spring issue of *Washington State Magazine* as

well as all the other information you folks provide.

I had the pleasure of meeting and using the expertise of Xerpha Gaines when in graduate school (Agronomy) 1955-1958, and in my faculty research position at the Western Washington Experiment Station, 1958-1988. She was all that you presented in the article and more.

You mentioned her association with Theo Sheffer. He was at our station at Puyallup for some time around 1959. He was still driving at 93 years of age, very optically impaired, right down the middle of the road. He spoke well of Xerpha Gaines. Her work is enduring and will live on.

**Roy L. Goss**

*Agronomist, WSU, retired*

## A tribute to Bill

I'm always thrilled to see *Washington State [Magazine]* protruding from the stack of mail on the kitchen counter. But last year, my enthusiasm waned when I discovered Dr. William McDougall (Professor Emeritus of Education) mentioned "In Memoriam."

I dare say no one loved WSU more than Dr. McDougall; no professor saw a greater potential in the student body. Actually, on second thought, Bill's passion was for the transformative nature of education, which is why he loved WSU.

We all have something significant to provide, I think he'd say. But missing are the basic (and more complex) lessons to illuminate the way. Like so many other great teachers, Bill lived to deliver those lessons to an open mind.

Dr. McDougall was retired by the time I asked him to serve on my dissertation committee. Another professor suggested I call him. Bill said on the phone, "I like some of your research ideas, Jerry..."—my name is Terry—"... right, Terry, I like the ideas but let's meet for coffee because I need to know whether you give a damn about your work."

For two years, Dr. McDougall helped guide me through the Interdisciplinary PhD program and, of course, we became good friends. A decade later, I remain thankful for Bill and his advice. His enthusiasm for developing students ought not be forgotten.

As I work daily in Colorado higher education, I strive to emulate professionals like Dr. Bill McDougall. Long live his academic legacy!

And, for all of us, keep up the exemplary work with *Washington State*.

Respectfully,

**Terry Schliesman** '95 M.A., '98 PhD  
*Professor of Communication*  
*Western State College of Colorado*

## And to Bob

I just received my Spring 2009 issue of *Washington State Magazine*. What an outstanding publication. I was particularly impressed by the article "You Must Remember This"... and perhaps so considering my age!

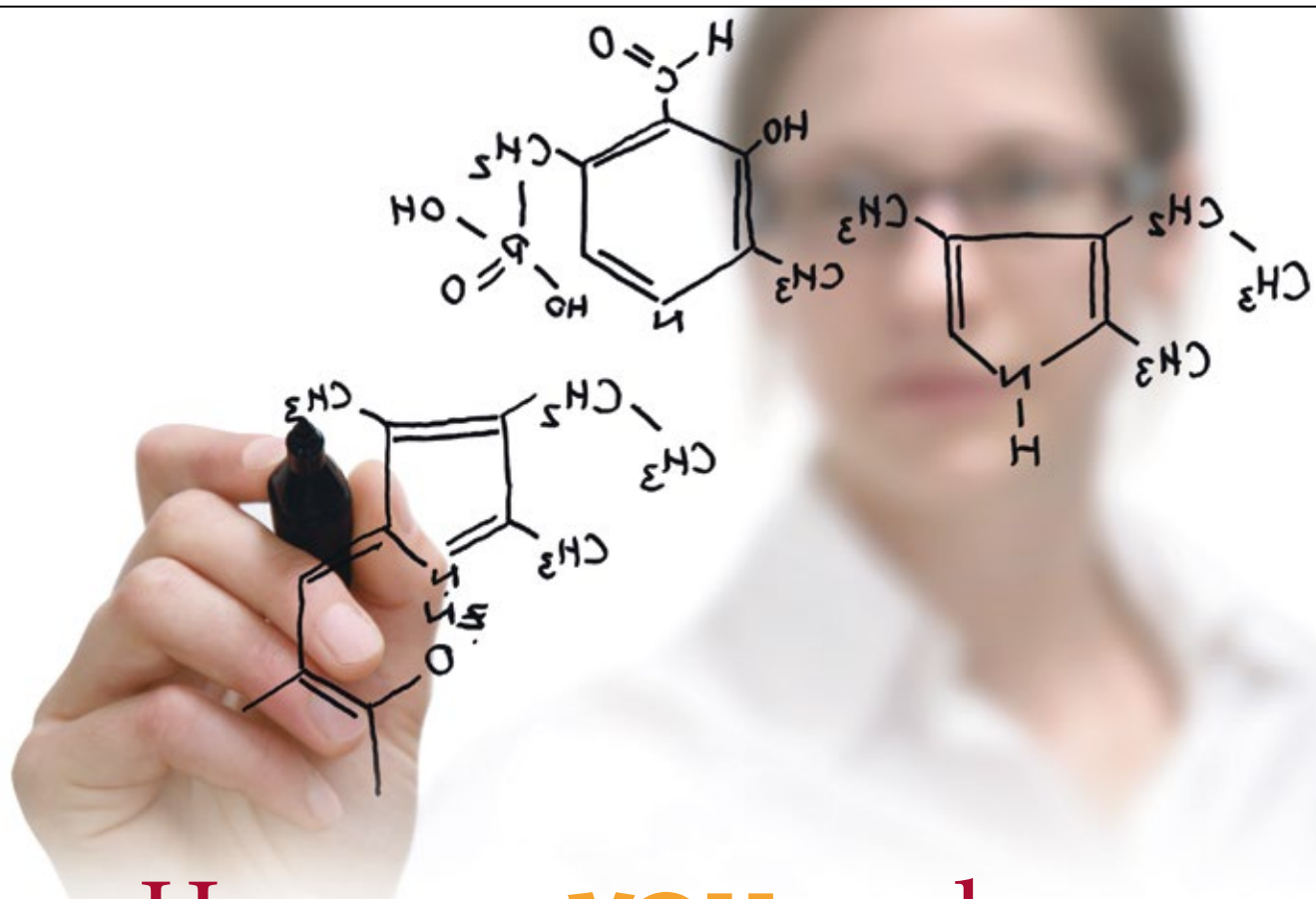
In looking at "In Memoriam" for the 1940s, I didn't find Robert S. Dalrymple '45, Camano Island. He passed away on August 29, 2008. I imagine his daughter Sharon Ward has been so busy settling the estate that she had not notified WSU. Perhaps some other WSU friend of Bob has done so.

Bob and I were roommates in 1942-43, and I was best man at his wedding to Dorothy Fisher in June 1943. We had kept in touch ever since. During the 1950s we were neighbors in Richland. During the past few summers I drove to visit them. Dorothy passed away December 1, 2005. They had two children, Sharon and Bill.

**Roy W. Wirta** '45  
*La Mesa, California*

## Correction

The photo in Cherie Winner's story "You Must Remember This" of Gary Wayman (WSM Spring '09) was attributed to Robert Hubner incorrectly. It was actually taken by Henry Moore Jr., staff photographer with the College of Veterinary Medicine.



How can **you** make  
the world a better place?



**BETTER ENERGY.**

She designs sustainable,  
energy-efficient buildings.

*Alumna, interior design*



**BETTER FOOD.**

He assisted with research  
to help end hunger.

*Alumnus, pre-medicine*



**BETTER HEALTH.**

She's preparing for  
medical school.

*Biochemistry student*



**BETTER LEADERSHIP.**

He's building understanding  
of another culture.

*Doctoral student, economics,  
and instructor of Arabic*

**Join us.**

Because the world needs big ideas—like yours.

[www.wsu.edu](http://www.wsu.edu)

WASHINGTON STATE  
 UNIVERSITY

*World Class. Face to Face.*





## Mixing it up

by Tim Steury :: Not since white settlers surged west, overwhelming the native population, has Washington been at all diverse in its population, at least if one defines “diverse” by ethnicity rather than European country of origin. By 1890, whites represented 97 percent of Washington’s recorded populace, and that number remained static for decades. Now that mix has started to change. Just recently, the white (not Hispanic) portion of Washington’s population dropped below 80 percent, for the first time since the mid-19th century.

Annabel Kirschner, a professor in the Department of Community and Rural Sociology and an extension specialist, recently released “Increasing Diversity in Washington State 2000–2008,” the latest in a continuing series of demographic analyses of Washington state, now named *Washington Counts in the 21st Century*.

The idea of the series, says Kirschner, is to give county administrators, social service

personnel, small business owners, and others a clearer view of what U.S. Census and other demographic information means for their county. Washington’s geographic diversity lends itself to great economic and social diversity, if not necessarily to ethnic diversity. Lewis is not Adams is not Grays Harbor County.

And none resembles King County. It’s rare, says Kirschner, that county trends mimic those of the state. King County, the big gorilla in the game, skews all information for the state because of its disproportionate population and economic activity.

In 1980, non-Hispanic whites represented 90.2 percent of Washington’s population. By 2008, that percentage had dropped to 76.2. Actually, white population over that period increased by better than 25 percent. However, over that same period, Washington’s Hispanic population grew by nearly 200 percent.

Immigration, of course, was a major factor in the growing diversity. In 1980, 5.8 percent of

Washingtonians were foreign-born. By 2007, that number was 12.3 percent. However, says Kirschner, better counting of people who have always been there also contributed.

The immigration growth number is from the American Community Survey, an ongoing survey by the U.S. Census Bureau of a small sample of the population. It is likely a conservative estimate, as undocumented immigrants are probably undercounted. The Census Bureau targets households, says Kirschner, not people.

According to Washington’s Office of Financial Management, immigration contributes most to the growth of Asian and Pacific Islander and Hispanic groups. In 2000, 67.2 of Washington’s Asian and 45.6 of its Hispanics were foreign-born.

An important factor leading to diversity, notes Kirschner in her report, is the age structure of different groups. The median age of whites in Washington in 2000 was 37.9, of blacks 29.7,

American Indians 28.6, of Asian/Pacific Islanders 30.5, and of Hispanics 22.7.

According to Kirschner's report, even if immigration to the United States were to stop and fertility rates for all populations were to fall below the rate necessary to replace the next generation, Washington would continue to grow more diverse—because of the age structures of the non-white populations.

Hispanics make up more than 100 percent of population growth in Adams, Columbia, Okanogan, and Yakima counties. Without their additional population, the counties' population would have declined. In 2008, Hispanics became the majority in Franklin and Adams counties.

Kirschner's assessment of these numbers? Washington must recognize the shift in its population and plan for it.

"We need to integrate these kids into the school system so they can go on to realize their talents," she says. Otherwise, she continues, the children of this growing population will not be paying taxes on high-level professions.

"The difference in tax between a McDonalds worker and a PhD or a doctor is phenomenal. It's penny-wise and pound foolish not to build such a system."

 To read "Increasing Diversity in Washington State 2000-2008," go to [www.crs.wsu.edu/outreach](http://www.crs.wsu.edu/outreach).

## In from the fields

*by Richard H. Miller ::* A dozen preschoolers puff into plastic wands, shrieking as soap bubbles kite across the classroom. Sylvia Guzman, 29, sits cross-legged on the floor, next to a poster showing ways to calm down (put hand on tummy, take deep breaths). She reads aloud in Spanish: "There are three amigos." She points to the book. The children flock around. She turns the page. "Four armadillos. How many armadillos? Let's count them." They count together—"Uno, dos, tres, cuatro"—as one boy stomps errant bubbles. "Look. Five cows," she says. "What does a cow say?" Everyone moos in unison.

Guzman, a Distance Degree Program student at Washington State University, has worked at Early Head Start in Mount Vernon for four years. "I get paid to play all day," she says. "I never want to go back to the fields. And I'm not. Never." The fields are the farms of California, Oregon, and Washington where she picked

oranges, grapes, lemons, olives, blueberries, cucumbers, apples, and strawberries.

Sylvia started picking in central California at 13. She picked on weekends during the school year and all summer to help her parents, immigrants from Oaxaca, Mexico. "When my parents

up with fieldwork, she walked across the street to a child-care center. "I asked for a job. I told the woman that I'd come here every day for a week and work for free." She got the job, her first job in child care.

She enrolled at Skagit Valley College, and graduated two years later with an associate's



**Above:** Fed up with fieldwork, Sylvia Guzman crossed the street to a child-care center and volunteered her time. Today she is working toward a degree in bilingual education through the Distance Degree Program.

told me it was time to get another bin, I'd start crying," she says. Her mother, Silviana, still works in the fields. Her father, Guadalupe, died in 2000.

At 18, Sylvia married Cornelio, a fellow Oaxacan she met in the fields. They became migrant workers, following the harvest up through Oregon and Washington, where their daughter, Angelica Avila, was born. (Karina came two years later, then Diego, who's now 4.)

The family lived in labor camps, in their cargo van, and in a livestock barn where they boiled water to shower in a plywood-covered feeding pen. One boss let them sleep in a corner of his rat-infested warehouse. "I was pregnant, and I would cry because I did not want to stay there," Sylvia says. "I'm terrified of rats. In Mexico one night I felt something scratching on the blankets and I told my husband, 'Honey I think there's a rat on top of us.' He told me, 'No, it's not. Go to sleep.' Then he felt it and he flung off the blankets. And the rats in Mexico..." She holds her hands a foot apart.

In 2001, Sylvia, Cornelio, and their two young children were sharing a two-bedroom house with about 20 people in Burlington, Washington. Fed

degree. She wanted a bachelor's degree in human development next and chose an online degree completion program so she could study while spending time with her family. In fall 2008, Sylvia was accepted in WSU's online program.

"DDP classes are very good," says Sylvia, the first in her family to attend college. "I'm very glad I can work at my own pace and still have the teacher interaction when I need it."

At Early Head Start, Sylvia teaches special needs and mainstream children, using Spanish, English, and sign language. She also makes home visits to teach parenting skills—simple things, she says, such as how to obtain a driver's license or use food banks. In October, she was selected to go to the national Head Start conference in Washington, D.C., where she gave two presentations, one about bilingual education and one about her life.

Sylvia plans to earn her bachelor's degree by 2010, then get a master's in bilingual education. "I am the way I am because of my life experience," she says. "I don't settle for minimum. I want more."

Parents begin arriving to pick up the preschoolers, who have howled with eight coyotes, hissed with nine snakes, meowed with 10 cats.



None shows any sign of calming down. “Paku,” Sylvia says to the Russian-speaking boy, “Goodbye.”

After the children leave, she sits in a tiny wooden chair and switches to Spanish: “Se aprende de los golpes de la vida.” It’s a Mexican saying, she explains. “You learn from the hardships of life.”

## Conexión rises to a burgeoning market

by *Tim Steury* :: Where demographers see change, Lauri (Smith) Jordana ‘88 sees opportunity.

Jordana is the founder of Conexión Marketing in Seattle, which is dedicated to marketing companies to the rapidly growing Hispanic/Latino market.

When Jordana graduated from Washington State University in foreign language and literature, she immediately left for Spain, which she’d fallen in love with during her year abroad, intending to spend the rest of her life there. But her life plans were pre-empted when she got homesick and returned to Washington after a year.

Back home, with fluent Spanish, she embarked on a series of positions with various companies, helping them reach Hispanic consumers. She helped create the Hispanic marketing division for both AT&T Wireless and Cingular.

Four years ago, she started her own company, Conexión. There was, she recognized, money to be made from a rapidly growing Hispanic market. Buying power of Hispanics in

the Puget Sound area has grown 494 percent since 1990. Nationally, that figure is 384 percent.

Even so, when she started Conexión, people would ask what she was doing here, why not in Yakima? Even four years ago, she says, contrary to prevailing assumptions, there were more Latinos on the west side of the state than in the east.

What makes West different from East in Washington is that there are fewer congregated pockets of Hispanics in the Puget Sound area. From Mount Vernon and the Skagit Valley to Tacoma, communities include a higher number of Hispanics, but not at the same density as in Sunnyside or Yakima.

Hispanics are great customers, says Jordana. They tend to be more brand loyal and to have larger families and households. Word of mouth is “amazing,” she says, in reference to a very effective marketing tool.

Conexión helped establish a presence for Plaza Bank, a new bank in Seattle that aims at a largely immigrant Hispanic clientele. The bank was founded by Hispanics who wanted to reach out to others unfamiliar with the U.S. banking and credit system. Forty percent of its loans are to minorities and women. Seventy-three percent of its consumer loans are to Hispanics. According to *Puget Sound Business Journal*, Plaza has the second-largest amount of money of all U.S. Hispanic start-up banks. In July 2008, it had assets of \$83 million.

Conexión’s retail industry fact sheet lists Hispanic population in the state, not including undocumented residents, at 586,000, or nine percent of the total population. It estimates total

Hispanic population, including undocumented residents, at 860,000.

Conexión estimates Hispanic buying power in the Seattle/Tacoma area at \$3.7 billion. Buying power in Yakima/Tri-Cities is \$2.4 billion. Forecasted growth of Hispanic population is 737,000 by 2015 and 965,000 by 2025.

“Diversity is what we are now,” says Jordana. “It’s not just this thing to pander to. Companies say, ‘oh yeah, we need to improve our diversity.’ Marketers who aren’t paying attention to Latinos are going to feel it in the bottom line.”



For more on Conexión, visit their website at [www.conexion-marketing.com](http://www.conexion-marketing.com).

## Bring on the boron

by *Cherie Winner* :: Lai-Sheng Wang has an impish smile, an infectious laugh, and a high-powered research program that studies matter a few atoms at a time.

He uses massive machines to create tiny clusters of atoms. Wang’s clusters aren’t mere lumps. As the magnetic models stuck to his file cabinets show, they are as geometrically elegant as a snowflake.

Wang came to the public’s attention three years ago when his team at the Pacific Northwest National Laboratory in Richland became the first to make golden buckyball, a hollow cage of 16 to 18 gold atoms. He has also worked on clusters of aluminum, another element with a long track record of useful applications.

Now Wang is devoting himself to the study of boron.

Boron? Really?

Boron is not what you’d call a high-profile element. It is rare on earth, but not rare enough to be especially valuable. Plants need it to build strong cell walls. Humans might need it, but in such small amounts that we get enough just by eating and breathing. It has a few industrial applications.

On the surface, boron doesn’t appear to be all that interesting.

So why study it?

Because it comes from an interesting neighborhood. On the periodic table of the elements, it’s right next door to carbon. That means it’s almost the same size as carbon and shares many of the same properties. Carbon, of course, is plenty important; it’s the basis of life on earth.

Lauri Jordana ‘88, founder and principal, and Gigi Basaure, marketing coordinator, Conexión Marketing.



KATE BALDWIN

(Aluminum is also nearby, as is silicon, so important to the electronics industry. This is a *very* important neighborhood.)

In nature, boron is always bound to some other element, usually oxygen. Wang wants to find out what structures boron alone can form and what their properties are. Different structures will behave differently, just as the different forms of carbon do. Both diamond and



COURTESY LAI-SHENG WANG

graphite (the “lead” inside a pencil) are made entirely of carbon atoms. In diamond, the hardest naturally-occurring material on earth, they are in a rigid crystal arrangement. In graphite the carbon atoms are arranged in a hexagonal pattern, like chicken wire, with many flat layers of the hexagons piled up in a stack.

“That makes graphite so unique,” says Wang. “It’s a very hard material in one direction, but very slippery in the other direction. That’s why you can write with your pencil, scratching off the graphite in these layers.”

In other words, form is crucial; and form is what Wang creates and studies. His lab is crowded with metal chambers and tubes, lasers, bundled wires, and throbbing machines. To make boron clusters, a small sample of natural boron is placed in a vacuum chamber and bombarded with a laser beam, which jars groups of boron atoms free from the sample’s surface. A jet of helium carries the fragments down a 12-foot-long vacuum tube with a chamber at the end, where another laser knocks an electron out of each cluster. A spectrophotometer then measures the speed of the departing electron, which indicates the energy state of the electrons still in the cluster. The distribution of electron energies, called a photoelectron spectrum, is the raw data that Wang and his colleagues use to figure out how the atoms in the cluster are arranged. It’s not a simple process; the researchers need sophisticated mathematics and a super-computer to analyze

the peaks on the spectrum and tease out the structure that gave rise to them.

Wang often has some idea what to expect because he works closely with theoretical physicists whose mathematical calculations suggest what the most stable form of a certain-sized cluster will be.

A given number of atoms in one cluster can combine in many different ways. Usually, only one form will be energetically stable enough to survive in the lab. The others are so unstable they degrade almost as soon as they form. “Experimentally you just don’t see them. At the end [of the experiment], you just see the most stable one,” says Wang.

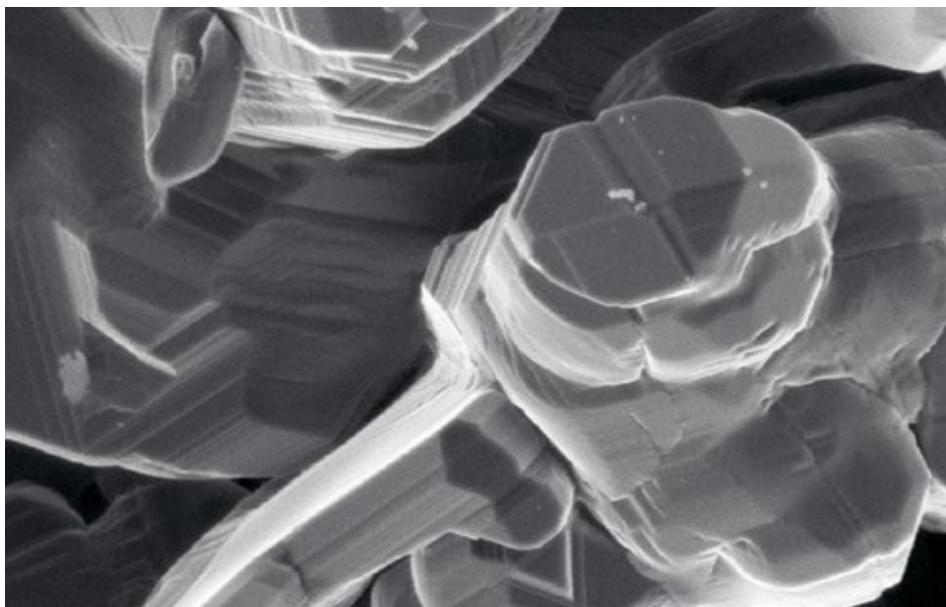
Sometimes the theoretical prediction fails. The most stable form of boron-9 was predicted to be a ring of eight boron atoms radiating out from a ninth in the middle. Wang calls the structure a “molecular wheel.” When his group analyzed the electron spectrum of boron-9, they found peaks that corresponded to a molecular wheel—and several that didn’t. Another PNNL scientist and a student re-did the math, and discovered that

“Our progress has been slow because we are dealing with bigger and bigger systems, and the calculation becomes more and more difficult,” he says. In large clusters the electrons get crowded, their spectra are harder to decipher, and the number of possible arrangements of the atoms increases exponentially.

