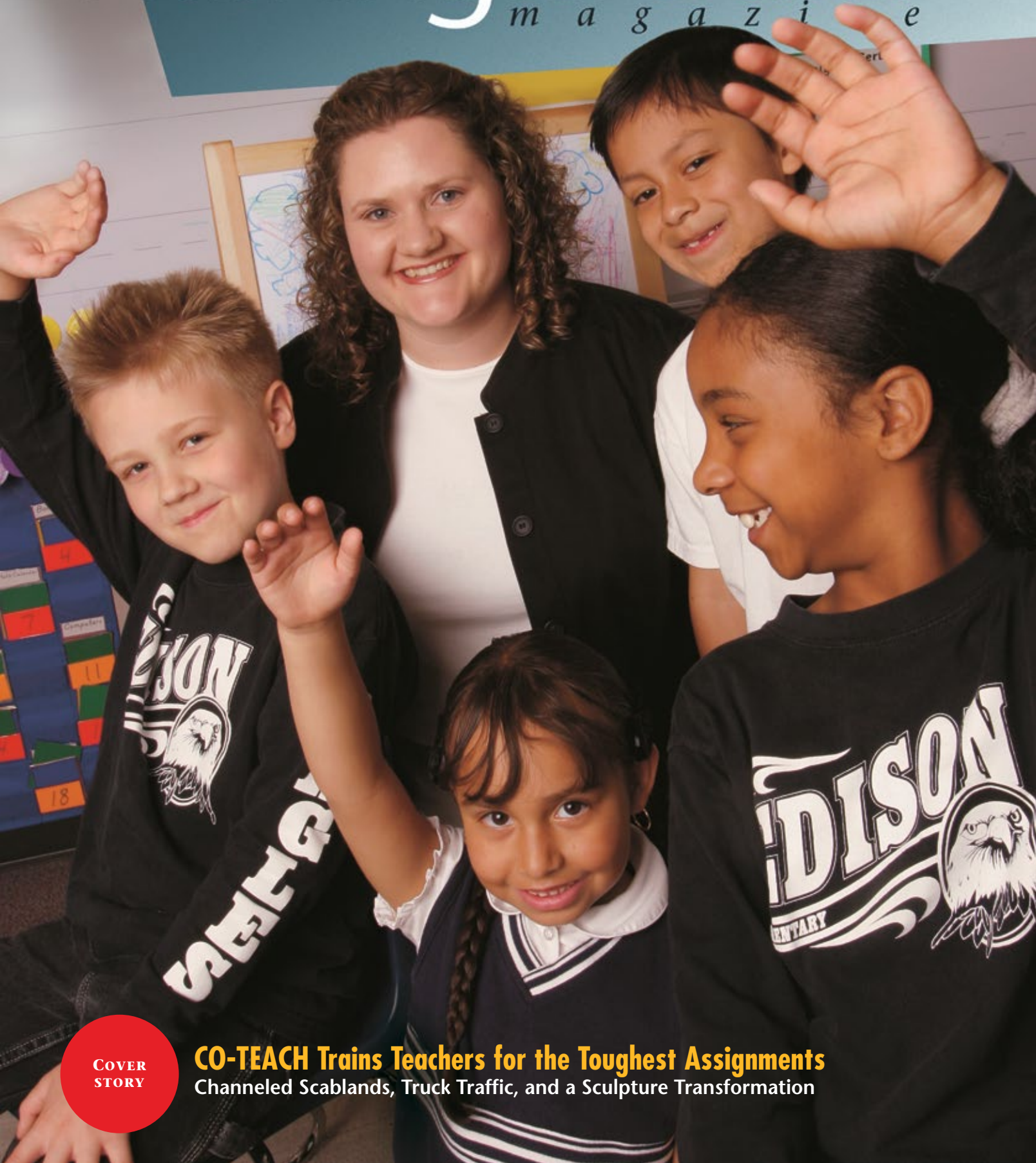


CONNECTING WASHINGTON STATE UNIVERSITY, THE STATE, AND THE WORLD • FALL 2004

Washington State

m a g a z i n e



COVER
STORY

CO-TEACH Trains Teachers for the Toughest Assignments
Channeled Scablands, Truck Traffic, and a Sculpture Transformation

features

26 A Little Bronze— Strategically Placed

by Tim Steury

Although it might be better known for wine and wheat, Walla Walla is also home to one of the most prominent fine-art foundries. For a short time this fall, 32 sculptures cast at the Walla Walla Foundry will reside at 13 locations across the Pullman campus.

28 Tracking Trucks

by Pat Caraher • photos by Rajah Bose

One heavily loaded eighteen-wheeler can cause the same highway damage as 7,000 cars. Ken Casavant and other transportation economists are trying to make sense of the effects of trucks on the state's highways.

33 No Hollow Promise

by Ken Olsen • photos by Laurence Chen

Half of all new public-school teachers quit within five years, and the best and brightest are often the first to go. Worse, the attrition rate at high-needs schools is even greater. The CO-TEACH program at WSU decided to change this situation.

38 An Exquisite Scar

by Tim Steury • photos by Robert Hubner

The beauty of the channeled scablands comes from unimaginable catastrophe.

45 Carlton Lewis— Still Building Bridges

by Brian Gunn • photo by Patrice Gilbert

The early 1970s were tumultuous years on the WSU campus. As student body president, Carlton Lewis helped keep things from boiling over. Now he presides over Devcorp Consulting Corporation, a project management company with teeth.

Cover: Edison Elementary teacher Jacqui Fisher '00 with students Dillon Skedd, Alejandrina Carreño, Jorge Herrera, Kylee Martinez. See story, page 33.
Photograph by Laurence Chen.



GEORGE ROBINSON



ROBERT HUBNER



LAURENCE CHEN



PAUL ROSE

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64 *a thousand words*

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Perennial Wheat

Your article on perennial wheat (Summer 2004) brought back some fond memories for me. I was a graduate student in Botany at WSU from 1953-1957. I worked for Fred Elliot, the wheat breeder, during the summer of 1956. Fred was attempting to transfer bunt resistance from a wild *Agro-*

pyron into wheat. Dick Castenholtz, another graduate student, and I, examined thousands of chromosome preparations from Fred's hybrid plants, trying to find a 42-chromosome plant that carried the resistance. I don't know what became of that project, because Fred took a job at Michigan State, and I lost track of him.

At that time, Orville Vogel was alive and well, putting a lot of energy into the development of dwarf wheat varieties. Hannah Aase was retired but still working as hard as ever on her plant research. Bob Allan was hired as the USDA wheat breeder before I left Pullman. I have followed his career in later years because he and I were both in the same USDA-ARS area.

A number of years ago, Arizona cotton farmers decided they would grow "stub" cotton. At the end of the season, rather than shredding the stalks and plowing up the field, they just cut off the stalks and let the plants regrow (cotton is naturally a perennial plant but is usually treated as an annual). The main effect of this practice was an explosion of the boll weevil, an insect that is normally not a problem in the irrigated cotton-growing areas of the western United

States. Wheat breeders are wise to be wary of diseases appearing in perennial wheat that would not be problems in annual wheat.

*F. Douglas Wilson,
Ph.D. '57
Tempe, Arizona*

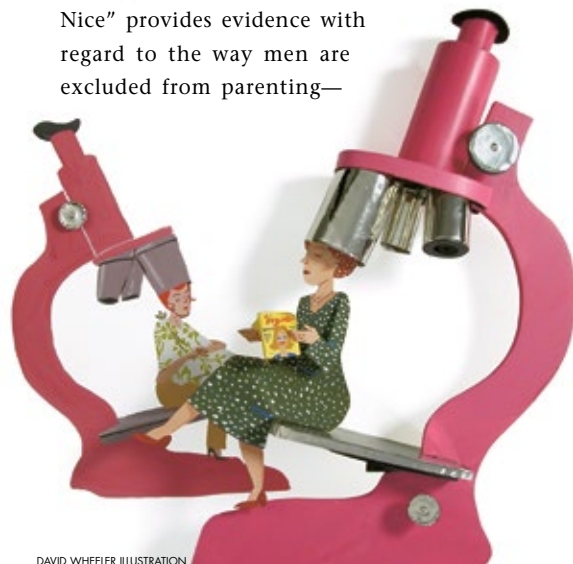
Gender Defenders

The article, "Be Nice" (Summer 2004), quotes Professor [Amy] Mazur as stating that "Gender research is a marginalized field." The content of the article suggests why the research is marginalized—it is not very inclusive.

The content of the article dealt exclusively with women and women's concerns. Were gender research to include men and men's concerns, the field would be more inclusive and more likely to attract a wider audience.

As examples of men's concerns, I could point out that there were more new cases of prostate cancer than breast cancer between 1992 and 1999; that women are responsible for 60.4 percent of child-abuse fatalities, though the stereotype is that men are the violent sex in the domicile; that only one state has a higher percentage of female cigarette smokers than male cigarette smokers; that WSU has more females than males as undergraduates, professional students, and graduate students; and that WSU has a Women's Resource Center but no men's resource center, Title IX notwithstanding.

I could point out that while everyone talks loudly about the wage gap between men and women, there is little discussion of the fact that men are about 12 times more likely to have a job-related fatality—the greater the risk, the greater the pay; or that our society enacted affirmative action policies to get women out of the house and into the workforce, but provided little support or encouragement for men to be in the house as a parent. In fact, "Be Nice" provides evidence with regard to the way men are excluded from parenting—

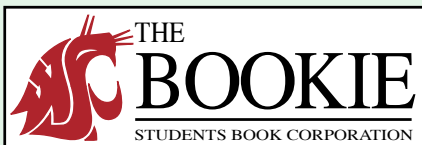


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male professors have concerns about when to have babies, too.

When I dropped out of a career as a tenured professor to raise my children, I experienced firsthand how men are treated when they are the principal care-giver—but marginalized men are probably not worth talking about if gender research is only about women.

Richard J. McGowan, '76
Indianapolis, Indiana

I was pleased to see an article about GRACe, an interdisciplinary research group on gender issues at WSU, in the summer 2004 issue of *Washington State Magazine*. But I was stunned by the graphic that accompanied this—two women lazily sitting under the lenses of hot pink microscopes as though under hair driers, one reading *Vogue* and the other napping.

Hmmm, what century are we in? Surely not the 21st. Perhaps you meant this graphic to be cute, but it both trivializes and demeans the research on which you were reporting. In case you haven't noticed, women rarely sit under hair driers anymore. Why not? Because most of them are in the labor force supporting themselves and/or helping support their families.

Photographs accompanied the other articles on research at WSU. Did you not have any photos of the very successful GRACe symposium that occurred in February? Perhaps you think this is a trivial issue, but let me propose a similar graphic for the article on wheat research also in that issue. Why didn't you have a paunchy, balding male sitting in a chaise lounge drinking a beer and looking out over a wheat field? That's a ridiculous idea, right? But it shows that symbols convey powerful meanings.



ROBERT BARNSTONE

You really need to do a better job of representing the importance of women at all levels of Washington State University in your magazine. By the way, in the large graduation photo on pages 42-43, five men are displayed with one woman in the background. Silly me, since women are 56 percent of the WSU student body, I thought that they might have equal representation in such a photo.

Annabel Kirschner, Ph.D.
Professor and Chair, Department of Community
and Rural Sociology
Interim Chair, Department of Apparel,
Merchandising, Design, and Textiles
Washington State University

Words of Caution

I am overjoyed to see the advancement of new materials for use in construction put to actual use by the University and its students ("Wave of the Future," Summer 2004). I am, however, dismayed to see the flagrant violations of basic safety in the construction process. The picture on page 7 shows what I assume are five students without basic safety gear (hardhats) and using a forklift to set a large girder. The worst part: the girder is sitting on the forks of the forklift without any tie-downs of any kind! I would hope in the future that when the University wants to give "hands-on training," they won't neglect the most important training of all—that of safety first!

Stephen J. Carstens, P.E.
B.S. Construction Management '89;
B.S. Civil Engineering '96; M.S. Civil Engineering '98
Olalla, Washington



WASL Revisited

Shirley Skidmore's letter (WSM Summer 2004) protests Glenn Gifford's and my paper on high-stakes tests (Spring 2004). She stated: "The WASL is a nationally regarded assessment."

To date, 10 national research, assessment, psychological, and professional educational organizations oppose a single form of testing (e. g., WASL) to make high-stakes decisions about individual students.

Miss Skidmore correctly noted, "We have particular challenges in closing the achievement gap that exists between wealthy and poor students and among ethnic groups." Pass rates among low-income children are from one-third to one-fifth the rates of children from middle and upper income families. Overall, the rate of children passing the 10th-grade math WASL ranges from 4 percent (children with disabilities) to 45 percent (Asian children). A similar pattern exists for English/Language Arts, the range being 13 percent to 65 percent. She implies that the WASL will improve learning.

My paper in *Educational Policy Analysis Archives* (2003) presents data showing that between 1999 and 2003, there was "no effect" on yearly student achievement as a consequence of the WASL. Documented WASL costs now exceed \$180,000,000, with not one dime helping any child.

Donald C. Orlich
Professor Emeritus, WSU College of Education
Pullman

News from the WASHINGTON STATE UNIVERSITY FOUNDATION

In Their Own Words

Students Thank Scholarship Donors with a Personal Touch

EVERY YEAR, students across the Washington State University campus sit down to compose letters of thanks to the individuals who make their education possible.



Recipients of the Lou and Ruth Allen
"Pass It On"
Scholarship gather
for a group photo
as a way of thanking the
Allens for their support.

WSU's Office of Scholarship Services, the WSU Foundation, and scholarship coordinators across the University make sure that scholarship students know who to thank—and the students, in turn, give a little bit of themselves back when they express their feelings about receiving a scholarship made possible by the generous individuals who provide private financial support to WSU.

Their words demonstrate the impact that support for scholarships at Washington State has on today's students and tomorrow's leaders:

"I would not be where I am today if it were not for support from people like you. I greatly appreciate your generosity and assistance [the Beardsley Family Foundation Veterinary Medicine Honors Scholarship], and hope to someday follow your example and give back to the students that will be working to complete the same goals and dreams that I now pursue."

—Alicia Gores, Senior, Zoology/Pre-Vet Med

"I am extremely grateful to have been chosen for the distinguished Creighton Graduate Fellowship for Native American Students. Your generosity and passion for higher education has encouraged me even in the darkest of moments."

—Marcy Palmer, Ph.D., Counseling Psychology

"Thank you for creating the M.E. and Maxine Johnson Honors College Scholarship. It is people like you that make me proud to be a future Cougar alumnus and have the opportunity to give back to this fine University. Since my family is unable to assist me with the financial costs of a college education, any help that I receive is extremely valuable. I promise that the scholarship money you have provided will greatly help with my academic success while at WSU."

—Matthew L. Ogurkow, Freshman, Communications



Field-burning study proves inconclusive

INLAND NORTHWEST FARMERS may be breathing a little easier after seeing the results of a Washington State University and University of Washington study that showed no statistical increase in asthmatics' health problems during several field burning events in 2002. Researchers from WSU's Laboratory for Atmospheric Research, the UW School of Public Health and Community Medicine, and the Northwest Center for Particulate Air Pollution and Health presented their findings at two public meetings in June in Pullman and Spokane.

The study examined exposure levels in 33 asthmatic adults to atmospheric pollutants from field burning in the Palouse region. With the help of funding from the Environmental Protection Agency and the Washington State Department of Ecology, researchers placed particle monitors in backpacks worn by asthmatic volunteers to measure their individual exposure levels to particulate matter in the air for eight weeks during the fall 2002 field-burning season. They also placed particle monitors in volunteers' homes. At the same time, they carefully monitored the symptoms and lung function of the volunteers.

The researchers noted that the results of the study should be viewed with caution. While it found no significant health effect from the field burning, neither did the study answer the question of why that might be. Perhaps recent burning has been more carefully controlled than in past years. Peak exposures were lower in 2002 than in the two previous years, the researchers said. For the past two burn seasons (2002, 2003), Idaho and Washington, as well as the Nez Perce and Coeur D'Alene Indian tribes, have used the Clear Sky Smoke Forecast System developed at WSU. Burn coordinators can go online and submit information on acreage that they would like to burn. The forecast system then integrates the information with weather forecasts to provide a prediction of where smoke from the burn will travel.

Another reason their study failed to detect health effects from field burning, the researchers noted, might be that the young adults with asthma who participated in the study were less susceptible to health problems than other groups, such as young children or the elderly. Or the health effects from burning wheat stubble might be different from those caused by bluegrass.

In any case, data from the agricultural burning study can be used by the Department of Ecology to set exposure standards for particulate matter to protect public health. ■

—Tina Hilding

IMAGINE

Class combines word and image to understand William Blake

photography by Robert Hubner

The English poet William Blake (1757-1827) is usually taught merely for his poetry. But Blake, says Debbie Lee, was more of an artist than a poet. In fact, it is possible that he started with his visual creations, then composed verse to accompany them. Blake's earliest training was in art. It was only later that he tried poetry, then gradually melded poetry and engraving to develop his strange and complex visions and mythology.

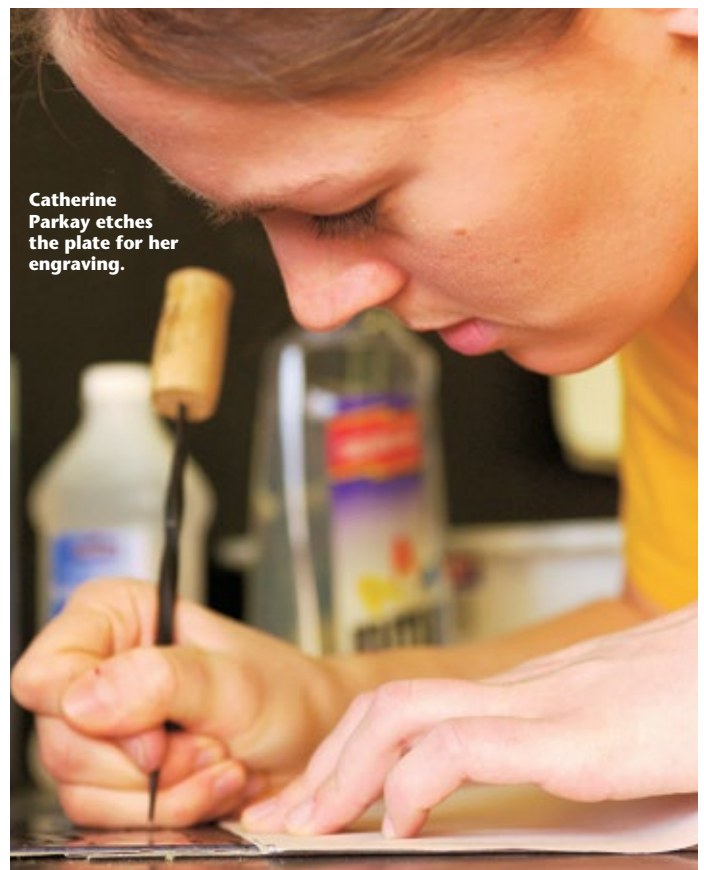
Lee, a professor of English at Washington State University, believes that it is essential for students to understand Blake's technology, his engraving and printing, if they are to truly understand his

poetry. And how better to understand that technology than to practice it?

Soon after Lee got approval to teach a class combining Blake's words and images, she learned that Fine Arts had just hired a new print-maker, Kevin Haas. Lee contacted him, and thus began their collaboration.

Lee begins the class with a week-long discussion of what the relationship between word and image means. Today's visually oriented students take naturally to this relationship, says Lee, primarily because of the Internet.

"The Internet combines text and image," she says. "That's how they



Catherine Parkay etches the plate for her engraving.



Kevin Haas, of Fine Arts, with Kelsey Sutich

IMAGINE *continued*

read. Their reading process includes thinking about the relationship between text and image."

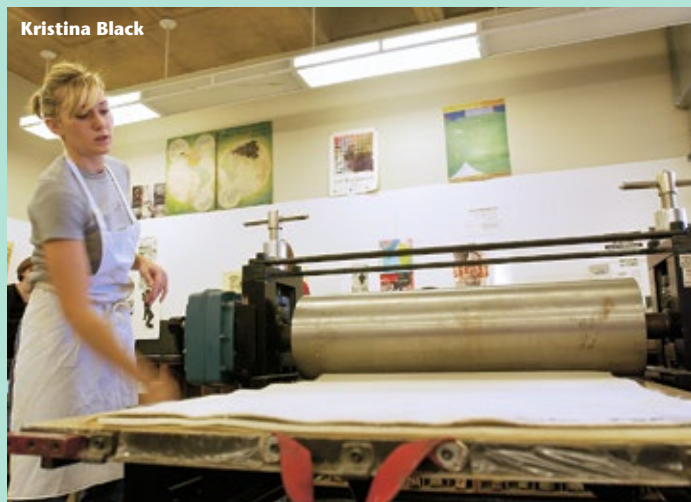
A class later in the semester entailed group reports. Much more than the expected "he-said-she-said" summary of the criticism, the students gave sophisticated and perceptive analyses, weaving together the images and words of various works by Blake. Kristina Black and Caitlin Sullivan discussed *Visions of the Daughters of Albion*, Albion being Blake's vision of a lost and mystical English past. Richard Lassiter, Bill Pratt, and Jamie Wilson discussed *The Marriage of Heaven*



Lisa Williams



Kristina Black





Melissa Bozarth

and Hell, Blake's vigorous attack on the conventional and self-righteous in society.

Well into the semester, having gained a solid grasp of Blake's visions, the students spend two Saturdays making their own prints, under the tutelage of Haas, in the manner of Blake.

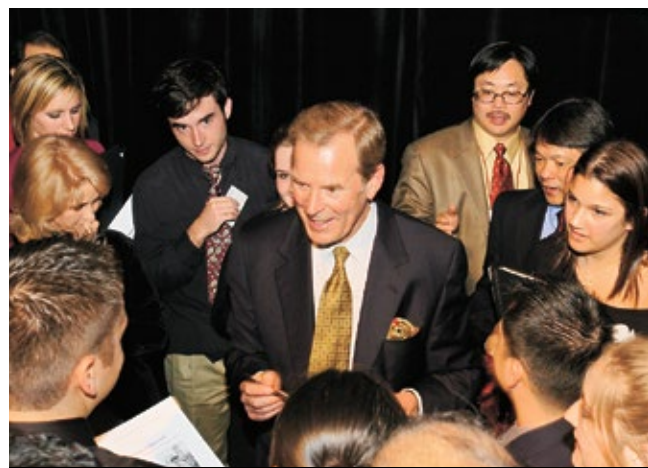
Rather than using Blake's method of acid etching on copper, which is both expensive and dangerous, Haas teaches the students to engrave on plexiglass. After printing, they color their prints with watercolor, just as Blake did.

"The Nature of my Work," wrote Blake, "is Visionary or Imaginative." Understanding his Vision and Imagination is difficult. His images and metaphors shift and transform. In fact, he declares, "That which can be made Explicit to the Idiot is not worth my care." By studying his complete process, Lee believes, students rise well beyond the explicit toward a grasp of Blake's often challenging, often bizarre, always rewarding vision. ■

—Tim Steury

For more about the Blake class, see www.wsu.edu/~deblee/blake.

Also, www.blakearchive.org is an extraordinary collection of online prints by Blake.



ROBERT HUBNER

BROADCASTING AS PUBLIC SERVICE

PETER JENNINGS refreshes the Murrow vision

WHAT WOULD veteran newsman Peter Jennings tell students seeking a career in broadcasting today?

His wife posed the question to him when they were in Pullman for Washington State University's 30th Edward R. Murrow Symposium April 14. The answer came that evening in Jennings's presentation, after he accepted the Murrow Award for Lifetime Achievement in Broadcasting from WSU.

"If you believe that broadcasting is a public service, then please come into the profession," he told the largely student audience of 2,500 in the Beasley Performing Arts Coliseum theater.