The effort is worthwhile both for the basic knowledge of quantum chemistry it will provide and for the potential payoff: Because of their chemistry, boron structures could be good at safely storing hydrogen fuel.

So far, none of Wang’s boron clusters can survive outside of the vacuum tube. He hopes one of the larger clusters will turn out to be as sturdy and stable as buckyball, the soccer ball-like cluster of 60 carbon atoms that was discovered in the 1980s.

Buckyball looks cool. It has also sparked a technological revolution. When they’re opened up into flat sheets, buckyballs form graphene, which looks much like naturally-occurring graphite. Roll a single layer of graphene into a tube and



Scanning electron microscope image of boron clusters. Courtesy JEOL USA.

the method of calculation used for the initial prediction was wrong. It had not recognized that alongside the wheel-shaped cluster, and almost as stable, would be an oval structure with two central atoms surrounded by a ring of seven.

“This is why they are not going to displace experimentalists any time soon!” Wang says, laughing. “You do need the experimental data to validate the calculation.”

His group has worked its way through boron clusters containing up to 20 atoms. Now they’re beginning to explore larger clusters.

you get a nanotube, the microscopic structure that has become a pillar of the nanotechnology industry.

“Our research is very much in that spirit,” says Wang. “We’d like to discover something which can survive in the real world, like the buckyball. Buckyball was discovered in exactly the same way, but it turned out that it is super stable. You can put it in a bottle.

“I don’t think we have discovered such a thing yet. But that remains one of our dreams.”



## Rowing 101



Women's rowing has competed in NCAA Championships five out of the past seven years. *Photo by Robert Hubner.*

*by Jason Krump* :: So here I am, about to row with the Washington State women's rowing team on the Snake River.

This is not the first time I have rowed. That occurred a week before when I took some strokes in the new indoor rowing facility at the Bohler Athletic Complex. This is, however, to be my maiden voyage on an actual body of water.

A benefit of the indoor facility is that it allows coaches to provide one-on-one instruction, rather than shouting commands from a distance at the river.

After my first few strokes of the oar, Head Coach Jane LaRiviere walked over and grabbed my hands. "Relax, don't have such a death grip on it."

Somehow, I managed to lighten my grip and in the process bring my oar back to life. In time, I felt like I was figuring it out, and I could have sworn I heard Jane say, "That's a little better."

When I was done, I asked Jane to rate me on a scale of zero to 10.

"One," she said.

At least I was on the board.

You may ask why subject myself to this?

With five NCAA Championship appearances in the last seven years, including a fourth place national finish in 2006, women's rowing is one of the most successful athletic programs at WSU. But despite this level of success, I sensed that the sport and the student-athletes who compete in it are overlooked.

I WANTED TO LEARN more about rowing, and in the process, what it takes to compete at this high level. In order to accomplish this, I couldn't just skim the surface of the water, so to speak. I needed to entrench myself with the team.

And so, I had two goals: 1) to learn as much as possible about the sport and 2) to not embarrass myself, not too much at least.

Any hopes of achieving the latter had already dissipated after my indoor experience, but I still could fulfill the first part, and in order to do so, I needed to experience the training regimen. This meant working out with the team at 6 a.m.

This pre-sunrise start to the day is routine for the team, and, aside from the early wake-up call, I was confident I could handle it. Why not? I am in decent shape for someone in his (uhmm)



ROBERT HUBNER

mid-30s, so my only sacrifice, I figured, was a delay in my morning coffee intake.

I entered the weight room ready to go, and at the top of the hour strength coach Michael McDonald said, “Okay, two warm-up laps.”

With that, the team began its warm-up jog. Trying to keep pace, unsuccessfully, was I.

After the warm-up, the team started a circuit rotation through six stations with each station consisting of two exercises lasting 20 seconds each. One time through equaled one round.

There would be six rounds total, and, as I quickly realized, no rest in between.

I became a wind-up toy—starting at a decent pace, but gradually slowing down with each passing round. In the first round I was already longing for water. By the fifth, I questioned if eating breakfast beforehand was such a good idea.

Finally, after 45 minutes, it was over. I’d survived.

But that was just the half of it. While the team gathered their belongings and headed outside, strength coach Marco Candido said I could have a Gatorade if I liked. I quickly took him up on his offer ... multiple times.

With my legs not quite under me, as if I’d just gone several rounds with Ali, I followed the student-athletes out to the track, where Assistant Coach Tara Medina told them to jog three miles.

After some brief deliberation, I decided my time could be better served for the story by having a discussion of rowing with Tara.

Two days after my workout adventure I join the team for a practice at the Snake. There is not a breath of wind and the surface of the river is as smooth as glass. It reminded me of the conditions when the Titanic struck the iceberg.

I assist my crew carrying the boat, or shell, from the boathouse to the dock. Reaching the dock, I gently set it in the water, praying the \$30,000 shell doesn’t slip out of my hands and crash against the water, or worse, the dock.

The time has arrived. I slip off my tennis shoes, because there are already shoes fitted in the boat, and manage to get in without getting wet.

I take the sixth seat, or position, in the boat’s center. As we prepare to depart, my fellow crew members give me advice, which I greatly appreciate.

There is a lot of information to process, but my sole focus is to watch the person ahead of me and just try to keep pace as best I can.

As we glide along, I turn my head to the left, observing the oar motion of the person seated in front of me, then to the right to observe my oar, which, more often than not, either crashes in the water at the incorrect angle or misses the water altogether.

Of course, I am completely oblivious to the fact that proper technique is for the oarsperson to look straight ahead. Jane tells me afterward that I was turning my head so much she thought it would fall off.

After some initial setbacks, I seem to be keeping in unison with the rest of my teammates, so much so, that the coxswain, the person in charge of the boat, says, “You’re catching on.”

But any self-congratulatory thoughts vanish as quickly as my technique (what there was of it) and I catch a crab, the term used by rowers for when an oar gets caught in the water.

After about 1,500 meters of gliding along the Snake, we stop and I take my rightful position in the motorboat Jane is skippering.

Again I ask Jane to rate me on a scale from zero to 10. She says this was a two, but there were moments when I was a four or five.

I’d never felt so happy to be below average.

I observe the rest of practice from the boat, reflecting on my experience.

First, I’ve gained an even greater appreciation for what these student-athletes accomplish.

Second, I hope to one day relive the experience. Because in spite of my aches and hard-gained humility, I felt I had just skimmed the surface. <<

Our correspondent Jason Krump had two goals in training with women’s crew: 1) to learn about the sport and 2) to not embarrass himself. Not too much, anyway.





## A runner's worlds

by *Marisa Sandoval* :: On a summer morning, the sun's first rays peep through my bedroom window, warming the dry air when I hear a tentative knock on my door.

"Marisa," my dad whispers.

It's 5:45 a.m. at the Sandoval house in Los Alamos, New Mexico. The pink morning glow and the patter of running shoes mean only one thing: It's time to run.

For me, every summer day begins with a family run on picturesque trails carved into the high desert canyons and mesas of northern New Mexico's Jemez Mountains. With my dad, Anthony Sandoval, leading the way, I run with my brothers and sisters. On a good day, we number eight athletes (including one golden retriever).

We traverse the same trails my dad trained on two decades ago for the Olympic Marathon Trials. From Bayo Canyon to Bandelier National Monument, these paths offer the rough landscape necessary for me to build my mental and physical strength throughout the summer days.

In August, as the morning air smells cold and purple asters bloom along the trail edges, the purpose behind my summer running suddenly shifts: I am training for the Washington State University cross country and track and field teams.

Four years ago, my love of running with my family grew to include a new family and a new landscape: the Cougars on eastern Washington's panoramic Palouse.

A different, cool yellow sun creeps over the eastern hills, rays filtering through dried wheat stalks, illuminating the frosted edges of a quaint bridge on Johnson Road. Clad in running tights, our group of young men and women gather jovially, stirring under the watchful eye of our coach Jason Drake.

"Stretch, young Padawans!" he calls out as we shake out our morning stiffness.

It's 8 a.m. on the Palouse. Every Sunday our cross country team escapes the confines of campus to explore the unpaved roads that curve through the surrounding hills.

The moment my feet crunch the gravel, time slows. Lost amidst towering hills and swaying

wheat, a runner is threatened only by low-flying crop dusters and impatient pickups. Unlike New Mexico, where the mountains crash into the pure blue sky, the beauty around Pullman is subtle and pervasive. The hills provide a deep rhythm while I run, a harmony through constant repetition, color, and the cadence of silence. Following the training routes of legendary runners Gerry Lindgren '68 and Bernard Lagat '01, I trust the landscape to form my body as it did for those before me, one stride at a time.

From Johnson Road to Smoot Hill, Union Flat Road to Moscow Mountain, I find every run challenging and beautiful. Extreme cold in the winter, the brutal heat of summer, the Palouse



TOBIAS WALTHER

Spring sometimes comes late to the Palouse, but WSU runners endure.

## Discovery

Renaissance scholar **Will Hamlin** searches for copies of Montaigne's essays, intent on what readers' comments in the margins reveal about the culture of the time.

Agroecologist **Jerry Glover** Ph.D. '01 might well change the world as he helps create a perennial harvest.

Sociologist **Annabel Kirschner** reports that Washington is finally becoming more diverse.

Vinologist **Charles Edwards** has helped *Saccharomyces* yeast gain more self-confidence in fermentation.

Composer **Charles Argersinger**, an "absolute omnivore," writes music that nurtures the soul.

Geochemist **Nick Foit** uses volcanic ash to determine time.

Scholar **Debbie Lee** and writer **Peter Chilson** tour the literary journal landscape.

*And you?* You can test your memory without having to tell anyone the results.

Find this all at [wsm.wsu.edu/discovery](http://wsm.wsu.edu/discovery).



always keeps me interested. Every day, despite the challenges—and because of them—I am tied more intimately to the landscape of the Palouse.

Running with my Cougar family has reinforced in me persistence, courage, and heart, first introduced to me by my family. These traits

Working solely from equations “doesn’t get me very far,” she says. “I also have to have the physical picture of, what would I expect? What do the particles do? I always try to think about, what physical mechanism is it that helps to formulate the equation I want to use?”

Bosons lose energy as the temperature drops. If they get cold enough, they condense into a blob of matter called Bose-Einstein Condensate, or BEC, in which they all crowd into the lowest possible energy state. “That’s very, very characteristic of bosons,” says Blume. “They all want to do the same thing. It’s like bosons are social; they want to be together. Imagine a party, and you are in a conversation with a bunch of other people. The bosons, they would be that cluster.”

Fermions, on the other hand, want nothing to do with each other. “No fermion can be where another fermion is,” says Blume. “If one fermion occupies one energy state, the other fermion *has* to go to a different energy state.”

Even at temperatures near absolute zero (-273 degrees F.), fermions won’t bunch up in the lowest energy state. Instead of condensing like bosons, they form what’s called a degenerate Fermi gas. Since its fermions remain at fairly high energy levels, a Fermi gas has some unusual properties. Most notably, it may act like a superconductor.

Superconductivity is the transmission of electricity with no resistance. It’s like skiing downhill on ice. The current just *goes*. Superconducting crystals can be made in the lab, but so far the highest temperature at which they work is around -134 degrees F. Figuring out how to make superconductors that work at room temperature is one of the holy grails of modern physics and materials science.

The problem is, we don’t yet have a solid theoretical understanding of superconductivity, and without that, efforts to create superconductors tend to include a lot of trial and error.

“The theory of superconductivity is so hard,” says Blume. “Even if we can write down an equation, we might not be able to solve it, even with all the computer power there is.”

Blume’s papers on fermions are referred to by so many other researchers that although she has been at WSU for only eight years, she is already among the University’s most-cited scientists.

ROBERT HUNTER



TOBIAS WALTHER

The hills provide a deep rhythm and the cadence of silence.

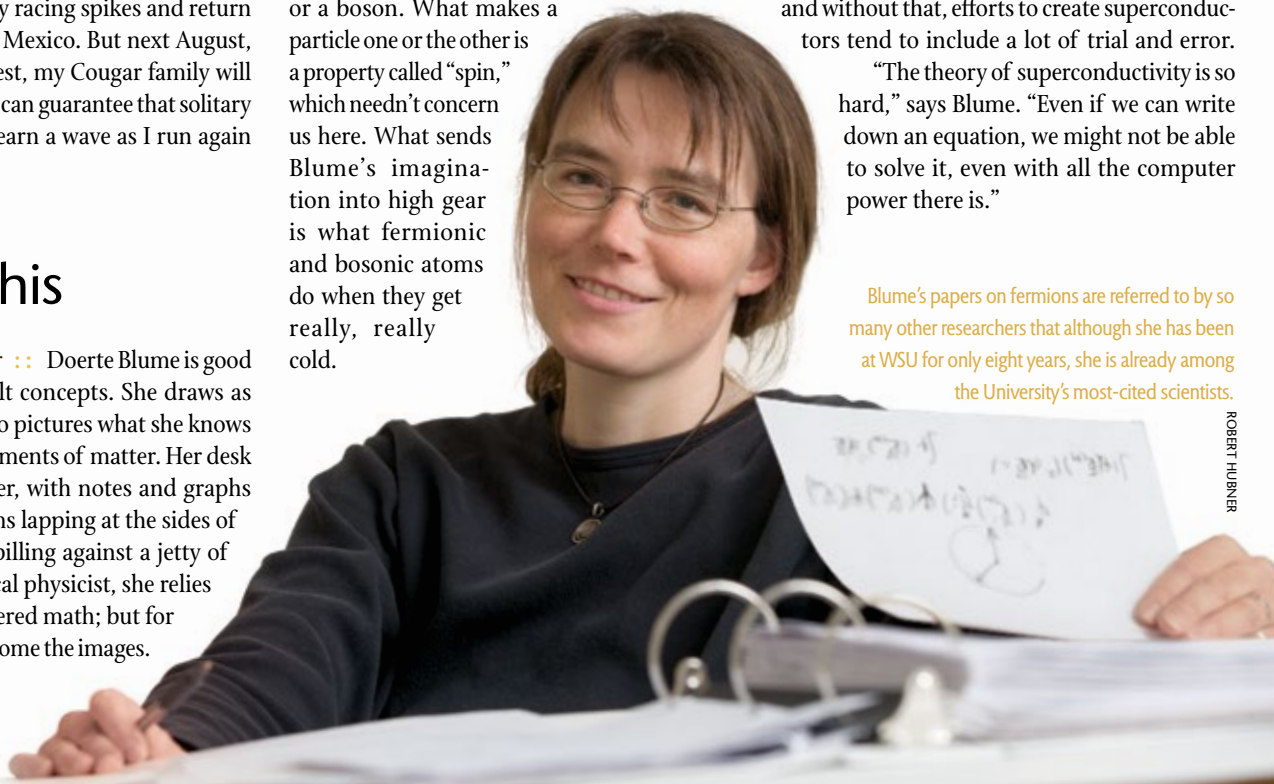
are fostered by my coaches and teammates. By running on the unending Palouse, I form my character as an athlete, a student, and a person.

In June, the NCAA track and field season will end. My coaches will hang up their stopwatches, and I will hang up my racing spikes and return to my family in New Mexico. But next August, just in time for harvest, my Cougar family will re-unite in Pullman. I can guarantee that solitary combine driver will earn a wave as I run again through the Palouse.

## Picture this

by Cherie Winner :: Doerte Blume is good at explaining difficult concepts. She draws as she talks, putting into pictures what she knows about the tiniest fragments of matter. Her desk is swimming in paper, with notes and graphs and sketches of atoms lapping at the sides of her computer and spilling against a jetty of books. As a theoretical physicist, she relies heavily on high-powered math; but for her, before the math come the images.

Blume is trying to understand the behavior of fermions (FUR-me-ons) and bosons (BO-zons), which is to say, the behavior of almost everything. Every particle in existence, from quarks and electrons up through atoms, is either a fermion or a boson. What makes a particle one or the other is a property called “spin,” which needn’t concern us here. What sends Blume’s imagination into high gear is what fermionic and bosonic atoms do when they get really, really cold.



That's where the ultra-cold fermion atoms come in. Experimental physicists have found that they can make a Fermi gas look and act like a crystal by using a grid of laser beams—an optical lattice—to slice and dice the gas so each atom ends up in its own little space.

"If you cut it open, it's like an egg carton," says Blume of an optical lattice. "You can put one atom per site in this egg carton. This is essentially a model for a typical crystal."

In a crystal, electrons flow through the spaces between atomic nuclei that are rigidly bound to each other. In an optical lattice, whole fermionic atoms flow around the barriers created by the light beams. It's a great model experimentally, because atoms are much easier to work with than electrons. It's also a great model theoretically, because the equations describing their behavior can actually be solved.

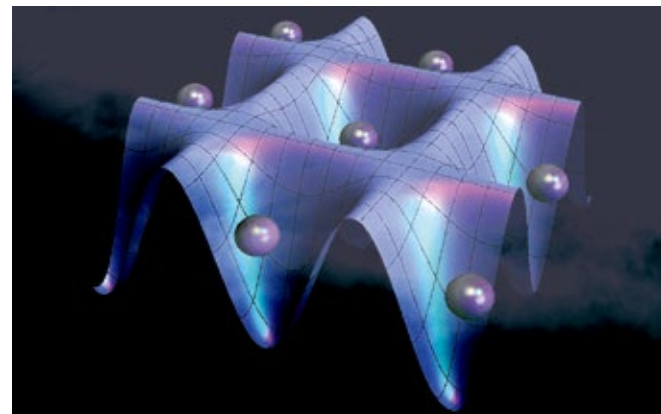
Once Blume devises equations that describe a particular lattice, she uses them to do a theoretical experiment. What happens if she changes how strongly the particles interact with each other, or how much they attract or repel each other, or the size of the space they're confined

in? Sometimes an experimentalist asks her to try a variation on paper before tackling it in the lab. Other times, she suggests the experimentalist do for real what she did in theory.

"We can go ahead and do an experiment; go ahead and do a theory; and we can compare them pretty much without fudging," she says. "If the results agree, it suggests we understand the physics. And if the results don't agree, then we don't understand the physics entirely... It would make me think and go back: Did I include all the right things? But I would also ask the experimentalist, 'Are you sure your [set-up] was like this and not like that?'"

At WSU she shares ideas with fellow theorist Chuanwei Zhang and experimentalist Peter Engels, who was the first person in the Pacific Northwest to make an atomic BEC (see The Science Shop, [wsm.wsu.edu/stories/2006/November/scienceshop.html](http://wsm.wsu.edu/stories/2006/November/scienceshop.html)). Engels recently began working with Fermi gases and will soon launch a new series of experiments: He's going to put fermions and bosons into an ultra-cold chamber at the same time.

Blume is sharpening her pencils in anticipation.



Depiction of individual atoms isolated by an optical lattice.  
Courtesy Philip R. Johnson/American University

"Bosons are really interesting, fermions are really interesting—now what's going to happen if you mix them?" says Blume. "The fermions don't want to be on top of each other, but the bosons want to occupy the same space. But now the bosons can interact with the fermions, so does that make the fermions want to come closer?"

For Blume and her cold-matter colleagues, the party is just getting started.

## Our Story

*Being the magazine for a research university, of course we don't believe in ghosts. Of course not... But what a great story Dick Uthmann has sent us.*

### Bryan Rocks

From the fall of 1957, I was stage manager of Bryan Hall for the music and drama departments, since both departments shared the stage. The auditorium was very heavily used for music rehearsals, drama productions, dance programs, lectures, organ practice, etc. I finally realized that the best time to aim and focus the stage lights was after the building was locked at night. As manager I had a master key to the building.

The big stage lights were located in the ceiling of the auditorium and accessed by going up the bell tower to the third floor and through a heavy steel fire door to the loft over the auditorium. Both levels of the bell tower were used for stage property storage, as was the area over the classroom section. One of the first times I went up was with an instructor, and I noticed a rocking chair sitting out in the middle of the floor, so I picked it up and was going to stack it with the rest of the chairs. The instructor told me to leave it there, it belonged to E.A. Bryan [who died in 1952], and he liked to have it there. "Right," I thought, but left it there.

The next time I went up into the loft alone, the chair was out in the open, so I put it over with the other chairs and went on to fix the lights. It was late at night and I was sure no one else was in the building since the janitor had left when I came and reminded me to lock the doors when I left. As I worked on the lights (they were carbon arc and very hot) I heard the fire door open and close, but saw no one there. I figured it was just the janitor checking on me and ignored it. A moment later I got really cold, even shivering, even though I was standing right over the hot light. Then the cold sensation passed, and I finished the rest of the lights quickly. When I went back through the fire door, the chair was sitting in the middle of the floor, rocking. I watched for a minute, but it didn't stop. The air around it was cold, but I wasn't brave enough to touch the chair.