ABC's *World News Tonight* anchor had been on assignment in Iraq a week earlier and shared some of his views. The Iraqi people want U.S. and allied military troops to leave the country, "but not too soon," he said. The situation there left Jennings wondering if enough public debate went into the U.S. decision to enter war. Once a country goes to war, it's always difficult to be aggressive in reporting news from the front, and the public is often overwhelmed by misinformation.

Still, the broadcaster knows of nothing more satisfying than "telling a story well," presenting it fully, and putting it in context for the public.

That's the challenge for those entering careers in broadcast and print journalism. With 650 declared majors in communication and 700 pre-majors, the Murrow School of Communication has one of the largest enrollments at WSU.

The symposium was introduced more than 30 years ago to recognize achievements of communication leaders, whose careers have demonstrated the standard of excellence set by Murrow ('30 Speech). In recent years, the symposium's scope has been broadened to a daylong event. This year it included more than thirty 50-minute workshops, many of them hosted by working communicators. More

than 200 high school and community college students joined WSU students in the workshops.

Students were exposed to opportunities and challenges in public relations, advertising, communication, journalism, and broadcasting. The overall student response was positive, says WSU visiting instructor Lisa Irby. The experience confirmed for them the value of what they are being taught in the classroom, *i.e.*, “Tell the truth.” The

workshops and panels allowed professionals to share their personal experiences and insights, and provide students with “how-to” tips.

Sessions included “Got Ethics?” “What I Learned in School,” “This Just In: When News Breaks,” and “Who’s Holding the Media Accountable?”

Communication professor John Irby oversaw the high-school journalism competition, which attracted 79 entries in five categories. First-

place winners included Amelia Veneziano, Richland High School, for news writing; Jon Hecht, Scarsdale High School, New York, for sports writing; Megan Brewington, Sandpoint High School, Idaho, for feature writing; Yarrow Frank, Sandpoint High School, for photography; and *The Sandstorm*, Sandpoint High School, for best overall edition. Irby says overall the quality was “very good, very strong.”

More than \$90,000 in scholar-

ships was awarded to some 60 students at the Scholarship Awards Banquet before the symposium, and Murrow School director Alex Tan expressed his thanks to the Washington State Association of Broadcasters for its \$100,000 gift to the Murrow School. The money will be used to purchase broadcasting equipment for the new \$17.6 million Murrow School addition that opened last winter. ■

—Pat Caraher



HOLLY RICCI / THE SPOKESMAN-REVIEW

COUGAR IN THE CORN

Philipp Schmitt fashioned this elaborate Cougar Country corn maze on 14 acres east of Spokane near Liberty Lake last October. Each fall for the past five years, he’s used global positioning—coordinates beamed by satellite—to figure out where to plant the corn. Last year, he opted for the cougar-head logo, and relied on hand mapping to get all the details, including the whiskers, just right. The Pasco farmer attended Washington State University for five semesters from 1994 to 1998. ■

TRACING AN ELUSIVE CAUSE OF PANIC

*Barbara Sorg's formaldehyde animal model
has shown that exposure to the chemical
increases levels of stress-hormone production.*

FOR THOSE WHO SUFFER from multiple chemical sensitivity, or MCS, a trip to the grocery store may be all it takes to bring on severe headaches, joint pain, muscle fatigue, dizziness, or difficulty in thinking. Barbara Sorg, professor, Veterinary and Comparative Anatomy, Pharmacology, and Physiology at Washington State University, would like to help change that.

MCS, along with panic disorder, post-traumatic stress syndrome, and other similar illnesses, is little understood. All appear to be initiated by an event such as chemical exposure, trauma, or illness. With MCS, it may be one large exposure, such as from a chemical spill, or repeated low-level exposures, such as from home pesticide spraying.

Current research suggests that in susceptible individuals, these events can cause a memory trace to be created in the brain that connects the chemical initiator and the symptoms of the disease. Once created, the memory trace can be activated not just by the original chemical, but also by other chemicals.

It is obviously difficult, if not impossible, to directly study the development of pathways in the human brain. Scientists such as Sorg usually use relevant animal models for this type of work. Sorg has spent the past eight years developing and studying a model in which exposure to formaldehyde is used to examine stress responses and conditioned fear in rats.

Increased levels of stress hormones are thought to lead to changes in the brain, some of them



Barbara Sorg hopes to use her model system to prevent the development of multiple chemical sensitivity.

in areas where the brain pathways thought to be responsible for MCS occur. Conditioned fear is believed to be a relevant model for post-traumatic stress and panic disorders. It involves linking an odor or

other sensory input with an unpleasant occurrence. When conditioning occurs, the sensory input alone will cause the response appropriate to the unpleasant occurrence.

Sorg's formaldehyde animal model has shown that exposure to formaldehyde makes rats more sensitive to odors in tests of conditioned fear. It also has shown that exposure to formaldehyde increases the animals' everyday or basal levels of stress-hormone production.

Currently, Sorg is using her formaldehyde research as a basis for developing a pesticide model that can be used to determine how low-level pesticide exposure may alter the ability of the brain to link pesticide exposure and the symptoms of panic. The pesticide is Lindane, a common treatment for head lice. Other scientific research has suggested that Lindane causes higher-than-normal levels of anxiety, and Sorg sees it as a good means of moving into the study of pesticides and developing a model that can be used to test other pesticides. Her initial work with Lindane indicates that there is a difference between untreated and treated animals, the latter showing a conditioned fear response lasting up to five weeks longer than that of the untreated animals.

A great deal more work will be done in order to test and refine Sorg's new model. Her goals include determining what changes in the brain are associated with the production of the conditioned fear response in treated animals. More important, for those who suffer from MCS or may develop it in the future, she will be able to use the system to test treatments that will prevent the development of the disorder or block the symptoms in those who already have it. ■

—Mary Aegerter

Finally, the failure of the TETON DAM is explained

ON A BEAUTIFUL June morning in 1976, workers near the newly constructed Teton Dam in southern Idaho noticed a small leak in the 405-foot-high dam as the reservoir behind it was being filled. By noon that day, the dam had failed completely, emptying 251,000 acre-feet of water onto downstream communities, killing 14 people, and resulting in large economic losses.

How did the dam fail, in spite of its state-of-the-art construction technology? Was it a flawed design, bad material, or faulty construc-

tion? Panels appointed by the Bureau of Reclamation and the state of Idaho explored all those possibilities, but a conclusive explanation eluded them.

Now a new explanation has resulted from collaboration between Balasingam Muhunthan, associate professor of civil and environmental engineering at Washington State University, and V.S. Pillai, a consulting geotechnical engineer who has been heavily involved for 33 years in the design and construction of large earth-fill dams throughout North America. Pillai offered to share his expertise in soil liquefaction and the theory of "critical-state soil mechanics," which could lead to an explanation of the dam's failure. Soon after, Muhunthan left for a sabbatical at Cambridge University, where A.N. Schofield and others had developed the theory many years ago.

Schofield himself had investigated the failure of Teton Dam and disagreed with the official conclusions of the investigative panels.

Muhunthan conferred with Schofield on failures of three dams, including Teton, and they compiled a paper on "Liquefaction-Failures of Dams."

Reinforced by the Muhunthan-Schofield paper, Pillai re-examined the Teton failure, checking the mechanical/liquidity properties of the low-plasticity silty soils that formed the impervious core, the varying valley geometry of the dam site, and the influence of stresses on the materials of the impervious core that could cause internal cracking. Pillai came up with possible vertical internal cracks in the upper portion of the dam, with the deepest one, a 32-foot-deep crack, extending from the top of the dam in the right abutment, near where the breach was triggered. Pillai proposed a full-fledged research project to Muhunthan. In early 2002, the National Science Foundation awarded a grant to Washington State University to support the research.

Nearly a half-ton of the core

material from the dam was transported to the Soils Laboratory at WSU, and Muhunthan's research group began an extensive analytical program, based on their new theory, "state-based soil mechanics," which, says Muhunthan, asserts that "highly compacted soils of low plasticity tend to crack in an environment of low liquidity index, low confining stresses and high shear stresses."

The research confirmed Pillai's initial findings, that the dam had internal open cracks at two locations. One set of cracks extended to a depth of 32 feet from the top of the dam, where the actual breach was initiated. The other one was much shallower in the left abutment. When the water level of the reservoir rose to the bottom of the deepest crack in the early hours of June 5, water simply flowed through the open vertical crack(s), which eroded the crack into a large tunnel, leading to the breach of the dam hours later. ■

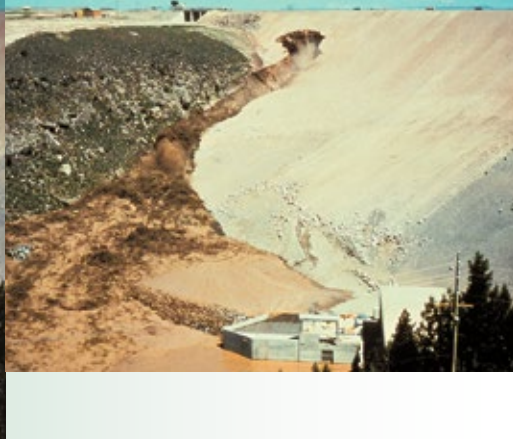
A DISASTER UNFOLDS

A chilling series of photographs documents the failure of the Teton Dam, June 5, 1976. For the entire sequence of 20 photographs,

View northwest toward the right abutment of the Teton Dam. Muddy water issues out of the hole about two-thirds up the face of the dam and begins to pond at the toe.



The hole in the dam face enlarges upward.



The hole in the dam face continues to enlarge upward near the crest of the dam, the rush of water increases markedly, and erosion cuts deep into bedrock of the abutment.





Shelley McGuire (left) and Kathy Beerman don't care what's in your shopping cart.

THE NEW NUTRITION

Good for you, bad for you —
or just good?

AS PROFESSORS of human nutrition at Washington State University, Shelley McGuire and Kathy Beerman are always being asked what they eat. At the grocery store, acquaintances have been known to peer into their grocery carts or to try to discreetly hide their own carts.

For the record, McGuire enjoys

drinking whole milk. Beerman eats bagels and cream cheese. They don't care what's in your shopping cart, and they don't want to be food police, judging foods good or bad.

"It's not a judgment I feel comfortable making," says Beerman. "People should keep health in mind when they eat, but that is a personal decision. Eat the cookie, enjoy it, and let's move on."

Maintaining the balance

The science of nutrition is relatively new, and researchers in the discipline have struggled with maintaining a scientific balance in telling us what should be on our plates. The field started in the early 1900s, when scientists began making connections between nutritional deficiencies and diseases. The emphasis was on how to prevent such diseases as scurvy or rickets, which are caused by vitamin deficiencies. Early dietary recommendations derived from an effort to establish what kinds of rations were best for soldiers. In addition to helping to avoid nutrient-deficiency diseases,

see www.geol.ucsb.edu/faculty/sylvester/Teton%20Dam/FrameSet.htm

The dam is breached.



Water spills unchecked through the widening breach.



PHOTOS BY
EUNICE OLSON,
ST. ANTHONY,
IDAHO,
COURTESY
PROF. ARTHUR
G. SYLVESTER,
DEPARTMENT
OF GEOLOGICAL
SCIENCES,
UNIVERSITY OF
CALIFORNIA,
SANTA BARBARA.

the recommendations encouraged consumption of the greatest number of calories to ward off malnutrition. An early food pyramid, actually a circle, recommended eating from the following food groups: milk, ice cream, and cheese; butter and fortified margarine; and citrus fruit, tomatoes, and raw cabbage.

By the 1970s, people were living longer, and food was often fortified with vitamins. Diseases such as cancer and heart disease began to gain prominence, and the emphasis in nutrition science changed from preventing nutritional deficiencies to preventing diet-related disease.

The food pyramid

In a recent article in *Scientific American*, Walter Willett and Meir Stampfer, of the Harvard School of Public Health, argue that the effort to simplify nutrition science has led to flawed dietary recommendations. For instance, the fact that people in industrialized countries eat lots of saturated fats and tend to have a lot of coronary heart disease led to recommendations that we should keep fats to a minimum in our diet, hence their position at the tip-top of the pyramid, the most recent of which was developed in 1992. The pyramid, though, does not distinguish between what science says are the more beneficial unsaturated fats and the more harmful saturated fats found in meat and butter.

Simplifying the science led people to thinking that fat was bad and that carbohydrates were therefore good. Willett and Stampfer argue that no evidence exists to show that people who follow the food pyramid are healthier or live longer. In fact, one epidemiological study showed that after controlling for the effects of exercise and smoking, people who came close to fol-

lowing the food pyramid were no healthier than those who didn't.

The problem with dietary recommendations is that they haven't necessarily been based on sound science, says McGuire. People pay close attention to the very personal issue of food and want answers. But science doesn't necessarily move in an accommodatingly linear way.

The result is that a little science can turn easily into dogma. Even when science later changes course and comes to a different conclusion, it's hard to re-educate the public.

The problem is often compounded by government agencies and regulations. For instance, one entire government agency, part of the National Institutes of Health, exists solely to battle cholesterol. What happens, McGuire wonders, when we find out that dietary cholesterol isn't our enemy?

New text, new approach

For their part, McGuire and Beerman are trying to take a balanced approach with a new textbook on nutrition. The challenges of the field require that the new text be more integrated and multidisciplinary than those of the past.

The book, to be published in 2007 by Thomson Wadsworth Publishing, is meant for the approximately 25,000 students who make their way annually through McGuire's or Beerman's introductory nutrition class and other courses like it nationwide. These courses, designed for students trying to fulfill their bioscience requirements, require no prerequisites, so most of the students have little science background. At the same time, the text is intended for use in the more scientifically rigorous nutrition course offered to health-related majors, such as those in exercise

physiology, nursing, pre-physical therapy, dietetics, and pre-med.

As the science of nutrition has changed in recent years to encompass a variety of research in fields ranging from immunology to biochemistry, textbook authors have generally responded by generalizing and removing some of the specific science. Classic texts were organized by nutrients, with chapters on protein, fats, carbohydrates, and minerals. They also reflected science's early discoveries that lack of a particular nutrient causes a certain disease. Diabetes was therefore discussed in the chapter on glucose, osteoporosis in the chapter on calcium, and heart disease in the chapter on fats.

But just as nutrition has come to encompass many scientific fields, researchers have increasingly found that one nutrient, or the lack of it, doesn't necessarily cause disease. Many diseases, such as osteoporosis, heart disease, and cancer, have been found to be related to a variety of factors in the diet.

"How nutrients act together can influence the risk of developing disease," says McGuire.

In their book, McGuire and Beerman first introduce students to the scientific process, then introduce nutrients and human physiology. A more detailed study of the different types of nutrients follows. The heart of the book is an integrated approach to the study of diseases, including how obesity, heart disease, cancer, and bone health are related to nutrition and diet.

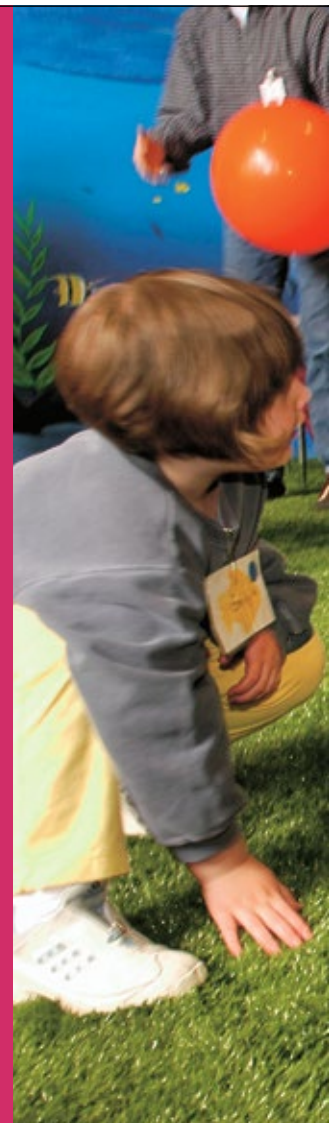
In some ways, McGuire and Beerman wish they could just tie one nutrient with its most closely associated disease.

"It would be easier to do that way," says McGuire. ■

—Tina Hilding

Kathy Beerman is currently studying the effect of soy milk on postmenopausal health.
<http://av.fshn.wsu.edu/faculty/beerman/index.html>

Shelley McGuire studies fat in human breast milk and how it is influenced by diet.
<http://fshn.wsu.edu/facultystaff/mcguire/>





WSU received a \$20,000 grant from Nike and the National Recycling Coalition to install FieldTurf in the play area at the Children's Center.



RECYCLED SHOES FURNISH KID'S CAVE

FIELDTURF now provides soft landings for more than 160 preschool children playing in the "Kid's Cave" at Washington State University. In April the 16-by-21-yard carpet was installed in the alcove beneath the WSU Children's Center, formerly Rogers-Orton Dining Hall. The same rubberized synthetic material covers WSU's football and baseball fields.

Judi Dunn headed the successful effort to collect 5,500 pairs of running shoes to qualify for a \$20,000

grant from Nike and the National Recycling Coalition.

"I think I personally touched each shoe," says Dunn, who is WSU's recycling education coordinator. Rubber from the discarded shoes is chewed up and used in the FieldTurf base.

The drive started in November 2001. Collection sites were set up on campus, in downtown Pullman and Spokane, and at WSU Tri-Cities. From the beginning, Dunn had the Kid's Cave in mind for the

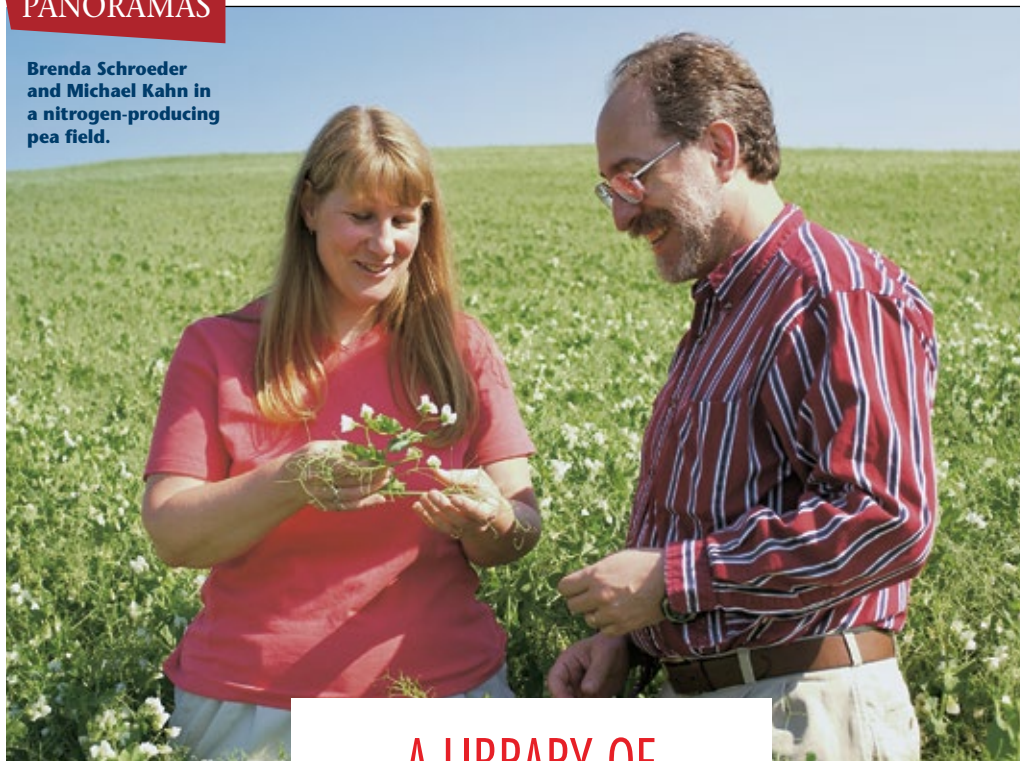
Nike grant. Students in marketing were enlisted to help promote recycling tired running shoes. Plastic water bottles, bumper stickers, and Nike key rings were awarded for best displays.

Nick Cochran, senior in Fine Arts from Enumclaw, created the colorful floor-to-ceiling mural that covers the walls of the cave. The underwater scene features diving whales and dolphins. ■

—Pat Caraher

photography by Robert Hubner

Brenda Schroeder
and Michael Kahn in
a nitrogen-producing
pea field.



A LIBRARY OF RHIZOBIAL GENES

ALL LIVING THINGS require nitrogen for building many important molecules, including DNA, RNA, and proteins. Animals get their nitrogen through other animals and, ultimately, through plants. However, even though the atmosphere is 78-percent nitrogen, it is too stable for plants to use directly. It must be “fixed.” Non-leguminous plants depend on nitrogen that has built up in the soil by leguminous plants, through other less dependable processes, or through nitrogen fertilizer. The more enterprising legumes get their nitrogen through a symbiotic relationship with bacteria called *rhizobia*.

The *rhizobia* split the paired nitrogen molecules, then convert each to ammonia, which is more chemically reactive and thus usable to plants.

Understanding this beneficial relationship is the research focus in the laboratory of Michael Kahn, a professor in Washington State University’s School of Molecular Biosciences, Center for Integrated Biotechnology, and Institute of Biological Chemistry.

Kahn and his team have nearly completed a monumental step in understanding nitrogen fixation. Under the direction of his postdoctoral assistant, Brenda Schroeder, graduate and undergraduate WSU students have cloned over 6,000 of one nitrogen-fixing bacterium’s genes in less than one year. This means they’ve made copies of each gene that codes for proteins, isolated the gene copies, and put each into its own small piece of DNA, creating a library of all the genes in the

species *S. meliloti*. Scientists can now use the gene library to begin identifying exactly what each fragment does.

“The premise of the project was to share the clones and send out copies for further research,” says Schroeder. “With this library, researchers can work with the whole genome and figure out which genes are turned on under what circumstances.”

Their work adds a “predictive” aspect to DNA sequencing, according to Schroeder. When scientists find the DNA sequence of an organism’s entire genome, as they have for humans and fruit flies, they usually don’t know what most of it means. Kahn’s lab has taken the first step in putting biological meaning to the nitrogen-fixing bacteria’s DNA sequence.

“I can’t say enough about the dedication, hard work, and diligence of the team,” says Schroeder. The achievement stands out. For example, the genes of the intensively-studied bacteria *E. coli* have not been entirely cloned.

At this point, the research findings and applications stemming from the creation of this gene library can only be imagined. Perhaps scientists could identify the group of genes that convert free nitrogen into fixed nitrogen, and then put extra copies of those genes into new bacteria. The new bacteria could be introduced to soil in lieu of fertilizer, not only increasing the size of your tomatoes, but perhaps also helping to ensure the world’s food supply. ■ —Alison Emblidge '04 M.S.

SEEING POLLUTION from a higher vantage

IMAGINE TRYING to measure a needle in a haystack from an over-flying airplane. That’s similar to the task researchers in the Laboratory for Atmospheric Research (LAR) at Washington State University are hoping to accomplish with new instrumentation to measure precise levels of ground-level air pollution.

George Mount, professor of civil and environmental engineering at WSU and a faculty member in the LAR, has been working with the Dutch government since 1998 to develop the OMI, or Ozone Monitoring Instrument. Launched on the NASA Aura satellite July 15, 2004, the instrument measures such air pollutants as nitrogen dioxide, ozone, formaldehyde, and sulfur dioxide in 64-square-mile chunks (eight miles by eight miles) over an area the size of the Pacific Northwest. The observation area sweeps by under the instrument as the satellite orbits the Earth.

Satellite-based air pollution instrumentation previously in use enabled measurement with far less spatial resolution than what the OMI can deliver, resulting in difficulty distinguishing point or mobile sources and blurred images of urban landscapes such as the Seattle airshed (the air over Seattle, plus the currents that flow into and out of it). The OMI will provide data on a grid of much higher resolution than these older systems, as well as accurate data on air pollutants moving into and out of the airshed.

The OMI measures the spectrum of reflected sunlight scattered off

the surface of the earth. Depending on the type of pollutants present, the sunlight gets modified as it passes through the atmosphere and as it is reflected up to the satellite. Once the researchers measure the atmospheric spectrum, they can deduce the pollutant concentrations, determining how much ozone, formaldehyde, or other chemicals are present in the airshed, and they can track its motion with time as the satellite orbits the Earth. Overall, such observations from space allow air pollution to be measured worldwide and enable better predictions of pollution effects than are possible with ground-based instruments.

Now Mount and his collaborators are hoping to develop a new instrument to measure ground-level air pollution with even greater precision than the OMI, executing rapid scans of a 350-mile by 350-mile area every few minutes. They also want to be able to measure air pollutants continuously over a given area—not just in the every-90-minute snapshot a passing satellite provides from its orbit—by putting their new instrument on a satellite that will be in geostationary orbit, remaining continuously above one part of the earth. That

means moving the instrument from hundreds of miles up, where the OMI lives, to 22,000 miles away, where the satellite that will carry the new instrument will revolve around the Earth at the same rate as the Earth itself rotates.

Mount, together with colleagues from the NASA Goddard Space Flight Center (GSFC) in Greenbelt, Maryland, and Pennsylvania State University, recently received a \$2.95 million grant to begin building a prototype instrument capable of accurately measuring pollution in 0.36-square-mile (1-km²) chunks over an area the size of the Pacific Northwest, rather than the OMI's 64-square-mile resolution over an area of similar size. The prototype will be built at GSFC and tested at WSU.

As for how to see such a large area with one-kilometer spatial resolution from so far away with a time resolution of minutes, Mount says it requires "very fancy optics and weird mirrors."

"This is going to be an earth-shattering instrument," he adds. "It is the wave of the future for space based measurement of air pollution." ■

—Tina Hilding

Artist's concept of the Aura satellite on which the Ozone Monitoring Instrument is mounted.



SLEEP AND RUN

How do they do that?



HENRY MOORE: BIOLOGICAL COMMUNICATIONS UNIT

WHEN IT COMES to human muscles, the adage "use it or lose it" universally applies. Whether they belong to a senior citizen who breaks a bone or an astronaut in space, human muscles atrophy, or weaken, due to lack of use. A couple weeks of bed rest makes it difficult for humans to walk, so rehabilitation from injury or surgery, especially for older people, tends to be a long and expensive process.

But oh, to be a grizzly bear! Waking from a four- to six-month hibernation marked by virtually no activity, grizzlies are not only able to start foraging immediately, they're also ready to run.

David Lin, assistant professor in Bioengineering and Neuroscience at Washington State University, would like to know what mechanisms prevent muscle atrophy in bears, in hopes that some day the research may help humans. In particular, he is interested in muscle plasticity, or the way that muscles change their properties to meet demands. When human muscles atrophy, not only do they lose strength, they

Above: Dr. Lynne Nelson with a 17-month-old grizzly raised in captivity. Nelson studies heart muscle function in bears and works with David Lin, who studies muscle atrophy in bears.

also convert muscle fibers from slow-twitch to fast-twitch. Slow-twitch muscles are the postural muscles that allow us to hold ourselves upright when we stand, whereas fast-twitch are those that enable us to move rapidly. By the end of hibernation, grizzly bears experience just a 20-percent loss in muscle strength and minimal conversion of slow to fast muscles.

Among the factors that determine muscle plasticity are neural input, hormonal levels, and how much the muscle is worked. In order to better understand what sorts of neural inputs are sent to the muscles of grizzly bears, Lin implanted tiny transmitters into the leg muscle of a bear during hibernation. The transmitters relayed the electrical activity of the muscle, a measurement of neural input, to a computer in another room. In addition, neuroscience graduate student Jack Hershey will be looking at the microstructure of muscle biopsies from summer-active and hibernating bears.

Lin has been working with Charles Robbins, professor, Zoology and Natural Resource Sciences, and director of the Bear Research, Education, and Conservation Program, and Lynne Nelson, assistant professor, Veterinary Clinical Science, who is studying the heart muscle function of bears. Working with the Bear Research Center, the only facility in the world to house adult grizzlies for research, enables the researchers to have access to the bears throughout the year, including winter hibernation. ■

—Tina Hilding

WHAT NOW, MAD COW?

Weighing the effects of the BSE-infected Holstein in Mabton

It could have been worse

December 23, 2003, changed the way we think about beef. Fortunately, our complacency about its safety was the only major casualty.

Economically, the effects of the cow with bovine spongiform encephalopathy (BSE or “mad-cow disease”) discovered in Mabton, Washington, could have been much worse, says Don Nelson, a Washington State University beef specialist.

The key, he says, “was that the cow came from Canada and that no subsequent cases were identified.

“Because of a mix of factors, it didn’t do the damage we thought it would. It shows you the importance of timing.”

The discovery of the BSE-infected cow knocked the market price down by about \$3.00 per hundred-weight. But prices had earlier reached better than \$85.00 per

hundred, the best price in years. Although nearly 60 countries closed their borders to U.S. beef, beef exports represent only about 10 percent of U.S. production.

Overall, says Nelson, the discovery of BSE within the U.S. provided a good wakeup call for industry and the USDA. “We had some rules that really needed to be tightened up,” he says. “One of those was downer cattle. Any downer cattle cannot now go into the food supply.”

New tests

All sick cattle condemned at slaughter will now be tested, says Terry McElwain, executive director of the Washington Animal Disease Diagnostic Laboratory (WADDL). McElwain oversees a new “high-throughput” lab at WSU, one of seven similar labs nationwide testing for BSE infection.

Meeting the June 1 opening of the lab required an extraordinary amount of work and negotiation.

“The whole issue of what we call a ‘positive’ in our labs has been debated for the past six weeks,” he says. Secretary of Agriculture Ann Veneman was briefed on the progress of the testing daily. Tests in the seven regional labs will be labeled “negative” or “inconclusive.” Samples deemed “inconclusive” will be sent to a central USDA lab in Ames, Iowa, for a more sensitive test.

Calling a test “positive” would have a tremendous effect on the cattle market, says McElwain. “The mere rumor of an animal being tested in Texas caused McDonald’s stock to drop substantially in one day.”

As a “surveillance laboratory,” says McElwain, the facility is set up to be



DAVID WHEELER ILLUSTRATION

very sensitive, "so you pick up anything that's out there.

"These tests are probably the most robust tests we use in this lab."

In spite of the mysterious nature of the prions that cause BSE, testing for the disease is fairly straightforward. USDA inspectors remove samples of the brainstem from suspected cows and send them into the lab. Technicians at the lab take a slice of tissue from the region called the obex, which is where the prions first accumulate.

The basis of the test, says McElwain, is an antibody that recognizes normal prions, which accumulate throughout the body. The abnormal prion, which causes BSE, is very resistant to proteases, the enzymes that catalyze the breakdown of proteins. Prions are proteins.

The test, says McElwain, chews up all the normal cellular prions, leaving behind the disease-causing prions, which the antibodies will recognize.

Since field collection of brain samples had not yet started in early June, not many samples were reaching the WSU lab a week after its opening. But McElwain expects as many as 26,000 over the next year.

"We're doing what needs to be done at this point," says McElwain. But he also believes the response surpasses the actual risk. Even with the number of mad cow cases in Great Britain, the actual cases of the corresponding Creutzfeldt Jakob disease in humans, 141 worldwide, have been relatively few.

Still, the testing system is necessary to sustain consumer confidence, he says.

Also, says Jay Weidner, a veterinarian and the information systems manager for WADDL, the newly enacted BSE testing has greatly improved the national

reporting system for the regional labs, building their capacity for responding to a more dire threat, such as the hoof and mouth epidemic that devastated the British cattle industry.

Some benefit

While U.S. beef producers avoided economic calamity, some niche producers actually benefited. Both Cheryl Cosner ('85 Agriculture) and Joel Huesby ('86 Agriculture), whose pasture-finished livestock never see a feedlot (*Washington State Magazine*, fall 2003), report their sales increased significantly following the mad cow incident.

Huesby, who started raising pasture-finished beef in 2000, says his business has doubled every year since then. "This year, our sales will triple or quadruple."

Regardless of the obvious impact of the scare on his sales, he says he never mentions the disease. Rather, he talks about the health benefits of pasture-fed beef.

"Customers buy from us for a rainbow of reasons."

Whatever the reasons, his sales are booming. He recently bought the Quick Freeze slaughter facility in Walla Walla and is finishing paperwork for an on-farm USDA-inspected kill room.

Because demand has grown so fast, Huesby has had to source livestock from other producers in the Walla Walla Valley. Huesby requires each grower to sign a "livestock production affidavit," which specifies how the animal was raised and treated and that the cattle have been fed no hormones, antibiotics, or animal protein supplements.

Another criterion is that the cow was born and raised on the supplier's farm. "No middlemen," says Huesby.

—Tim Steury



Mike Varnum

As you read this, thank your ION CHANNELS

WHEN MIKE VARNUM, assistant professor, Veterinary and Comparative Anatomy, Pharmacology, and Physiology, visits the aquarium, he looks at the sea creatures a bit differently than the rest of us. What interests him most about a creature is not its bright color or odd shape, but whether it makes a toxin that blocks an ion channel. Oddly, many of the creatures do.

Many toxins, in fact, block specific ion channels, though Varnum uses different agents in his work. Ion channels are pores in the membranes of many different types of cells—highly selective, gated pores—that permit the passage of specific charged particles, or ions, into or out of the cell.

Varnum studies ion channels that are present in the cone cells of the retina of the eye, the cells that allow us to see in the daylight and that give us sharp images and the ability to see in color. These channels allow the passage of both

sodium and calcium ions into the cone cell.

What the brain eventually interprets as vision begins when a cone cell, or its counterpart, the rod cell, absorbs a unit of light, or photon. A subsequent cascade of changes within the cell ultimately results in information being passed along a series of nerve cells and, via the optic nerve, into the brain. The cones' ion channels are the place where the light signal is translated into an electrical signal, a primary means by which the nerve cells transmit information.

One of the more amazing characteristics of cone cells is their ability to respond to light levels that vary in luminance magnitude over a billion-fold range. This is accomplished in part by the cells' ability to adjust to the wide range of background light levels against which the photons are detected, and ion channels appear to be involved in that process. Varnum and others have determined that the ion chan-

nels may help set the sensitivity of the cone cells' response to photon absorption via their ability to regulate, at least in part, the concentration of calcium within the cell.

When a cone cell absorbs photons, the ion channels close, and the concentration of calcium within the cell is reduced. The lowered concentration ultimately results in increased channel activity and an adjustment in sensitivity relative to the new level of background light. When there is little light, the channels remain open, and calcium enters the cell.

Varnum's lab also has shown that the ion channels are made up of two different types of building blocks or subunits. Only one is critical to the calcium-related regulation of cone sensitivity. One unusual characteristic of this subunit is that it has two equally important sites that are involved in the process.

Mutations or changes in the genes that encode the ion channels have been found to be correlated with several eye disorders, including complete achromatopsia, a disease characterized by photophobia, spasmodic eye movements, and a decreased ability to see sharp images. Varnum has determined that one of these mutations may result in making it more likely that the ion channels stay open when they should be closing.

Varnum's lab also is interested in molecules that are physically associated with the ion channels. "The ion channels are not just lonely proteins in the membranes, out there singing the blues," he says. The channels form partnerships with many other molecules, and Varnum is interested in how these partnerships might be important for channel activity.

—Mary Aegerter

SEASONS|SPORTS

SPORTS|SEASONS

Father of Washington State High School Wrestling

VSU MANUSCRIPTS, ARCHIVES, AND SPECIAL COLLECTIONS



Big little man BILL TOMARAS touched many lives

"You always wanted to perform well. If you didn't, you thought you let him down."

—Cash Stone

BILL TOMARAS discovered early there wasn't much demand for a five-foot-three, 120-pound basketball player. So he turned to wrestling. The repercussions of that decision have been felt in Washington wrestling for more than a half-century.

World War II interrupted Tomaras's athletic career. After fighting at Omaha Beach, he married a four-foot-11 Royal Air Force nurse. That union produced three sons. Bill and Dolly celebrated their 60th wedding anniversary in January 2004 at Port Orchard.

Tomaras resumed his education at the University of Illinois ('47 Political Sci.), where he placed third

in NCAA wrestling championships as a senior. He weighed less than his listed weight of 121, he says, about what he weighs now at age 82.

In a career devoted to wrestling, though, he's always been larger than life. He coached at Washington State College, 1948-59 and, after completing a doctorate in education at the University of Oregon, coached at UC Berkeley, 1959-61, and was coach, 1961-65, and athletic director at Western Washington University, 1962-72.

"He was never—in my eyes or in those of any of my teammates—thought of as a little fellow. He was always a big man. . . . respected by

all those around him,” says Vaughan Hitchcock, two-time Pacific Coast wrestling champion in the early 1950s.

Fewer than 10 high schools in the state offered wrestling when WSC hired Tomaras for \$2,800. He soon realized the need for a feeder program if wrestling was to succeed at WSC. With that in mind, he organized the first state high school wrestling tournament in 1953—two mats, eight teams, 60 wrestlers—in Bohler Gym. Hitchcock was a referee. Teammates kept time and scores.

“We didn’t have any funds,” Tomaras says. Cougar wrestlers chipped in \$2.50 apiece for inexpensive cups and medals. Fraternities provided free bunks and food for the visiting athletes. That was a start. Later, he’d load his own wrestlers into cars during spring break and drive across the state to put on exhibitions. He talked up the benefits of wrestling—discipline in making weight, determination, and an opportunity for athletes of all sizes to compete. He proved to be a convincing salesman. More and more schools added the sport. The Washington Interscholastic Activities Association eventually agreed to underwrite the state meet.

In 1972 Tomaras was recognized as “The Father of Washington State High School Wrestling” at his induction into the National Wrestling Hall of Fame. In February 2003, more than 900 prep wrestlers from over 200 schools participated in the 50th State Mat Classic in the Tacoma Dome. WIAA officials saluted Tomaras for his pioneering and sustaining efforts on behalf of state wrestling. Nearly a dozen of his WSC wrestlers attended.

UNDER TOMARAS’S direction, the Cougars captured five Pacific Coast intercollegiate championships. Between 1952 and 1954, WSC won 23 consecutive dual meets. “We managed to get real good competitors at all weights,” he says.

Among them were Alden Peppel, Ray Needham, and Sosh Watanabe. Peppel competed in the 1956 Olympic Trials at Portland. Needham, drafted out of intramurals, won the coast crown at 157 pounds. Watanabe never lost a dual match in four years at 121 pounds, according to Peppel. “His only defeats came when he was forced to wrestle at heavier weights.”

Tomaras’s big men included football players Hitchcock and Skip Pixley. Hitchcock played in the 1955 East-West Shrine football game at San Francisco. Later, he spent 34 years at California Polytechnic State University, San Luis Obispo, 25 of them as wrestling coach. His teams won eight national Division II championships. He’s now in the Wrestling Hall of Fame.

“The toughest matches I had were working out with Vaughan Hitchcock every night,” says Pixley, runner-up for the coast heavy-weight title in 1954 and third in 1955.

Both consider Tomaras a father figure and found the camaraderie among wrestlers unlike that among athletes on any other Cougar team. WSC discontinued wrestling after the 1985-86 season. To reinstate the program would cost around \$400,000, according to WSU athletic director Jim Sterk. Two women’s sports—totalling around \$500,000—would also have to be added to meet Title IX guidelines.

“HHE PREPARED ME [to coach and teach] as well as anyone could possibly have—and with the right attitude,” says Hitchcock, now owner of a small winery in San Luis Obispo.

Pixley says, “You always felt like he cared about you. You could talk to him about anything, and go see him anytime. His name was the first one you’d put down on a job reference.”

Pixley still remembers his animated coach on the sidelines, “the contortions he went through, the agony and the joy he experienced.”

Cash Stone became a coaching legend during 34 years at Spokane’s Mead High School after winning a Pacific Coast title as a Cougar 130-pounder in 1958.

“Billy never gave up on you, even if you had a bad match,” he says. “You always wanted to perform well. If you didn’t, you thought you let him down.”

On one road trip, Tomaras pulled Stone aside and informed him his father was gravely ill. “I’m going to put you on a bus and get you home

to see your dad,” he said, handing him \$40 or \$50 out of his own pocket. “Young kids today don’t have a clue how pathetic salaries were at that time, and how Bill and Dolly had to pinch pennies with three sons at home,” Stone said.

The lessons Gus and Randy Tomaras learned from their father were reinforced at Cal Poly, where they wrestled for Hitchcock.

“You have to work for everything you get,” says Gus, a retired coach, science teacher, and dean of students at South Kitsap High. He built the house his parents live in on five acres he owns. His house is nearby. Every other summer for the past 15 years, Cougar wrestlers and their wives have joined the Tomarases for a reunion dinner hosted by Gus. They enjoy reminiscing and swapping stories with and about their coach.

“Dad always believed—and still does—that one person can make a difference in the quality of life,” Randy says, “and his measure of that is how many people look up to you.” ■

—Pat Caraher

Bill Tomaras (center) reminisces with two of his former Cougar wrestlers Vaughan Hitchcock (left), and Cash Stone.



2004 Home Football Weekends in Pullman

The best game-day atmosphere in the Pac-10 just got even better!

If cheering on the Cougars in exciting Pac-10 football isn't enough, home-game weekends in Pullman now offer you that and more. Come to Pullman this fall and enjoy a variety of activities to stimulate your mind and palate—not to mention your Cougar spirit!

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COUGAR FIRST DOWN FRIDAY • Sept. 17

Kick off the season in downtown Pullman with a festive street fair featuring food, music, and a pep rally.

COUGAR CONVERSATIONS • Sept. 18, Oct. 9, 16, 30, Nov. 20

Explore many of today's hot topics through lectures presented by WSU's world-class faculty.

COUGAR FAMILY FUN • Sept. 18, Oct. 9, 16

Check out food vendors, kids' activities, memorabilia, Cougar Marching Band concerts, and more.

FEAST OF THE ARTS • Oct. 8, 15, 29, Nov. 19

Don't miss these extraordinary dinners featuring four-course meals, Washington wines, musicians and vocalists, and exhibits from the Museum of Art.

Fall football weekends are better in Pullman. No wonder it's been called the best game-day atmosphere in the Pac-10.

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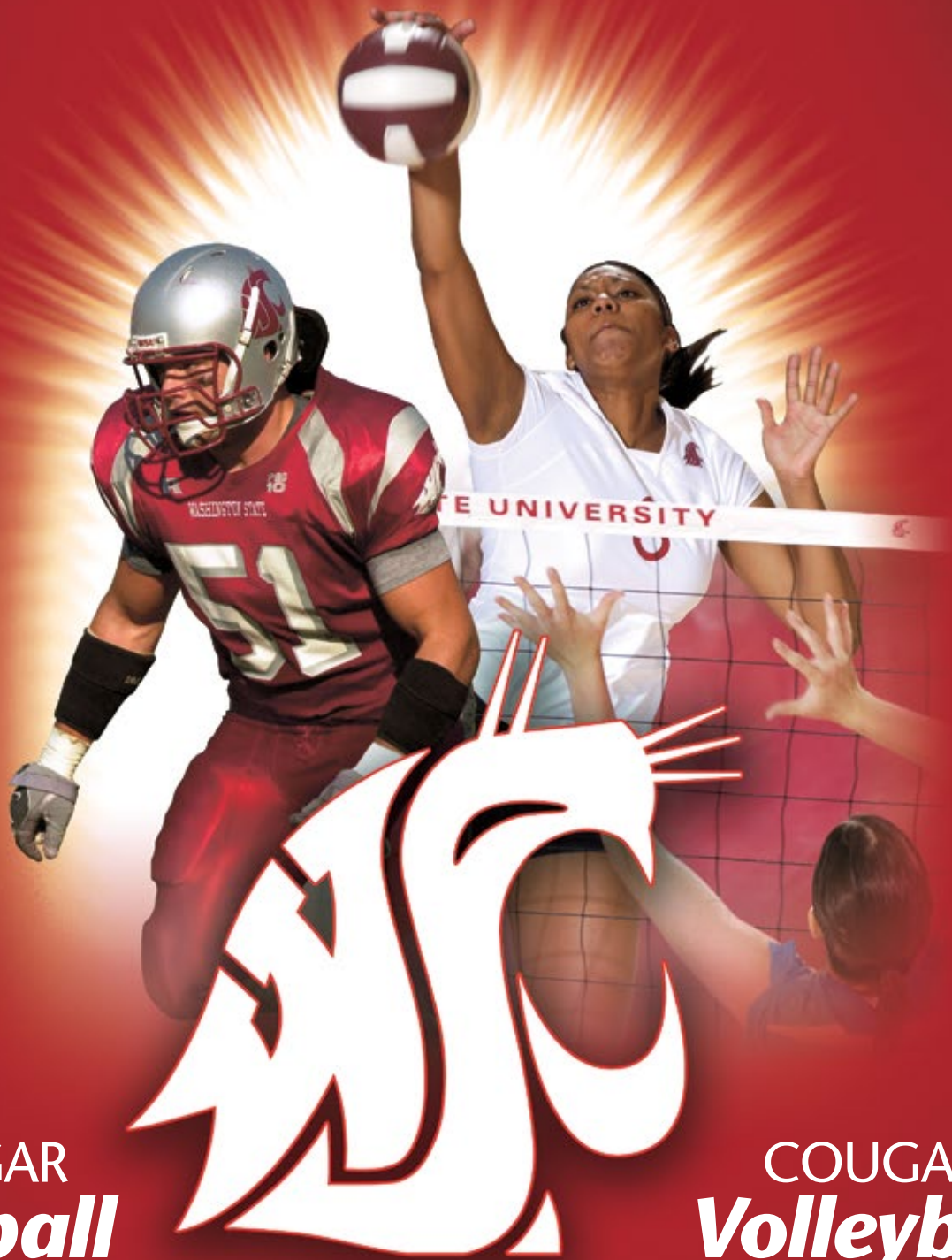
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by Tim Steury

A Little Bronze—

tHE PULLMAN CAMPUS will be transformed for a couple of months this fall, parts of it dramatically, with bronze representational sculpture, which, though drawn from various artists and locations around the country, was all cast at the Walla Walla Foundry.

Founded in 1980 by Mark Anderson, the Walla Walla Foundry is one of the most prominent fine-art bronze casting facilities in the country. Artists such as Jim Dine, Deborah Butterfield, John Buck, Marilyn Lysohir ('79

M.F.A.), and Terry Allen, all of whom will be represented in the campus transformation, have their work cast at the foundry.

One of Dine's *Venuses*, variations of which are based on the ancient *Venus de Milo*, will reside at the end of Terrell Mall. One of Butterfield's starkly dramatic *Horses* will stand along Stadium Way near Bustad Hall. Lysohir's *Tattooed Lady* will stand next to Wilson Hall. Rude's *A World Beyond* will sit in front of Bustad. Allen's whimsical *Book* will sit in front of Holland Library, of

course. Most dramatically, Tom Otterness's three giant hay bale figures (*Makin' Hay*) will oversee campus from Observatory Hill. In all, 31 sculptures will reside on 13 different sites across campus.

The outdoor exhibition will coincide with a show of Dine's work in the WSU Museum of Art. Dine is one of the leading figures in contemporary art. He lives in New York, Paris, and Walla Walla.

Soon after Chris Bruce, the new Museum of Art director,

arrived, curator Keith Wells suggested the idea of an exhibit focusing on the foundry. Bruce grabbed the idea and ran with it. Bruce, who came to WSU last year from Seattle's Experience Music Project, and before that from the Henry Art Gallery, has proved himself incapable of thinking small. He is also producing a book about the work of the foundry.

The sculptures will grace the campus through October—though Bruce hopes that, through fundraising, some of the works will remain on campus permanently. ■



Strategically Placed



Marilyn Lysohir '79
The Tattooed Lady and Dinosaur Series, 2000
 Cast bronze
 107 x 59 3/4 x 43 inches



Brad Rude, A World Beyond, 2000
 Cast bronze, 144 x 120 x 50 inches



Tom Otterness
Makin' Hay, 2002
 Fabricated steel and hay
 Various sizes depending on site
 D. JAMES DEE



Jim Dine, Cleveland Venus, 2003
 Cast bronze; 37 feet high

COURTESY OF MARK AND PATTY ANDERSON, WALLA WALLA FOUNDRY

Deborah Butterfield
Walla Walla, 1995
 Cast bronze
 93 x 122 x 36 inches

For a map of campus showing the location of the sculptures, see our Web site, washington-state-magazine.wsu.edu.