I'm not sure I believe in ghosts, but I never moved that chair again unless it was necessary to move props, and then it went right back to the right spot. Many times when I went up there, no matter if it was night or day, the chair was moving slightly, but I never felt the cold again. Some things you just don't mess with.

*Dick Uthmann '60 BA, '71 MA  
Longview*

Post your WSU ghost story at *Our Story*: [wsm.wsu.edu/ourstory](http://wsm.wsu.edu/ourstory).



## Ramping up in rural Washington

by *Bryan Corliss* :: If you drive for 45 minutes up the back road from Goldendale toward Trout Lake in Klickitat County, you'll pass through Glenwood, set in its scenic valley at the base of Mount Adams, where the pastures begin to give way to pine trees, some 35 miles north of the Columbia River.

If you pass through in June, you might catch the local rodeo, celebrating its 75th anniversary this year over Father's Day. Maybe you'll stop at The Shade Tree for gas, that being the name of the biggest business in town, a combination hotel/cafe/gas station/convenience store. There's a post office and a small grocery, and there used to be a tavern, but that's gone now.

There might be more elk than school kids in the Glenwood Valley—one recent count put the school's enrollment, K–12, at 62 children. Somewhere between 500 and 700 people live in the area, ranchers and loggers mostly, people trying to make a living amid beautiful, peaceful—and isolated—surroundings.

It would be just that much easier to do that, says Ava Van Velsor, a WSU Extension coordinator in Klickitat County, if only they had access to high-speed Internet.

"We have craftsmen in the area that want to sell goods via Web sites," she says, "and people who are providing services locally who'd like to advertise on the Web." There's no local bank or clothing stores—folks would like to do that kind of business online. The sheriff's and fire departments would like a Web-based 911 system, to replace cell phones and radios that are prone to losing signals in the Cascades foothills.

But so far, no telecom providers have been willing to extend high-speed fibers up the Glenwood Highway from Goldendale to serve the isolated community. Advocates say it doesn't pencil out for private-sector providers; there aren't enough customers to justify the cost.

"There's just not enough ROI [return on investment] and spare capital in this world," says Joe Poire, executive director of the Port of Whitman in Colfax, who's been a leader in rural broadband development in Washington.

That could be about to change. The Obama administration's economic stimulus package, approved by Congress back in February, includes

two separate pools of money totaling more than \$8 billion to extend broadband connections to places like Glenwood across the United States. Washington communities may have a leg up in qualifying for those funds, due to a WSU Extension program that over the past eight years has worked to get broadband access to rural communities, and help those communities to capitalize on it.

"We have to make sure we don't just throw a piece of a solution at the community," says Monica Babine, who coordinates the Rural Bridges program for the Extension service's Center to Bridge the Digital Divide. "And make sure we don't create a field of dreams where no one comes."

The center was set up by Extension in 2001, and it's managed to attract about \$3 million a year in outside grant money to sustain itself since. The Rural Bridges program is one of its three major efforts, the others being studies of global telecom networks and of the future of digital communications.

It's had some high-profile successes, including a customer-service call center that Seattle-based Washington Dental Service has established in Colville. Total employment there has climbed to close to 100, making it one of Stevens County's major employers.

In economic development, attracting big companies that employ hundreds of people makes headlines, but that's often not what a small town really needs, says Poire. A company looking for 300 workers—even 75—will overwhelm many small towns, which don't have the manpower or resources to support them, he says. "The first thing they'll ask is 'where's the workforce?'"

But when you bring in a small, family-owned business that can fill up a vacant storefront, buy goods and services from existing business, and hire a handful of local residents, that's a good fit for just about any small town between Ilwaco and Asotin. "That's perfect," he says.

The Rural Bridges program has helped out with those small projects as well, in places like Forks, a town of 3,000 isolated on the Olympic Peninsula. Forks has a fully capable broadband telecom center in town, thanks to a grant from Congress in 2000 that created a



**Above:** Glenwood has everything you'd ask of an idyllic rural community. Except high-speed Internet. Photo Daniel Kaynor.

**Opposite:** Forks has benefited from a broadband telecom center, thanks to a pilot program to show how rural schools could benefit. Photo courtesy Forks Chamber of Commerce.

pilot program to show how rural schools could use and benefit from having broadband access. A Gates Foundation grant helped pay for training local people in how to use the hardware, once it was installed.

Since then, Forks has seen a steady trickle of small start-up businesses: A software entrepreneur and local health-care specialists banded together to provide services to a group of hospitals too small to hire them individually. One Spanish-speaking woman was able to keep her job as a California legal translator when she moved to Forks, because the high-speed Internet service was in place; she was so successful that community leaders started recruiting Spanish-speakers from the growing Latino population; WSU Extension service helped Peninsula College in Port Angeles set up a training program for the interpreters at a Forks branch campus.

The list of projects goes on, says Rod Fleck, the Forks city attorney and planner: A custom sawmill wins new business because it has Internet access. And Forks was able to keep 16 jobs after a local Department of Social and Health Services office burned, because it had a community center hard-wired for broadband.

Even tourism has benefited. Forks is the setting for the popular *Twilight* series—teen novels (and now movies) about forbidden love between a vampire and a local high school girl. Fans of the stories have been coming to visit, and having the high-speed data links means local



Foreign language professor Birgitta Ingemanson on Old Vladivostok.

Jenny (Brown) Goeres '78 and Bill Goeres '77 on their work with street children in Cochabamba, Bolivia.

[wsm.wsu.edu/coordinates](http://wsm.wsu.edu/coordinates)

Coordinates



hotels can offer on-line reservation services, just like in the big cities.

"What broadband provides to rural residents is, it allows them to expand their market beyond their local communities," says Babine. "They have great ideas, they have great products and services, but they don't have a local customer base. It [broadband] allows them new oppor-



tunities to do business in the communities they want to live in."

Rural counties clearly need some kind of help. In February, Washington's jobless rate spiked to 8.4 percent, the highest rate the state had seen since the recession of the mid-'80s. At the time, 21 of Washington's 39 counties reported double-digit unemployment rates, all but one of them outside the state's urban centers. Rural joblessness was high on both sides of the Cascades. On the eastside, Ferry and Stevens reported unemployment greater than 14 percent; on the coast, Wahkiakum, Pacific, and Cowlitz counties did, too.

Most of these rural counties rely on either the timber or paper industries for a significant portion of their jobs. The national housing slump has crushed demand for timber, which has led to widespread layoffs for both loggers and mill workers. And with fewer sawmills cutting up trees, there are fewer wood chips to be made into paper, which has led to more plant closings.

The rural broadband initiative grows out of an Obama campaign pledge to try to help rural America. With the billions of dollars that will be involved, companies will be able to do a lot, says Poire. The Port of Whitman, for example, has spent \$1.4 million over the past five years running high-speed fibers to 16 Whitman County farm towns, and it now leases those lines to private telecom service providers. Washington's share of the stimulus money should pay for scores, if not hundreds, of similar projects.

It will be a mad scramble for communities to implement the stimulus plans, Fleck warns. Yet the stimulus legislation requires these projects to have the many necessary permits and be underway by August.

At the same time, small-town mayors and planners who are wrestling with broadband issues are getting flooded with paperwork related to other stimulus bill provisions. "It's going to be a challenge," Fleck said last spring.

But—in part because of WSU's involvement in rural broadband issues—the state's in good shape to act this year, once the stimulus money is released. The system to administer the funding is already in place, Babine says.

"We wanted to have our big catcher's mitt ready," she says. "States that have an entity in place working on broadband are going to be shovel-ready, if you will."

And communities like Forks and Glenwood should end up being models for how the nation moves forward, she adds. In each case, the communities came together under local leadership to figure out what they could do with broadband service once it got there. That kind of local planning should pay off now. The plan is in place; all they need is the money.

Not everyone's convinced this should be a national priority. On a national level, some economists argue that those billions of dollars would be better-spent on projects that would benefit greater numbers of people, instead of a few hundred here or a couple thousand there in rural pockets scattered across America's hinterlands.

But Washington rural advocates say their citizens have every right to the same basic services that city-dwellers have.

"One's ZIP code shouldn't limit one's education, business, health, recreation, or government interaction," Fleck says.

"We're going to see a blossoming of opportunities in some rural areas that are having and have continually had challenges to their economic base."

Van Velsor and the people in Glenwood agree.

"Our take, as a community, is that this is becoming an essential and basic need for folks. The way society and education and work is all turning, if we're left behind, we're truly becoming more of a burden instead of being able to grow as communities ourselves." <<

**Get an Early Start**  
*Just for Incoming Freshmen*  
**July 5- July 31**

*Summer Advantage prepared me for fall semester. My Summer Advantage classes were small and personable, and the instructors were clear in their directions and very helpful. After four weeks, I now have six credit hours of A's to start my college career.*

*-Summer Advantage Student*

[summer.wsu.edu/advantage](http://summer.wsu.edu/advantage)

» in season



## { SPRING IS THE SEASON FOR CHÈVRE }

*by Hannelore Sudermann :: photos Ingrid Barrentine*

**AFTER A WINTER'S BREAK**, the goats at Rhonda Gothberg's farm have kidded and their milk is rich and sweet. The soft French-style cheese she makes is delicious with just a nuance of that goat tang. Maybe it's because the animals have added tender green grass to their diet, maybe it's because it has been a long winter without fresh goat cheese, but "June chèvre is my favorite," says Gothberg.

With a few acres in Skagit Valley, Gothberg is raising 29 milk goats for her farmstead cheese business. Early each the morning, just as the sun illuminates the shape of Chuckanut Mountain in the near distance to the north, she heads out her back door to her flock.

But before she gets to the goats, she dons a clean white lab coat, shoe covers, and a cap and makes a right into the cheese room where fresh mounds of white, smooth chèvre wait to be turned.

Making cheese is a most satisfying process, says Gothberg. Collecting and cooling the milk and adding veal rennet, she makes the cheese one day and lets it sit overnight. The next day she turns it and then lets it sit another night. Within three days, it's ready. She calls it "go out fast" cheese.

While goat's milk and cow's milk have a lot in common, goat's milk has volatile short chain fatty acids, which give it those unique flavors, says Stephanie Clark, a food scientist at WSU. "Those are really rancid notes. They're more piquant or peppery. Some people don't like that."

When it comes to making cheese, goat's milk is definitely harder to work with. Its milk fat globules are very fragile; their membranes can be broken by temperature and rough handling. The sign of a good goat cheese, and good handling, is its mildness, says Clark. And because it has less alpha-s1 casein protein, goat cheese is typically softer than cow's cheese.

Gothberg's La Mancha goats wait in three small pens in the barn, knowing it will just be a few minutes before she leads them up the metal ramp to the milking station. Brown and black and grey, with sleek heads and small ears, these goats are a variety bred in the 1930s in California and known for their sturdy constitutions and flavorful milk.

Gothberg doesn't have to prod her goats, she just talks to them gently and the first five—Ditto, Alice, Winona, Hanna, and Liza—willingly move up the ramp. "As soon as they see me, they're ready to go," she says. She particularly likes this breed's affable nature. "They're smart, inquisitive, tuned in to you," she says. "It's like having 29 kindergarteners."

Though she had never milked an animal in her life, Gothberg first purchased a doe and a kid in 2002 with the notion of making cheese as a hobby. The goats suited her schedule as a real estate



agent, and cheese making proved a great creative outlet. The next year she added two more females, and more the year after. She honed her cheese-making skills in her farmhouse kitchen, then enrolled in Washington State University's cheese-making clinic. As soon as she realized she could turn the hobby into a business, she built a new barn with a milk storage room and a cheese room.

Gothberg is also a registered nurse. That background came in handy when it came to building her cheese facility. She works religiously to meet—and exceed—health department requirements. The milk goes straight from the goat through a sanitized hose into the clean milk room, where it is quickly cooled and pasteurized. Then it's moved one door further to the cheese room, where it is poured into the molds and later salted and turned.

But because she was one of the first small operations to pop up in several years, Gothberg struggled to find equipment to suit her size. "I had to figure out how to cool milk without using a bulk tank," she says. A bucket in a bath of ice water worked nicely.

Now other small-scale dairies are following Gothberg's model. Washington is seeing a boom in artisan cheese-making operations, says Russ Salvadalena, manager of WSU's creamery. There is now so great a demand for the University's annual cheese class that the school has had to add another three to four courses each year. "It got to be that the farmstead cheese makers took up half the class," says Salvadalena. "We had to turn people away."

Marc Bates, '70, who was the University's creamery manager before Salvadalena, teaches basic cheese-making courses in Western Washington, Idaho, and Oregon. He has seen an exponential rise in artisan cheese makers. "We're seeing cow dairies trying to add value and get more income from their milk, and we're seeing goats be the most popular next animal." Sheep are joining the scene as well, he says.

California may have led the cheese revolution, particularly with goat cheese when in the 1980s farmer/cheese maker Laura Chenel made it part of the American palate. Since then the trend of handcrafting cheese has crept up the coast from Sonoma to British Columbia. "We've gone from less than 10 licensed facilities in Washington back around 2000 to over 30 that are now licensed and making cheese," says Bates.

It's a good time to be a cheese eater. "Cheese is doing just what the beer industry did," says Bates. "It had consolidated to the point where there were only a few choices and—voilà, opportunity." Because beer was so standardized, there was room for a microbrewing rage. "Now we see the farmstead cheese movement taking off," he says.

Why did it take cheese longer to do this than beer? "Maybe cheese making is harder than beer making," he says. "But they do go well together." <<



Rhonda Gothberg bought a doe and a kid seven years ago with the intention of making cheese as a hobby. She now turns the milk of 29 does into a fine mild chèvre.



# LIVING LARGE

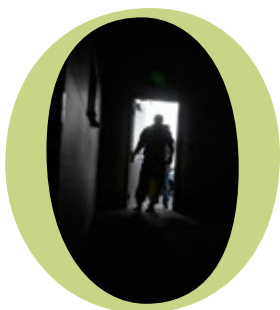


*in* **SEARCH** *of the*  
*elusive large animal veterinarian*



*by Hannelore Sudermann :: photos by Chris Anderson*





ne morning this winter, Sam Nielsen, a second-year veterinary student, cut out of class early to catch the activity in the large animal barn. He had heard about a new patient, a cow that couldn't walk and was pretty far along into a pregnancy.

As the WSU veterinarians examined the Wagyu cross, they diagnosed a variety of ailments, including serious knee damage. What made it even more interesting was the discovery that she was carrying not one, but two, calves.

"I had to go see," says Sam, who is hoping to someday have his own practice working with large animals. Missing an anesthesia clinic for a C-section delivery, Sam stood outside the stall and watched the team move quickly to lift the tiny black calves from the cow and then briskly rub them into breathing on their own. As the students sutured the cow, Sam headed off to his next class, his head full of the drama.

Having grown up in rural Utah the son of a veterinarian, Sam has seen many deliveries. From an early age, he loved to ride along to work with his father. "I'd hide behind a shrub when the bus came and then tell the old man it left without me." For the country veterinarian, it was often easier to take Sam along to a farm than drive him to school. "I had a weird childhood," says Sam. "I once brought horse teeth for show and tell." Later, during high school and college, Sam would help his father with nearly every aspect of his veterinary work including euthanizing sick cattle and assisting with necropsies to diagnose the source of illness. Even though he's seen his father head off to work at all hours, suffer injuries from the livestock, and grouse about the weather—that's the life that Sam wants.

Sam is the exception among veterinary students. The majority of his classmates come from urban and suburban homes, most are women, and most are headed for companion animal practices.

According to the Association of American Veterinary Medical Colleges, only about 20 percent of all veterinarians will work with food animals, some in private practice and some for government or industry. And there's concern about that percentage trending down. To fill future need, says a recent report from the AAVMC, about one in five new graduates each year will need to go into the large animal field. "The colleges and the veterinary profession have now reached a critical decision point, which may determine the overall contribution of the veterinary profession to the nation's future," states the report.

Food animal experts are often the first to identify emerging diseases in livestock. Because veterinarians are on the front lines identifying sick animals, preventing viruses, and improving livestock conditions, a shortage of large animal veterinarians could compromise the country's food supply and public health.

Why a shortage? Perhaps because now there are more women than men in veterinary school, and women are less interested in large animal work. Or maybe it's the preponderance of students who have no interest in a rural lifestyle. It may be money—a small animal focus is just more lucrative. Those ideas are probably oversimplified, caution the faculty at WSU. But one thing is certain. Veterinary practices are changing.

"There's definitely a trend, and it's getting scary," says Randy McGraw, a large animal veterinarian who practices out of Colfax. When McGraw opened his clinic about 25 years ago, he treated nothing but large animals. Today three-quarters of his practice is small animal because the large animals are gone. "I tell people I've been driving half the cows out of the county since I started," he says. Doing a quick count in his head, he says he believes between 21 and 24 herds have gone from the Palouse in three years. "There's still cows out there," he says, but not enough to keep him in business. In fact, Whitman is one of those counties where the cattle left before the veterinarians did. McGraw is one of eight in the county available to treat about 3,500 large, or agriculture, animals.

Early one Monday this winter, a couple waits in McGraw's office with a crate full of cats. Carefully noting their names and histories, McGraw takes them one at a time back to the kennels. He returns and tells the owners that their animals will be neutered and ready to go home in the afternoon.



**Above:** Second-year veterinary student Sam Nielsen hopes to have a rural large animal practice while most classmates are planning to work with companion animals.

**Opposite:** Colfax veterinarian Randy McGraw travels to the herd with his mobile clinic.

McGraw doesn't make much money on the procedure, basically charging the costs of the tools and drugs. He keeps the price low because he wants to sterilize as many of the community's pets as possible. Not only do we need to keep the populations in check, he says, but statistics show that 75 percent of those that get hit by cars haven't been spayed or neutered.

Before the couple pulls away, his assistant Jenny has the first cat on the table and is putting him to sleep. The heart monitor beeps and a country song croons out of the radio. Occasionally the veterinarian utters instructions to his assistant, but mostly they're working quickly injecting anesthesia, performing the surgery. Within half-an-hour, all three animals are done and McGraw is on the phone scheduling an appointment with an owner of a sick dog.

Then he heads out to his truck, a hulking Toyota Tundra, the back of which is filled with a white fiberglass contraption with doors and



drawers that hold his mobile clinic. Most large animal veterinarians require a mobile set up, but for many who are just out of school and are loaded with large student loans, the costs of a truck, a mobile clinic (a used one can run several thousand dollars), and all the tools and medicines needed, is almost prohibitive.

As he turns down a country road, McGraw talks about the changes in farming he's seen since starting his practice. Pointing out the empty barns, he talks about a time when every wheat farm had cattle. In the years when the price of wheat was low, farmers might make up the difference with their cattle sales, and vice versa, says McGraw. "They were diversified."

But then farming changed. Drain tiles took the water out of the low-lying pasture land, making it available to wheat. And then the government enacted strict guidelines about grazing in riparian areas. Add to that changes in lifestyle: Now fewer farmers are willing to be on the farm every day to tend livestock. "I can't tell you how many farmers have told me, 'As soon as Dad dies, these cows are gone,'" he says.

What remains are a few farmers like Tom Kammerzell who lives on the Colfax-area homestead his grandparents built in the 1930s. He and his wife Cheryl are raising registered Highland cattle, about 100 head. But he also has a day job with the school district. Kammerzell is already in the yard when McGraw drives up. In front of the large white barn, several calves wait in a pen. "I like working with cows best of all," says McGraw. "They're generally easy and predictable."

These heifer calves are due for their brucellosis vaccination. Brucellosis is an animal disease that can spread to people, and one for which heifers must be vaccinated before they are transported across state lines. McGraw opens his truck bed and pulls out his equipment: a pail of

sanitizer, ear tags, and several syringes. As he and the farmer put each animal into the chute so he can administer the shots, he handles them gently. "In some way I have to hurt every animal I touch," he says. "I like to minimize that."

With Kammerzell's help he loads them one by one into the chute, injects them, and tags their ears. The whole process takes about 15 minutes. "Most things I can do myself," says Kammerzell. But when he runs into something he can't handle, like a difficult birth or a sick animal, he turns to McGraw. "There are no midnight phone calls, but I have called him 5:30, 6 o'clock on a Sunday evening," says the farmer.

He knows he's lucky to have a veterinarian nearby, as well as the WSU animal hospital just 20 minutes away. There are farmers around the state who have nearly no resources. "I have friends ranching in the Yakima Valley and the upper Okanogan," he says. "If they have a big problem, I don't know what they do."

According to the American Veterinary Medical Association, 494 counties in the country have large herds of livestock and no veterinarians to care for them. In Washington that includes Garfield County, which has 10,000 head of cattle, and Grays Harbor County, which has 11,000.

"As farming operations become more consolidated, the links in the family farming chain—and the important exposure to the veterinarians who help these families care for their animals—are weakening, leading to fewer food supply veterinarians," Ron DeHaven, CEO of the AVMA, recently testified during a U.S. Senate hearing. The same applies to federal inspection agencies, he said. "Unfortunately, the number of veterinarians available to serve in key public health roles does not meet current demand, and the situation will only get worse without aggressive intervention now."



**THE WHOLE NOTION** of veterinary medicine is only a few hundred years old. At its inception the focus was on large animals, particularly those used in agriculture. The world's first college of veterinary medicine was formed in the 1700s in Lyon, France, in response to an epidemic afflicting horses.

When Washington's land-grant school (now WSU) was established, one of its core missions was the instruction of veterinary arts—specifically to train veterinarians to treat ailing livestock. The college opened its School of Veterinary Science in 1899, with three students and a shed. The program quickly expanded and included a weekly free clinic for local animals. Today WSU's College of Veterinary Medicine is the fifth-oldest veterinary school still in operation in the country.