WSU transportation economists analyze movement of trucks and commodities in and through Washington.

TRACKING TRUCKS

CREEPING IN CONVOYS up the I-90 grade west of Vantage, their running lights flashing as you jockey to pass them, or looming up in your rearview mirror as they bear down behind you on I-5, trucks are an inescapable fact of life on Washington's highways. The next time you find yourself boxed in between a double-decker you're passing and another one pounding along a few car-lengths ahead of you, try to remember that although you can't avoid them out there on the freeway, you can't live without them, either.

As Ken Casavant, longtime Washington State University professor of agricultural and resource economics, says, "Everything we eat, touch, or wear has been handled by truck."

Washington commodities—apples, wheat, meat and dairy products, timber, ore—are almost totally dependent on truck movement. World communities too depend on trucks for the transportation of goods into, out of, and through Washington. Inadequacies in the state's transportation infrastructure can cause markets—and revenue—to be lost.

That's why gathering comprehensive data on the movement of goods in Washington is so vital to state residents and our economy, Casavant says.

Growing up on a North Dakota farm, Casavant developed an early interest in transportation economics. Analyzing the cost and movement of commodities—often over long distances by road, rail, and barge—still fascinates him. The Washington transportation data he and his team of researchers have collected have made WSU nationally recognized

in the field of transportation economics. But it is his analysis of these data that has affected policy in the state.

Casavant has been at the forefront of a pair of six-year studies for the Washington State Department of Transportation (WSDOT). The first was the Eastern Washington Intermodal Transportation Study (EWITS), conducted from 1992 to 1998. The Strategic Freight Transportation Analysis (SFTA) is currently in progress and will run through 2008. This successful research program now is focused on creating a WSU Regional Center for Freight Mobility.

While conducting truck studies for a master's degree at North Dakota State University in the late 1960s, Casavant frequently drew on the work of WSU professor James C. Nelson, considered by many as "the father of transportation economics" in the United States. Under Nelson's tutelage, Casavant ('70 Ph.D. Ag. Econ.) gained a greater appreciation of the value of competition in increasing productivity and efficiency in the transportation sector.

"Early on Dr. Nelson was the leading





voice crying out for competition as the regulator of a free-market system,” Casavant says. “His writings and the policies espoused by him form the foundation of current regulatory philosophy in the U.S. and world.”

Casavant credits Nelson for helping him focus his analytical work on how the competitive market can be made to work better. Then, if market failures occur, state investment and regulation may be appropriate, he says.

Before the early 1990s no comprehensive information existed on where and how commodities and products moved

in eastern Washington. This omission caught Tom Foley’s attention. The long-time U.S. congressman from Spokane called for the EWITS study in 1991 to identify regional transportation needs, enable policy changes, and provide added funding. The same year Casavant and Jerry Lenzi, WSDOT’s eastern Washington regional administrator in Spokane, drafted a “scope of work” plan for the study. Congress approved \$800,000. The state legislature added \$200,000. Lenzi chaired the steering committee.

EWITS was conducted through the state Transportation Research Center,

an interagency agreement involving WSU, the University of Washington, and WSDOT. One critical aspect of WSU’s research focused on the origins and destinations of commodities being transported in eastern Washington, the weight, size, and configurations of trucks used, and the infrastructure investment required to support an efficient multimodal system. The movement of commodities by rail and barge also was examined.

Findings from the study have allowed the WSDOT, cities, and counties to prioritize investments in the state’s transportation infrastructure.

EWITS had four broad objectives:


- Forecast future freight and passenger transportation service needs for eastern Washington.
- Identify gaps in eastern Washington’s current transportation infrastructure.
- Pinpoint transportation improvement options critical to economic competitiveness and mobility within eastern Washington.
- Facilitate existing regional and statewide transportation planning efforts.

PRESSURES ON WASHINGTON HIGHWAYS

Washington is a bridge state, providing access to other states and Canada and serving as a gateway to key overseas markets. Eighty-five to 90 percent of the state’s wheat is shipped abroad. Sixty percent is moved to ports and barges by truck.

Passage of the North American Free Trade Agreement in the 1990s relaxed trade restrictions for both the U.S. and Canada. One result was an increased demand on Washington roads. EWITS data shows that 70 percent of the ton-miles—the number of tons moved times the number of miles traveled—in some highway corridors entering or leaving Canada passed through Washington without an origin or destination in the state.

“Infrastructure becomes an issue when Canadian trucks are, on average, heavier than U.S. trucks, running up to 105,000 pounds,” Lenzi says. While not illegally loaded, they weigh more than U.S. trucks, and therefore cause a

An aerial photograph showing a large white 18-wheel semi-truck with a long trailer traveling on a multi-lane highway. The truck is viewed from behind, showing its rear and the long white trailer. The highway has multiple lanes with white and yellow markings. The surrounding landscape is green with trees and grass. The text is overlaid on the right side of the image.

One heavily loaded 18-wheel truck with trailer can cause the same highway damage as 7,000 cars.

need for increased maintenance and reconstruction of roads, highways, and bridges. Eighty-one percent of the Canadian trucks in the EWITS study were full. This compares to 70 percent for U.S. trucks.

Freeze-thaw cycles and seasonal weight restrictions on 250 miles of deteriorating eastern Washington roads were also reasons for concern. WSDOT estimated in 1994 that more than \$180 million would be needed to bring state roads up to required capacity and condition by 2005.

Rail also figures in the state's transportation equation. From 1970 to 1998 nearly 2,000 miles of state railroad lines, including 66 percent of eastern Washington's, were abandoned. As a result, movement of those goods shifted to roads. Barge transportation is another option. It is the most cost-efficient means of moving goods. However, the potential drawdown of water on the lower Snake River threatens the availability of the river system.

"A drawdown would likely increase road deterioration over \$2 million annually in eastern Washington," Casavant says. State Routes 12, 17, 26, 260, and 395 would bear the brunt of the added load. "The cost changes are due to the complexities of the marketing system, including availability of rail cars, possible rail- and truck-rate increases due to loss of competition from barge companies, or a combination of these factors."

Truck transportation on Washington's three major north-south highways—the I-5, State Route 395, and SR 397 corridors, as well as the east-west I-90 corridor—has been at the heart of EWITS and SFTA. Both studies emphasize the importance of connectivity between eastern and western Washington in transporting general freight and such commodities as fruit, hay, grain, vegetables, and forest products.

Traffic congestion data reveal pockets where freight traffic from eastern Washington and passenger and commuter traffic on the west side compete for highway space. WSDOT officials



Seventy percent of the ton-miles in some highway corridors entering or leaving Canada passed through Washington without an origin or destination in the state.

say one heavily loaded 18-wheel truck with trailer can cause the same highway damage as 7,000 cars. Such rigs require the same amount of road space as seven cars.

Predicted population growth along the I-5 corridor from Blaine south to Vancouver will increase truck, passenger, and transit traffic on that route. Spokane and the Tri-Cities areas are also growing, foretelling heavier truck traffic along SR 395 between Pasco and the Canadian border. And as the wine, fresh fruit, and vegetable industries in the Walla Walla and Tri-Cities areas grow, so will their dependence on truck transportation.

GOING TO THE SOURCE

Collecting data on specific freight movements and commodities by truck presents different degrees of difficulty. Eric Jessup ('98 Ph.D. Ag. Econ.), an assistant professor in the School of Economic Sciences, who left American Express to return to WSU, participated in the effort and oversaw the logistics of both the EWITS and SFTA surveys. The best information with the tightest, most specific detail is collected from the truck drivers themselves, he says. WSU researchers opted for the "stop 'em and ask 'em" survey method, even though it is the most expensive and labor-intensive.

In the first statewide survey (EWITS, 1993), 28,000 truck drivers were interviewed at 28 separate locations, usually weigh stations. More than 300 members of local Lions Clubs throughout the state conducted the interviews in teams of about 10. The Lions were recruited, trained, and paid to conduct the interviews. Washington State Patrol troopers spelled out safety precautions, as did U.S. and Canadian customs officials at the international border crossings.

Questionnaires were designed to be completed in three minutes or less. Truck drivers participated voluntarily. A few answers could be determined by the interviewer via direct observation, such as the configuration of the rig and the number of axles. Questions asked directly of truck drivers focused on cargo, weight, use of intermodal facilities, and

route of travel, including origin and destination.

The interviews developed data for each of the four seasons. They were scheduled for a continuous 24-hour period to provide a comprehensive picture of statewide movements. Interviews were consistently conducted on Wednesdays to obtain median traffic patterns, rather than during exceptionally heavy Monday or Friday traffic flows.

For the most part, the truckers were receptive, Jessup says. "Truckers have their own communications network. If they felt they were detained too long, they could get on their CBs and notify other truckers behind them. We kept them moving. Most of them answered the questions, and said, 'Is that all you need?' and they were gone."

Data collected in King County alone in 1998 showed over four days' time—one day for each season—a total of 50,799 trucks, both loaded and empty, entered or left the county. Of those trucks, 64 percent were Washington-based carriers. Additionally, the volume of traffic entering or leaving the county ranged from 17,823 trucks per day in winter to 14,323 per day in spring.

"Having good, up-to-date data assists the WSDOT and users of the state highway system to make future investment decisions," says Mark Rohwer, eastern Washington regional planning manager of the WSDOT. "These decisions may be for improvements on the WSDOT side for pavement repairs, safety improvements, or capacity improvements. Decisions on the private side may be for economics-based investments, such as providing services."

In an EWITS report, WSU researcher William R. Gillis wrote, "Highway capacity improvement, including additional turnouts, passing lanes, or four-laning, should be considered for future developments of the U.S. corridor north of Spokane."

WSDOT is constructing portions of a 10.5-mile freeway that will link I-90 just east of downtown Spokane with existing US 395 just north of the city. "While

not used directly in the environmental impact statement process, some of the EWITS data has been used in several of the ongoing studies for portions of the US 395/North Spokane corridor project," says WSDOT spokesman Al Gilson.

While valuable, the EWITS study provided only a "snapshot of time," Lenzi says. As the original data became obsolete, the need for updating information to guide policy makers, investors, and the WSDOT became more evident. Nevertheless, the EWITS study generated 39 analytical reports and working papers and more than 40 presentations and invited talks. The reports contributed to infrastructure investment projects, including the stretch of highway from Deer Park to Kettle Falls.

Further, information collected by the EWITS study, combined with data from the U.S. Census Bureau on cross-border trade in commodities transported through ports of entry along the Washington-British Columbia border, will allow Casavant and his team to make projections about future commodity flows resulting from NAFTA, he says.

The methodology used in the original study has been adopted in Oregon, Texas, and Japan transportation studies. It also provided a foundation for additional funding for the on-going \$2 million SFTA analysis, Casavant says.

Funding is always an issue. According to Rohwer, we need to preserve what we have, along with making the necessary safety and capacity improvements. "There is never enough money to do everything, so projects need to be prioritized and investment decisions made."

"We are facing some serious transportation and economic growth decisions that are intricately linked: congestion and growth needs and increased demand on roads, rail, and water," Jessup says. "We could blindly patch highways, rail lines, or ports in a random manner, or we could be strategic in how we allocate dwindling resources. Without these data (EWITS and SFTA), we are stuck with the problem. With this information we can obtain the solution." ■



NO HOLLOW PROMISE

*Preparing teachers
for their toughest
assignment*

by Ken Olsen • Photography by Laurence Chen

Jacqui Fisher '00 crouches beside a tow-headed first grader and points to his hands. "If we have eight boys and eight girls, how many hands and feet do they have?"

The student looks at Fisher, looks at his hands, and then gets up and prances around the long, narrow table where his fellow students sit. He points to each student and announces "Two there, and um, two there, and um . . ."

It's five hours into a non-stop day in Miss Fisher's first-grade class at Edison Elementary School in Tacoma, Washington. Fisher has been here since early morning and, with the exception of a brief lunch break, shepherds students through reading, writing, and a host of other academic tasks without pause. She is always on, always engaged, always

Teaching has one of the highest turnover rates among traditional professions. Half of all newcomers leave the ranks within five years. The attrition rate is even greater in public schools such as Edison, where a majority of the students have fractured and impoverished home lives.

moving. Her students never stop needing her attention. Fisher must be commanding yet gentle, energetic yet well-paced, creative yet simple.

No wonder teaching has one of the highest turnover rates among traditional professions. In fact, half of all newcomers leave the ranks within five years. The attrition rate is even greater in public schools such as Edison, where a majority of the students have fractured and impoverished home lives.

"There's kind of this revolving door of a lot of teachers coming in, spending a year or two, and leaving the profession altogether," says Dawn Shinew, a Washington State University education professor.

This is not a natural, desirable winnowing of mediocre talent. The best and the brightest often are the first to leave teaching, warns teacher turnover expert Richard Ingersoll, associate professor of education and sociology at the University of Pennsylvania, who studies teacher turnover nationally.

That enormous attrition rate, more than any other factor, depletes the teaching ranks of their most qualified recruits and deprives high-risk children of the stability and positive role models they desperately need.

"If we want to deal with this teacher shortage problem," Ingersoll says, "we are going to have to deal with turnover."

Which is exactly why WSU selected inner-city schools like Edison to hone student teachers in a pioneering effort called CO-TEACH (Collaboration for Teacher Education Accountable to Children with High Needs). "I was told if I could teach here," says Fisher, a veteran of the program, "I could teach anywhere."

STRESS CITY

"Here" is a weary neighborhood in southeast Tacoma, where the homes are uniformly small, generally neat, and often unfamiliar with fresh paint.

Here there are no Hummers, BMWs, or sweeping driveways leading to three-car garages. Just tiny yards with the occasional car that hasn't run since the Reagan administration. And a nearby retail district interspersed not with Starbucks and Pottery Barns, but pawnshops and bars.

Here is the sort of neighborhood that summons singer Neko Case's description of Tacoma as a place where "there was no hollow promise that life would reward you." Indeed, Case's hometown is known for gloomy skies, white-knuckle commuting, high divorce rates, and stark economic disparity. *Sperling's Best Places* rated Tacoma as the most stressed-out city among the 100 largest metropolitan areas in the nation for 2004.

Imagine how the teachers feel.

Tacoma also is almost exclusively one of two distinct classes: rich and poor. This side of the city is decidedly poor. More than 70 percent of Edison's students are eligible to receive free or low-cost breakfast and lunch. That figure is repeated next door at Gray Middle School, another CO-TEACH site.

Students rarely live with both of their original parents. Those who do, "stick out like a sore thumb," says Bob Hitchcock, a second-grade teacher and CO-

TEACH mentor. Plenty of other elementary school students get their younger brothers and sisters up in the morning, fix them breakfast, and accompany them to school, because the parent they live with works the night shift.

"Look outside—the atmosphere," adds Zach Womack, a CO-TEACH student teacher at Gray Middle School who graduated in May 2004. "You have kids walking by who aren't in school. You are on a bumpy street. Them making it here is enough."

Making it as a teacher in these sorts of schools is equally tough. The pact with parents used to be "kids came to school clothed, fed, mannered, with their homework done, and motivated," Ingersoll says. Now teachers and schools are called upon to handle many of these tasks.

NO SURPRISES

Shinew knows about teaching's grittier side. She attended college and did her student teaching in Ohio, with the familiar white, middle class children she grew up around. Her first teaching job was in Los Angeles County, California.

"Mine was the only white face in the room," Shinew says. That experience proved invaluable. "I know what it's like when a kid shows up at school and his brother was shot the night before."

"I have 20 years of experience, and I'm still surprised and appalled about some of the things kids live through," Shinew adds. "But now it doesn't immobilize me."

Most of the people going into teaching also are young, middle-class white women. Shinew doesn't want them to be immobilized either. Or driven out of the profession in enormous numbers. Which is where CO-TEACH comes in.

Shinew and WSU education faculty Tariq Akmal, Gerald Maring, Michael Pavel, and Merrill Oaks started CO-TEACH at WSU in 1999 with a five-year, \$9.67 million grant from the U.S. Department of Education. This one-of-a-kind program is based on the premise that most new teachers aren't prepared for what they confront in high-needs



Fisher is always on, always engaged, always moving. Her students never stop needing her attention.

schools. (Consider, for example, that some of the first CO-TEACH students to arrive in Tacoma were shocked to find two homeless students and their families living out of their cars.) It reaches out across the state, from tribal schools to professional development workshops. But the heart of the teacher-training program is in poor neighborhoods of Yakima and Tacoma.

Like most hallmarks of successful change, it is slow and painstaking and requires enormous effort, infinite patience, endless energy, and optimism. It begins with Shinew and other committed College of Education faculty, who rely on instinct and observation to choose which students to recruit.

"There doesn't seem to be any correlation between grade-point average and teaching ability," Shinew says.

Shinew makes it clear to CO-TEACH

candidates that they will deal with the most needy students. Meanwhile, the host schools evaluate the WSU student's portfolios and decide which journeyman teacher will supervise which student teacher. Student teachers spend five weeks observing their mentor teachers before they start their semester of student teaching. Beyond the classroom experience, CO-TEACH students receive intensive mentoring and meet weekly with a supervising teacher and their fellow CO-TEACH students to share experiences and troubleshoot problems.

Students also are observed and critiqued by a variety of experienced teachers. They are videotaped at work in the classroom, a device that is used to show them where they shine and where they must improve.

CO-TEACH's success in 28 schools bears out the notion that if you prepare

student teachers, you retain them. Approximately 100 student teachers have gone through the program in Tacoma alone. More than 70 now teach in high-needs schools.

"This grant has helped us redefine who we are as a teacher preparation program," Shinew says.

Ingersoll, who studies teacher turnover nationally, is not surprised to hear those results. Mentoring is key to keeping people in teaching. So is a breadth of practical experience.

"It stands to reason that if you have exposure to the realities you will be facing, you are more likely to stay," Ingersoll says.

STREET SMARTS

Bob Hitchcock leans back against the counter in his second-grade classroom and discusses the day ahead with Jael Dalke. Dalke is a senior from Mount



Without the insights of Bob Hitchcock (right), Jael Dalke would have mistaken street savvy for book smarts.

Vernon who is preparing to student-teach in the CO-TEACH program this fall. Hitchcock already has her in the trenches. Today, she will handle both penmanship and a reading class. She should focus on exuding confidence and speaking less rapidly, Hitchcock coaches.

Teaching is nothing like Dalke envisioned, even after practicing in Pullman schools. Southeast Tacoma kids are street-smart, a survival skill they develop as a result of their troubled home lives. Without Hitchcock's insights, Dalke

would have mistaken street savvy for book smarts.

"You can have adult conversations with [these] second graders," Dalke says. "But they can't communicate well on paper. They don't have good critical thinking skills." Without the CO-TEACH experience, "I would have said, OK, we're moving on to the third-grade curriculum. I would have been teaching above them. It would have been a disaster."

Students here also automatically sense

any lack of confidence, any opportunity to challenge, any opportunity to walk all over a teacher.

"They ask me, 'is that how Mr. Hitchcock would do it?' I'm still struggling with it," Dalke says

Hitchcock is confident of Dalke's success. "She has the touch. She already knows which kids need more time and more help," he says. "This is the end of her third week. Most student teachers take two months."

Brittany Carlson '01, now an Aurora,



Colorado, fourth-grade teacher, always planned to teach in an inner-city school. She still was entirely unprepared for the world she encountered at one of Tacoma's high-needs schools three years ago while in the CO-TEACH program.

"It was definitely an eye opener to me to see kids going through more in their seven years," says Carlson, "than I had in my 21."

MANAGEMENT EXPERIENCE

CO-TEACH students credit the program for giving them classroom management skills that a university classroom couldn't provide, lessons in relationship building, and a network of support among fellow CO-TEACH students. The mentor teacher is equally important, because here they have someone who sees them in action and can, with calm reassurance and practical experience, answer that panicked question of "what do I do?"

This is true even for student teachers like Zach Womack, who knew what he was facing, because he grew up near Tacoma and fell in love with teaching as a para-educator at Jason Lee Middle School—which he describes as the toughest in Tacoma.

"I think if I had gone anywhere else, I wouldn't have done CO-TEACH, and I wouldn't have done as well," Womack says. "I couldn't fail with the people around CO-TEACH."

Dalke agrees. "You get reassurance, the basics, feedback, and classroom management to emulate," she says. "You learn that teaching is based on relationships. Mr. Hitchcock builds relationships with parents, he builds relationships with students, and he has students build relationships with each other."

The latter is the most vital skill a new teacher can bring to the classroom, says Ethel Wellington-Trawick, who, until late July, was principal of Edison.

"I don't care if someone has a four-point-oh, if they can't connect with the kids," Trawick says. "I don't care if you ace all of those tests and all of those papers if you don't show a concern and a commitment to children of color. The most important issue with at-risk students is relationships. It is loving the students beyond the façade they present to you."

That's a rare skill for a new recruit.

"Very few student teachers come in here with much age on them or life

experience," Wellington-Trawick says, juggling telephone calls, e-mails, and people knocking on her door. "Children who are at risk are so intuitive. And in that way, they may be more mature than many student teachers."

CO-TEACH's success in 28 schools bears out the notion that if you prepare student teachers, you retain them. Approximately 100 student teachers have gone through the program in Tacoma alone. More than 70 now teach in high-needs schools.

Which makes the CO-TEACH experience all the more important. As Shinew puts it, "there is no standardized answer for the kid who is homeless and smells bad."

SONG FOR THE FUTURE

The clock crawls to 2:45 p.m. in Miss Fisher's classroom. Students put away pencils and paper, homework folders, and books. They stand beside their desks, set their chairs on top, gather their backpacks and coats, and line up at the door.

Miss Fisher leads them in songs as they await the day's ending bell. Voices rise. Enthusiasm is far more important than pitch.

"My mother is a baker, a baker, a baker . . ."

For a moment, all is youthful optimism. Odds are, most of their mothers are not the kind of professional bakers the song describes, but struggling servants to minimum wage service jobs. If they can find work at all.

But because of Bob Hitchcock, Jacqui Fisher, Dawn Shinew, and a long list of others on the CO-TEACH team, some of these first-graders may become bakers, engineers, or writers. Or teachers in a tough inner-city school district where kids rely on schools for their square meals and positive adult influences, and struggle to be as book wise as they are street smart. ■

Veteran journalist Ken Olsen lives in Portland, Oregon.