One of the key dates in the history of the college as well as that of veterinary medicine in Washington was November 13, 1914, when two cattle cars on a train from the Midwest arrived in Spokane carrying animals that had been exposed to foot-and-mouth disease. The animals were quarantined and the disease was kept from spreading, emphasizing to the people of Washington how vital it was to have experts who specialized in animal medicine and how they served the public good.

For decades most of the training at the veterinary hospital focused on large animals. In 1922, for example, the case load was 80 percent horses and 20 percent cattle. When John Gorham started his veterinary courses in the 1940s, he and his classmates were trained to do everything—particularly as it pertained to livestock. “Small animal wasn't such a specialty then,” he says. In addition to learning to treat sick animals of all sizes, the students learned about meat and milk

inspection, things veterinary inspectors now often learn on the job after graduating.

Gorham, who has worked at WSU as a veterinary research scientist for more than a half-century noticed a change away from large animals back in the 1960s. “Maybe before that even,” he says. “It was a slow thing.”

As farming changed, as well as the types of students attracted to veterinary medicine and an increase in public interest in small animal welfare, the school built up its small animal instruction.

Whether a student wants to work with large animals cannot be a criterion when admitting students to the highly competitive veterinary program at WSU. Still, it is a question in the back of many minds. One professor, John Gay, has been thinking about it a lot and wondering if more could be done to recruit students to work in the food animal realm.

Gay grew up on a ranch in Montana and after receiving his doctorate of veterinary medicine from WSU worked with cattle for five years. He went on to earn a doctorate in epidemiology and specializes in diseases that affect cattle.

This concern prompted Washington's state legislature to pass a law creating scholarships for two students each year who go on to work as an agriculture animal veterinarian in the state.

**ALEXIS CAMPBELL** is a fourth-year veterinary student who has hung on to her dream of working with dairy animals. “I grew up on a dairy in southern Idaho, and I really enjoy the cattle and horse work,” she says.

This year she has traveled the region visiting rural practices seeking advice and maybe even a job. During her breaks, she has sought out







**Opposite page:** Though he loves working with large animals, three-quarters of Randy McGraw's veterinary practice today includes tending to the household pets of his community. **This page, clockwise from top left:** Boots in the WSU large animal barn. Fourth-year student Alexis Campbell. Tack for the large animals. Randy McGraw immunizes a calf. **Below:** Campbell, here with a horse from a teaching herd, will spend the summer working at a dairy-focused practice in Yakima Valley.



internships with rural veterinarians and is currently working at a dairy-focused practice in Sunnyside, Washington. "Some people have tried to steer me to a small animal practice," she says. "But the rural veterinarians, most of them older gentlemen, haven't been discouraging at all."

According to the American Veterinary Medical Association, earnings may be a factor in deciding what type of practice to have. Large animal veterinarians often work out of a truck and have to drive many miles at all hours to tend a patient or herd. And where a small animal veterinarian has fixed office hours and may charge several hundred dollars for something like a C-section for a cat, you can't do that for a cow, says Alexis. If the procedure is too costly, a rancher will just put his livestock down.

Alexis isn't too worried about finances, yet. "I haven't done the math to find a bottom line of where I could survive, but a friend who graduated last year owing \$110,000 in student loans figured she would need at least \$45,000 a year to get by," she says. Since the national average for a large animal practitioner is over \$60,000, Alexis believes she'll be able to make a living.

"You can go into a small practice and make more and work less and not have to go out at 2 a.m. to pull a calf," she says. "But I want to follow through with why I went to veterinary school in the first place."

**AFTER CLASSES,** Sam starts a project with some classmates and about nine cows from the WSU dairy herd. Over about an hour, they tag and give shots to the animals. Then, still feeling the chill of the winter afternoon, Sam wanders back to the warm large animal barn. "You mind if we check in on the cow that had the C-section?" he asks

me. We round a corner to find a group of people milling around the pen. The black animal lies on the floor, dazed and immobile.

The owner had been agonizing over this cow for a week, says George Barrington, one of the veterinarian/instructors working on the case. She couldn't walk, or even stand, and there was a crunching sound of bone on bone in her right leg. The farmer called the veterinary teaching hospital wondering whether he should put an end to her suffering.

"I said, 'Bring her in, maybe we can make some lemonade out of this,'" says Barrington. Sam, nodding toward the room across from the pen, says, "We've got two little lemonades in there." Inside on the floor in a tangle of towels and blankets are the babies, weak and asleep. Sam peers through the slit of a window. Satisfied, he turns back to the cow and the conversation about what happens next.

There isn't much more to do for the mother, says Barrington. His colleague Steven Parish returns holding a captive bolt gun. Parish looks at Sam. "Do you want to do this?" Sam pauses just for a second and then holds his hand out. Everyone starts moving, gathering in the pen around the cow. Sam steps into the middle and pauses while his professors talk him through the next steps, where to place the gun on the animal's forehead, and what should happen next.

He positions himself and pulls the trigger. Pop. The cow's head drops, the body slumps. Her eyes go filmy. A rattle of breath and it's over.

"All day long we've been thinking what's fair to this cow," says Barrington. "The best thing to do was to end her suffering."

"I know," Sam says after Barrington moves away, "That's a big part of this job."

"I've done this before with my old man," Sam says later. "But it was different with so many people around. You just don't want anything to go wrong."

It's past 5 p.m., and most of the workers and students have headed home from the animal hospital. Sam, instead, is slipping on sanitary blue booties on the other side of the compound. The cow he euthanized had been carried over on a fork lift and now the fourth-year students are going to perform a gross necropsy. Sam enters a large open room where the animal had been deposited on the floor. Four women in blue coveralls gather around the large animal, each wielding a seven-inch carving knife. They start to take tissue samples from the cow as well as remove its legs to determine the cause and extent of its injuries.

"Well, I thought it was going to be a quiet day," says Sam. "What's so great about being here at school is how much you can see and do first-hand. If I were watching this necropsy on a Power Point, I wouldn't get nearly as much out of it." He heads to a dissecting table where a student has taken the problem leg and is clearing away the tissue around the knee joint. "I have to see what was happening," says Sam.

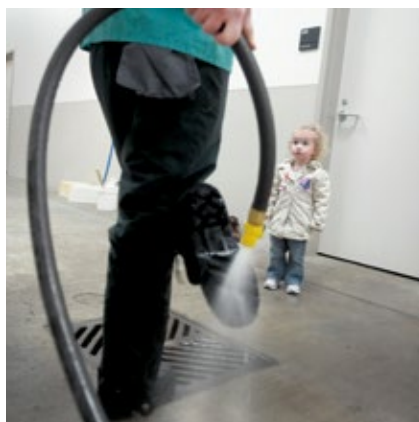
Working in the cold, choosing a life with large and sometimes dangerous animals—it isn't going to be easy, Sam admits. People, including his own father, have tried to urge him away from a strictly large animal practice. Sam has been mulling over a few ideas, including heading toward the Midwest to work with large herds of cattle or settling into a mixed animal practice, as long as it's rural. "I know it's hard," says Sam. "I've seen it first-hand growing up."

As farming changes, there may be more jobs for students like Sam, who can work with a wide variety of animals. According to the 2007 U.S. Census of Agriculture, which was released last February, the number of small farms is on the rise. And many of those small farms are diverse operations with multiple crops and a variety of livestock. While the number of large cattle farms has diminished, small farms and farms in areas that border urban communities are springing up.

"We used to say that mixed animal practice is dead," says Dale Moore, WSU's Extension veterinary outreach specialist. "That's not true anymore."

Moore has noted a new demand in Washington for mixed practice veterinarians. In many parts of the state, people have moved out of the city and settled on small properties with a few fruit trees, some cattle, maybe ducks or geese, or goats or sheep, she says. "They need information to raise these animals, and they need veterinary care."

"That's not to say we don't still need people in food supply veterinary medicine," says Moore. There are jobs out there for veterinarians to



Sam is one of those students who has the capacity to work on any kind of animal, says Ahmed Tibary, an expert on large animal reproduction. "He fits well into our community of comparative veterinarians." Some students come to WSU wanting to work on exotic animals with the goal of being something like a zoo veterinarian. "But before you work on a zebra, you have to work on a horse," says Tibary. Sam goes the other way. He knows about horses and cows, and can extrapolate that to other animals.

Under Tibary's guidance Sam is writing a paper about a rare ovarian cyst found in a cow in the WSU herd. An abstract for the academic paper had already been accepted. Now Sam has bred the cow and is following the behavior and health of the animal for his project. While Sam may be intent on pursuing a large animal practice, his advisors are pushing him to try out an academic perspective.

work with cattle and dairy herds, to work with the U.S. Department of Agriculture, and the Food Safety and Inspection Service. "For someone who wants to work with ag animals, there's lots of opportunities," she says.

Whether in Washington or somewhere else in the country, Sam and his family are willing to settle wherever there's work. "As long as it's rural and I can work with cattle," says Sam. "I'm not in it for the money. It's the life I want." ☒

Even on Saturdays, Sam Nielsen is on campus. Here he checks on an expectant cow for his research project. He rinses his boots under the watch of his daughter Asay. One of the dairy herd keeps an eye on the activity.



To view more large, medium, and small animal photographs by Chris Anderson and Ingrid Barrentine, visit [wsm.wsu.edu](http://wsm.wsu.edu).





# { A SEAT at the TABLE }

*Washington's Senator Patty Murray '72 clings to a humble beginning, but wields influence and power and dishes out results for her state's struggling citizens.*

:: by Hannelore Sudermann ::



Senator Patty Murray at a 2005 Appropriations Committee hearing. Her position on the committee and as chair of the Subcommittee on Transportation, Housing and Urban Development, and Related Agencies has enabled her to direct millions of federal dollars to Washington State. *Ray Lustig/The Washington Post*







## { A SEAT at the TABLE }

**One morning this spring**, Patty Murray's suite in the marble and limestone Russell Senate Office Building is bustling. A group from a garden club in Tacoma chats sociably with a team from the Washington Grain Alliance while a few other people in suits and military uniforms fill the couch and chairs.

Murray '72 and her staff will make time for all of them, though this morning the senator has had to rearrange her schedule to include a visit to the White House. President Obama is a day away from releasing his budget, and has asked to meet with Senate leadership.

But first Murray must head to a press conference over at the Capitol with colleagues Senate Majority Leader Harry Reid (Nevada) and Chuck Schumer (New York). Powerhouses like Reid and Schumer like to have Murray in their mix, say Washington insiders. Being from the West Coast and having a plain-folks way, she adds something to the tableau. That she's a woman adds diversity as well.

Murray is the first woman senator from Washington, the first woman to serve on the Senate Committee on Veteran's Affairs, a senior member of the appropriations committee, and the fourth-ranking member of the Senate leadership. Still, she continues to nurture the image, from her early days running for Washington State's Senate seat, of the ordinary "mom in tennis shoes" who wants to serve the folk of Washington State.

Reid speaks first, discussing Obama's "stunning speech" the night before. Schumer steps forward with similar comments. Then it's Murray's turn. The men spoke in concepts. She says it plain: All through the president's speech she was thinking of the concerns back in Washington State where the citizens are "really struggling." She lists layoffs at Washington Mutual, Microsoft, Boeing, Starbucks. Even her brother, a sports reporter at the *Seattle P-I*, is about to lose his job, she says.

"Now the hard work begins," says Murray. "This country needs us all to work together."



**PATRICIA LYNN JOHNS** and her twin sister Peggy were born in Bothell in 1950. Her parents Beverly, a homemaker, and David Johns, a decorated World War II veteran who worked as manager of a small store, stretched their income to care for their seven children. But then challenges struck. When Patty was 16, multiple sclerosis disabled her father. The family turned to welfare until Beverly was able to get government-funded training and find work as a bookkeeper and support the family.

In 1968, Patty chose Washington State University for college. At that time the student and faculty activism in Pullman was as much an education as the classes, says Murray. "I saw you had a choice to sit at home and gripe or go out to be involved."

To fulfill the requirements of her physical education degree, Murray left WSU for a semester and volunteered at the Seattle Veterans Hospital. "I worked with men and women who were coming home from Vietnam who were my age," she says. "I really saw what the reality was of people who went to war and came home. I have taken that experience with me ever since."

While studying in Pullman, she met Rob Murray. They were married in 1972, the year she graduated, and she found work as a secretary while he finished his degree.

After college they moved back to western Washington and settled in Shoreline. Rob signed on with the Coast Guard, and they started their family. For the first few years, Patty was a homemaker focused on raising Randy and Sara, but the closure of a state-funded cooperative preschool program turned her into an activist.

The time in the 1980s was much like today when the state budget was especially tight, says Murray. She drove to Olympia to argue for the program and was told by one legislator that she was telling "a nice story, but I couldn't make a difference," she says. "He said I was just a mom in tennis shoes." Instead of being discouraged, she was invigorated. She led the charge to get the funding reinstated.

After that first taste of success Murray decided to run for the Shoreline School Board. She lost by a narrow margin, but was later appointed to the position after a vacancy. From there she honed her skills working locally, and helped a friend run for state senate. Though the friend lost, Murray was left thinking that she herself could run for the seat in 1988.

She was very effective as a state senator, says lobbyist Lonnie Johns-Brown (no relation to Senator Murray), who worked with Murray on women's and children's issues. Murray's greatest success was helping to pass the state's first family leave act, says the lobbyist.

Murray wasn't in office a full term before she set her sights on the U.S. Senate. Watching the Senate confirmation hearings for Supreme Court Justice Clarence Thomas in 1991 and seeing how the senators treated and reacted to Anita Hill, Murray could see that no one there represented her—a woman, a mother, someone from the middle class.

Murray on a 2001 tour of an apple packing house in Yakima. In February she was recognized by the Washington State Farm Bureau for her work on behalf of Washington State farmers. *Courtesy Murray Senate press office.*



## { A SEAT *at the* TABLE }

Nearly everyone around her discouraged her bid for national office. Some even laughed at the idea, she says. “Back then I was told, ‘You haven’t paid your dues. You haven’t been in politics long enough. You don’t have enough money. You don’t know how to raise money. You don’t know enough people. You don’t know the right people,’” says Murray. “But that wasn’t important to me. I wanted a name on the ballot. It didn’t have to be mine. But I wanted a name on the ballot of someone who understood the things important to families like mine.”

She brought it up during a meeting at her Shoreline office with Norleen Koponen, then Washington State’s president for the National Organization for Women and Johns-Brown. “At first we were like, ‘Oh, really?’” says Koponen. Both women realized it was a long shot. “It was pretty much a white male club for the national offices,” says Koponen. “People were looking at her bid unbelieving that she would even have the audacity to try.”

Murray, then 41, ran on a platform of representing the working middle class, ordinary families who cared about education, access to health care, and tax relief. Then things started falling into place. Incumbent Democratic Senator Brock Adams withdrew in the wake of a sex scandal.

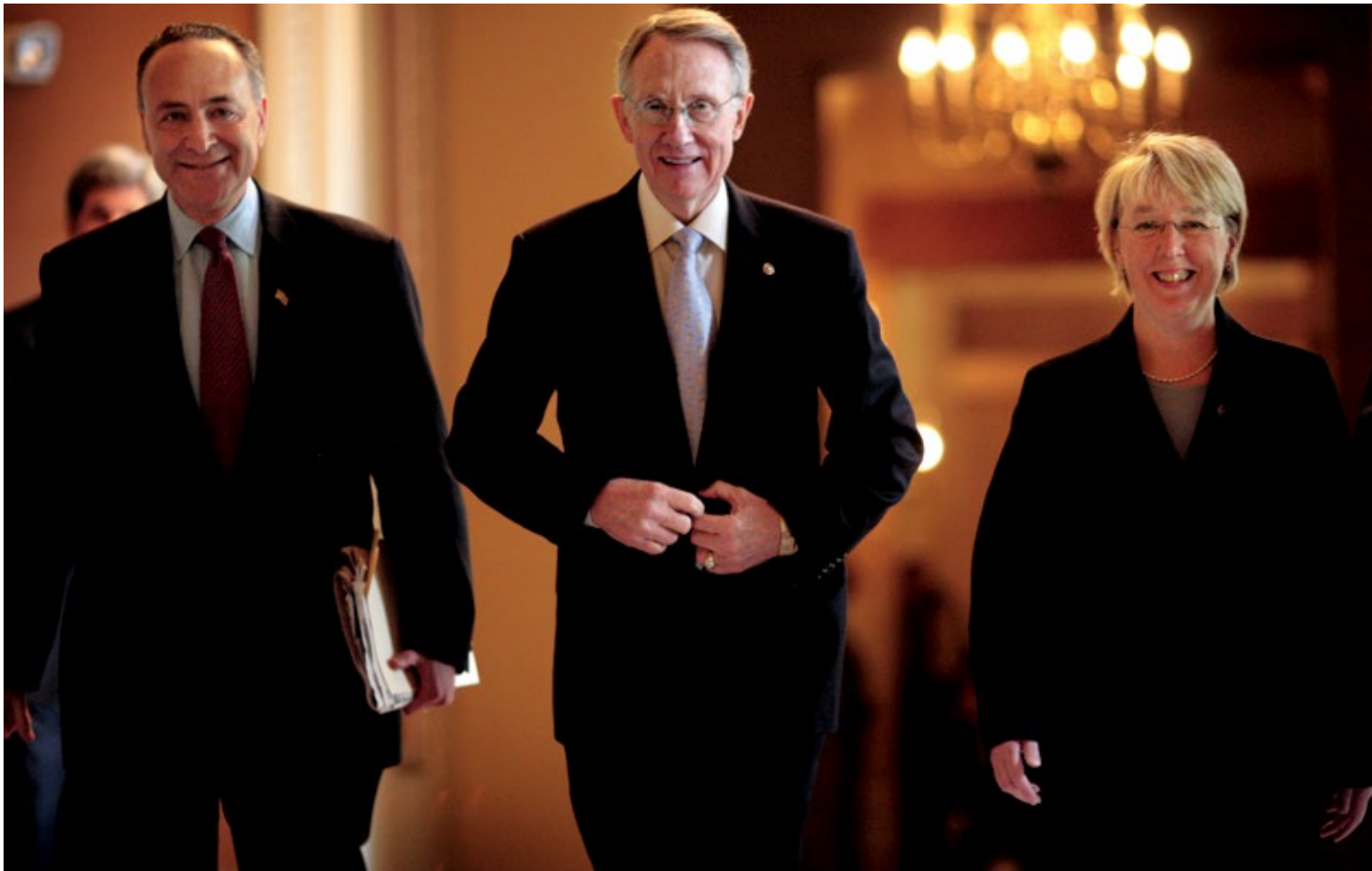
Momentum built when the National Organization for Women turned its attention to Murray. “We felt betrayed [by Adams], of course. And we felt an urgency to support her,” says Koponen. The NOW endorsement brought Murray other local and national support in its wake.

While Murray nurtured her plain-spoken, down-to-earth image, glimpses of a more savvy opponent showed through. In a debate for the Democratic ticket against Don Bonker (a D.C. lobbyist), she noticed for the audience that his watch was set to D.C. time. “She has that instinct, that indefinable thing—knowing when to play her weakness as a strength,” says Johns-Brown.

Ultimately, she faced polished Republican Rod Chandler, a U.S. Congressman from Bellevue. She played her ordinariness against his smooth political image. Though his campaign largely outspent hers, she won by a clear margin.

Murray wasn’t in Washington long before she became involved in a major sexual misconduct investigation. A fellow West-Coast senator, Bob Packwood from Oregon had been accused of sexual harassment and the

*Patty Murray and Senator Charles Schumer (D-NY) escort the newly elected Senate Majority Leader Harry Reid (D-Nev.) in November 2006. Melina Mara/The Washington Post*







Murray tours flood-damaged Washington in January with Governor Chris Gregoire and Senator Maria Cantwell. Washington became the first state to have three women at once in its highest political posts. *Elaine Thompson/Associated Press*

Senate Ethics Committee was slow to bring charges against him. Murray publicly scolded her male colleagues, “You still don’t get it.” She was one of five female senators who successfully argued for public hearings on Packwood’s behavior—which resulted in his expulsion from the Senate.

The people of Washington weren’t the only ones she had to convince she was suited to be a senator. At first her Senate colleagues questioned her behaviors. “She was criticized because she didn’t show up for these after-hours cocktail parties,” says Koponen. “Instead she was going home to spend time with her kids.”

Today, Murray still doesn’t partake of the Washington social scene. She works late most days, then walks home to her apartment with her briefing papers in hand. “She doesn’t draw a lot of attention to herself. She’s not as outgoing as some people think a senator should be,” says Koponen. “But she’s hardworking, sticks to her beliefs, and works hard on the issues that affect women, children, minorities, and the underprivileged.”

Every weekend, with few exceptions, Murray flies home to be with her family. After her son Randy finished high school in Virginia, Murray’s husband and daughter Sara moved back to Washington State where Rob has a job with SSA Marine. They have a home on Whidbey Island. And they spend time with their children and their families. That time back home, “It’s the best thing I do,” says Murray.

Murray often runs into her neighbors at the grocery store or Home Depot. That’s her litmus test, says Alex Glass, Murray’s press secretary. If there’s something she can’t explain or justify to them there in the grocery store aisle, “She comes back and says ‘how do we explain this to X person in the Freeland grocery store?’” says Glass. “She’s always thinking about bringing it back down to earth for the people she represents.”

She may also be answering their questions about earmarks. This winter, Murray was criticized for being 12th among the senators for getting earmarks for her state in the omnibus spending bill. Her requests, some of which were made jointly with other members of Congress, totaled \$171 million.

She’s won some big items, including \$100 million for the light rail between downtown Seattle and the University District and another \$25.6 million to complete the project all the way to the Sea-Tac Airport. She also secured \$80 million for the Pacific Coastal Salmon Recovery Fund. Smaller pieces include \$800,000 to expand a pediatric center in the Tri-Cities, \$3 million to improve road and rail systems to reconnect the city of Vancouver to its Columbia River waterfront, \$1 million for the nursing school at Washington State University in Spokane, and \$1.2 million for Pullman Transit to replace five of its oldest busses. Still, it would be hard to find a rodeo museum on her list.