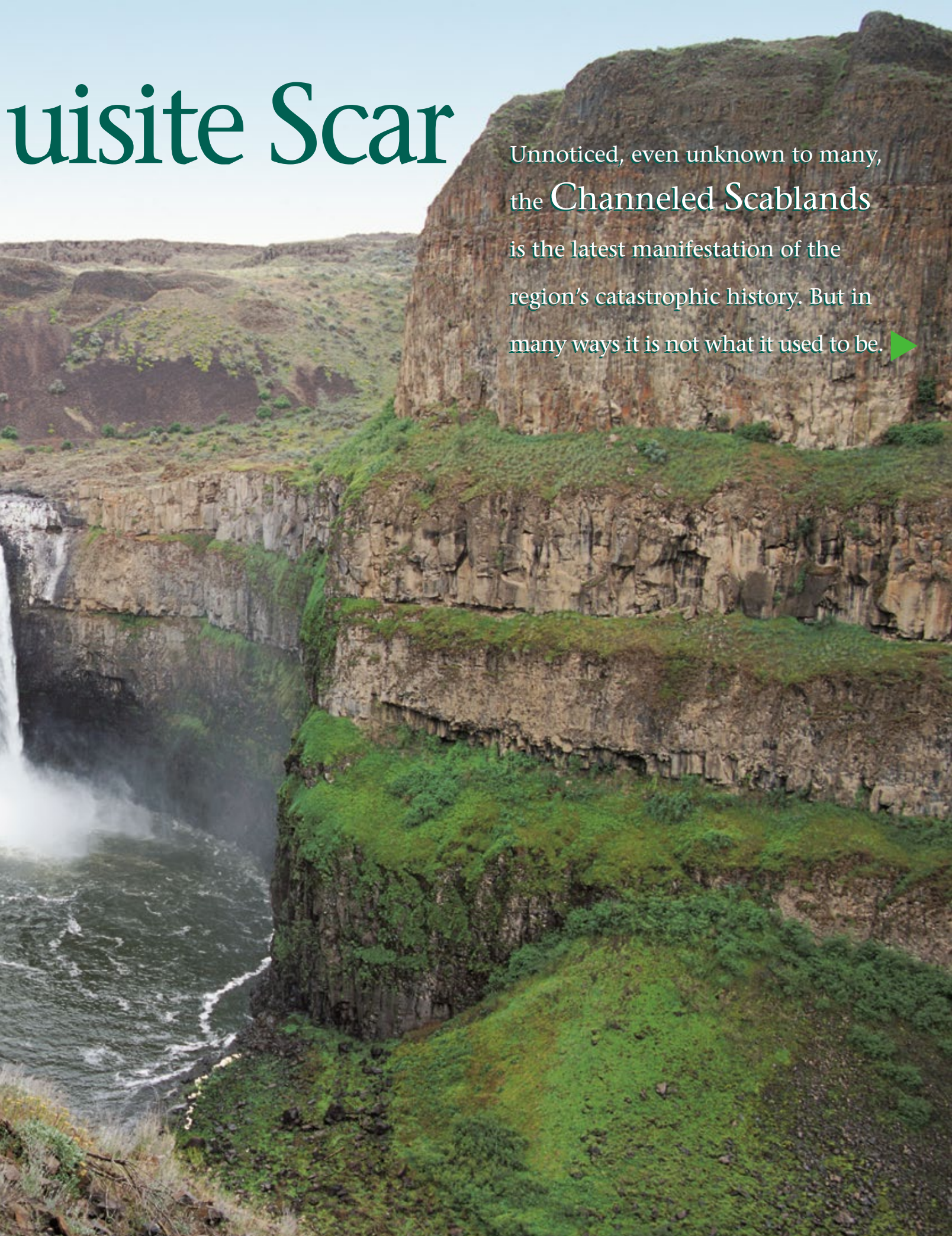
by Tim Steury • Photography by Robert Hubner

An Exq

Palouse Falls

uisite Scar

Unnoticed, even unknown to many, the Channeled Scablands is the latest manifestation of the region's catastrophic history. But in many ways it is not what it used to be. ►





Rich Old takes another plant photo for his identification database.

About 18 million years ago, the earth cracked, and great flows of lava erupted, spreading from vents in eastern Washington, northeastern Oregon, and Idaho across what is now the Columbia Plateau.

Palouse Falls

THE TRAIL DOWN into the canyon below Palouse Falls is loose talus, poison oak, stinging nettles, and rattlesnakes. But mostly, it's steep, dropping quickly through a notch in the otherwise sheer basalt walls of the canyon. Still, WSU geologist Gary Webster, at 70 the oldest in our party, is the first to the bottom. In fact, he's already fishing before the next one of us arrives.

Webster is the picture of contentment, not only because of the anticipated bass eyeing his fly. He is deep within his element. Although we've dropped barely 400 feet in elevation from the canyon's edge, we've descended 12 million years in time.

The Palouse River at this point is about 60 feet across. The far bank is thick with willow. Above it is a shelf of prairie sage and arrowleaf balsamroot.

Upstream is a cloud of mist from the falls. The falls itself is still hidden around a bend, but the roar of the river falling 180 feet fills the canyon.

The falls has diminished somewhat from the earlier spring runoff. But even then, when it channels the melting snow and rain of the late-winter Palouse, the falls is an insignificant drip compared with the cataclysmic flow that created it, a mere 15,000 years ago.

In order to comprehend that extraordinary force, first consider the basalt.

Above the shelf of sage and balsamroot are the upper flows of the Columbia River basalts, the dense, black volcanic rock that underlies much of southeastern Washington. About 18 million years ago, says Webster between casts, the earth cracked, and great flows of lava erupted, spreading from vents in eastern Washington, northeastern Oregon, and Idaho across what is now the Columbia Plateau. (One of those vents is exposed below the dorms on the south end of the Pullman campus of Washington State University and can be traced all the

way to Davenport.) A succession of seven flows continued over the next many million years. Some of these flows reached as far as the Pacific Ocean. In fact, the basalt bluffs of the Oregon coast originated from vents near Lewiston, Idaho. In some places, the basalt underlying the region is 5,000 feet thick.

MUCH OF WHAT we now understand about the region's basalt is the work of geochemist Peter Hooper, who recently retired from WSU. He and Don Swanson '60, a former student who moved on to the U.S. Geological Survey, mapped the basalts.

Webster's expertise is the Cenozoic, that relatively brief geologic period that, beginning about 65 million years ago, overlaps with the existence of mammals and seed-bearing plants on Earth. Webster, with colleagues from Yakima, Eastern Washington University, and University of Washington, mapped the interstitial deposits, the gravels and soils, that cover the basalt of the Columbia

Gary Webster (right) and Washington State Magazine editor Tim Steury recover from descending 12 million years from the rim of Palouse River Canyon.





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Plateau. He drove virtually every road in this area, he says.

As fundamental and permanent as the basalt would now seem, Webster points out the cracks in the opposite canyon walls, the very existence of the canyon itself. We are deep within otherwise solid rock. What possibly could have carved this canyon?

It's only recently that geologists broke out of the intellectual prison of uniformitarianism, the notion that geologic phenomena can always be explained by gradual, calmly fathomable events.

J Harlan Bretz started out within that camp. But years of contemplating the Channeled Scablands transformed him and Cenozoic geology.

A University of Chicago geologist who had become fascinated with Pacific Northwest geology as a high school biology teacher in Seattle, Bretz finally understood that the only thing that could have created the scablands was an unimaginably massive flood.

But the idea of a flood so cataclysmic that it ripped a scar down eastern Washington, scouring out the Grand Coulee, ripping through solid basalt to create the Palouse River canyon, was simply unfathomable to anyone who had not contemplated the scablands as Bretz had, particularly anyone comfortably ensconced in the sureness of uniformitarianism.

Webster recounts the story told him by former Geology chair Charles Campbell, who was at the American Association for the Advancement of Science meeting in 1940 that was the turning point in the debate over the scablands' origin. Sure as he was about the giant

ripple marks and clearly defined channels, Bretz was plagued by a lingering question: What was the source of the water?

Then Joseph Pardee got up to talk about giant ripple marks in the bed of Glacial Lake Missoula—which could only have been created by a sudden outburst of water.

As soon as Pardee finished, Bretz leaped up. "There's my water!" he said.

No one knows, says Webster, why Bretz had not yet connected his theory to Pardee's work. Pardee had first published his observations more than 20 years earlier. Regardless, Bretz finally had his water, and the reluctant uniformitarians gradually gave in.

What Bretz had understood about the strange and beautiful scablands is what we now understand. Fifteen thousand years ago, chunks of glacial ice had formed a dam above Clark Fork, Idaho, backing up a 180-mile-long lake that contained as much water as today's lakes Erie and Ontario combined.

When the dam collapsed, the water rushed westward at 45 miles per hour, scouring the landscape down to basalt, a flood so powerful it chewed into the volcanic basalt, following existing drainages as it could, then creating its own drainages when it overwhelmed them. One flow swept westward from Spokane, then down through the Quincy Basin, another down the Crab Creek drainage near Odessa. A third swept down through present-day Cheney, through Washtucna and Pasco. Near Pasco, the flows recombined at Wallula Gap, along the present-day course of the Columbia. Formed by bluffs only a mile apart, the

Wallula Gap constricted the flow, forcing the water to back up behind it.

From there, it surged down the Columbia, still powerful enough when it reached the coast that it deposited huge granite boulders in the Willamette Valley it had carried, probably in chunks of ice, all the way from Idaho.

But this happened not just once, says Webster. It may have happened as many as 105 times.

A European landscape

THE LAST PERSON to reach the bottom of the canyon is Rich Old ('77, M.S. '81, Ph.D. University of Idaho), distracted often on the way down by plants in general, weeds in particular.

He seems disturbed by the fact that a plant that he had hoped to find today, *Phacelia ramosissima*, is not yet in flower. But he's dazzled by the *Thelypodium*, lovely long-stemmed flower stalks growing out of the sheer cliffs. "It's incredible," he says, "not only that they're established there, but the seed rain it takes to get them there." The only way the seeds could have landed in the cracks of the basalt would be to have been carried by the fierce winds that sweep through the canyon.

Old, who is probably the leading



Richard Old '77



An Exquisite Scar

expert on the plant life of the scablands, is also the creator of the most comprehensive weed identification guide ever written.

"The reason I'm into weeds," he says, "is I hate what they do to our native [plants]."

Old has been my guide through the scablands over the last couple of years. With him, I have tasted red ants (sour from formic acid) and dog lichen (tastes like bubblegum). I have learned that the flower stalk of mullein was burned by the local Indians to treat hemorrhoids

and respiratory problems. Old's knowledge of the area's plants and ecology is encyclopedic. He seems to thrive on sharing his knowledge and excitement. He has taught survival classes for Army ROTC and poisonous plant identification to WSU veterinary students. He's a born teacher, though a little too straightforward and independent for academe. Though not didactic, he is demanding. Once he identifies something for you, he expects you to remember, no matter how many syllables.

Lomatium, Antennaria, Erodium.

Camas, miner's lettuce, baby blue-lips.

Bromus tectorum. That's one I can remember. Cheatgrass: scourge and transformer of the arid West. But here's another one, even worse. *Taeniatherum caput-medusae*—Medusa head. Not many plant names send shivers up the spine. But this plant is truly diabolical in its survival strategy and persistence.

"See how it falls down and forms a thick litter layer," says Old. "It doesn't biodegrade." In fact, it builds up year after year, choking out everything else. But here's the truly ingenious adapta-

a trail through time



Gary Kleinknecht '72 and I are sitting in his car looking across the river at the Wallula Gap, trying to comprehend the hundreds of cubic miles of water that flowed through the gap over the course of two weeks some 15,000 years ago. Then we silently multiply that iconic flood by however many floods actually sent water through the gap.

Kleinknecht, who teaches history at Kamiaken High School in Kennewick, is one of many disciples of J Harlan Bretz who have become captivated by the colossal forces that transformed the Northwest landscape. As a result, he says, he's been transformed by his new understanding of his surroundings.

Kleinknecht is a member of the growing Ice Age Floods Institute, a nonprofit group of geologists, both professional and amateur, and other curious folks dedicated to informing the public about the ice-age floods. They stage field trips, provide information, and work toward providing more interpretation of the floods' impact.

Their most ambitious goal may be the Ice Age Floods National Geographic Trail. The trail would be a network of marked routes across the parts of Montana, Idaho, Washington, and Oregon that bear the effects of the ice-age floods, along with interpretive centers.

Such an interpretive site would likely be built where Kleinknecht and I are contemplating the Wallula Gap. This must be one of the most dramatic spots in the country, once you understand what it was like 15,000 years ago.

So far the trail is realized only as a proposal to Congress by the National Park Service. In late July, Senator Maria Cantwell and Representative Doc Hastings announced they would introduce a bill designating a route for the trail. For the Park Service's report to go forward, a bill must be introduced.

How likely is the trail's realization?

"It depends what day it is," says Kleinknecht.

www.iceagefloodsinstitute.org

www.nps.gov/iceagefloods

—Tim Steury

Escure Ranch

Left: Towell Falls, on Rock Creek, Escure Ranch.

Far left: The Escure Ranch, near Winona, Washington, recently obtained by the Bureau of Land Management, suffers from years of grazing. But the terrain is classic scabland.

To find the Escure Ranch: Heading west out of Winona on Endicott West Road, turn right on the second road. After a couple of miles, take the first left, then the next left. Soon you'll see a sign for the ranch. It is about 10 miles from Winona.

"When we're talking about vegetation in eastern Washington," he says, "we're talking about history, about the way things used to be."

Pristine scabland looks bare, says Old. "If you were here a hundred years ago, it would look like a bunch and a bunch and bare ground," he says, referring to the

native bunchgrass. "But it's not bare at all. It's got a solid skin of mosses and lichens. That's what held this together."

That fragile skin was largely destroyed by the trampling of cattle, as well as by pocket gophers, driven down into the scabland from the more hospitable loess by tillage. Gophers churn the ground up, again destroying the crust. And once that thin but protective skin is gone, the "original scabland" is history. As John Thompson, formerly of Botany and Zoology, and Dick Mack, Botany, have argued, the ground of eastern Washington is so fragile because it was never grazed by large ungulates. Native plants had never adapted to such treatment, and exotics, some carried intentionally, some not, by European settlers, rushed in to take the natives' place.

"You could take a piece of ground and write out your species composition," says Old of the scablands today, "and you could be standing in southern Europe."

tion. The seeds extend their radical down through the litter into the ground. Nothing else can do that, says Old.

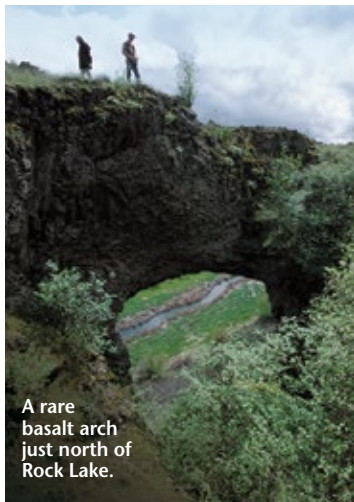
And then there's fire. Fire was part of the scablands ecology, says Old. But the fires did not burn very hot. Natives such as bluebunch wheatgrass would come right back. But Medusa head, with its litter build-up, burns explosively, killing off everything else. Except for its own seeds.

Like Webster, though obviously within a different time-frame, Old tends to look at things in terms of the past.



Lomatium gormanii

An Exquisite Scar



A rare basalt arch just north of Rock Lake.

Hidden from view

THAT THE SCABLANDS is a different world is illustrated by the tiny *Lomatium gormanii*. Old follows a ritual of venturing out on New Year's Day to find the first spring flower. *Lomatium gormanii* grows in exposed basalt faces, which absorb the heat even of the late-December sun. Last year Old found the first bloom on December 20.

That Old found the scabland flower in Pullman makes no difference. Although the great floods did not sweep over Pullman, the scabland species find their way

out of the coulees and canyons of the scabland proper.

The effects of the great floods reach from the mouth of the Clark Fork River in Idaho to the Pacific Ocean. But because the corridor between Cheney and Pasco had no high hills or bluffs to contain the water, it spread over 2,500 square miles.

Much of that area is private land. The advantage of trekking with Old is he's fifth-generation to the area. He knows who owns what, who to ask. And so one day last spring we tramped through an area of the scablands that few people ever get to see, the canyon where Rock Creek flows into Rock Lake. Bounded by the lake and a series of waterfalls, it is a magical place, despite Old's regret.

"When I was first taking botany," says Old, "I found *Blepharipappus* here. I've been back yearly, but haven't seen it since."

Equally magical—and open to the public—is the Escure Ranch. Downstream from Rock Lake on Rock Creek, and purchased by the Bureau of Land Management in 1999, the Escure Ranch is classic scabland. An easy hike takes the visitor into one of the loveliest waterfalls in the

Northwest. A large lake is another couple miles in. Although the plant life suffers badly from overgrazing, some natives persist.

Old leads us up a mesa, identifying plants as we go and decrying the invasion of pocket gophers from the wheatfields above us. The arrowleaf balsamroots have withered slightly from a late harsh frost the night before. North of us is another, much larger mesa that was formed by the floods, which scoured the sides and top of the basalt outcrop. Except for meadowlarks, the occasional raven flying over the valley, and our Latin-laden conversation, there is absolute quiet.

Like many of the flood's hidden channels, the 13,000-acre ranch is a harsh Eden within the monotony of the wheatfields, an exquisite scar through what Zane Grey called the desert of wheat, refuge to mule deer and badger, cliff swallows and ferruginous hawks, sage, bunchgrass, Jacob's ladder, and blue-eyed Mary. In spite of the European invasives, the ancient catastrophic beauty of the area prevails. In spite of the loss that he sees, Old is smiling the whole time. ■

Rock Lake

Scoured by the Missoula Floods 15,000 years ago, Rock Lake is long, nine miles deep, and like most of the scablands, lonely.



CARLTON LEWIS

Still Building Bridges



F
ORMER WASHINGTON STATE UNIVERSITY president Glenn Terrell remembers an early-1970s encounter with Carlton Lewis that epitomized their relationship. The first African-American student body president—he served consecutive terms from 1970 to 1972—had a distinctive presence and

sported a half-afro that complemented a large pair of round spectacles. Terrell recalls that as Lewis approached him one day, his eyes were focused on the prexy's wing tip shoes. "Daddy, you've got to get rid of those wing tips," Lewis told him.

"Carlton taught me that I had no business wearing wing tip shoes," Terrell says with a laugh. It was a moment of levity during an otherwise turbulent time—a moment, he says, that symbolized the ease with which Lewis acted as a bridge between

minorities also dominated both the Pullman campus and the national political scene during those years. Lewis and Terrell both remember how WSU students and faculty alike were active in pressuring the administration to increase recruitment of minority students and create new academic programs, such as Black Studies.

After graduating ('72 Political Sci.), Lewis earned a master's degree in public administration from the University of Washington. Then he moved to Washington, D.C., and

requirements, the small contractor is in a position to compete for contracts against larger, more established contractors.

While DevCorp extends a helping hand to small contractors, the practical reality of staying in business often means drawing lines. "We've become really tough-love-minded," Lewis explains. "We don't do anything until the contractors pre-qualify, until they meet the financial floor. . . . We have to do that just to protect ourselves."

Lewis believes in government programs that set aside contracts for small or disadvantaged contractors, but with an important caveat: "They've got to have teeth," an attribute he says is lacking in many of the programs he has seen. "They don't have teeth, because the folks running them don't understand business." Reverting back to DevCorp's tough-love sensibilities, he makes it clear that he has little tolerance for set-aside programs that do not deliver a quality product or service. "It's not just walking in with your shovel. It's understanding how to do business in the public sector, which is an arcane beast."

Since 1994 DevCorp has assisted small contractors in obtaining more than 500 contracts on a wide spectrum of municipal projects. And more than 100 companies that began through involvement with DevCorp are still in existence, Lewis says. Despite a busy travel and work schedule, he still finds time to attend to his impressive collection of high-end audio equipment and vinyl recordings, a hobby that dates back to his WSU days.

Reflecting on the years he spent in the business world and in Pullman, he credits the opportunities he had to interact with University officials as among his most valuable lessons. "I had sat there, you know, and gone toe-to-toe with some of the finest minds in our state. Most of the time I held my own. Other times I got my rumpus kicked. . . . So I was convinced, intellectually, there were very few things I couldn't get or go find out how to get done. That's how I look back on my experience at WSU." ■

Brian Gunn ('95 Comparative American Studies) is an attorney who lives and works in Washington, D.C.

Looking back, Lewis recalls that the involvement of the United States in Vietnam absorbed much of WSU's energy in the early 1970s.

a vocal and sometimes demanding student body and the University administration. Little about the years from 1968 to 1972 could be considered easy or ordinary, not the least of which was Lewis himself. Terrell remembers him as one among a half-dozen students whose presence was "important to the welfare of WSU as an institution."

Today, Lewis lives in the heart of the historic U Street corridor in Washington, D.C.—his home since 1976—and presides over the DevCorp Consulting Corporation that he founded in 1992. While his afro may be gone and his glasses a bit more understated, he says many of the lessons he learned walking a tightrope between the students he served and the WSU administration remain close to him even after more than 30 years.

Looking back, Lewis recalls that the involvement of the United States in Vietnam absorbed much of WSU's energy in the early 1970s. It was an issue that had consequences for many young men enrolled at WSU, including Lewis himself. Late 1969 brought the draft lottery system, a rigidly fair mechanism whereby conscripts were chosen at random and generally without regard to student status. "My sophomore year I got my draft number. I was terrified," Lewis recalls. Having witnessed his own father serve two tours in Vietnam in the U.S. Army, Lewis had every reason to be anxious about his future. He was not alone.

Issues related to the rights of racial

got his first taste of business in the public sector working for a trade group that represented cities. He recalls that the business environment in the nation's capital at that time was particularly friendly to the concept of private businesses working in tandem with government. Figuring he had little to lose, he started his first company, SRA Technologies, a firm that specialized in life-sciences consulting. When the employees bought out the company, he founded DevCorp.

DevCorp functions as a project manager for cities and municipalities that seek to involve small, often minority-owned contractors in large construction projects. When asked exactly what DevCorp does, Lewis tells a not-so-nostalgic tale of how programs meant to encourage minority business participation used to operate.

"A lot of these programs were built on either set-asides or mandatory subcontracting. We had a natural clash in the old days. . . . In many cases, the owner, the public owner, with the best of intentions, forced a lot of incompetent or not qualified companies down [other] companies' throats." The consequence, Lewis says, was that "even qualified companies couldn't get their fair day."

DevCorp differs from these programs. Instead of promoting untested or financially unstable contractors to municipal clients, it provides financial guarantees to companies that meet its own criteria. Armed with DevCorp's financial backing and other bidding prerequisites such as bonding and insurance

A Man for the Times

Circumstances often thrust Carlton Lewis into the role of intermediary between the students and WSU administration, especially during some of the more memorable campus protests. "Nonnegotiable demands were very popular during those years," Terrell recalls with a laugh. "Carlton and I had many talks. . . . He tried to work with me and the others in the administration, and the protestors." Terrell also acknowledges that perhaps in contrast to the present, individuals involved in student government during those tense years were often looked to as leaders by the student body. "The issues of the late '60s and early '70s were of such magnitude that students really looked up to people like Carlton," Terrell says.

Evan Sperline '71, Lewis's close friend at WSU and now a superior court judge in Grant

County, agrees. "These issues radically divided the general student population from the administration," Sperline recalls, adding that Lewis had to keep an open dialogue with "people who truly were conservative and who truly were radical." Sperline says that the confluence of issues and the confrontational politics of the time required unique personalities to bridge that chasm. "Carlton was that kind of person."

Although many may remember Lewis as the first African-American president of the Associated Students of Washington State University, he never considered his own race as a barrier, and the subject never became an issue in his student political campaigns. Coming from a military family, he spent his formative years in Barcelona,



Paris, and Rome. As a child, "Racism was just never visited upon me," he says. "My mom always kept us living with the domestic population, so I had to learn the language and culture." This perspective shaped his attitudes as a student, and years later would also influence his attitudes in the business world.

Now he credits Terrell and other members of the WSU faculty and administration for the open manner in which students were allowed to express themselves. "It made me proud to be part of an entity that kept its cool. Overall, the community response was civilized, and that was imprinted on me."



Some 5,000 WSU students attended a racism workshop in October 1970. The workshop and the election of Carlton Lewis as student body president the previous spring helped to ease tensions on campus.





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SPRAY-COOLING

Military adopts
ISR technology
in aircraft,
ground vehicles

FOR RELIABILITY, advanced electronics need to be maintained at a stable temperature. This isn't always possible in extreme military conditions. Isothermal Systems Research (ISR) has found one solution that's winning awards and military contracts: spray-cooling.

Mechanical engineer Don Tilton developed the technology for a self-enclosed spray-cooling chassis about the size of a small microwave oven. A chemical liquid inside is sprayed onto electronics, dissipating heat on circuit boards and processors through evaporation, keeping the electronics at a stable, uniform temperature. In June 2003, the Defense Department gave ISR a Value Engineering Achievement Award in Washington, D.C., for saving about \$300 million in military weapons cost.