“What makes her Patty, and so effective, is that she is really driven by the issues she cares about,” says Johns-Brown. One of the places where her character has really shown through is Veterans Affairs. When she started as senator, Murray asked to be appointed to the committee. Years

**1950** :: Patricia Lynn Johns is born to Beverly and David Johns. She and her twin sister are the second and third of seven children in the Johns family.

**1965** :: David Johns is diagnosed with multiple sclerosis and over the next few years the family struggles with medical bills and has to, for a time, rely on food stamps. Beverly finds part-time work as a bookkeeper.

★ **1968** :: Enrolls at Washington State University, and pays for school with the help of Pell Grants and student loans.

**1972** :: Interns at Seattle's Veterans Affairs hospital working with injured soldiers who returned from Vietnam.

Graduates from WSU with degree in physical education.

Marries Rob Murray '75.

**1975** :: The Murrays move to Shoreline.

**1976** :: Son Randy is born.

**1979** :: Daughter Sara is born.

**1983** :: Patty becomes a citizen lobbyist, sparked by a desire to save a state-funded co-op preschool program in her community. It was while she was campaigning to save the preschool that a legislator tells her she is just "a mom in tennis shoes".

**1984** :: Starts teaching at Shoreline Community College.

**1985** :: Joins the Shoreline School District Board of Directors and serves terms as president and legislative director.

**1988** :: Elected to Washington State Senate.

**1990** :: Becomes the state Democratic whip.

**1991** :: Announces her plan to run for U.S. Senate.

★ **1992** :: Patty earns NOW's endorsement, which leads to other local and national support. Patty is elected. The number of women in the U.S. Senate climbs from two to six.

**1993** :: Starts work as Washington State's first woman senator. Joins the Senate Appropriations Committee.

★ **1995** :: Becomes the first woman to join the Senate Committee on Veterans Affairs.

**2001** :: Becomes the chair of the Senate Transportation Appropriations Subcommittee.

**2005** :: Exposes a greater-than \$1 billion shortfall in VA funding. Publicly rebukes Senate colleagues and VA administrators for under-serving war veterans.

**2007** :: Named Democratic Conference Secretary, the fourth most powerful position among Senate Democrats.

★ **2009** :: Patty participates in the signing of the Lilly Ledbetter Fair Pay Act into law, continuing her efforts to support women's issues.

★ Patty attends Senate confirmation hearings for Gary Locke to become U.S. Commerce Secretary. Along with her rise to power in the Senate, the Locke confirmation, the appointment of Seattle Police Chief Gil Kerlikowske as the White House "drug czar," and the nomination of King County Executive Ron Sims to be deputy secretary of Housing and Urban Development are providing Washington State a growing presence in the Capital.



JOHN FROSCHAUER/AP

### { *Chronology of a Senator* }

Using details from her own biography, news stories, speeches, and testimony, we have listed some of the key events along Patty Murray's journey from a preschool classroom in Shoreline to the marble halls of Washington, D.C.



JASON REED/REUTERS



ALEX WONG/GETTY IMAGES





## { A SEAT *at the* TABLE }

later, when Congress voted to go to war in Iraq, and though Murray opposed the war, she redoubled her efforts with the committee on Veterans Affairs. “We ask people to serve us, and we’ve got to be there for them,” she says. “I remember what happened during the Vietnam War... We have an obligation to take care of them when they come home.”

“Senator Murray along with Senator Okaka and [Representative] Bob Filner have been carrying the battle for our veterans and military for quite some time,” says Bill Schrier, of the Washington State American Legion. In 2005, Murray fought to get the federal government to spend more in emergency funding for health care for veterans, drawing attention to the debilitated states of VA hospitals around the country. It was an uphill battle. Even the Veterans Affairs secretary said the organization had all the money it needed, says Schrier. But Murray knew better. Just a few months later the \$1 billion shortfall was made evident. Murray came to the rescue. “She was able to immediately move forward with a spending bill,” says Schrier. “Normally that flow of money doesn’t happen that fast.”

She also fought to keep three of Washington’s VA hospitals open. “She’s a key player along with Veterans Services,” says Schrier. “She has fought some bloody battles for us, and it’s good to have her in your corner when times get tough.”

It’s also good to have her around when you’re trying to break in. Murray has helped many fellow Washington delegates get up and running when they get to D.C. “She loaned me her scheduler. She helped me set up my office and get started. And she offered me advice on committees and things of that nature,” says Maria Cantwell, Washington State’s other senator. Today the two senators work together on Washington’s issues, as well as share the load by dividing up responsibilities, says Cantwell.

Murray credits Senator Barbara Mikulski of Maryland for helping her find her way in the Senate at first. “Breaking the glass ceiling is not the end of the day,” says Murray. “It’s turning around and making sure that other people can get through it as well.”

Murray is as successful as anyone who has ever served Washington in the Senate, says Washington State Representative Norm Dicks, who in his 41 years in Congress has seen his share of senators. He conjures up the names Warren Magnuson and Henry “Scoop” Jackson. “She is right up there in terms of effectiveness,” he says.

Washington State has a real involvement with the federal government, with Hanford, the Bureau of Reclamation, dams, parks, and the defense posts, he says. With a strong senior delegation and a Democrat in the White House, more good things should happen for Washington State, says Dicks.

**AMIDST THE** butter yellow walls and tall dark wood doors of the senator’s suite Jaime Shimek ’01 sits at her desk preparing for a meeting with a small crowd from the Washington Farm Bureau led by President Steve Appel ’74. As Murray’s key legislative assistant for issues including agriculture, energy, environment, tribal, and other issues, Shimek is on call to constituents every day. Shimek’s father is a wheat farmer near Ritzville. She grew up in Washington and majored in communications



RAY LUSTIG/THE WASHINGTON POST

at WSU before coming to D.C. She started with an internship in Representative Norm Dicks’s office, and later moved into jobs with Senator Maria Cantwell. After her first taste, she was loathe to leave. “They call it Potomac fever,” she admits.

And the fever seems to be heating up. With Murray a member of leadership, and with a Democrat in the White House, “since November, it’s a whole new world,” says Shimek. Issues the senator has been working on for more than a decade seeming to be coming through. “It’s not glamorous, but it’s important work,” she says. “And I love working for the people of the state I’m from.”

Through the office walks another WSU alum, legislative assistant Travis Lumpkin ’02, whose focus includes trade and transportation. Even with the recession and budget constraints, there is a lot of potential for Washington State’s priorities—including transportation investment, agricultural research, and Hanford cleanup, he says.

Murray’s team is known as a loyal, organized, and effective group. “Her staff is one of the best on Capitol Hill,” says Dicks. That’s in part why the Senate leadership has come to rely on Murray; she can get things done.

Looking back on her years in Washington, D.C., Murray sees that times have changed since she first ran for office. Women are now a force in the Senate, and the country has its first African-American president. But “the challenges in front of our country right now are greater than I can remember,” she says, listing economics, security, health care, and jobs. “It’s a very difficult time for families.”

She’ll be in the thick of trying to address all those things. “I’m at an amazing seat at the table with leadership and with a president and vice president that I know,” she says. “The decisions we are making are extremely important, both about today and about how we want our country to be in the future.”

Even so, Murray still clings to that tennis shoe image. “I’m still the same person who comes in here every day and goes to work and fights for the people of Washington State and looks at the priorities that are important to my constituents,” she says. “I don’t think I’ve changed at all.” ⊗

The background of the page is a complex, abstract composition of numerous overlapping, concentric circles and arcs, creating a sense of depth and movement. The lines are drawn in varying shades of gray, with some appearing as thin, light strokes and others as thicker, darker bands. A large, stylized curly brace is positioned on the right side of the page, partially overlapping the circular patterns. The overall effect is a technical or scientific aesthetic, reminiscent of a blueprint or a complex diagram.

STRAIGHT SHOT TO A BREAKTHROUGH





The conventional view that scientific progress follows a

straight path from basic research to applied research to practical invention

doesn't fit the experience of many scientists today. It's time to take a

fresh look at where the big breakthroughs come from.

DON'T COUNT ON IT



:: by Cherie Winner ::



WSU entomologist William Snyder (*bottom*) and Deborah Finke (*right*) study ecological niches—work that crosses back and forth between basic and applied research. A post-doctoral researcher with Snyder, Finke is now at the University of Missouri.

**A FIGHT TO THE DEATH** is playing out in Beetle-size cages straddling rows of radish plants in fields near Othello, Washington. Orchestrated by WSU entomologist William Snyder and post-doctoral researcher Deborah Finke, the opponents are aphids, which munch the radish leaves, and parasitic wasps, each about the size of the period at the end of this sentence, that kill the aphids in gruesomely spectacular fashion.

The wasps reproduce by laying their eggs in the body of an aphid. When the larvae hatch out of the eggs, they eat the aphid from the inside, eventually emerging into the air as adults. Under magnification, it looks like something out of a horror show. (Actually, it's something that went *into* a horror show; the gut-busting parasites of the *Alien* movies were based on these wasps.)

The outcome is clear. In one set of cages, the wasps decimate the aphids; in another, they leave many aphids untouched. The experiment provides solid evidence for one of the main claims of organic agriculture and offers farmers guidance in the choice of pesticides. It also answers one of the oldest and most stubborn questions in ecology.

**DUAL RESULTS LIKE THESE** are not rare in today's research world. It used to be that basic research done by one kind of scientist produced fundamental information about nature, which was then used by another kind of scientist in applied research that led, in a reasonably short time, to a useful product, process, or service. Those days are gone.

It's not that there's no longer a distinction between basic and applied research. There is. It's just that much research today fuses the two, providing fundamental insights about the natural world *and* contributing to the development of practical applications.



ROBERT HUBNER



COURTESY DEBORAH FINKE

Furthermore, even the most basic research is rarely driven by curiosity alone. The scientists who do it may be immersed in the esoteric details of their field, but they have an overarching interest in a real-world problem: environmental toxins, dementia, energy independence. Today's "basic" scientists may not have practical applications in sight, but they certainly have them in mind.

"There are two sides to everything we do," says Snyder of his research team. "We work in these biocontrol systems, so it obviously has some applied value to agriculture, but we're also interested in basic questions in ecology."

In the Othello experiment, the basic question was one that has puzzled biologists ever since Darwin: Why are there so many species?

A given forest won't have one kind of seed-eating bird or one kind of early-spring flower; it will have dozens of species that do approximately the same thing. Why so many?

The key is in the word "approximately." The explanation Darwin came up with is that no two species use exactly the same resources in exactly the same way.

"If there was just a single resource that all the species were using, there would be one species that was best at getting at that resource, and that species would outcompete all the others," says Snyder. "So the idea has been that they must use different resources. This is the idea of the niche, the ecological niche, that people are familiar with."

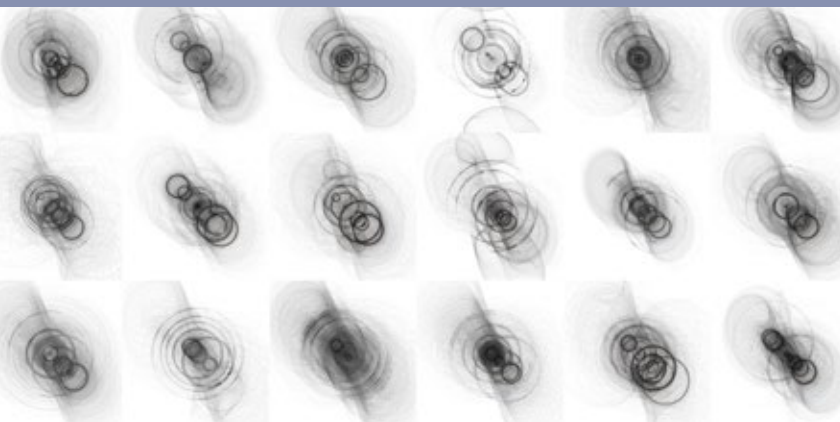
The idea makes intuitive sense and is supported by mathematical models, but it had never been conclusively shown in real-life experiments. In fact, says Snyder, "It's been thought to be impossible to test" because there was no way to change the use of resources by different species while holding everything else constant. We could find out that two kinds of squirrels eat different kinds of nuts, for instance; but how could we know that the difference is due to their species, rather than to their body size or reproductive rate or any number of other differences?

To really test the niche idea, researchers needed a way to have different members of one species do different things (such as eat different prey), and members of different species do the same thing (such as eat the same prey).

Finke and Snyder realized the parasitic wasps were ideal candidates for such an experiment because they can be "trained" to attack just a single species of aphid. An adult wasp will strongly prefer to lay her eggs in the same kind of aphid in which she herself grew up. After a few generations on one kind of host, the preference is so strong that a wasp may forego the chance to reproduce if her favored prey is not available.



In the conventional view, the path from basic research to applied research to new technologies is direct and one-way, and greater knowledge emerged only from basic research. *In an alternate and more accurate view*, the path between basic and applied research runs both directions, and new technologies and deeper understanding can emerge from either end.



So Finke and Snyder produced colonies of wasps that honed in on a single kind of aphid. They used three species of wasp, raising some individuals of each species to parasitize one species of aphid. Then they placed aphids and wasps in various combinations into the cages enclosing the radish plants.

All the cages held three kinds of aphids. By changing the number of wasp species and whether each wasp species attacked just one kind of aphid or all three, Snyder and Finke were able to separately test the effects of species number and resource use.

They found that more species of wasps killed more aphids than just one kind of wasp only when each wasp species targeted a different species of aphid. If the wasps overlapped in their use of the aphids, they competed with each other and left some aphids unmolested.

“Species diversity in and of itself doesn’t seem to do anything,” says Snyder. “It’s only when you have species diversity *and* they’re partitioning the resource that you see this improvement.”

For farmers and gardeners, the study shows that selective insecticides that kill just one or a few kinds of insects are a far better choice than broad-spectrum insecticides that kill many kinds, including those that could help battle the pests. Likewise, for organic farmers and others trying to manage pests with biocontrol, the diversity of the biocontrol agents is important—but not just any diversity. You need to use species that play different roles in the ecosystem, for instance, by attacking different pests.

“That’s sort of a basic mantra in organic agriculture, that you need more diversity,” says Snyder. “But it’s been hard to pin down, what

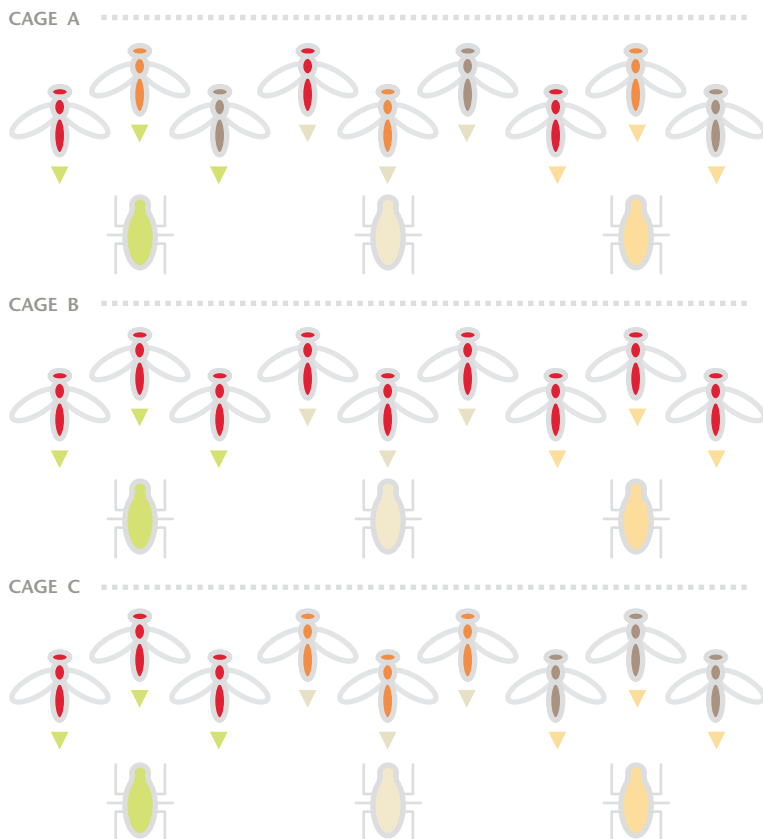


It’s not that there’s no longer a distinction between basic and applied research. There is. It’s just that much research today fuses the two.

Today, the split is firmly embedded in the scientific establishment despite the fact that it does not reflect the views and the experience of many of our most original and productive scientists.

### { Snyder & Finke's experiment }

Three species of wasp that each preyed on all three kinds of aphids (Cage A) killed about the same number of aphids as a single species of wasp that could attack all three aphids (Cage B). Three species of wasp killed twice as many aphids as a single species when each kind of wasp preyed on a different kind of aphid (Cage C). Staff illustration



specifically does that mean? The important thing is [to have] species that have different specialties, that fill different roles.”

The findings were just as significant in the larger context of planetary biodiversity, says Snyder.

“Diversity is beneficial because at some point as you’re adding more species, you’re adding species that do different things. It’s not biodiversity that you need to preserve, so much as it is species that do different things, species that are functionally different.”

The editors of *Science*, one of the world’s top journals for reporting experiments of fundamental scientific interest, agreed. They published the work in September of 2008.

**SNYDER SAYS** if he did only basic or only applied work, his research program would suffer, because each benefits from the ideas and results of the other. The same is true of many other scientists. Those who worked out the prey preferences of parasitic wasps in the 1980s and 90s, for instance, went back and forth between curiosity about the wasps’ peculiar behavior and a desire to find a way to control a crop pest.

“The only reason anyone knows anything about these wasps, besides some small amount, is that they’re important in agriculture,” he says. “What’s nice about working in these agricultural systems is, whatever insect you think of, there’s often an awful lot of information [already known] about it.”

Unfortunately, information gleaned from agricultural systems isn’t held in high regard in some corners of the scientific establishment. While the public generally wants to know the practical value of a research project, scientists sometimes face pressure in the opposite direction from their own community. A few years ago a colleague advised Snyder that a paper he submitted to one major journal would stand a better chance of acceptance if he camouflaged its agricultural origins.

“It’s on potato, but I never used the word ‘potato’ in there,” he recalls. “I just used the scientific name, *Solanum tuberosum*. And that flew. So maybe I’ll do that now [with other papers]. Just act like it has no relevance to agriculture at all.”

A close look at Snyder and Finke’s *Science* article turns up no mention of crops or pests. The aphids are “herbivores” and the wasps are “predators.”

“I don’t think we said anything about agriculture,” says Snyder. “As a practical matter, it was best to bury the agricultural connection.”

The same approach is required with some of the agencies that fund research. Since early in the Clinton administration, proposals submitted to the National Science Foundation must include a statement about how the research will be of use to society. For grants submitted to NSF’s Ecology program, though, the use had better not involve crop health or pest control.

“If the relevance to society is agriculture, you will almost certainly not get funded,” says Snyder. He thinks that’s partly due to the assumption (often correct) that the research could find support elsewhere, such as through the USDA. But that’s not the whole story.

“There’s the argument that in agricultural systems, you can’t learn anything about fundamental ideas in ecology,” says Snyder. Such a belief doesn’t have to be widespread to have a big effect. The intense competition for grant money—the Ecology Program funds only about seven percent of the proposals it receives—gives every one of a proposal’s six reviewers veto power.



If you work in an agricultural system, says Snyder, “you’re pretty much guaranteed to get one review that will say, ‘You can’t learn anything about ecology from agricultural systems.’ And that is most likely going to sink the grant.”

Policy-makers at journals and agencies may simply be trying to maintain programs where scientists don’t have to claim their work will reach a specific practical goal within a short time, and Snyder doesn’t begrudge them that.

“I actually feel that purely basic research has a place; but I don’t feel that doing research in an agricultural system ‘dirties’ it to such an extent that you can no longer learn fundamental things.”

**THE NOTION THAT** a concern with practical matters is impure or low-class has a long history. The revered Greek scientist/mathematician/engineer Archimedes (c. 287-212 BC) invented bilge pumps, catapults, and other useful devices for his king, but his writings—what he wanted posterity to know about him—were all math and theory and thinking about the nature of things. As the biographer Plutarch said of him, “He placed his whole affection and ambition in those purer speculations where there can be no reference to the vulgar needs of life.”

In 19th and early 20th century Europe, scientists motivated by curiosity about how nature works held forth in the universities, while those pursuing “vulgar needs” were relegated to the more profitable but lower-status technical schools and industrial labs. Not everyone adhered to that model; Louis Pasteur worked on fermentation chemistry for commercial firms, and in the process invented the field of microbiology. Each aspect of his work fed the other.

Despite Pasteur’s brilliant example, the split system persisted. American institutions blurred the class distinction but largely kept the framework that said basic research leads to applied research, which leads to practical (marketable) applications. They set up funding sources and programs that supported primarily one form of research, protecting both arms of the research enterprise but further entrenching the division between them and assuring continued battles for prestige and money. As each group of scientists fought for a share of the available research dollars, they became loath to give up their designated piece of the funding pie. Today, the split is firmly embedded in the scientific establishment despite the fact that it does not reflect the views and the experience of many of our most original and productive scientists.

“It’s totally artificial, and probably not a super-good idea, but there’s no way to change it now because of the way the funding works,” says Snyder. He sees hope for a more sensible approach in programs such as WSU’s School for Global Animal Health, which deals with the fundamental biology of how diseases spread *and* the practical concern of how we can stop them, and in projects such as the new plant biotechnology building currently under construction.

“That’s why we’re doing things like this—to bring together people who do exactly the same thing from the IBC [Institute for Biological Chemistry] and from Biology, which will then be in the same building. Which seems pretty logical to me.”