The systems are being tested in the Marine Corps Expeditionary Fighting Vehicle (EFV), a tank on land and a jet ski in the water. It is also being tested on the Navy's EA6B Prowler, a tactical jamming aircraft, and in the Air Force's Global Hawk, an unmanned aircraft that flies at 70,000 feet.

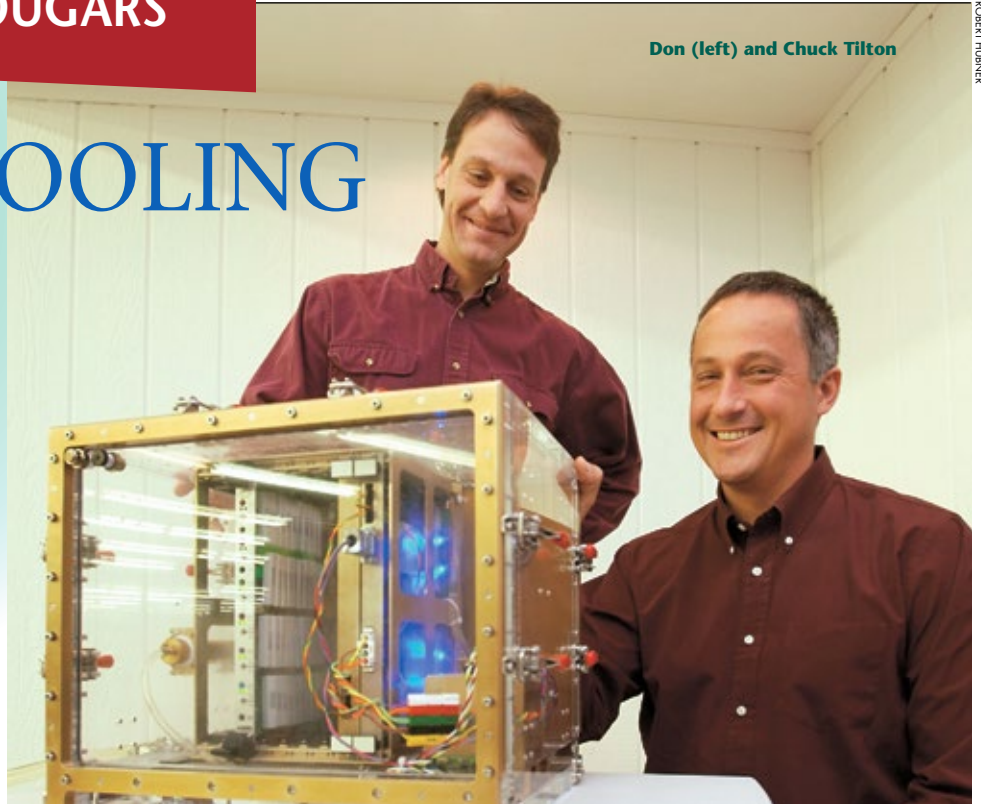
The ISR system also plays a part in new equipment being tested to detect sniper gunfire. The weapons surveillance counter-sniper device would have the company's product inside. "It's based on an infrared camera that classifies the type of weapon fired," Tilton says. "We didn't develop this, but it's using our system."

Although the military wants the latest and best, new technology has to withstand extreme conditions, according to Tilton, who, as ISR's vice chairman, is responsible for strategic planning and technology direction.

"We need to take the latest commercial electronics, package it in a cooling system that will survive conditions the military would put it through, and have them be self-contained so they're not affected by dust," he says.

In May the company broke ground for a two-story, \$1.7 million building in Pullman's Port of Whitman Industrial Park. The facility, funded in part by the State of Washington, is expected to open this fall. One of the expected advantages of the Pullman location is that ISR will be able to engage in collaborative research with engineering programs at both WSU and the University of Idaho.

Company president Jeff Severs reports that the company has had nearly 100 percent growth in revenue in each of the past three years. ISR brought in about \$3 million during 2000 and expected



The ISR system . . . plays a part in new equipment being tested to detect sniper gunfire.

to top \$22 million in 2003. Last November, Severs announced the company had received a \$3 million federal appropriation to help develop cooling solutions for advanced supercomputers.

While about 98 percent of the company's business is now with the military, ISR is pushing into the commercial market that includes the next-generation semiconductors.

"Major semiconductor companies are now in the development process for the next-generation chips for servers or desktops," says Tilton. "We're developing cooling systems for diagnostic testers for these next-generation chips."

Tilton, a Washington State University graduate ('85 Mech. Engr.), entered the spray-cooling field in the late 1980s. He had a graduate fellowship to work on Star Wars spaced-based defense technology. The team of scientists included Louis Chow, one of Tilton's WSU professors, who had taken a sabbatical leave to work on the project at Wright-Patterson Air Force Base in Dayton, Ohio.

Tilton launched ISR in 1988 while at the University of Kentucky, where he completed his doctorate the following year. He selected spray-cooling as the subject of his doctoral thesis. At the time, little was known about spray-cooling and the fundamental physics of how it works, he says. "I felt I could do some pioneering research."

His brother, Chuck Tilton ('81 Mech. Engr.), ISR vice president and chief technology officer, joined the company soon after its start in Seattle, where Chuck was working for Boeing. Tilton is looking forward to tests of the ISR system in the Air Force's high-altitude Global Hawk, a scenario reminiscent of his early Star Wars focus.

"It's a major milestone for us getting our technology in a flying aircraft," he says. "I think we will eventually get into space, but not until we get about 10 years of reliability on the ground and in the air."

—Trevia Lind

CLASS NOTES

1930s

Former football All-American **Mel Hein** ('31 Phys. Ed.) was inducted posthumously into the new WIAA Washington State High School Hall of Fame April 21, 2004, at Seattle's Seahawk Stadium Club Restaurant. He came to WSU from Burlington and led the Cougars to the 1931 Rose Bowl. During 15 seasons with the New York Giants, he was named first-team All-NFL center eight straight years, 1933-40.

1940s

Katherine P. Grigg ('45 Home Ec.), Shoreline, retired in 1986 after 24 years as chief clinical dietitian at Northwest Hospital in Seattle, and has been a volunteer there for 16 years.

John M. Kuhlman ('48 Econ.) taught at the universities of Richmond, Cincinnati, and Missouri-Columbia. He retired from Missouri in 1985 and moved to Las Cruces, New Mexico, in 1988, and to Weaverville, North Carolina, in 2001. He writes, "Thanks to the GI Bill and those wonderful teachers at WSC after the war, I have lived a life of adventure and enjoyed every minute of it."

1950s

Clifford A. Gillies ('51 Phys. Ed.), Washington Interscholastic Activities Association director (1982-93), was inducted into the new WIAA Washington State High School Hall of Fame April 21, 2004. He began his career in education as a teacher/coach at Monroe High School in 1951, and later served as principal at Monroe, Snohomish, and Mariner high schools. He lives in South Bend.

Since retiring as a school librarian in 1985, **Bernice Utal Levine** ('51 Psych.) has returned to her original quest to be an actress. "Small successes, lots of rejection, but at least one great accomplishment every year keeps me going," she writes from Cliffside Park, New Jersey.

Charles C. Parsons ('51 Hort.) is considered the dean of Spokane gardening. He bought Coldwell Greenhouses in 1954, and later Garland Florists, operating the business 18 years. He joined Spokane Community College in 1972, established the three greenhouses that continue to be the mainstay of the program, and retired in 1987 as Teacher of the Year.

Bill Britton ('53 Ag. Mech.) and **Betty Eccles Britton** (x'54) celebrated their 50th wedding anniversary August 17, 2003, in Walla Walla. He farmed dryland wheat (1956-67) and was a graduate research assistant at South Dakota School of Mines and Technology (1967-68) and a technical writer for John Deere in Waterloo, Iowa (1969-87).

Retired architect **Orville G. Lee** ('53 Arch. Engr.) and his wife, LaLoie, reside in Fredericksburg, Virginia.

The surgical suite at the Los Angeles Zoo Hospital has been named for **Charles Sedgwick** ('56 Vet. Med., '57 D.V.M.). He was also honored March 2004 at the 20th-anniversary celebration of the Wildlife Clinic, which he started at the Tufts University School of Veterinary Medicine. He developed and taught the curriculum, as well. He now serves on the Animal Welfare Commis-

sion at the Monterey (California) Bay Aquarium.

1960s

Paul N. Laufman ('61 Mech. Engr.), co-founder and chair of United Paradyne Corp. in Santa Maria, California, was honored at the December 11, 2003 dedication of the Smithsonian's National Air and Space Museum at Dulles International Airport, Washington, D.C. His name was engraved on the "Wall of Honor" entry lane to the museum. Laufman's aerospace career

has spanned more than 40 years, mainly in the design and development of large rocket systems. He retired as company president and CEO in September 2003.

Marilyn Sontag ('61 Home Ec.) retired as an advisor for the Upward Bound program at the University of Wisconsin-Manitowoc after five years. She previously taught in the Cambridge, Madison, and Manitowoc school districts, as well as at Lakeshore Technical College, and worked for University of Wisconsin-Extension.

THE BUTTERFLY LADY

"... most, especially children and anyone with a sense of wonder, are fascinated by the magic of metamorphosis."

—Chris Hebdon

LIKE MANY CHILDREN, Chris Hunter Hebdon enjoyed being outdoors, searching for insects on the ground, in the water, and on plants. Beetles were her favorite.

Her love of insects came from her mother, who, when she returned to school to become a biology teacher, took Hebdon with her on field trips in the Walla Walla area.

Hebdon's fascination with creatures that crawl, fly, hop, and squirm intensified while she was a student at Washington State University ('74 Entomology), and it has metamorphosed into a growing business—the Susquehanna Butterfly Co.

From late May well into October, her booth at a farmer's market in the Binghamton, New York, area, where she lives with her husband Clifford, attracts people the way milkweed draws monarchs. Hebdon's net enclosures burst with color and motion. Black swallowtail caterpillars munch parsley leaves, and monarch chrysalises dangle like jade pendants from the netting.

Everyone calls her The Butterfly Lady.

However, Hebdon did not have insects on her agenda when she enrolled at WSU as a philosophy major. But she was back outdoors and looking for bugs after she switched to bacteriology and took insect taxonomy courses taught by William J. Turner. "The field courses I took from him really cemented changing my major to entomology," she says.

For years Hebdon had a butterfly garden in her yard, which backs up to the Susquehanna River. After leaving New York State Electric & Gas two and a half years ago, she decided to supplement her income by mixing the pleasure of butterflies with business, bringing her back to her longtime love of insects.

Hebdon raises several species of native butterflies, including an estimated 3,000 monarchs. Some start as caterpillars and eggs in her garden, which is planted with butterfly-friendly cone flowers, liatris, hops, dill, parsley, and, of course, butterfly bushes. She also grows milkweed, on which monarchs depend for development and egg laying. Three large screen houses protect the butterflies.

At the market, she fields countless questions. She enjoys teaching others about these amazing insects, their life cycles and migratory habits, and how to attract butterflies to more back yards. She also sells books about butterflies, directs customers to other resources, and speaks to schoolchildren and garden clubs.

She sells monarch chrysalises and swallowtail and other caterpillars at the market and a Wild Birds Unlimited store. Each chrysalis is attached to a card containing information on how to feed and release the butterfly and which plants will encourage it to stay in your garden.

Illness prevented Hebdon's mother from realizing her dream of becoming a biology teacher. Yet as Hebdon tags and releases a monarch and tells an enthralled preschooler how it will fly all the way to Mexico, she is living that dream.

—Marlene Jensen

Marlene Jensen is a freelance writer whose weekly columns appear in the Press & Sun-Bulletin in Binghamton, New York. She loves butterflies, but isn't too keen on spiders.

Hebdon can be reached at chebdon@stny.rr.com. Her sister, Beverly Hunter ('75 Bact., '75 M.S. Botany), is a scientific research technician in WSU's Department of Veterinary Microbiology and Pathology.



Chris Hunter Hebdon '74

THOMAS LABARRERA, BINGHAMTON PRESS & SUN-BULLETIN

WSU HONORS FIVE ALUMNI

WASHINGTON STATE UNIVERSITY created the Alumni Achievement Award in 1969 to honor alumni who have rendered significant service and contributions to their profession, community, and/or WSU. In recent months, five individuals have been recognized.



DEAN HARE

WILLIAM H. MOOS
As University of Oregon athletic director since 1995, William H. "Bill" Moos has initiated more than \$140 million in improvements to the UO athletic complex. The 1974 history graduate was honored February 14 on Friel Court.

The captain of WSU's 1972 football team earned

first-team All-Pac-8 and All-Coast honors as an offensive lineman, and played in the East-West Shrine game. Beginning in 1982, he directed WSU Athletic Development for five and a half years and was associate AD for nearly two years. WSU Athletics generated its first \$1 million year in annual giving in 1984 and improved each succeeding year. Later, Moos spent five and a half years as University of Montana AD, overseeing more than \$4 million in athletic facilities improvements and increasing private and corporate gifts to UM athletics by 300 percent.

WILLIAM VALLEY

Retired Air Force major, Vietnam War veteran, and Bronze Star recipient William R. Valley touched the lives of many students during two decades as a teacher and coach in Shelton.

Former Shelton Middle School principal Linda S. Farrimond remembers when one of Valley's students was having a difficult time. The boy's mother was in the hospital. "Bill offered to let the boy live with him and his family until the boy's mom was back on her feet again." Now the former student is a thriving businessman. "When I last spoke to him," Farrimond said, "he asked about Mr. Valley. He said, 'Mr. Valley showed that he cared about me, believed in me. I'm a success today because of him.'"

Valley ('53 Fine Arts) was honored January 17 in Shelton. He coached American Legion baseball teams, designed award-winning parade floats, and through various offices in the Mason County Forest Festival Association helped breathe new life into the annual spring event.

RICHARD S. THOMPSON

Richard S. Thompson '55, veteran of 30 years in the U.S. Foreign Service, was honored February 24 in Washington, D.C. A graduate in political science, he was one of only 32 Rhodes Scholars selected in the U.S. in 1955, and he completed a master's degree at Oxford University.

He began a distinguished career with the U.S. State Department in 1960 as a foreign service officer. Assignments took him to Aruba, Venezuela, Niger, Saigon, France, Algeria, and Washington, D.C. He was part of the U.S. delegation to the Vietnam peace talks in Paris, 1972-74. At State Department headquarters his areas of responsibilities included Ireland, Sweden, Greece, and the Bureau of Inter-American Affairs. He retired in 1988, then became coordinator of professional issues for the American Foreign Service Association until 2000. He lives in Bethesda, Maryland.

JAMES E. ROBBERS

After working as a community pharmacist in Everett, James E. Robbers ('57 Pharm.) pursued a career in teaching and research. He returned to WSU for a master's degree ('61 Pharm.), and completed a doctorate ('64 Pharmacognosy) at University of Washington.

He spent two years on the University of Houston faculty and 38 years at Purdue, retiring in 1998. His research, focused on the isolation, biosynthesis, genetics, and physiology of fungal metabolites, generated more than \$1 million in grants and numerous articles in scientific journals. He co-authored four editions of *Pharmacognosy*, a standard text, and is senior author of *Pharmacognosy and Pharmacobiotechnology*. From 1984 to 1993, he was editor of the *Journal of Natural Products*. He received the alumni award January 24 in Mukilteo.

THOMAS B. RAUCHFUSS

Thomas B. Rauchfuss ('76 Ph.D. Chem.), professor of chemistry and director of the School of Chemical Sciences at the University of Illinois Champaign-Urbana (UICU), was honored March 1 on his return to WSU to deliver the Carl M. Stevens Lecture in chemistry. Rauchfuss joined the UICU faculty in 1978 and has held his director's position since 1999. The former research fellow at the Australian National University has trained 48 Ph.D.s and published more than 220 papers. He is a fellow of the Royal Society of Chemistry, England (2000), and a recipient of the American Chemical Society Award in Inorganic Chemistry (2002).

—Pat Caraher

CLASS NOTES continued

Richard F. Barry ('62 Political Sci.), San Rafael, California, is president of the American Academy of Matrimonial Lawyers, the nation's top 1,600 divorce and family law attorneys. He has more than 35 years of experience in matrimonial law, has lectured extensively on family law issues in the U.S. and Europe, and is a past president and director of the Marin County Bar Association.

Rich Gustafson ('62 Phys. Educ., '68 M.A. Phys. Educ.) was re-elected to the Shoreline City Council in fall 2003.

Paul Roger Spencer ('63 Physics) retired in 1999 after working for Hewlett-Packard's Laser Printer Division in Boise, Idaho. He and his wife Susan moved back to his hometown—Pullman. They enjoy the WSU Libraries and living near relatives. He continues his membership on the U.S. Office Equipment Standards Committee, and consults part-time in imaging, pattern recognition, and print quality measurements.

Artist **Ian Baxter** ('64 M.A. Fine Arts) was one of seven winners of the fifth annual Governor General's Awards in Visual and Media Arts last March in Ottawa. He was cited for having had "a profound and original influence as an artist and educator." He is professor emeritus in the School of Visual Arts at the University of Windsor, where he began teaching in 1988.

William R. Graber ('65 Math.), Orinda, California, is an executive officer of McKesson Corp., a \$57 billion health-care services and information technology company.

Since retiring as president of the Interstate Natural Gas Association of America in 2003, **Jerald V. Halvorsen** ('66 Bact.) has been named a vice president of the Entergy Corp. in Washington, D.C., where he heads the federal government relations office.

Roy H. Johnson ('66 Phys. Educ.) and **Geraldine Jandl Johnson** ('65 English) retired March 1, 2004, to Everett from Torrance, California. His 37-year teaching career took him to Ephrata, Basin City, Kirkland, Germany, and Gardena, California. Her 14-year teaching career included assignments in Aberdeen, Seattle, and Quilcene. Both taught middle- and high-school levels.

Gordon C. "Mick" McLean ('67 Ag. Econ, '73 M.A. Speech) is CEO of Mount Carmel Hospital in Colville. This is his third turnaround effort, after taking administrative posts at financially troubled North Valley Hospital in Tonasket (1984) and Whitman County Hospital and Medical Center in Colfax (1987) and putting them on a sound footing.

Jon Whitmore ('67 Speech, '68 M.A. Speech) was invested as a member of the College of Fellows of the American Theatre in April at the Kennedy Center for the Performing Arts in Washington, D.C. Since its founding, 182 men and women have been recognized for their distinguished service and accomplishments in the field of theater.

Russ Mager ('68 Industrial Tech. Educ., '71 M.A. Guidance & Counseling), Seward, Alaska, owns Major Marine

Tours. He was cited as one of Alaska's top operators of day cruises in Kenai Fjords National Park and Prince William Sound in 2003. The tour company also was honored as the 2003 "Outstanding Business in Tourism on the Kenai Peninsula."

Ammon McWashington ('68 Phys. Ed.) is high school director of the Seattle School District.

Since retiring from Kaiser Aluminum in 2001, **Thomas B. Brattebo** ('69 Politi-

cal Sci.) spends his time as a substitute teacher and fishing in the Spokane Valley, near his Liberty Lake home.

1970s

Jon Eliassen ('70 Bus. Adm.) is the interim president and CEO of the Spokane Area Economic Development Council. He retired from Avista in early 2003 after more than 30 years as vice president and chief financial officer.

John Ted Sanders ('70 M.A. Math.), Denver, is one of five appointees to a

new five-member advisory board for the Teacher Support Network. The Princeton, New Jersey-based company provides schools and teachers with tools, techniques, and processes that focus on recruiting, developing, and ultimately training highly qualified teachers. He is president of the Education Commission of the States.

Charles A. Simpson ('70 Engl.) has joined Complementary Healthcare. The founding member of the organization

IN THE EARLY 1980s, Susan Jackson of Lakewood wasn't interested in marriage, but longed for a child. Although single-parent international adoptions were rare in those days, within four years she adopted two little girls from India. Jennifer graduated in May 2004 from Washington State University, and Krissy will complete her WSU degree in December.

In a five-page letter of nomination, Jennifer successfully spelled out why her mother should be honored as 2004 WSU Mom of the Year last spring.

Jackson worked relentlessly for 18 months to be placed on the waiting list for a child. "While many women would have given up, my mother persevered, passed every test, home study, and credit check," Jennifer wrote.

Jennifer was born August 28, 1982, in Calcutta. With few options available to her, the birth mother abandoned the premature child in a birthing center. The tiny 2.2-pound infant was found there in a shoebox on a shelf. After months in an orphanage, she was nursed back to health and finally put up for adoption.

"From the moment my mother picked me up out of the travel bassinet [at Sea-Tac International Airport November 16, 1982, following Jennifer's 20-hour flight], we bonded for life," the daughter wrote in her letter of nomination.

Jackson quit her job to take care of the baby. To honor her daughter's Indian heritage, she gave her the middle name Anjali—which means "hands folded in prayer."

Jennifer survived open-heart surgery a month before her first birthday. When she was four, her mother decided to expand the family. She received the dossier of a four-year-old girl living in a Madras orphanage. A case-

worker explained the girl showed signs of physical abuse and tried to dissuade Jackson from adopting such a high-risk child.

Jackson listened to her heart instead. "I said phooey," says Jackson. "She had no . . . birth date, no parents, no memory. I said, 'Send her home to me.'" Jackson adopted Sudha, and named her Kristin Sudha. When both daughters were second-graders, their mother was diagnosed with end-stage breast cancer. She made arrangements for the girls' guardianship and underwent a double mastectomy and chemotherapy. She has been cancer-free for 14 years.

"My mother is a unique woman," Jennifer wrote.

"She never married so she could focus all her attention on us."

Susan Jackson ('67 English) is an English as a Second Language para-educator at a middle school, where she works with at-risk and immigrant children.

After completing a degree in communications in May, Jennifer joined *The Seattle Times* as a copy editor. Krissy is majoring in secondary education with an emphasis on English as a second language and social studies.

Both sisters want to adopt children of their own from India someday, Jennifer says, so "we can give a child the same gifts that our mother has bestowed on us."

Other Mom-of-the-Year finalists were Marie Cochran, Pullman, nominated by her daughter, Katie; Chris Sodorff ('73 Educ.), Pullman, nominated by her daughter, Emily; and Jane Winterfield, Enumclaw, nominated by her daughter, Stacy.

—Pat Caraher

WSU Mom of the Year listened to her heart

"She had no . . . birth date, no parents, no memory. I said, 'send her home to me.'"

—Susan Jackson



Susan Jackson flanked by her daughters Krissy (left) and Jennifer.

CLASS NOTES *continued*

has had a private clinical chiropractic practice in Cornelius since 1979. He lives near Forest Grove.

Peter John D. Smith ('71 Hotel & Rest. Adm.), Seattle, has been named president and CEO of the AFM Hospitality Management Division. Earlier, he spent 20 years with Westin Hotels & Resorts, rising to executive vice president of operations.

Paul J. Fletcher ('72 Civil Engr.) has been promoted to the rank of major general in the U.S. Air Force and awarded the Distinguished Service Medal for his service at Headquarters Pacific Air Forces, Hickam AFB, Hawaii. Now he is deputy for Air Force Plans and Programs at the Pentagon.

At age 29, **John McGrath** ('72 Hotel & Rest. Adm.) opened McGrath's Fish House in Salem, Oregon, in 1980. He now owns 13 restaurants in the Northwest, including two in Salem. During the summer of 2004 he plans to open a restaurant in Phoenix.

Robert Berg ('73 Police Sci.) was named the chief of the Centralia Police Department in January 2004 after 32 years as a reserve police officer there. He is the former deputy director of the Washington State Gambling Commission.

Wes Ward ('73 Geology), Tucson, is the western regional geologist for the U.S. Geological Survey. He joined the USGS permanently in 1979. A surficial geologist, he works on the USGS astrogeology team. His primary work has been on mapping and surficial processes in the San Juan Basin, the Mohon Mountains Volcanic Field in southern California, and on Mars.

Matthew J. Wanchena ('74 Arch.) has accepted the newly created position of building official for the Muckleshoot Indian Tribe near Auburn.