**THE POP-PSYCHOLOGY MAXIM** that “you only hit what you aim at” may be useful in some endeavors, but in science, the biggest breakthroughs are often by-products of work that had been aimed at



REGENTS PROFESSOR B.W. (JOE) POOVAIAH  
BY ROBERT HUBNER

something else. Bill Snyder’s interest in pest control led to the answer to a fundamental question in ecology. Plant scientist Joe Poovaiah’s interest in calcium has led to a place no one anticipated.

Poovaiah is a basic scientist who is very much inspired by real-world concerns. When he describes his work related to nitrogen fixation, he talks about the farmers who tell him the cost of nitrogen fertilizer is one of their biggest problems, and about the millions of tons of fertilizer that wash into the Mississippi River every year, producing a dead zone in the Gulf of Mexico where the tainted river water empties.

Poovaiah has been fascinated by the role of calcium in plants ever since grad school in the late 1960s, when he did a paper on the subject for extra credit in a tough class. At the time, calcium was known to be a structural component in bones, teeth, and shells, and to be essential for a variety of functions including the transmission of nerve impulses and the contraction of muscles. What he unearthed while researching his paper convinced Poovaiah that it might be equally important in plants. He finished up his doctoral work on another aspect of plant biology and turned full-time to the study of calcium.

In 1987 he and A.S.N. Reddy, a post-doc in his lab in the horticulture department, wrote a major review laying out the case that in plants, calcium is part of an internal signaling system that affects a range of necessary functions including the production and release of growth hormones, cell division, and fruit ripening.

The review forecast much of what has played out in Poovaiah’s and other labs around the world since then. Calcium, when bound to a protein called calmodulin, turns on some genes, turns off others, and generally acts as a translator of information about the environment—information the plant needs to protect itself from harm and send its progeny out into the world.

In February, Poovaiah learned that the National Science Foundation would feature his work in the *Highlights* section of its web page, which is designed to show taxpayers that their research dollars are being well spent. It’s a lovely bit of recognition for more than three decades of effort that started out as a tough sell. When Poovaiah started his career, *he* knew there was something to the calcium story, but few other plant scientists agreed. He struggled to get funding for the work and faced considerable skepticism even in his home department. His encouragement came from elsewhere.

“My inspiration came not from plant people, but from animal [researchers],” he says. About 25 years ago he attended a seminar given here by Tony Means of the Baylor College of Medicine. Means was *the* guy

in the study of calmodulin, the key calcium-binding protein in animal cells. The calmodulin he worked with had come from chickens.

Poovaiah realized that calmodulin, or a protein like it, could help explain how calcium had the effects he'd traced in plants. But nobody knew if plants even made calmodulin. After the seminar he asked if Means would send him some of the chicken calmodulin gene.

"And that's how we got into this calmodulin [work]. Using this animal gene we fished out the plant version. *Now* it's no big deal to do, but at the time..."

At the time, trying to isolate a protein or gene from scratch could have taken years. Having an exemplar of the thing he was looking for was like taking the express train. Plants and animals are far apart on the evolutionary tree, but genes with essential functions tend to be similar even in such distantly-related species. Poovaiah thought the calmodulin gene qualified. He was right.

With the chicken calmodulin gene in hand, his lab cracked open the calcium/calmodulin system in plants. When new molecular techniques of cloning came into use a few years later, progress in his lab took off. They found that pulses of calcium are involved in the interaction between root hairs and nitrogen-fixing bacteria, which could lead to the development of crops that, in effect, produce their own fertilizer. They discovered one calcium-related gene that controls the size of the plant and another that helps the plant make salicylic acid, a form of aspirin, in response to attack by bacterial pathogens.

The work clearly has implications for the development of new strains of crops, an application Poovaiah had in mind from the beginning. But along the way, another possibility has emerged. It turns out that calmodulin is not the only calcium-related protein that plants and animals have in common. CcAM kinase, a protein involved in communications between plants and nitrogen-fixing bacteria, strongly resembles a protein that functions in the formation of memories in animals. AtSR1, a protein involved in protecting the plant against infection and stress, is almost identical to a protein that helps control the growth of human heart muscle.

Now Poovaiah, whose lab discovered these proteins and genes in plants, is providing expertise and material to scientists working in animal systems. The grad student who studied CcAM kinase was recruited by three of the top neurobiology labs in the nation, and Poovaiah is developing a collaboration with one of the leading scientists working on the heart growth protein. Plants with mutant forms of the protein are much easier and quicker to produce than comparable animals. Just as chicken calmodulin gave his research a kick-start 30 years ago, the plant protein AtSR1 might now provide valuable clues about how the corresponding protein works in mammals.

It's not something he aimed at, or even thought about, when he started following the calcium trail, but Poovaiah is now on the verge of using plants as "experimental animals" to explore processes that are important in human health.

"Plants don't have a heart, but at the same time, there are some pathways that we understand in plants that could apply in humans," he says. "There's now enough molecular evidence, enough biochemical evidence, enough knowledge in general, that scientists know how this signaling works in plants. As a result, this is a fantastic model to understand how the calcium system works in humans."

Reflecting on the path that brought him to his unexpected destination, Poovaiah says the way ahead was never clear more than a step or two at a time.

"We spent the last 33 years learning to do this signaling research," he says. "My concept is, today's 'basic' is tomorrow's 'applied.' You never know how quickly things go.

"We are a research institution. Our job is to open new doors, and this we have done." ☒



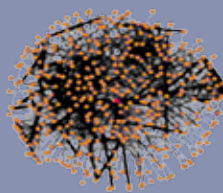
For more on the genesis of this story and the relation between basic and applied research, visit *Washington State Magazine Online* at [wsm.wsu.edu](http://wsm.wsu.edu).

### { *The unpredictable path of research* }

Poovaiah used the chicken calmodulin gene to find the calmodulin gene in plants, then identified and characterized other plant genes involved in calcium regulation of growth, defense, and other critical functions.



Chicken calmodulin gene isolated in 1970s



Isolation of plant calmodulin and other genes involved in calcium signaling, 1980s–present



#### EXPECTED BENEFITS:

New crop varieties, plant protection, growth enhancement

#### UNEXPECTED CONNECTIONS:

Plant CcAMK equivalent to memory protein in animals; plant AtSR1 equivalent to protein that regulates heart growth in humans



by Hannelore Sudermann :: illustrations by David Wheeler

## { Whatever Happened to Home Economics? }



**LATELY, YOU MAY HAVE CONSIDERED** tightening your home budget, planting a vegetable garden in your yard, eating at home, making food from scratch instead of out of the box, teaching your kids instead of hiring a tutor, mending your sweater instead of buying a new one, or updating your home to be more energy efficient. Prodded by the recession, you have been thinking about home economics.

In fact, economics starts in the home. The word economy comes from ancient Greek *oikonomos*, one who manages a household. And while we try to put our national household in order, Americans of late are paying more attention to their home economies.

Over the past few decades many of us have lost touch with those basic skills and principles that were once taught in high school home economics programs around the country, says Karen Leonas, an expert in textile chemistry and chair of Washington State University's Department of Apparel, Merchandising, Design and Textiles.

Leonas has seen students who don't know the essentials—like balancing a check book or sewing on a button. Recovering home economics skills may be valuable in surviving the current economic situation, says Leonas.

The Department of Domestic Economy at Washington State was established 1903. It emphasized the basic sciences as well as classes in sewing and millinery, cooking, and household economy and management. In order to graduate with a home economics degree, students studied fine arts, chemistry, and bacteriology. They learned human nutrition, accounting, teaching, food preparation, culture, and early childhood development.

In 1913 the university's extension program hired its first home economist, whose job it was to take the expertise of home economics to the rural residents of the state. One of the earliest interior design projects at WSU—which would later be applied to homes in the region—had to do with optimum counter heights in a working farm kitchen.

Stretching the dollar was also an early consideration. In 1918 one student wrote her master's thesis on furnishing a home for a family of

five on an income of \$1,500 a year. During the Depression, Washington State's students focused on projects like turning flour sacks into clothes and making their own mattresses.

At the same time women nation-wide were making up for lost income by increasing their productivity at home. According to historian Alice Kessler-Harris, they did more sewing, preserving fruits, and canning vegetables. Domestic labor became more valued by society as a whole.

By 1928 the home economics department at WSU had its own building. It was later named White Hall, which in the 1990s became Honors Hall. It was a nexus for all that was home ec, with a nursery in the basement and a food science laboratory in the attic. There were home management houses nearby where students could live for a semester and run a household—from budgets and cleaning to meal planning and preparation.

Home economics was about taking the latest in science and research and applying it to home use, says Leonas. It was also a conduit for women who were looking for professional avenues beyond teaching school—design, and nutrition, for example.

But then something changed. During World War II, many women had to set aside work at home and clock in at factories and businesses. On campus, they were going into male-dominated fields, including pharmacy and journalism. Then the war ended and the men came home. In the years that followed, there was an effort to get women back into homes and focused on a domestic life instead of a professional one.

Unfortunately, home economics became a part of that effort. Across the country, university and college administrators encouraged women who were attending college to go into Home Ec, focusing them on becoming good homemakers. This pressure also kept the women out of other fields of study. Home Ec's image became more about keeping women in the home than about teaching students the latest science and technology as it applied to their near environments, says Leonas.

Everyone was harmed. Home economics, and all the good it did us, was cast in an unflattering light, says Leonas. By the time of the women's

## { Whatever Happened to Home Economics? }

liberation movement in the 1960s and 1970s, those home ec basics were widely rejected. Rather than being a source of opportunity for women, it was stigmatized as a limitation.

Beginning in the 1980s, WSU's College of Home Economics was broken up and blended in with other programs, including the College of Agriculture. Foods and Human Nutrition were moved into Food Science. Child, Consumer and Family Studies became Human Development. Apparel, Merchandising, Textiles and Design was the last to change when Interior Design moved up to Spokane and the rest of the program moved to an empty dormitory across campus.

"Energetic, productive, dedicated faculty and students are still here, and they are in three former Home Economics departments, as well as in others. But the soul of the Home Economics profession is not here," wrote Dorothy Price, a professor emeritus from the College of Home Economics, in her 2003 *History of Home Economics at Washington State University: Year 75 to Year 100*.

"We have been so concerned with the other things, I think we've lost something," Price says when asked about the situation now. Many of the areas of study once offered in home economics are still on campus. But the holistic approach that home economics provided is gone, she says. "And that's probably something we need right now."

But again, things are changing. There is a growing interest in the home or near environment. Martha Stewart in the 1990s may have led the revival of the domestic arts, but the do-it-yourself shows, the Food Network, and programs like *Project Runway* and *Top Chef* are showing that people are willing to bypass convenience and learn again how to do things for themselves.

The downturn in the economy is going to push it further, say the experts. "I think the dollar is going to be more of a priority than convenience is," says WSU nutritionist Shelly McGuire, who believes the economic downturn will push families to eat well at home on a budget. It may even improve their nutrition, she says.

"At this point we're all just guessing what's going to happen," she says, but as middle income families stretch their dollars a little further, they will probably be more careful about planning and executing meals. "They may take more personal responsibility and plan ahead."

Americans are in a great position to economize on their eating. "We have the cheapest, most accessible food supply of anyone," says McGuire. But first, we have to learn how to do it. "I think we've forgotten these simple, sort of inexpensive ways to eat," she says. She has friends, for example, who don't know how to cook legumes. Simple, economical, and healthy dishes like rice and beans just aren't in their repertoire. There are also people who have never popped popcorn. "They rely on the microwave popcorn," she says. "It's amazing. Do you want to spend two cents or two dollars?"

McGuire is a spokesperson for the American Society of Nutrition. She notes that the organization advises changing food purchasing habits by cutting back on restaurant meals, focusing on in-season fruits and vegetables, and going to the store with a shopping list to avoid impulse buys.

"I hope people will take more personal responsibility and look at their budgets and say wow I'm spending a lot on groceries and eating out," she says. "You don't stop at the expensive grocery store every time. Plan ahead."

In her household, home-cooked meals are *de rigueur*. A version of economizing for her there would be making protein a component of a meal rather than the center piece. "We've been joking that maybe this is the year of the casserole," she says.

"Eating healthfully and cheaply is completely within people's control," she says. "And in times like this, knowing what you do have control over is important."

Home gardening is also something people turn to during tough times, says Tonie Fitzgerald, program leader of WSU's Master Gardener's program. "There were three times when home, community, and school gardens were at a peak," she says. "World War I, World War II, and now."

People gardened during the wars so that the commercially produced food could be sent to soldiers and starving people in war-ravaged Europe, says Fitzgerald. Back then we promoted some of the same concepts we have now including getting youth involved and cutting down on the number of miles your food has to travel. The effort "tied people back to their land and community," she says.

The National Gardening Association is predicting a 19-percent increase in home gardening in 2009. Even the Obamas have planned a vegetable garden for the White House.

Roses and dahlias are coming out and fruits and vegetables are going in, says Linda Kirk Fox, head of WSU Extension and a family economist. It's all coming back—budgeting, growing and preserving food, fabricating apparel, and improving the home environment. Fox notes that Extension is reaching out to families to help with financial literacy with a web-based effort to spread general information about consumer credit and financial planning.

While most people probably won't be making their own clothes, they would do well to understand construction and textiles. They should be concerned that the pieces they're purchasing are ones that will fit well and wear well, says Leonas.

And now, there's a national push toward living sustainably. It could be a very home economical idea, says Price. The notion embodies all that was first promised and promoted by this discipline—using the latest in science and technology to improve our home environments. And as resources become less affordable, simple changes that reduce the inputs required to operate a home could help households and communities. It could be a very good thing, says Price. "As long as we don't get too caught up in the technology."

In the end, we may end up valuing this time, says McGuire, as it causes us to do more with less and pay closer attention to our home environments. It may even improve our quality of life. ☒



WEB EXCLUSIVE: View a gallery of historical home ec photos and read a history of WSU's home ec at [wsm.wsu.edu](http://wsm.wsu.edu).





# Paul J. Ishii '81

General Manager of Seattle's historic Mayflower Park Hotel.

Voted the 2006 Washington State Hotel and Lodging General Manager of the Year by his peers.

Provides volunteer support for the WSUAA's Asian American/Pacific Islander Alumni Alliance and WSU's School of Hospitality Business Management.

Loves that he met his wife Jane '79 at WSU.

Member of the WSU Alumni Association.

*"Jane and I joined because membership helps the Alumni Association provide genuine opportunities for alumni and friends to make a positive difference for WSU. Belonging to a meaningful organization is important to us."*



**Membership Matters.  
Join Today.**

WASHINGTON STATE UNIVERSITY  
 ALUMNI ASSOCIATION

1-800-258-6978 • [www.alumni.wsu.edu](http://www.alumni.wsu.edu)



## CLASS NOTES

### 1950s

**Ann Elkinton McClure** ('58 Journalism), a 20-year association executive, has been selected as a member of the 2009 Leadership Academy faculty of the Georgia Society of Association Executives.

### 1960s

**Wayne Foster**, x'65, a former All-American lineman for WSU and Prep All-American at South Kitsap High School, now paints to raise money for his 50th high school reunion in 2012. Following a career in football for the CFL's BC Lions and NFL's Oakland Raiders, he took up painting about 10 years ago. Prints of Foster's acrylic-on-canvas entitled "Autumn Afternoon" are on sale at the Kitsap Regional Library's Bremerton branch.

**Donald O. Olson** ('65 DVM) was presented The Thoroughbred Industry Awards Backstretch Person of the Year Award for 2007. This award recognizes his outstanding contributions toward horse racing and backstretch support. Olson recently retired from the Hastings Park Racecourse in Vancouver, British Columbia, after 17 years of service.

**Janet (Peterson) Baker** ('69 Fine Arts, Ed., '96 Soc. Sci.) retired in 2007 from North Thurston Public Schools. She was employed as a Therapeutic Interventionist. Both of her daughters graduated from WSU. She lives in Olympia.

### 1970s

**Ken Strong** ('71, '75 Arch.) accepted the position of architect for Wycliffe Associates in Orlando, Florida. Strong is responsible for the firm's planning and design of facilities worldwide that are in support of Bible translation, education, literacy, and related projects for various NGOs around the world. His missionary work is funded through donor partner contributions.

**Pamela Nelson** ('73, Ed.) is owner of Foothills Auto Center, Inc. in Burlington. She was nominated for the 2009 TIME Magazine Dealer of the Year award. A third-generation car dealer, Nelson began her career in the auto business following a class in Chevrolet's School of Merchandising and Management. One of four finalists for the TIME award, Nelson represented the Washington State Auto Dealers Association.

**Larry H. Knipp** ('74, PhD Bact.) recently retired as Chair of the Biology Department at North Park University in Chicago. For 35 years, Knipp served as a professor of biology.

**Dale Goodwin** ('78 Comm.) was inducted to the Professional Association of Volleyball Officials national hall of fame on December 19, 2008 after serving as an NCAA volleyball official for 28 years. He lives in Spokane with his wife Mary and children Ben and Brook. He works as director of public relations for Gonzaga University.

**Rich Tomsinski** ('78 Bus. Admin.) has been promoted to deputy project director for the Washington State Employment Security Department. Here he will lead development of a new tax collection software application.

### 1980s

**Edward Lee Lamoureux** ('80 MA Speech Comm.) recently published *Intellectual Property Law and Interactive Media: Free for a Fee*. As the Associate Professor of Multimedia and Communication at Bradley University, Lamoureux has provided a text for students of media communication regarding the intellectual property law in new media. More information and a glossary of terms may be found at his supplementary blog, [freeforafee.com](http://freeforafee.com).

**Worcester P. Bong** ('81 Mech. Engr.) is facility manager for the Northern Arizona VA Health Care System in Prescott, Arizona. Bong has over 20 years of experience with the Department of Veterans Affairs, which included engineering positions in Honolulu, Hawaii and Seattle, Washington.

**Colleen Nolan** ('82, Animal Sci.) has been named dean of the School of Natural Sciences and Mathematics at Shepherd University in Shepherdstown, West Virginia. Following her education at Washington State University, Nolan received a Masters from the University of Idaho and a PhD from Texas A&M University. For the past four

## » tracking



Nadia Daud '00 in Tanzania November 2007. She travels most of the year as a refugee officer for Homeland Security.

COURTESY NADIA DAUD

### Nadia Daud

## No place like home

*by Hope Tinney* :: Nadia Daud spends nearly 80 percent of her time living abroad, traveling to some of the most troubled regions of the world. When she's not overseas, she has an apartment in Washington, D.C. But ask her where her home is, and she'll tell you—Pullman, Washington.

The 31-year-old refugee officer with the U.S. Department of Homeland Security grew up south of Pioneer Hill in Pullman, graduated from local schools, and then matriculated to Washington State University. It was a remarkably stable childhood for someone who now lives out of a suitcase and spends her days interviewing refugees.

"In this last year and a half I have gone to places and seen things I could only dream about when I was a child," she wrote in an e-mail from Beirut in mid-March. "I was a strange little girl in that instead of having posters of movie stars

or music idols or sports stars decorating my room, I had flags of other countries and maps decorating my room."

And now those countries are much more than names on a map. In just the last year she has been on a Kenyan safari in the shadow of Kilimanjaro, worked at a refugee camp in Tanzania where white people were still a rarity, rode an elephant through the jungles of Thailand, went snow-shoeing in the mountains of Lebanon, and visited holy sites throughout the Middle East.

The sightseeing is a welcome and necessary respite from what can be emotionally grueling work.

As a refugee officer—recently promoted to supervisor—Daud interviews people who have left their homelands because they have been persecuted or have a well-founded fear of persecution because of their race, religion, nationality, political opinions, or membership in a particular social group.

"We have to interview each applicant and decide if their testimony is credible," Daud wrote. Even if someone has been persecuted, she wrote, that person is ineligible for safe haven in the U.S. if he or she has persecuted someone else.



"There is a big difference between where we interview and who we interview," Daud wrote. When some kind of political upheaval occurs that results in refugees fleeing the country, Daud or



both kidnapped and tortured themselves, or someone in their family has been kidnapped, tortured, and killed."

Still, she said, she enjoys interviewing Iraqis. Daud's father, Munir, was born in Aleppo, Syria, and she has relatives living in that area. That personal connection inspired her to pursue an emphasis in Middle Eastern studies at WSU, and being able to help people in that region is particularly satisfying.

"I get to help people and families that really need it," she wrote. "We all wish we could help people in need, but in this job, I know I am."

Even while she can and does provide a lifeline to many in need, at times she is overwhelmed by the sheer numbers of those she cannot help. According to Daud, there are



**Top to bottom:** Nadia Daud on safari in Kenya; at the Sheikh Zayed Mosque, Abu Dhabi, United Arab Emirates; in Thailand, looking across the border into Burma. *Photos courtesy Nadia Daud.*

other refugee officers head for the refugee camps, not the political hot spot. So a brief listing of her assignments includes interviewing Somalis, Ethiopians, Eritreans, and Sudanese in Kenya; Burundians in Tanzania; Congolese in Rwanda; Burmese in Thailand; Bhutanese in Nepal; and Iraqis in Syria, the United Arab Emirates, Jordan, and Lebanon.

She can hardly imagine the horrors that people have lived through, she said, and many of their stories move her to tears. "My assignments aren't difficult because it is the job I signed up for," Daud wrote, "but interviewing Iraqis is the hardest."

"They are very emotional and raw cases. Many of the people I interview have been

approximately 10 million refugees worldwide, and about 13 million more people who have been forced to flee their homes but are still living within their country's borders. That is



years, she has served as the chair of the Department of Biological Sciences and taught biology since 1991 at St. Mary's University in San Antonio, Texas.

**Martha Leighton** ('84, sends greetings to all other WSU women rugby players from 1984-1985. She invites them to look for "Studmuffin Rugby Alumni" on Facebook and join in.