Karen Keiser Wysaske ('74 Home Ec., '90 M.Ed.) heads the mathematics department at Wy'East Middle School in the Evergreen School District, Vancouver. Her husband, Ronald Wysaske ('74 Bus. Adm., '89 M.B.A.), is the new president of Riverview Community Bank in Vancouver.

In 2001 **Gregory Pierce** ('76 M.A. Police Sci.) retired from teaching criminal justice at Blue Mountain Community College, Pendleton, Oregon, to implement a new criminal justice program at Bethany College, a 600-student Lutheran school in Kansas. The college's director of communications is retired Air Force colonel **Harold Rothgeb** ('65 Political Sci.). In the fall of 2003, Pierce hired **Gerald Garrett** ('66 M.A. Soc., '71 Ph.D. Soc.), a retired professor of sociology and criminal justice at the University of Massachu-

setts, Boston, to teach Bethany's on-line course in criminal justice from his home in Boston.

Richard K. Rogers ('76 Educ.) became superintendent of schools for the Oakley Union School District in Oakley, California, January 1, 2004. He writes, "This is my first (and hopefully last) superintendent's job after 20 years as assistant superintendent for human resources, the last two in Oakley."

Seattle venture capitalist **Bob Wolfe** ('78 Finance) spent three weeks last November and December in Washington, D.C., helping supervise the reconstruction of Iraq. He worked as a special assistant to the director of the Coalition Provisional Authority, the government agency in charge of rebuilding Iraq. He has worked for Trillium Corp., GT Group Telecom, and currently is employed by Northwest Venture Associates.

Timothy C. Hamilton ('79 Marketing), distribution and contract sales manager for Armstrong Building Products in Sumner, was one of 11 worldwide winners of Armstrong World Industries' Chairman's Award. The award is the highest honor an employee can receive. He was cited for superior leadership in the Pacific Northwest Territory. The Lancaster, Pennsylvania-based firm has 58 plants in 14 countries and approximately 15,700 employees. He was president of the Pierce County Cougar Club, 1999-01.

James A. Wells ('79 Ph.D. Biochem.) received the 2003 Hans Neurath Award of the Protein Society for his contribution to the understanding of energetics of protein-protein interfaces and designing molecular mimics for them. He is co-founder, chief scientific officer, and president of Sunesis Pharmaceuticals. An adjunct professor of pharmaceutical chemistry at the University of California, San Francisco, he is a member of the National Academy of Sciences.

1980s

William D. Marler ('82 Pre-Law), president of the WSU Board of Regents, delivered the University's December 2003 commencement address. He said the political leadership in Olympia is failing WSU and higher education and encouraged the new graduates to work on behalf of public education for the next generation of college students. As an undergraduate, Marler was the first student elected to the Pullman City Council. He is a partner in the Seattle law firm of Marler Clark.

Richard Acuff ('83 Acct.), Lewiston, Idaho, has been named executive vice president and chief information officer at FirstBank Northwest. In the newly created position, he oversees data

processing, voice mail, e-mail, and the Internet for the bank's 17 branches in Washington, Idaho, and Oregon.

Alexander C. Bennett ('83 Elem. Educ.) is assistant superintendent of the International School of Puerto La Cruz, Venezuela. Work has taken him to Taiwan, Hawaii, the Philippines, Thailand, Paraguay, Mexico, and now the Gulf of Mexico and Caribbean.

John Doan ('84 Geol. Engr., '85 M.S. Civil Engr.) is assistant administrator for community development and parks in Sumner, Washington.

Scott L. Ramsey ('84 Hist., '85 Educ.), is principal of Quincy Junior High School in Quincy, Washington.

Former football All-American **Jack Thompson** ('84 Phys. Ed.) was inducted into the new WIAA Washington State High School Hall of Fame April 21, 2004 in Seattle. He passed for 2,905 yards at Evergreen High in Burien, 1971-73. At WSU, he was the first junior in NCAA history to pass for more than 5,000 yards. His career totals were 601 completions, 1,086 attempts, 7,818 yards, and 53 touchdowns. He earned All-America honors in 1978 and was picked third in the NFL draft that year by the Cincinnati Bengals. Thompson lives in Seattle. His jersey and that of **Mel Hein** ('31 Phys. Educ.) are the only football jerseys retired at WSU.

Mace Barron ('86 Ph.D. Pharmacology/Toxicology) is the new chief of the Biological Effects and Population Response Branch of the EPA National Health and Environmental Effects Research Laboratory in Gulf Breeze, Florida. He conducted post-doctoral research on chemical bioaccumulation and biotransformation in crustaceans and fish at the University of Florida.

Carrie E. Byles ('86 Arch. St., '86 Arch.) is a managing partner with the San Francisco architecture firm of Skidmore, Owings and Merrill, LLP. During the past 17 years with the company, she has been a computer application specialist, IT manager and project designer, and project manager.

Leslie A. Miller ('86 Biol.) has joined the Central Florida YMCA in Orlando as vice president of leadership development and human resources.

Sherry Nelson Reichert ('86 Comm.) is director of communications and marketing for Highline Community College in Burien. The first community college in King County, founded in 1961, now has 10,000 students. Previously, she was director of student outreach and admissions at South Seattle Community College.

Les Wong ('86 Ph.D. Educ. Psych.) was named president of Northern Michigan

University in Marquette last spring, after serving as vice president for academic affairs at Valley City State University in North Dakota.

Shad L. Pruitt ('88 Bus. Adm.) is director of debt administration at the Washington State Treasurer's Office in Olympia. He and his wife, **Kathleen** ('88 Clothing & Textiles), live in Tumwater.

Julie Reed ('88 Elect. Engr.) teaches intellectual property management at Portland State University, where she is an adjunct associate professor in the Engineering and Technology Management Department. She is employed by Marger Johnson & McCollom, PC, a Portland patent law firm.

Holly Trujillo ('88 Human Nutrition), Puyallup, was selected Young Dietitian of the Year for 2003 in the state by the Washington State Dietetic Association. She is an outpatient dietitian at Valley Medical Center in Renton.

1990s

After spending five and half years with an Internet company in Bellevue as a webmaster, designer, and eventually creative director, **Kevin Brockschmidt** ('90 Fine Arts) has returned to freelancing full-time as a cartoonist and humorous illustrator.

Matt Templeman ('90 Comm.) joined KMTR-TV (NBC) in Eugene, Oregon, as news anchor last October, after four years in a similar position with KXLY-TV in Spokane.

Leah Kerrick ('92 Rec. & Leisure Studies) married Chad Endres October 11, 2003, in Coachella, California. She is a fitness director at Big Horn Golf Club. He owns Water Pro Pool Service.

Paul Twedt ('92 Bus. Adm.) qualified for 2003 membership in the Million Dollar Roundtable, an international independent association of nearly 19,000 leading life insurance producers. He is a field director for Northwestern Financial Network in Bellingham.

Travis Earl ('93 Bus. Adm.) was named budget director for the City of Everett after working nearly five years as a financial analyst and internal auditor.

Tim Rozell ('93 Ph.D. Animal Sci.) received the 2003 Commerce Bank Award and \$2,500 for outstanding undergraduate teaching. He is an associate professor of animal sciences and industry at Kansas State University.

Bonita Bell ('94 Comm.), a Northwest Mutual Financial Network employee, has transferred to Spokane from St. George, Utah.

Kellie Cox ('96 Interior Design) is new director of catering at The Golf Club at Newcastle, Washington. She previously was director of food and beverage at the Sorrento Hotel in downtown Seattle

and director of catering at Ray's Boat-house in Ballard.

Damian Kunko ('96 Political Sci.), co-founder and CEO of the Rural Broad-band Coalition, has joined the Wash-ington, D.C., government relations firm of Strategic Marketing Innovations, Inc. as a senior consultant. The Alexandria, Virginia, resident spent six years in the U.S. Marine Corps, including service in Korea as part of a counterintelligence team.

Tim Osborn ('97 Political Sci. & Hist.) returned to WSU in August 2003 as assistant program director for the Con-struction Division of Facilities Opera-tions.

Joshua Tripp ('97 Landscape Arch.) has joined the Spokane architecture firm of Adams and Clark, Inc., as a landscape architect.

2000s

Carolyn Ford ('00 M.F.A.) shares her teaching talents in ceramics, graphics, and art appreciation at Limestone Col-lege in Gaffney, South Carolina, and at the University of South Carolina in Spartanburg.

IN MEMORIAM

1920s

Helen Ruth Bell Henderson ('22 Econ.), 92, December 21, 2003, Sequim. Taught in Opportunity and later in the Spokane Public School District for more than 20 years.

Paul Hungerford ('27 Acct.), 99, March 9, 2004, Ronald. Loan officer and branch manager for Seattle Trust and Savings Bank, where he worked for 40 years.

Gladys G. Murchland ('27 English, '27 History), 98, October 20, 2003, Grand-view. Teacher, bookkeeper, office man-ager, and farmer. Volunteer educator for WSU Cooperative Extension. Alpha Xi Delta sorority.

Dorothy E. Brown ('28 Educ.), 97, October 11, 2003, Spokane. Assistant executive for Camp Fire Girls, 1929-32, and executive and camp director, 1932-33. Served the organization in Eureka, California; South Bend, Indiana; and Spokane. Worked for the American Red Cross at Fort Lewis, 1943-44, and as a Red Cross field representative for California, Idaho, and Washington until 1950. Co-owner of Miller-Dervant, a costume and hair shop in Spokane, 1950-67.

1930s

Walter W. Cramer ('30 Elect. Engr.), 97, January 15, 2004, Hermiston, Oregon. Electrical engineer for Pacific Northwest Bell.

Viewing life through the lens of a camera

"It's almost like a job."
—Brian Miller

AFTER A DOZEN YEARS as a photojournalist with KIRO-TV, Brian Miller left the secu-rity of a television-station job in 1998 to start his own com-pany, Wide Angle TV.

Two factors influenced his decision—time and money. And he yearned to be inde-pendent.

He now works one-third as much as he did before and earns three times the money, he says. But the freelance business can be unpredict-able, subject to such variables as the weather and the econ-omy.

Miller won't venture a guess at an "average" work week. "There isn't any"—and he's fine with that. Some days he might put in 15-20 hours—when he's working. The downside is the time between assignments.

"It can get a bit frustrating," says the Washing-ton State University graduate ('86 Comm.). "I just try to keep the faith and know the phone will ring . . . sometime."

His assignments—with KIRO-TV and after—have been varied, sometimes risky. In 1996, KIRO wanted to report on the link between Seattle's Russian mafia and such activities as the importing of illegal goods, car theft rings, and extortion, he says.

Miller and reporter Neal Karlinsky spent 10 days in Vladivostok on the assignment. They gained access to the Russian mafia through busi-ness contacts in Seattle, Miller says, and through his interpreter. The team produced a three-part series entitled, *The Russian Connection*. For their effort, Miller and Karlinsky shared a second-place award in the 1996 New York International Film Festival.

Miller's other credits include two Northwest Regional Emmys: one for *China White*, a 1996



Brian Miller (right) with members of his crew for *The Next Joe Millionaire* shoot—Todd Yeager, audio, and Paula Abarca, camera assistant.

in-depth news piece about the heroin trade in Vancouver, B.C.; the other for his 1993 coverage of the Laguna Beach, California, wildfires.

As an independent cameraman, he can pick assignments that excite him. Last October he was on a Warner Brothers' lot in Los Angeles shooting interviews with cast members, including Keanu Reeves, of the movie blockbuster, *The Matrix Revolutions*. Earlier the same week, he was across town shooting a corporate video for Ruby's res-taurants.

In the summer and early fall 2003, he spent five weeks in various locations in Italy—Rome, Florence, Venice, and Pisa—and on the island of Sardinia, shooting scenes for the television show, *The Next Joe Millionaire*. Then it was off to New York on an assignment for MTV—*Making the Video*, a backstage look at the latest Britney Spears and Madonna music video.

"It's almost like a job," Miller says. "I'm in the Roman Coliseum. I'm on top of the Space Needle. I get to experience these things not only as a cam-eraman, but also as Brian Miller, citizen of the world."

—Gail Miller

Irene Nagel Reed ('30 Music Educ.), 94, November 6, 2003, Walla Walla. At WSU, she sang in the Glee Club and traveled with the musical, *The Mikado*. Retired after 25 years in ready-to-wear at Gardner and Co. Kappa Delta sorority.

Allie (Kalin) Thiel ('31 English), 94, December 30, 2003, Ritzville. K-12 teacher and librarian in Pateros, Brews-ter, and Ritzville.

Walter J. Robinson, Jr. ('32 Gen. St.), 91, December 2, 2003, Yakima. Grad-

uated from the University of Washington School of Law in 1935 and began prac-ticing in Yakima in 1937. Served in the U.S. Army for five years during WWII. Practiced law for 53 years, including time as a deputy prosecuting attorney, legislative counsel to the Washington State Legislature, and with a law part-nership in Yakima that began in 1947, specializing in trusts and estates.

Celia Theodorson ('32 Home Ec.), 92, September 30, 2003, Spokane. Teacher in Spokane.

Marvin Clarence Hougau ('34 Agri.), 93, April 5, 2004, Olympia. Manager of the WSU poultry plant, then transferred to Lewis County to be the poultry specialist in the agricultural extension office in Chehalis. Alpha Gamma Rho fraternity.

Joseph F. Caraher ('35 Educ.), 92, April 8, 2004, Klamath Falls, Oregon. Editor and publisher of the *Herald & News*, Klamath Falls, 1963-76, *The Daily Interlake*, Kalispell, Montana, 1958-63. Partner in the weekly *Eastside*

IN MEMORIAM *continued*

Journal, Kirkland, for 10 years in the late '50s and early '60s. WSU Alumni Association president, 1947-48 and 1977-78. WSU Alumni Relations director in late '30s. Lambda Chi Alpha fraternity. Memorials may be made to WSU Foundation, Towne Centre, Suite 301, Pullman, Washington 99164-1925.

John Murphy ('35 Bus. Adm.), 91, May 9, 2004, Spokane. President of the family-owned Central Pre-Mix Concrete Co. in Spokane, 1959-80. Worked for the company for more than 50 years, except for three years in the Navy during WWII. Retired in 1985. Major community philanthropist, with primary concerns for United Way and area education. WSU Benefactor.

William E. Mottram ('37 D.V.M.), 89, September 23, 2003, Lake Oswego, Oregon. Served in the U.S. Army during WWII. Veterinarian for the San Francisco Zoo.

Olive Blendheim Barker ('38 Fine Arts), 87, January 30, 2004, Beaverton, Oregon. Homemaker. Lived in Tacoma and Port Angeles before moving to Beaverton in 1998.

L. Franklin Lewis ('38 Elect. Engr.), 87, January 2, 2004, Tampa, Florida. Worked for General Electric in Schenectady, New York. Served in the U.S. Army during WWII. As the Signal Corps lead man on Attu, he conceived and executed the idea of using air defense systems to aid pilots who were lost or struggling to find landing strips in bad weather. Awarded the Legion of Merit. Transferred to GE's office in West Lynn, Massachusetts in 1967.

Donald L. Peters ('39 Forestry), 91, Bend, Oregon. Worked for the National War Mapping Project during WWII. Worked for over 37 years for the U.S. Forest Service. Retired in 1974 as assistant to the supervisor of the Deschutes National Forest. Helped organize and found the Mount Bachelor ski area.

William H. Westerman ('39 Educ.), 87, March 1, 2004, Cheney. Taught junior high for 40 years in the Toppenish, Waitsburg, Vancouver, and Othello school districts. Retired in 1972.

1940s

Emil Branch ('40 Pharm.), 85, March 12, 2004, Cle Elum. Captain in the Medical Corps during WWII. Opened Central Drug in Roslyn in 1946. With partner Don Garbolotto created Cle Elum Drug in 1967 and worked there until retiring in 1990.

Wilbert Fritz ('40 Animal Sci., '41 Educ.), 89, January 8, 2004, Spokane, stroke. Served in the U.S. Navy during WWII and 26 years in the Navy Reserve. Taught agricultural science in Spokane's Central Valley School District. Later,

vice principal of University High and principal of Greenacres Junior High.

James W. Nolan ('40 Speech), 85, March 6, 2004, Yakima, cancer. Pioneer in UHF television and radio. Known by thousands of children for *Uncle Jimmy's Clubhouse*. He brought the first television broadcasts to Yakima, Tri-Cities, and Lewiston-Clarkston in 1953 and 1954.

William J. Biggar ('41 Mech. Engr.), 86, February 23, 2004, Redmond, cancer. First out-of-state president of the WSU Alumni Association, 1976-77. Executive with Honeywell, Inc., for over 30 years. Sales executive in fire alarms and air condition control. Retired in 1980, then worked as a consultant. Moved to Redmond in 1993. Recipient of the WSU Alumni Achievement Award.

John Couch ('41 Entomology), 90, February 16, 2004, Hood River, Oregon. Orchardist and sales representative for DuPont agricultural chemicals. Retired to orcharding in Hood River in 1978.

Russel G. Perkins ('41 Metallurgical Engr.), 84, November 20, 2003, Rochester, New York, heart complications. Worked for the Civil Service Commission, and later transferred to the Armed Services Explosive Safety Board during WWII and served as technical director until 1978. Received the Meritorious Civilian Service Award for outstanding service to the government in 1978.

Howard E. Swenson ('42 Mech. Engr.), 83, March 20, 2004, Dublin, Ohio. Captain in the U.S. Army during WWII. Worked in management for General Electric for 39 years.

Leslie M. Baukin ('43 Pharm.), 84, February 10, 2004, Spokane. Officer in the U.S. Army during WWII, stationed in Daytona Beach, Florida, where he oversaw the physical rehabilitation program for returning soldiers. Worked for the Food and Drug Administration from 1946 until his retirement in 1974, when he was director of regulatory compliance. He then started a 20-year career as an international consultant with the Arthur A. Checchi consulting firm in Washington, D.C.

Charles W. Hayward ('43 Vet. Med., '44 D.V.M.), 84, February 8, 2004, Otis Orchards, pulmonary fibrosis. Owned a small- and large-animal practice in Colfax for 17 years. Sold the clinic in 1960 to work for the USDA in disease eradication out of the Spokane Valley. Retired in 1980.

Orland Soave ('44 D.V.M.), 83, April 28, 2004, Menlo Park, California. Head of the Division of Laboratory Medicine at Stanford Medical School for many years. Later worked in research at the National Institutes of Health in

Washington, D.C. He also earned a law degree, published a book on veterinary law and another on the animal-human bond, and served in the Army Air Corps during WWII.

Colleen L. Schrag ('45 Bact.), 80, February 4, 2004, Vancouver. Owned the Fabric and Sewing Center in Ritzville for eight years. Retired in 1976.

Margaret Pitts ('46 Chem.), 80, April 18, 2004, Tacoma, cancer. Assistant editor for the American Chemical Society's *Puget Sound Chemist* magazine. Member of Iota Sigma Pi, a chemistry honorary for women, and American Association of Testing Materials, where she contributed to the understanding of the hazardous potential of chemicals. Alpha Delta Pi sorority.

David M. Bell ('48 Elect. Engr.), 78, October 28, 2003, Portland. Electrical engineer for Bonneville Power Administration in Portland, 1948-80.

Charles R. Eggleston ('49 Animal Sci.), 79, January 27, 2004, Portland. Served in the U.S. Navy in the Pacific during WWII and in the U.S. Army during the Korean Conflict. Moved to Portland in 1980 as a livestock reporter for the *American Hereford Journal*.

Robert Kirkpatrick ('49 Educ., '53 M.Ed.), 90, January 16, 2004, Olympia. Served in the U.S. Marine Corps during WWII. Teacher, principal, and superintendent in several Washington state school districts and in Department of Defense Dependent Schools until his retirement from Klickitat-Glenwood-Trout Lake Tri-District in 1978. Lived in Olympia for past 20 years.

1950s

Edward H. Bolger ('50 Hotel & Rest. Adm.), 89, March 9, 2004, Beaverton, Oregon. Served in the Army Air Corps in New Guinea during WWII. Moved to Portland in 1962 as manager of two Manning's Cafeterias and then owned Ed's Corner in Forest Grove for three years.

Lester Braman ('50 Psych.), 84, October 23, 2003, Fairfield, Washington. Worked for Cominco Chemicals in Waverly. Retired in 1984.

Jack Doty ('50 Bus. Adm.), 78, January 17, 2004, Burlington. Served in WWII and the Korean Conflict. Commercial manager and later chief executive officer of the Skagit Public Utility District. Mount Vernon city councilman.

Arthur Haines ('50 Wildlife Mgmt., '50 Educ.), April 2004, Bellevue. Taught biology and botany, and also coached track teams at Bellevue High. Later taught botany and oceanography at Bellevue Community College. Spent summers as a ranger/naturalist at Sunrise, Mt. Rainier National Park.

Jeanne Serr Anderson ('51 Speech), 74, February 21, 2004, San Francisco, cancer. Worked in the broadcasting industry for radio stations in Anchorage, Alaska and New York, and for the Mutual Radio Network and CBS Television before joining San Francisco's first rock 'n' roll radio station, KOBV, in 1958. Elementary teacher in Marin County school districts. Active in Turn Toward Peace protesting the Vietnam War.

Steven Gittler ('51 M.A. Educ.), 77, March 12, 2004, Amherst, New York. Professor of education and business law in the graduate school at Buffalo State College from 1955 to 1996. Served as assistant dean of students and as director of the summer session and continuing education programs. He specialized in mediation as an attorney for the state Public Employment Relations Board in estate and real estate matters and contractual issues.

Romeyn Kruiswyk ('51 Animal Sci.), 81, September 28, 2003, Portland. Worked for the Western Farmers Association and Van Waters & Rogers.

Donald W. Peterson ('51 Geol.), 78, December 12, 2003, Albuquerque. Geologist and volcano expert for the U.S. Geological Survey. For many years he worked as scientist in charge of volcano observatories in Hawaii and at Mount St. Helens.

Phyllis Lucille Marshall Redshaw ('53 Entomology), 71, October 29, 2003, Lancaster, Ohio.

Edward J. Hengen ('54 Agri. Engr., '64 M.A. Agri. Engr.), 71, March 2, 2004, Niles, Michigan. Worked for more than 30 years in agricultural engineering designing combines and tractors for John Deere, Inc. and the Toro Co. Awarded more than a dozen patents.

Charles W. Kinney ('54 Bus. Adm.), 72, March 13, 2004, Spokane. At 19, he was one of the youngest golfers to win the Everett City Amateur Golf Championship. Officer and pilot for the U.S. Air Force. Stationed at Fairchild Air Force Base 11 of his 22 years in the service. Received Air Medal for meritorious achievement during military flights while assigned to duty in Southeast Asia. Sigma Nu fraternity.

Giulio Gobbato ('55 D.V.M.), 76, March 13, 2004, Palm Desert, California. Owned Sumas Veterinary Clinic in Sumas, California, 1955-85.

Ronald L. Bevensen ('56 Political Sci.), 69, December 21, 2003, Greensboro, North Carolina, post-polio syndrome. Worked for the FBI as a computer programmer, U.S. Office of Management and Business, for 30 years, and for NATO in Luxemburg as program manager of the Airborne Warning and

THE ART OF COMMUNICATING BY SIGNING

"I speak for them. I'm the bridge."

—Nancy Kikendall '02

FINGERS FLEW at a rapid pace for Nancy Kikendall during the 2002-03 academic year at Gallaudet University for the deaf and hard of hearing in Washington, D.C. She was among only a few hearing students accepted into the school's graduate program. The experience, she says, greatly improved her American Sign Language (ASL) skills.

"Anyone in the deaf community knows Gallaudet is the top of the top. It was an honor," said Kikendall, while relaxing at her Liberty Lake home near Spokane last November. About 98 percent of Gallaudet's 2,000 students are deaf or hard of hearing.

"Most classes are taught in sign, so you have to get better."

Abraham Lincoln approved the charter for Gallaudet in 1864 to create the comprehensive multi-purpose, higher education institution for the deaf and hearing impaired.