**Tammy J. Lindberg** ('84, Hum. Nutr.) retired from the Air Force on February 1, 2009 after 22 years of active duty service as a fully qualified registered dietitian. As a lieutenant colonel, Lindberg served as the operations officer and food production flight commander for the 59th Diagnostics and Therapeutics Squadron, the largest Nutritional Medicine Service in the Air Force. Lindberg and her family have relocated to San Antonio, Texas, where she will work for the State of Texas.

**Kirk Werner** ('85 Comm.), and author and illustrator, has written the first three in a planned series of children's fly fishing books published by Johnson Books (Boulder, Colorado). He lives in Duvall, Washington with his wife and two children. For more information on his books, visit [www.olivethewoollybugger.com](http://www.olivethewoollybugger.com)

**Michael Frazier** ('88 Engl.) has joined the Denver office of Tucker Ellis & West LLP as an associate. After earning a bachelors at WSU, he went on to pursue a law degree from Lewis & Clark College, Northwestern School of Law. For the past fourteen years he has focused on litigating automobile collision, premises liability, hazardous waste, and construction defect matter.

## 1990s

**Derek Young** ('93 Comm.) recently founded Emerging Rivers Guide Service, a Snoqualmie-based fishing guide business focusing on the Yakima River as well as other rivers in the Western United States. See his website for more information at [www.emergingrivers.com](http://www.emergingrivers.com).

**Megan Albertus** ('94 Polit. Sci.) made her acting debut on NBC's successful reality television show "Mamma's Boys." A graduate of Ferris High School in Spokane and WSU, Albertus's interest in arts and entertainment overcame her education—her "solid Plan B"—to offer the opportunity to act on America's stage.

**Patrick Brown** ('95 Comm.) and **Heidi (Robbins) Brown** ('95 Comm.) announce the birth of their second daughter Eleanor Marie Brown on March 11, 2009. Eleanor and older sister Charlotte are already planning their time as future Cougs!

**Andrew Michael Roberts** ('95 Ed.) was honored with the 2008 Iowa Poetry Prize for his book of poems *something has to happen next*. Roberts, who completed his MFA at the University of Massachusetts, calls his work "simply a book of small poems." His composition speaks of love, abandonment, catastrophe, obsessions with time, and what is always possible. Roberts now lives in western Washington.

**Jennifer Albright** ('99, MA Crim. J.) and Steve Lothspeich welcomed daughter, Caitlyn Lothspeich, in February 2009. The proud Cougar grandparents are Gary and Merrie Albright ('73).

## 2000s

**JR Salmon** ('02, Bus. Admin.) married Nicole Furuc on February 1, 2009 and became Daddy Oats to Isabella. The family lives in Seattle, WA.

**Sandra Villarreal** ('02, Comm.) graduated from St. Mary's University in San Antonio, Texas with a MA in Communication in December 2008.

**Rebecca Flanagan** ('04, Polit. Sci.), a tax associate at the KPMG Portland office, has been honored as an outstanding volunteer with the Chairman's Award for Excellence in Community Service. Flanagan offered her professional services to CASH Oregon during the 2007 tax season as well as serving as an organizer for Big Brothers Big Sisters.

**Ashley Johnson** ('04, Comm.) is the new publications writer at Texas A&M University-Commerce in Commerce, Texas. Ashley also serves as managing editor for *Pride*, the A&M-Commerce alumni magazine.

**Caron (Dorman) Treloar** ('04 Bio.) and **Kevin Treloar** ('04 Bio.) welcomed their daughter, Morgan Elizabeth, into their lives on October 12, 2008. She will be a fifth generation Cougar.



**Katie (Rosenthal) Dorsey** ('05 Comm.) and Jake Dorsey ('05 Comm.) were married June 14, 2008, in Everett, Wash. They live in Sacramento, California.

**Lt. Jeffrey Alex Kromm** ('06, Soc. Sci.) married fourth-generation Coug Alison Caitlin McLean x'05 in November. Jeff, who was commissioned Army lieutenant in 2007, is based at Ft. Drum, New York.

**James Van Domelen** ('06 Psych.) has been hired by Aeon Amity Corporation to teach English to children in Tokyo, Japan.

**Liv Larson** ('07, Hosp. Bus. Mgmt.) married Joshua Rockwell ('09, Hosp. Bus. Mgmt.) in Makena, Maui on February 28, 2009.

**Stephen Matthews** ('07, Bus. Admin.) was promoted to Materials Manager II at St Jude Medical, Neuromodulation Division in Portland, Oregon.

## IN MEMORIAM

### 1930s

**Merial Atkinson** ('30 Gen. Studies) 102, March 18, 2009, Seattle.

**Frances Petsch** ('34 Home Ec.) 95, July 2008, Veradale.

**Don Russell Fechtner** ('35 Botany) 96, November 21, 2008, Carson.

**Betty Forsythe James** ('36 Engl.) 92, May 27, 2007, Albuquerque, New Mexico.

**Ruth Brimble Carantz** ('38 Ed.) 83, January 23, 2009, Cashmere.

**Ivar Nelson** ('38 Agric.) 96, February 12, 2009, Olympia.

**James "Jim" W. Stratton** ('38 Ag. Engr.) 93, December 13, 2008, Pasco.

**Neil B. Vandercook** (x'38 Engl.) 93, November 27, 2008, Pagosa Springs, Colorado.

**Joe Clyde Long** ('39 Math.) 92, November 8, 2008, Grandview.

**Glen B. Wilson** ('39 Mining Engr.) 94, February 10, 2009, San Jose, California.

### 1940s

**Hazel Brown** ('40 Office Admin.) 90, September 9, 2008, Fairbanks, Alaska.

**Frank R. Thorndike** ('40 DVM) 92, August 18, 2008, Great Falls, Montana.

**Marjorie Tidrick** ('40 Polit. Sci.) 90, March 8, 2009, Hillsboro, Oregon.

**Ruth (Eagleson) Smalley** ('41 Engl.) 88, January 19, 2009, Tulsa, Oklahoma.

**Natalie A. Sodorff** x'41, 85, March 16, 2009, Lewiston, Idaho.

**Robert Martin Bond** ('42, Zoo./Pre-Med) 89, October 13, 2008, Walla Walla.

**Robert H. Doten**, x'42, 89, March 21, 2009, Olympia.

**Robert "Bob" H. Hendrickson** ('42 Pharm.) 79, January 20, 2009, Renton.

**Harry David Martin** ('42 Civ. Engr.) 94, December 16, 2008, Everett.

**Leo Richard Pierce** ('42 Elect. Engr.) 88, December 26, 2008, Richland.

**Frederick Schreck** ('42 Agric.) 88, December 12, 2008.

**Joseph M. Thom** ('42 Bus. Admin.) 92, December 15, 2008, Portland, Oregon.

**Max Gould** ('43 Bus. Admin.) January 6, 2008, Rancho Murieta, California.

**Norman H. Scheer** ('43 Pharm.) 88, December 25, 2008, Spokane.

**Elizabeth A. Swantz** ('43 Home Ec.) 88, January 3, 2009, Clarkston.

**Jane McIntosh Dinneen Upp** ('43 Home Ec.) 89, December 19, 2008, Solana Beach, California.

**Leighton E. Wallace** ('44 DVM) 87, February 19, 2009, Kennewick.

**Anthony J. "Tony" Wolf** ('44 Elect. Engr.) 86, January 3, 2009, Grand Rapids, Michigan.

**Eleanor E. Domaskin** ('45 Phys. Ed.) 86, January 20, 2009, Woodbridge, Virginia.

why she was profoundly affected by a recent visit to Rwanda.

"So far, Rwanda has been the *most* beautiful country I have ever visited in my life," she wrote. What happened there will always be part of the fabric of the country, but, she wrote, she realized that even countries that have experienced mass genocide can eventually get better. "I am sure Rwanda has a lot more work to do," she wrote, "but it gave me hope that some of these countries could get there someday."

Daud graduated from WSU in 2000 with a bachelor's degree in political science with a global politics emphasis and minors in Spanish and Asian studies. Her first job was with the Washington State Human Rights Commission in Seattle. While in Seattle she also worked for the Northwest Immigration Rights Project. Then, in 2002, she joined the Department of Homeland Security in San Francisco and worked as a district adjudication officer, interviewing immigrants whom the government suspected of faking marriage to gain a green card. Daud became a refugee officer in 2007 and transferred to Washington, D.C.

To hear Daud describe it, her main complaint is that because she's based in D.C. she can only make it back to Pullman twice a year.

"I wish I could return more often!" she wrote. Her parents, Munir '67, '72 and Janet '67, who met at WSU in the 1960s, still live in town, and two of her three siblings are working in Washington—Laila Daud works in Kent with Child Protective Services, and John Daud designs video games with a company in Bellevue. Her younger

sister, Ranna Daud '04, does marketing for an events company in Las Vegas.

"Even though I've seen all these rare and exotic places in the world, there is no place like *home*," she wrote. "I'm very thankful Pullman is my hometown because it is a great reminder of how peaceful life can actually be."

*Harley Cowan*

## Chicken sedan

*by Eric Apalategui ::* There's an old knee-slapper that goes something like this: Why does a chicken coop have two doors? Because if it had four doors (drumroll, please) it would be a sedan!

"It's a *really* lousy joke," says architect Harley Cowan '96, who can't help chuckling often these days after the "Chicken Sedan" he built for his backyard flock snared two of Portland's top architectural honors, earning billing alongside designs for major condominium projects, university buildings, and medical facilities.

Spurred by wife Carrie's interest in raising chickens and armed with a bit of research, Cowan designed his combination coop and sheltered run with a classic A-frame, cedar-shingled roof that makes it look more like a quaint mountain cottage than a home for fowl. The sedan comes fully equipped with plentiful vents, including several he can open and close to adjust for airflow and temperature. And, yes, it has four doors



Harley Cowan's Buff Orpingtons live in one of Portland, Oregon's most celebrated chicken-quarters. Photo Bill Wagner.

to gain access to the fowl and their gorgeous bronze-brown eggs.

The “coop de grace,” so to speak, is that Cowan designed his Chicken Sedan to fit exactly atop a standard four-by-eight-foot raised planter bed. His wife suggested using a planter foundation to conserve space on their city lot, but he added a portable twist. Twice a year they rotate the coop among three flower and vegetable beds, depositing chicken manure where the rich fertilizer ultimately needs to go.

“Possibly my favorite thing in the competition,” commented Karrie Jacobs, founding editor-in-chief of *Dwell* magazine and a member of the jury that selected the Chicken Sedan as the top yard design in *Portland Spaces* magazine’s annual Root Awards.

“Proving that built design—and opportunities—exist at every scale,” raved the blurb for the People’s Choice Award from the Portland chapter of the American Institute of Architects.

And to think Cowan had to be talked into entering the competitions by co-founders of Yost Grube Hall Architecture, the Portland firm where Cowan has worked since earning bachelor’s degrees in architecture and architectural studies at Washington State University.

“Harley’s like, ‘Are you kidding me? It’s a chicken coop!’” says his brother, Tim Cowan ‘00, also a Yost Grube Hall architect and the one behind his brother’s simple website ([www.ChickenSedan.com](http://www.ChickenSedan.com)). “Harley’s not the type of guy who would toot his own horn about stuff like that.”

Harley Cowan finds it a bit ironic that a project he did on nights and weekends has commanded so much attention. After all, he has helped design offices, homes, and recreation facilities for Chevron employees around the world. Closer to home, as a young architect he was on the team that designed WSU’s Student Recreation Center, and more recently he worked on the new tasting room and cellars at Kiona Vineyards in Benton City, close to where he grew up in Richland.

In sustainable-crazed Portland, where there are more urban chickens per capita than any other American city, the Chicken Sedan is starting to gather a fan base. Website visitors have asked for plans, but Cowan has not created blueprints to distribute.

“I thought it was a pretty fantastic idea,” said Suzette Pump, who brought Cowan in to speak to her new “Raising Urban Chickens” class at Portland Community College. And when Growing Gardens, a Portland organization that promotes family-scale food production, listed

the Cowan home as a stop on its Tour de Coops event last summer, people flocked into their backyard by the hundreds. They’ll be on the tour map again July 25.

The Cowans are recent converts to backyard chicken raising, waiting until son Henry was a toddler before bringing three Buff Orpington chicks into the fold two years ago. They chose Orpingtons because they are docile, good layers, and attractive. “That was my idea of what a chicken should look like,” Carrie Cowan says.

They dubbed the hens Dorothy, Blanche, and Rose, after characters from *The Golden Girls* television show. After a dog killed Dorothy, they acquired Sophia and Bea (after actress Bea Arthur). Their egg cartons, often given away because the birds outpace the family’s egg needs, are stamped “Carrie’s Golden Girls.”

“For me, the coop project was just a fun thing,” he says. “In this profession, we talk a lot about how design doesn’t necessarily have to do with budget or scale. It can happen anywhere.”

Jacqueline van Wormer

## Advocacy for juveniles

by Hannelore Sudermann :: One morning this winter, the Benton County Juvenile Justice Center is quiet since most of the residents are in classrooms and only one teen waits in lock-up. A couple of the guards are having an early lunch at a table at the end of the long corridor.

Through the security doors and down a few hallways Jacqueline van Wormer (’90, MA ’92) and her team sit at their desks looking up at a dry erase board with words detailing steps to help these residents and other young people in their community steer away from more time in custody. At the top of the board the team has listed “Truancy,” “Mental Health,” and “Disproportionate Minority Contact” (where a disproportionate number of minorities end up in the criminal justice system). As van Wormer and her team work with police, schools, courts, counselors, and families, they hope to address these issues in their community.

Washington is one of four states to receive grant money from a \$120 million John D. and Catherine T. MacArthur Foundation project to reform juvenile justice nation-wide. Van Wormer, who is now working on her doctorate in criminal

Marjorie Louise Patterson (’45 Phys. Ed.) 85, November 25, 2008, Portland, Oregon.

Thomas H. “Tom” Janson (’46 Fine Arts) 88, February 1, 2009, Spokane.

Barbara Ruth Day Lorch (’46 Psych., M.A. Soc. ’47) 84, December 16, 2008, Muncie, Indiana.

Thomas Kyle Mathison x’46, 82, December 26, 2008, Stemilt Hill.

Mary Beth Hutsinpillar (’47 Phys. Ed.) 83, January 7, 2009, Spokane.

Hazel C. Pennell Jacobson (’47 Home Ec.) 82, September 1, 2008, Sunnyside.

Gerald “Jerry” L. Jordan (’47 Mech. Engr.) 86, December 29, 2008, Richland.

Frank A. Parrella (’47 Pol. Sci.) 88, July 27, 2008, Fleming Island, Florida.

Robert K. Putnam (’48 Ed. and Zoology) 86, December 11, 2008, Burien..

Maxine “Margaret” Evans Rupert (’48 Mus. Ed.) 82, December 30, 2008, Grandview.

Loring Gary Calkins, Jr. (’49 Psych.) 85, February 5, 2009, Bothell.

Barbara (Van Dyke) Casebolt (’49 For. Lang.) 80, May 28, 2008, Melbourne, Florida.

Donald Ragsdale Combs (’49 Mech. Engr.) 86, February 21, 2009, Gig Harbor.

Jack Earl Laisure (’49 Bus. Admin.) 85, February 24, 2009, Cathedral City, California.

Marilyn Gene Morris (’49 Comm.) 80, May 15, 2008, Quincy.

Stanley L. Perry (’49 Elec. Engr.) 80, March 6, 2009, Pasco.

William O. “Bill” Pruitt Jr. (’49 Ag. Engr.) 86, January 26, 2009, Davis, California.

Richard Dean Watson (’49 Elec. Engr.) 84, December 21, 2008, Kirkland.

### 1950s

Farank Albert Anderson (’50 Ag.) 91, March 15, 2009, Prosser.

John Aubert (’50 Pharm.) 90, January 19, 2009, Bellingham.

Huber Winton Ellingsworth (’50 Speech Comm.) 80, February 9, 2009, Tulsa, Oklahoma.

Mervin Leo Manuel (’50 Fine Arts) 83, February 28, 2009, Spokane.

Carl Thomas Moser (’50 Ed./Indust. Tech.) 89, September 24, 2008.

Dayle G. Rainwater (’50 Agric.) 84, December 16, 2008, Dayton.

E. Lee Stage (’50 Mech. Engr.) 82, Dec. 11, 2008, Mesa, Arizona.

Simeon R. Wilson III (’50 Fine Arts) 81, February 8, 2009, Bremerton.

Merle Martin Blevins (’51 Indust. Tech.) 82, January 8, 2009, Edmonds.

George E. Finnell (’51 Chem. Engr. and Arch.) 82, February 17, 2009, Houston, Texas.

Helen (Yaw) Finney (’51 Comm.) 79, February 25, 2008, Ketchikan, Alaska.

James Robert “Jim” Jordan, x’51, 77, February 2, 2009, Spokane Valley.

Robert Cary Collins (’52 Arch. Engr.) 79, August 12, 2008, Carlsbad, California.

Hilmer A. Frank (’52 MS Bacteriology, ’54 PhD Hort.) 84, August 28, 2008, Sugar Land, Texas.

Colleen Hein (’52 CED) 79, March 25, 2009, Yakima.

Edward C. Klostermeyer (’52 Ph.D. Entomology) 90, March 1, 2009, Prosser.

Clifford Weldon Waseem (’52 Pharm.) 80, January 4, 2009, Winchester, Idaho.

Leopoldo “Leo” Morales (’53 Civ. Engr.) 79, December 28, 2008, Seattle.

James A. “Jim” Paeth (’53 Civ. Engr.) 73, November 17, 2008, Kingston.

James Gerrish (’55, Animal Sci.) 75, February 12, 2009.

Roy Donald “Don” Hurlbert (’57 Ag.) 78, January 17, 2009, Shelton.



# Cougs at Work



It is time to take care of business with thoughtful gifts from Washington State Connections—your source for Cougar apparel, world-famous Cougar Gold cheese, and other fine quality WSU merchandise.

**Alumni Association members SAVE 10%**  
*(excluding wine, cheese, and sale items)*



Westlake Center, Street Level, 400 Pine Street, Downtown Seattle 206-957-9090  
Monday-Thursday 10 a.m.- 8 p.m., Friday & Saturday 10 a.m.- 9 p.m., Sunday 11 a.m.- 6 p.m.

[www.washingtonstateconnections.com](http://www.washingtonstateconnections.com)

justice at WSU, coordinates the effort, called Models for Change, in the Tri-Cities. She was recently recognized by the foundation as a “Champion for Change” for her leadership, her efforts with schools and juvenile court, and her advocacy for juveniles.

In many fields you run into naysayers who see the research and then focus on how things can’t be changed, says Faith Lutze, an associate professor in WSU’s criminal justice program and van Wormer’s adviser. “Jackie’s first question is, ‘How can we?’ and then she moves on it.” The WSU graduate student has an ability to bring people together and take what she has learned in

worked for the youth court in Missoula, Montana supervising juveniles on home arrest. She later served through several legislative sessions in Olympia as a fiscal analyst reviewing the costs and benefits of criminal justice efforts in Washington’s counties. In 1998 she moved to the Tri-Cities and found a job with Benton and Franklin counties as manager of intervention services for the juvenile court. Her job was working with young people who had committed the more serious offenses. She also did a lot of grant writing garnering money to establish juvenile, adult, and family drug courts in the Tri-Cities.



A turning point for Jaqueline van Wormer ('90, M.A. '92) was an internship at the Walla Walla state penitentiary, where she learned that most prisoners had committed their first offenses as minors. Photo Richard Dickinson/Tri-City Herald.

terms of social science and “take it to the street and make it effective,” says Lutze.

Van Wormer first starting thinking about youth and crime while completing an internship at the state penitentiary in Walla Walla. Reviewing the prisoners’ files, she realized that most had committed their first offenses as minors. The system didn’t help them move away from criminal activity. “There were potential points of intervention that were never offered to them,” she says. “It was one of those pivotal moments for me. I realized work at the juvenile level was a chance for more change.”

In our country the peak crime ages are 14 to 24, says van Wormer. “But the majority of the public resources go to the adult system.” If more resources were spent on juveniles, crime would go down. “It frustrates me so much that juveniles are the fourth priority,” says van Wormer.

After completing her master’s degree in criminal justice at WSU in 1992, van Wormer

This area of Washington is an interesting place, says van Wormer. Benton and Franklin counties have eight different school districts, several large immigrant populations, and a great deal of diversity. Today, 68 percent of the youth population in Franklin County is Latino, and the juvenile justice system has to work to be culturally competent and relevant.

Van Wormer left her job with the court in 2005 to focus on completing her doctorate and spending time with her family—she has three children with her husband, Roy '90. But when the juvenile court administrator Sharon Paradis asked her to write a proposal for the Tri-Cities to participate in the MacArthur Models for Change project, van Wormer, who had learned to write grants as a master’s student, dove into the opportunity.

The two counties were awarded \$425,000 for the first two years of a five-year program. Van Wormer was asked to stay on and administer the

**Mario Machicao** ('57 Elec. Engr.) July 22, 2008, Los Angeles, California.

**Richard Albertson** ('58 Civ. Engr.) 75, August 8, 2008, Leavenworth.

**Larry John Larse** ('58 Civ. Engr.) 73, February 8, 2009, Bellevue.

**Ronald L. Mellom** ('59 Mus. Ed.) 77, February 24, 2009, Lakewood.

**Lynn Walden Walsten** ('59 Gen. Studies) 70, May 6, 2007, Lacey.

## 1960s

**George L. Borsheim** ('60 Chem. Engr.) 72, February 10, 2009, Kennewick.

**James Edward Krussel** ('60, Arch. Engr.) 72, January 6, 2009, Walla Walla.

**David T. Briggs** ('61 Ag. Ed.) 80, November 7, 2008, Byron, Wyoming.

**C. Adair Hilligoss** ('61 MA Ed.), 88, March 11, 2009, Vancouver.

**Tom Sampson** ('61 Bus. Admin.) 77, February 19, 2009, Everett.

**Marlene Broeckel Dreger** ('63 Elem. Ed.) 67, December 15, 2008, Wilbur.

**Marilyn S. McConaghy** ('63 Soc. Stud., '93 PhD) 69, December 16, 2008, Spokane.

**Sharon Diane Vogt** ('64, Engl.) 65, January 14, 2009, Spokane.

**Kenneth M. Hoff** ('66 PhD Zool.) 74, December 22, 2008, Cleveland, Ohio.

**Steven Craig Smith** ('66 Animal Sci.) 66, December 19, 2008, Spokane.

**Edward H. Stock** ('66 Biol.) 65, May 25, 2008, Shelton.

## 1970s

**Gary A. Lynch** ('70 Econ.) 70, November 28, 2008, Valparaiso, Indiana.

**Jerry R. Longmeier** ('70 Ag. Ed.) 60, December 13, 2008, Benton City.

**Wayne Richard Meyer** ('71 Agron.) 59, February 10, 2009, Rathdrum, Idaho.

**William Markillie** ('72 MS Elec. Engr.) 70, November 9, 2008, Richland.

**Wayne R. Meyer** ('72 Agronomy) 59, February 10, 2009, Rathdrum, Idaho.

**David Melvin Warren** ('72 Comm.) 58, February 8, 2009, Bellevue.

**Mary Kay Curran Tomko** ('75 Psych.) 55, January 18, 2009, University Place.

**Bruce J. Bradley** ('77 PhD Nutrition) 65, March 6, 2009, Jerome.

**Gary Lynn Dexter** ('77 Env. Sci.) 58, September 23, 2008, Portland, Oregon.

**Mitchell Charles Aho** ('79 Bus. Adm.) 52, October 27, 2008, Nasell.

## 1980s

**Mona Marie Frauenholtz Early** ('81 Psych.), 49, December 20, 2008, Marysville.

**William Edward Petty** ('82 Landsc. Arch.), 51, January 18, 2009, Bothell.

**Janet Taylor** ('82 PhD Gen. Cell Biol.), 56, September 10, 2008, Saskatoon, Saskatchewan.

**Christopher Craig Jurey** ('83 Bus. Admin.), 59, January 10, 2009, Spokane.

**Stephen Raymond Reeb** ('84 Elect. Engr.), 52, December 17, 2008, Seattle.

**Kristen Jaquish** ('89 Ed.) 41, March 2, 2009.

## 1990s

**Sally Ann Elmore** ('95 Bus. Admin.) 61, January 26, 2009, Othello.

**Jennifer Lynn Rathbun** ('96 Hum. Dev.) 34, March 7, 2009, Kansas.

**Terry Van Tran** ('97 Bus. Admin.) 34, December 25, 2008, Seattle.

**Dionne A. Williams** ('98 Hum. Dev., MA Ed.) 40, January 30, 2009, Vancouver.



## 2000s

**Mary N. Mburu**, x'00, 34, August 11, 2008, Worcester, Massachusetts.

**Brian W. Hackney** ('01 MBA) 51, August 15, 2008, West Linn, Oregon.

**Larry Stephenson** ('03 Soc.) 27, January 26, 2009, Kirkland.

## Faculty & Staff

**Ronald J. Adkins**, 76, retired zoology faculty, January 14, 2009, Port Orchard.

**Patrick T. Downey**, 67, former staff, January 15, 2009, Spokane.

**Donald Fealy**, 73, retired agricultural staff, November 22, 2008, Palouse.

**Donald Fisher**, 72, retired biology faculty, January 27, 2009, Anacortes.

**Grace M. Ketchie**, 71, retired equipment operator, November 19, 2008, Pullman.

**Edward Klostermeyer**, 80, retired agricultural faculty, March 1, 2009, Prosser.

**Everett Metcalf**, 84, retired publications faculty, November 30, 2008, Monroe.

**Thomas Nunamaker**, 55, accounting faculty, January 17, 2009, Pullman.

**Stanislaw Wojcicki**, 86, retired engineering faculty, January 26, 2009, Spokane.

MacArthur grant. "It's a fantastic project," says van Wormer, who was happy to take on the job, "though it has slowed down my Ph.D. work quite a bit."

Now just a year in, the four-member team has already streamlined the way the court works with high school administrators. Though the first two years are supposed to be for assessment, the team has already found areas for action and is moving ahead, says van Wormer. The group is also working with social scientists at WSU who have their own \$300,000 MacArthur Models for Change grant to study the issue of truancy. University of Washington researchers have a similar MacArthur grant to study behavioral health and the needs of the Latino community in the Tri-Cities.

The Tri-Cities team is taking on the challenges of connecting therapists, parole officers, teachers, and families, says van Wormer. "We want to wrap these kids in more holistic services," she says. "They didn't wake up one day and say 'I'm going to commit a crime.'" Their criminal activity may be the result of problems at school, abuse, addiction, neglect, and negative peers. When the system

only addresses the crime, it's failing the child and the community around him, says van Wormer.

One major effort in van Wormer's office is to address truancy. The team recently learned that about 3,000 children in the community are not getting to school. Part of the challenge is that the area's schools all use Washington state truancy law differently, says van Wormer. Some aggressively pursue truancy petitions and some don't. Others don't report truancy at all. She's hoping to get all the districts to work the same way and to look at absences in elementary and junior high, not just high school. "If the children are not in school, they're more likely to get into trouble," she says.

These days van Wormer doesn't work directly with the young offenders. Instead, she's trying to reach those around them—their families, their probation officers, their schools, and their counselors. It's about putting a system in place to catch them before they fall into crime. "These are our kids who are going to stay in our communities," she says. "The more we can help them out before they get into the court system, the better." <<

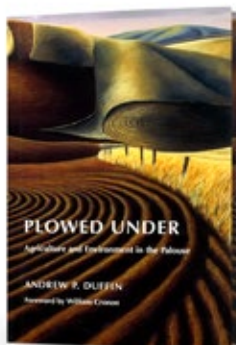
## IN MONTANA, SOME MEMORIES JUST AREN'T FOR SALE.

Casting your line into one of the many great rivers in Gold West Country is a genuine memory. Check out this and other attractions that will make memories you can enjoy for years.

Request a free travel planner at 1.800.879.1159, ext. 911 or visit [www.goldwest.visitmt.com](http://www.goldwest.visitmt.com)



MONTANA'S  
**GOLDWEST**  
COUNTRY  
Where Montana Begins!



## Plowed Under: Agriculture and Environment in the Palouse

by Andrew P. Duffin PhD '02 UNIVERSITY OF WASHINGTON PRESS, 2007 :: Review by Tim Steury :: This is an important and disturbing book, both for the environmental degradation it documents and the message of what little progress our agricultural practices on the Palouse have made.

In a sense, the precursor of *Plowed Under* was a series of lectures by William Spillman in 1924. Spillman, a versatile and prescient scientist, was one of Washington State Agricultural College's first faculty members, hired by President Bryan in 1894. Hired away by the U.S. Department of Agriculture, he returned to the Palouse to deliver a series of lectures, in which he criticized what he considered the egregious error of planting everything to wheat. He urged the return to "balanced farming," in which animals would graze the steep and highly erode-able hillsides, while the flatter areas would be planted to crops.

Spillman was not the first to warn of the hazards of soil erosion on the Palouse. Unfortunately, he was one of many to be largely ignored, their Palouse farming audience in tune to more enticing incentives than soil stewardship.

Duffin's book is basically the story of cyclical warning and denial. Some soil

scientist or government agency will make some modest impact on farming practices, convincing a modest number of farmers to at least reconsider their ways.

Then along comes one of those overriding incentives. First it was World War I and its need for wheat to feed Europeans whose farms had become battlefields. Profit and patriotism easily trumped soil conservation, and farmers increased their production dramatically. Worry about losing a little of what farmers believed an endless supply of topsoil had little effect compared to slogans like "Wheat will win the war."

That enthusiastic production was cheered on after the war. The Wilson administration encouraged farmers to "raise such big crops" that the hunger created by the Great War would never occur again. The *Farmer* magazine urged farmers to seek out every little bit of wasteland, field corners and wasted fencerows, for every bit of land not planted was profit lost.

In spite of notable accomplishments over the decades, such as the founding of the Soil Conservation Service in 1933, contour tillage, the very effective conservation tillage, the Conservation Reserve Program, and other soil conserving programs and practices, the majority of farmers continued to let short-term gain blur the loss of their topsoil. World War II again added profit to farming every inch. The advent of herbicides and anhydrous ammonia fertilizer increased productivity with no apparent need to stem soil runoff. Finally, today, price support subsidies provide great incentive for planting and little for conservation or alternative crops.

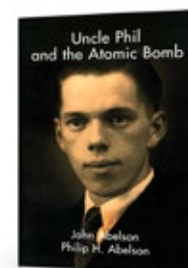
At the root of the problem was that there was no clear-cut proof that soil erosion led

to reduced productivity. For one thing, even though ridges and knobs had lost much of their topsoil by early 20th century, overall, the loess was plentiful and deep, built up by thousands of years of southwest prevailing winds depositing the rich glacial silt.

My only frustration with the book derives from what it is not, rather than what it is, an agricultural history that began as a dissertation. As such, it is not a book that will keep you alert late at night. More important, I'd hoped that Duffin would have incorporated at least some modern scientific perspective, including interviews with wheat breeder Stephen Jones, crop and organic researcher John Reganold, and natural historian and fourth-generation Palousian Rich Old '77, '81, let alone the older farmers themselves, especially those who have made heroic efforts to maintain their soil.

But of course I'm thinking of a much bigger book. It's too bad that academia's aversion to hiring its own barred Duffin from a place he had just started to understand and chronicle. His continued presence and research into our agricultural legacy, I believe, could do much to raise our awareness not only of our

rich history and contribution to the world food supply, but also of the marvelous resource that we continue to squander. ☒



## Uncle Phil and the Atomic Bomb by John Abelson '60, and Philip H. Abelson '33, '35

ROBERTS & COMPANY, 2007 :: Review by Hannelore Sudermann :: I was lucky enough to meet Philip Abelson in 2002 on the occasion of his visit to Pullman for the dedication of Abelson Hall (formerly Science Hall) in honor of the scientist and his wife Dr. Neva Abelson '34.

During our brief interview, Abelson downplayed his own story, instead emphasizing his family's ties to Washington State University. In 1905, his parents Ellen and Olaf, young newlyweds and both immigrants, moved to Pullman where they built a home and attended college. They left for Tacoma before Abelson was born, but their ties to the town continued when he and his



older brother Harold came to Washington State College in 1930.

What Philip Abelson glossed over in telling me his story—and the focus of the book—was his valuable work toward purifying uranium 235. The purification process, which he refined at the U.S. Naval Research Laboratory during World War II, helped Robert Oppenheimer and his team progress on the Manhattan Project and develop the atomic bomb.

The book is told in Abelson's voice with the help of his nephew John Abelson '60. The book is lively with details, like the early argument his parents had about his name—his father liked "Felix," which was Latin for happy, while his mother preferred a more staid "Philip." She thought she had won that argument until 1941 when a trip to the courthouse to pick up a copy of Philip's birth certificate revealed that his name had never been changed.

Philip came to WSC during the Great Depression. Here he was somewhat insulated from the "big city slums" and economic hardships that his parents back in Tacoma were seeing

firsthand. After college, Philip took off on a five-week tour of the country, riding the rails with hobos, going all the way to Chicago and then returning home through the Dust Bowl and Los Angeles, dodging railroad detectives, being caught by the train police with only 75 cents in his pocket. He hitched a ride to Sacramento, caught a train to Pasco, and finished his tour back to Pullman, where he learned he had earned a teaching assistantship in physics. "I saw quite a bit of life in the raw during the time of the Great Depression... the only cruelty and meanness that I met with on my trip was on the part of petty officials," he wrote. "After one comes through such an experience, other tight situations do not cause one to lose his cool."

It was outside the chemistry building on campus that he first saw Neva and was taken. "She walked erect with a brisk and purposeful stride and she was smiling." Too little time in the book is spent on how the two great intellects found friendship and love, perhaps because many of the details in *Uncle Phil* came from Abelson's brief autobiography, which Neva edited and typed.

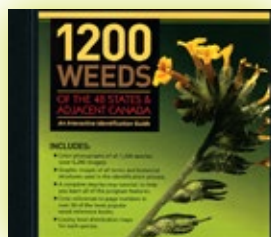
Back in Pullman, Philip had his first taste of nuclear physics in the lab and classrooms of WSU professors Paul Anderson and S. Towne Stephenson. That led him to a post at University of California at Berkeley where he worked in Ernest Lawrence's lab on the cyclotron. Around that time Neva had been accepted to medical school in San Francisco, just across the bay. It wasn't long before the two were married. After Philip completed his PhD at Berkeley, they moved back east for work, and for Neva to continue her medical studies at Johns Hopkins.

As the book moves into Abelson's physics and chemistry work as a scientist at the Carnegie Institution of Washington and the Naval Research Laboratory, his nephew interlaces Abelson's breakthroughs with the groundbreaking nuclear research taking place around the country at places like Oak Ridge, Hanford, and Los Alamos. Ultimately Abelson and his team ended up at Oak Ridge to set up the liquid thermal diffusion plant to make purified uranium. He was in his early 30s.

After the war, Abelson had many other professional

successes. He focused on biology, then geology, then went on to serve as editor of *Science*. He was also president of the Carnegie Institution from 1971 to 1978.

Neva died in 2000; Philip followed four years later. They were a remarkable couple. ☒



**1200 Weeds—of the 48 States & Adjacent Canada** by **Richard Old '77, '81** XID SERVICES, INC., PULLMAN, WASHINGTON, 2008 :: *Review by Hannelore Sudermann* :: When you don't know what you're dealing with, weedy plants may be hard to handle. Richard Old, a longtime Pullman resident and weed identification expert, has put together this comprehensive database of weeds for both public and private use.

The DVD, a sequel to Old's CD 1,000 Weeds, contains more than 6,000 images of weeds found throughout North America. With details like the color of the

plant juice, height, flower traits, leaf shape, and root characteristics, users may be able to narrow down a weed's ID. For example, only 433 species have a yellow flower. Of them, only 241 have leaves 0.8 to 1.6 inches wide. Of those, only 75 have more than 10 petals, and about 50 have a taproot. Factor in the milky juice and the leafless, unbranched, flowering stem, and you have identified a dandelion.

The DVD, which sells through the XID web site for \$50, is compatible with Windows 95 or higher. It includes a tutorial through all the program features, as well as distribution maps for each species. ☒

## new release

**something has to happen next** by **Andrew Michael Roberts '95** UNIVERSITY OF IOWA PRESS, IOWA CITY, 2009 :: This small book of poetry won the 2008 Iowa Poetry Prize. Clever and concise, the poems are divided into two sections. The first contains some only a few lines long, yet they're evocative and amusing. The second holds poems that seem like the beginnings of longer stories. ☒



by *Hannelore Sudermann* :: An episode of the *Antiques Road Show* television program last winter stirred some memories across the Palouse and brought to mind one of the most influential alumni to graduate from Washington State's fine arts program.

A woman from California brought in a painting of the Grand Coulee Dam under construction dated 1937. It was by Clyfford Still, an artist who taught at Washington State College from 1933 to

1941 and who earned his master's of fine arts here in 1935. Still was a product of the West, having spent his childhood in Spokane and on his family's farm in southern Alberta, Canada. While studying and teaching at WSC, Still co-founded the summer Nespelem Art Colony near the Grand Coulee Dam in 1937. Less than a decade later he had become a leader in Abstract Expressionism, working and living in the company of Jackson Pollock, Mark Rothko, and Willem de Kooning.

When he departed Pullman for San Francisco, Still didn't leave much behind. An exception was this work that surfaced on the public television program. According to the writing on the back of the canvas, the artist gave the painting to a professor in another department. Years later that faculty member passed it on to a colleague as a housewarming gift. That man, who as

a student had taken a class from Still, and his wife have cherished the work ever since, hanging it prominently in their homes in Pullman and later in California.

*Washington State Magazine* contacted the family for this story, but because of concerns about publicity surrounding the valuable painting, they asked that their name not be published.

While it is a good representation of the gritty style of that era, it's not typical of the work for which Still is famous, says Chris Bruce, director of Washington State University's art museum. "But it is a style very common with American art in the 1930s." Bruce describes it as "expressionist, realist, almost Ashcan School."

"It's a product of the Depression," he says. "It would be very interesting in a retrospective of his work."

That this family has one of Still's paintings is rare, indeed. The artist gave away very few of his works. He only sold about 180 pieces. Just a few museums, including the Smithsonian, the Metropolitan Museum of Art, the Guggenheim, and the Art Institute of Chicago, have Stills in their collections.

Still disliked the commercialization of art, shunned galleries, and after spending part of the 1940s and 1950s in the New York art scene, grew increasingly reclusive. In 1961 he moved to a farm in Maryland. He cached away his completed works, leaving more than 800 paintings and 1,500 drawings in his estate when he died in 1980.

In 2004, Still's widow, Patricia, opened the collection to be viewed by a select few to ensure they were being stored in safe conditions. Works dating from the 1920s to the 1970s that had been hidden for decades were unfurled from their tubes. In good condition, they showed details of how the artist developed his style and ideas moving from the realism of the 1930s to the large abstract forms representing concepts like life and death.

The city of Denver has agreed to the strict terms of Still's will that the entire collection goes to a museum built only for his art, that none of his pieces would be sold, and that no other artist's work would be exhibited alongside his. Architectural plans for the museum have been completed and fundraising is underway.

Because of Still's stringent rules about the art in his estate and because there are so few out there in the general public, it is unlikely any of his pieces, even those he made while at Washington State, will ever come back to Pullman, says Chris Bruce.

But some folks here in Pullman can't help but wonder if there may be one more Clyfford Still painting hanging on a wall or tucked away in an attic somewhere around town.



PHOTO COURTESY PBS

Art Still at Large

A rare early painting by Clyfford Still '35 of the Grand Coulee Dam under construction surfaced this winter on an episode of *Antiques Road Show*.



View more of Clyfford Still's work and the new Still museum in Denver at [wsm.wsu.edu](http://wsm.wsu.edu).



Life is measured in moments...

# MAKE EVERY MOMENT COUNT.



At every age life is measured in moments. And Brookdale® Senior Living communities are designed to help you or a loved one make the most of every one of them. We offer a wide range of senior lifestyles, care options and pricing structures to match your needs. And as a Brookdale resident, you will have flexibility to transfer between them as your needs change.

*Call or visit a Brookdale Senior Living community today,  
because every moment counts.*



**BROOKDALE®**  
SENIOR LIVING

*Our People Make  
the Difference<sup>SM</sup>*

Brookdale Senior Living has over 500 communities in 35 states.

**CLARE BRIDGE® LYNNWOOD (A/D)**  
18706 36th Ave. W, Lynnwood, WA 98037  
(425) 774-3300

**CLARE BRIDGE® OLYMPIA (A/D)**  
420 Yauger Way SW, Olympia, WA 98502  
(360) 236-1400

**CLARE BRIDGE® PUYALLUP (A/D)**  
8811 176th St. E, Puyallup, WA 98375  
(253) 445-1300

**CLARE BRIDGE®  
SHORELINE VIEW (A/D)**  
9324 N Harborview Dr., Gig Harbor, WA 98332  
(253) 858-7790

**CLARE BRIDGE® SILVER LAKE (A/D)**  
2015 Lake Heights Dr., Everett, WA 98208  
(425) 337-6336

**CLARE BRIDGE® SPOKANE (A/D)**  
5329 West Rifle Club Crt., Spokane, WA 99208  
(509) 323-1400

**FOUNDATION HOUSE (IL, PAL)**  
32290 1st Ave. S, Federal Way, WA 98003  
(253) 838-8823

**PARK PLACE (IL, PAL, A/D)**  
601 South Park Rd., Spokane, WA 99212  
(509) 922-7224

**VILLAS UNION PARK (IL)**  
2010 S. Union Ave., Tacoma, WA 98405  
(253) 752-6870

**WYNWOOD® ALLENMORE (PAL)**  
3615 S. 23rd St., Tacoma, WA 98405  
(253) 759-7770

**WYNWOOD® BELLEVUE (PAL, A/D)**  
1640 148th Ave. SE, Bellevue, WA 98007  
(425) 373-1161

**WYNWOOD® COLUMBIA  
EDGEWATER (PAL)**  
1629 George Washington Way, Richland, WA 99354  
(509) 946-4600

**WYNWOOD® YAKIMA (PAL)**  
4100 West Englewood Ave.  
Yakima, WA 98908  
(509) 965-0111

*IL-Independent Living  
A/D - Alzheimer's & Dementia Care  
PAL-PERSONALized Assisted Living*

[www.brookdaleliving.com](http://www.brookdaleliving.com)

Our People Make the Difference is a Service Mark of Brookdale Senior Living, Inc., Nashville, TN, USA. ©Reg. U.S. Pat. And TM Office WASH-RES01-0109 

## CALL TODAY FOR SPECIAL ALUMNI DISCOUNTS!

You're a part  
of our family.

When you become a Legacy Associate, you make WSU a member of your family. By including WSU in your Will or Trust, or as a beneficiary of your life insurance or retirement plan, you create a permanent legacy supporting WSU's future.

*What's your legacy?*

Are we a part  
of yours?

To create your legacy at WSU, contact the Gift Planning Office at 800-448-2978 or [gpooffice@wsu.edu](mailto:gpooffice@wsu.edu).

WASHINGTON STATE UNIVERSITY  
FOUNDATION