Kikendall was one of 10 students selected to enter the Master of Arts in Interpretation program, following a process that included a video application testing her ASL ability and a written goal statement. She credits her Washington State University education and achievement as a cum laude graduate ('02 Human Development) for playing a role in her acceptance.

After returning home last summer, Kikendall felt even more convinced of pursuing her goal to become a certified deaf interpreter. She spent three months as a freelance interpreter for the Eastern Washington Center for Deaf and Hard of Hearing in Spo-

kane, providing one-on-one help for deaf clients in medical appointments and in high schools.

"I help relay material the teacher is teaching," she says. "If the students have a question or want to express themselves in class, I speak for them. I'm the bridge."

She became interested in ASL when a class was offered at her Lynnwood, Washington, high school. The deaf instructor introduced an interpreter for the first class, and Kikendall thought the class would be a breeze. Then, the instructor told the students they'd no longer see an interpreter as they immersed

themselves in basic sign language.

At WSU, her ASL knowledge was already more advanced than the sign language courses offered, so she became a teaching assistant in ASL I and II. Since no bachelor's degree in interpreting was offered in Washington, she decided to focus on family studies and to minor in speech and hearing.

Although Kikendall wouldn't trade her year at Gallaudet, she found it challenging being in the minority as a hearing person. The intensive class work and ASL usage, as well as 9/11 anniversary fears and the 2002 sniper attacks, took their toll.

"I'm just taking a break," Kikendall says. "I was exhausted. Gallaudet was fascinating but frustrating when I couldn't express myself as fast [as I wanted]."

Mastering ASL language syntax is complex, which became apparent at Gallaudet.

"I felt it was time to focus more on the language of ASL, and then the concepts."

She gives an example of the English term, underwater. "There is no sign for that; you'd have to show it, such as 'WATER UNDER.' With 'close the door,' it's 'DOOR-CLOSE.' For 'the dog ran up the hill,' we'd sign, 'HILL, DOG RUN-UP.'"

"It's all completely different for ASL than it is in English. Time elements come first, such as, 'TOMORROW, STORE, I-GO.'"

While at Gallaudet, Kikendall's skills improved to the point where she now feels competent at listening to someone talk, and then turning around and immediately interpreting. She'll work up to simultaneous interpreting—signing what someone is saying as they're saying it. Her long-term goal is to work in the judicial or legal field as a legal interpreter for the deaf.

—Trevia Lind



Nancy Kikendall wants to become a legal interpreter for the deaf.

Control System surveillance system, 1992-96.

L. Dean Rainwater ('56 Marketing), 77, October 9, 2003, Spokane, cancer. Served in WWII and the Korean Conflict. Port of Woodland manager, 1981-87.

Virginia McIntyre Murad ('58 Sociology), 69, March 1, 2004, Portland.

Earned two master's degrees from the University of Wisconsin. Lived in Jordan and Egypt. Moved to Portland, Oregon, in the early 1960s to be a secretary for the city. For the past 12 years, she was the docent for the Oregon Zoo.

Philip Crosby ('59 Speech & Hearing Sci.), 69, January 13, 2003, Woodland

Hills, California. One of Bing Crosby's twin sons. In a short-lived show business career, he played small roles in films such as *Robin and the Seven Hoods* and *None but the Brave*. Sigma Nu fraternity.

Bonnie Jean Sweet Osterman ('59 Educ.), 66, March 10, 2004, Spokane, cancer. Taught elementary educa-

tion in southern California and in the Northwest.

Clayton "Denny" Ray ('59 Geology), 71, October 13, 2003, Ventura, California. Served in the U.S. Navy during the Korean Conflict. Geologist for the Department of the Interior. Retired in 1995.

IN MEMORIAM *continued*

Marilyn Williams ('59 Educ.), 66, January 14, 2004, Fresno, California. Special education teacher in the Modesto (California) School District for 16 years.

1960s

Robert D. Painter ('60 D.V.M.), 72, November 22, 2003, Helena, Montana. Owned Helena Veterinary Service.

James A. Hoffman ('61 Ph.D. Plant Path.), 75, February 26, 2004, Honokaa, Hawaii. USDA/Agricultural Research Service plant pathologist at WSU and Utah State University for 28 years. Internationally recognized authority on the bunt disease of cereals and wild grasses.

Patrick Henry Duren ('62 Engl.), 64, January 15, 2004, of Hillsboro, Oregon, died in England from injuries after being struck by an automobile. English teacher for 31 years at Beaverton and Aloha high schools in the Portland area.

Philip S. Williams ('63 M.Ed.), 76, March 18, 2004, Camano Island. Counseled junior high students in the Edmonds area until retiring in 1983.

Gary M. Ham ('63 Psych, '65 M.S. Psych.), 63, January 23, 2004, Redlands, California. Licensed clinical psychologist for the Riverside County Department of Mental Health, 1967-2004. Diplomate of the American Psychotherapy Association.

Jan Ann Uran ('65 Phys. Ed.), 60, January 24, 2004, Seattle. Taught elementary physical education, English, and social studies in Colfax, and later taught part-time in Shoreline. Received the Golden Acorn Award for service to children. Past president of the WSU Parents Association. Kappa Alpha Theta sorority.

1970s

Thomas Ross Wilkinson ('70 Ph.D. Bact.), 66, October 23, 2003, Seneca, South Carolina. During his 33 years in higher education, he served as department chairman at South Dakota State University, and associate dean and associate director of the Agricultural

Experiment Station at North Dakota State University. At Clemson University, he was dean and director of resident instruction in the College of Agricultural Sciences, professor of microbiology, and interim associate provost for academic affairs. Retired in June 2003.

Michael Haynes ('71 Zoology), 54, February 13, 2004, Puyallup, heart attack. Graduated from the University of Washington Medical School, 1975, and completed a family practice residency at Jackson Memorial Hospital in Miami, Florida. Practiced family medicine in Puyallup.

Shirley Lee Williamson ('73 Bact.), 53, April 15, 2004, Spokane. Worked for Hollister-Stier in Spokane for 28 years, and was most recently the director of quality control and product development.

Kevin L. Stephenson ('77 Political Sci., '83 Hist.), 40, March 7, 2004, San Diego. Practiced in the San Diego law firm Stutz, Gallagher & Artiano, beginning in 1985. Became partner in Shiftlet, Walters, Kane & Konoske in 1989. Joined the California Transportation Legal Division for State of California in 1989 as a staff litigator.

John Hovenkotter ('78 Agri.), 55, October 3, 2003, Portland, Oregon. Manager for Portland Parks and Recreation for 18 years. Later worked for Northwestern Mutual Life and Berg Electric.

Betty Heisler ('79 Bact.), 48, February 28, 2004, Colfax. Dietary manager of the Palouse Hills Nursing Center in Colfax and later dietary manager at the Whitman Health & Rehabilitation Center in Colfax.

1980s

Martha Louise Jack ('81 Ph.D. Phys. Educ., '90 Mech. Engr.), 58, February 14, 2004, Richland, ovarian cancer. Taught elementary physical education in the Chicago area before earning her master's and Ph.D. Later worked as an engineer for UNC Nuclear Industries in Richland and Westinghouse at Hanford. Recently started a bicycle fitting business through Bismarck Ergonomic Design. Founder of Cascade Clarinets and member of the Walla Walla and Mid-Columbia Symphonies.

Lt. Bishop S. Douglas ('82 Econ.), 46, April 17, 2004, Seattle. Communications officer for the USS *Downs* and later an engineering officer for the USS *Stanley*. Department head at the Fleet Training Center in San Diego, 1991-93.

James Hudson Dunn ('86 Political Sci.), 40, April 20, 2004, as the result of a fall in Everett. Longtime resident of Vancouver. Criminal defense attorney in Clark County for the past 14 years, in a partnership with his father.

THE TRIANGLE RANCH

McDonald at home on the range

"We just tightened our belts and learned to live within our means."

—Esther Johnson McDonald

AT 77, ESTHER JOHNSON MCDONALD is still active in the day-to-day operation of the 9,000-acre Triangle Ranch in Philipsburg, Montana, with her husband of 51 years, John W. "Pat" McDonald. The two met at a bull sale in Missoula. Her mother operated a ranch in Darby, so Esther had an idea what she was getting into. She also had the foresight to earn a degree in animal sciences in 1948.

In years past, she cooked for ranch hands while raising three sons and five daughters. The ranch is 75 miles southeast of Missoula in a mile-high mountain valley. "Some of the best feeder cattle come out of the Flint Creek Valley," she says. "It's a gorgeous place. You don't need to go anywhere else."

The Triangle Ranch has been in the family since 1865. "We're proud of our heritage, and being able to keep the ranch all this time," she says. Despite an erratic cattle market, the family never has come close to losing the ranch. "We just tightened our belts and learned to live within our means."

All eight children are college graduates. One lives in Boise. The others live in the immediate area.

The 2004 outstanding alumna in the Department of Animal Sciences attributes any success she's had to what she learned at Washington State University. Her mentor was M.E. "Gene" Ensminger, chair of animal sciences (1942-62), who wanted students in his Animal Husbandry 101 class to be well rounded.

She is past president of the Montana Cattle Women, Inc., and presently serves as the organization's legislative chair. She's active in the county and state Republican Party. She also spent a quarter century as a 4-H leader.

McDonald was one of six female students to enroll in animal sciences in 1944 and graduate together four years later. "The guys in our department treated us as equals," she says.

Everett Martin, longtime WSU animal sciences professor, praises McDonald as a role model for women seeking careers in animal agriculture. "She's accomplished her goals in a field of study once considered by many not fit for a woman." He reports that 36 of the 42 graduates in the animal sciences department for 2003-04 were women. She came to WSU because of her interest in agriculture, specifically animal nutrition. She arrived in Pullman in 1944 aboard a B-17 "Flying Fortress" with test pilot "Slim" Lewis at the controls. His boss was Esther's father, Philip Johnson, late CEO of Boeing, who passed away shortly before she enrolled.

—Pat Caraher



Esther Johnson McDonald lives on a ranch that has been in the family since 1865.

2000s

Scott A. Shindle ('02 Mech. Engr.), 24, April 5, 2004, Puyallup, stroke. Employed by Larson & Associates Land Surveyors & Engineers in Tacoma.

Brit Johnson (x'05 Ph.D. Aquaculture Engr.), 27, drowned while on a student internship in Israel on March 30, 2004.

Faculty and Staff

Pamela Bunderson, 48, February 1, 2004, Pullman, cancer. English as a Second Language teacher with the WSU Intensive American Language Center.

Perry C. Crandall, 88, February 29, 2004, Vancouver. WSU horticulture professor. Published more than 100 research papers. Wrote a technical book about growing bramble plants, such as raspberries, that was recognized worldwide.

Lyman Leslie Francis, 83, May 14, 2004, Rolla, Missouri, cancer. Taught mechanical engineering at WSU, 1952-63. Joined the University of Missouri-Rolla faculty in 1963, where he helped develop the engineering technology degree program. He received the James H. McGraw Award for outstanding contributions to the advancement of engineering technology education in 1980.

Abraham P. Hillman, January 19, 2004, Albuquerque. In 1938, among the top five contestants in the William Lowell Putnam Mathematics Competition, the most prestigious mathematical contest in North America. Taught at WSU and Santa Clara University before joining the University of New Mexico.

Cecil Howard, 71, March 18, 2004, Palouse. Plumber and tinsmith for WSU for 26 years. Retired in 1986.

Frances Sadoff, 87, February 2, 2004, Pullman. WSU associate professor in the management and administrative systems department, 1946-82.

Paula Lee Hoffman Swetik, 52, February 9, 2004, Deary, Idaho. Circulation manager of the WSU Holland Library. Retired in 1982.

Horace Telford, 94, March 30, 2004, Moscow, Idaho. Professor and chairman of the WSU department of entomology, 1947-75. Recognized by the American Association of Editors with the National Prize for Journalism. In the mid-1940s, he worked for private industry in Ohio, where he was the first person to discover that DDT accumulated in the food chain. After he retired from WSU, he went on to do research, advising, and teaching at the University of Curitiba in Brazil, the University of Florida, Gainesville, and Florida State A&M, Tallahassee.

KEATING JOHNSON: A passion for music



"His knowledge of music was absolutely enormous."

—Erich Lear

L. KEATING JOHNSON'S passion for music was sparked in the fifth grade, after he saw the Disney movie, *Sleeping Beauty*. That year he started tuba lessons. A few years later, at Denver's George Washington High School, he talked Antonia Brico into giving him conducting lessons.

He received bachelor's and master's degrees in music from University of the Pacific, Stockton, California, 1973, and University of Wisconsin, 1975, respectively. He earned a doctorate in musical arts at University of Southern California.

In fall 1983, Johnson was named director of bands at Washington State University, where he taught both conducting and tuba, and conducted the Wind Symphony and Symphony Orchestra. Somehow, he also found time to serve as music director and conductor of the Washington-Idaho Symphony, an association that spanned the past 16 years.

A year and a half ago, Johnson was diagnosed with brain cancer. After surgery and treatments, he continued to teach. His 18 years on the WSU Music and Theatre Arts faculty finally ended April 6, 2004 when he

died at his Pullman home. He was 53. He and his wife, Janet Wiita Johnson, would have celebrated their 31st wedding anniversary 10 days later.

"Keating was a phenomenal tuba player, and had a great knowledge of the wind literature," says David Jarvis, associate professor and coordinator of percussion studies at WSU. As a member of the Washington-Idaho Symphony, Jarvis was equally impressed with Johnson the conductor. "He was able to communicate what he wanted through the baton. That's a gift."

Erich Lear, who directed the School of Music and Theatre Arts from 1989 to 2000, remembers Johnson as more than a colleague. "It was clear that his contributions as a conductor were at a very high level," he says. "His knowledge of music was absolutely enormous."

Johnson's professional associations included the Conductors Guild, the National School Orchestra Directors Association, the College Band Directors National Association (president of the Northwest Division), the National Band Association, TUBA—now renamed ITEA, the International Society for the Research and Development of Wind Music (Graz, Austria), the Music Educators National Conference, and the American Symphony Orchestra League.

On sabbatical, the Johnsons traveled often to Germany, especially Berlin, where Johnson studied. In 1998, he served as one of five experts for the documentary television production, *Parademarsch und Platzkonzert* for Sender Frei Berlin public television in Germany. That same year, he guest-conducted the Potsdam Polizei Orchester. He also guest-conducted the Pleven (Bulgaria) Philharmonic in 2001.

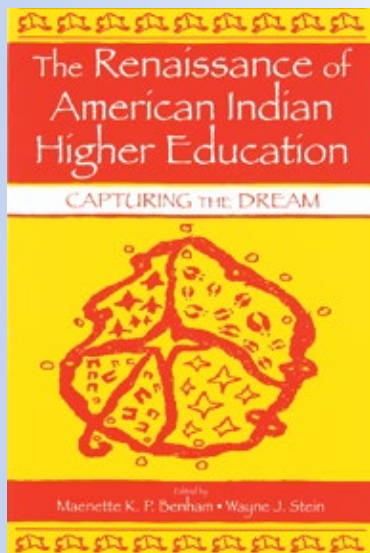
Some of his research focused on the work of Wagner and the *Trauer Symphonie* and the marches of Wilhelm Wieprecht, a German predecessor to John Phillip Souza.

"He had an in exhaustive desire to talk about music," Jarvis says. Janet Johnson agrees. "One of the reasons he was such a good teacher was that he really loved music. He loved sharing music with others."

Memorial gifts may be made to the Washington-Idaho Symphony or the Mu Phi Epsilon Scholarship Fund at WSU, c/o the WSU Foundation, PO Box 641927, Pullman, Washington 99164-1927.

—Pat Caraher

BOOKS, etc.



The Renaissance of American Indian Higher Education: Capturing the Dream

Edited by Maenette Kape'ahio Kalani Padeken Ah Nee-Benham and Wayne J. Stein ('88 Ed.D.)
Lawrence Erlbaum Associates, Mahwah, New Jersey, 2003

Much of the effort of American Indian education in recent years has been to reverse the effects of the deadly programs of the past, when the schools most Indians had access to were procrustean institutions, to which they were required to adjust, or fail. The intent of this book is to document the story of the Native American Higher Education Initiative (NAHEI) and the concept of the tribal college movement. The NAHEI is identified as a partnership of the W.K. Kellogg Foundation with the tribal colleges and universities, three federal schools, four national American Indian educational organizations, and mainstream institutions of higher education whose programs focus on meeting the needs of Native American students. The individual chapters can be regarded as descriptions of how difficult the road is not just to reverse bad programs, but to actually create structure where there had been none, and then make progress toward a renaissance under challenge.

The book's 23 contributors discuss a variety of questions related to these issues, including the need for a working philosophy as a foundation for a tribal college, governance and finance, linkages between tribal colleges and state colleges and universities, and accountability.

While there are no easy answers to any of these questions, some of the issues discussed are especially challenging.

Valorie Johnson, Matthew Jason Van Alstine, and co-editor Benham, for example, query the grounding elements of native leadership that move educational policy, practice, and change among tribal college leaders. What practical skills enhance the work of college leaders? What can be done to ensure greater numbers of highly trained educational leaders?

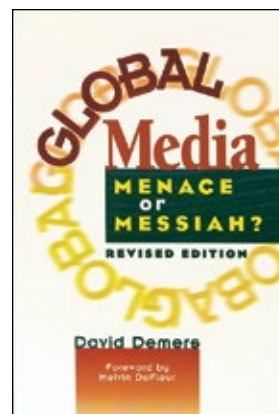
Van Alstine, Colleen Larimore, and D. Michael Pavel of WSU's College of Education face a problem at least as difficult: Where are the teachers for the tribal colleges going to come from? They call for teacher training in culture and language skills, in addition to the technical matters of education. But where do the instructors of *those* teachers come from? If the answer is the elders of the indigenous communities, then how does one deal with the fact that the numbers of those elders become fewer each day? Given those circumstances, training in culture and language skills must be done by those who may not be natives themselves, but who have learned these skills through experience and study. In fact, it may be that one way of selecting teacher candidates is to choose from among those, whether native or not, who express a willingness to be trained in the needed skills. Training programs could be developed around core people who can transmit their knowledge of indigenous skills and language to groups of teacher candidates, thus achieving a multiplier effect of one person training 10 or 20 others. After five years, such programs would result in a very healthy increase in the number of instructors.

John W. Tippeconnic III and Smokey McKinney write to the problems of native faculty development and scholarship. There are not enough faculty to meet the demand, they have limited resources, they teach incredible class overloads. Research, scholarship, and faculty development just don't happen under such conditions. As for the numbers of Indian faculty at both tribal colleges and mainstream institutions, they are not large. One tribal college has the largest proportion, 66 percent. Obviously, non-Indian faculty are carrying much of the burden of teaching at present and will continue to do so for the foreseeable future.

The Renaissance of American Indian Higher Education may be read as an account of the struggles of building education programs for a population which, until only the past few

decades, did not have access to schools planned for their needs. For well over a century, Indian children were forcibly taken to prison-like federal-Indian boarding schools, where the speaking of indigenous languages was forbidden under threat of physical punishment. By contrast, the schools under discussion in this book are concerned about such things as the teaching of indigenous languages—a much more positive effort.

—William Willard, Professor Emeritus,
Department of Anthropology,
Washington State University



Global Media: Menace or Messiah?

By David Demers
Revised Edition, Hampton Press,
Cresskill, New Jersey, 2001

Revealing the answer to the question posed by the title of this book by David Demers, associate professor of communication at Washington State University, will not deprive anyone of a reason to read it. Global Media, the planet-embracing corporations like Time Warner and Disney that bring us information and entertainment, are neither menace nor messiah. Few prospective readers would suspect the latter. The book's value lies in its refutation of the former, a charge popularized by Noam Chomsky and other Jeremiahs of the left.

The charge—that the corporatization and consolidation of media organizations lead inevitably to their uncritical acceptance of powerful institutions and failure to propagate a diversity of ideas—is plausible enough. Who, after all, cannot be concerned by predictions that within the next decade more than half of all communication media revenues will flow to fewer than five companies?

The only problem with the charge, Demers argues persuasively, is that it is not true. Just as newspaper employees recognize that local ownership does not necessarily result in greater independence for them, Demers shows that turning control of individual media organizations over to professional managers often results in more criticism of dominant values and presentation of a greater range of ideas.

This "managerial revolution" supplanting direct control by owners, Demers writes, "is the most underappreciated trend in the media industry today." He attributes the failure to acknowledge it to "the overwhelming bias among mass communication scholars toward any perspective that may even hint that corporations have the potential to pursue goals other than profits."

Demers does not assert that bias withers as organizations become more complex, though. Their enduring bias, he says, is toward the mainstream, including what we call conservatism and liberalism, and against extremes on both ends. And insofar as global media organizations are centered in the West, they are biased toward Western values of responsible capitalism, representative democracy, religious and ideological tolerance, and racial and sexual equality.

To people who do not share those values, global media may indeed look like a menace. To the rest of us, they will probably resemble not so much a messiah as an 800-pound gorilla we can live with.

—Jim Fisher '69, Editorial Page Editor,
Lewiston Morning Tribune

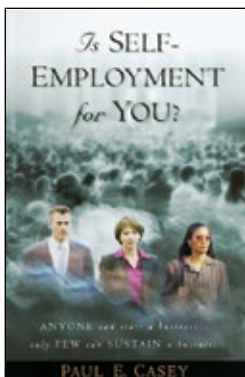
Is Self-Employment for You?

By Paul E. Casey '75
Hara Publishing Group, Seattle, 2004


Anyone can start a business, but only a few can sustain one. That's the premise of Paul E. Casey's new book, *Is Self-Employment for You?*

Casey Communications Inc., the company he founded in Seattle in 1988, is still going strong. He attributes his success in selling and placing broadcast and print advertising to hard work, continuous "cold calls," and "street smarts." In his book, he shares some of the mistakes those in business for themselves make, and discusses how those pitfalls can be avoided.

It's not the business plan that dictates whether you will be successful, but rather your experience—particularly life experiences, Casey con-



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CHANGE AND CANCELLATION POLICIES APPLY. RATES AND SCHEDULE SUBJECT TO CHANGE.

tends. Some of his theories are “radically different” from conventional wisdom. For example, many businesses fail because they have too much money. He learned the hard way that the customer is not always right. A client once left him with an unpaid bill of \$10,000 on a transaction. To stay afloat he had to move out of his four-bedroom home. Working on his own for 15 years taught him that competitors can be your best friends. And failure can be a friend, too.

Casey suggests that prospects for success as an entrepreneur will be determined before you even get a business license. Business mindset and personal lifestyle decisions must be strong considerations first. He devotes a full chapter to the downside of forming a partnership. Why double your expenses and reap only half of the rewards?

Some entrepreneurs take the plunge for the wrong reasons or at the wrong time. Casey addresses both. He talks about location, keeping overhead low, hiring “free agents” for certain tasks, learning to delegate, and trouble signs. He also offers seven steps that should be considered by those thinking about creating their own business.

Casey leaves little to chance—from organizational skills to telephone etiquette and effective business cards. “Getting the name of your business right is the most important decision that you will ever make,” Casey says.

He adds, “Knowledge is power. The more you know about the way things really work in the world of self-employment, the better prepared you will be to face what lies ahead.”

Casey, a 1975 Washington State University graduate in political science, was a two-term ASWSU president in 1973-74 and 1974-75. For more information, contact Hara Publishing, 425-775-7868.

—Pat Caraher

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BILL WAGNER

News from the
WASHINGTON STATE UNIVERSITY FOUNDATION

Future Cougars of Color

Program Makes a Vision Real

WASHINGTON STATE UNIVERSITY'S student recruitment staff knows that prospective students who visit the Pullman campus are more likely to attend WSU than those who don't visit. That's why the recruiting team wants to bring high-achieving students of color to campus to give them firsthand knowledge of the wealth of academic options and support programs offered at WSU.



Last spring, 66 students of color with an average GPA of 3.57 attended the innovative Future Cougars of Color (FCOC) recruitment and scholarship program, where they met with student mentors, got a glimpse of campus life, and attended a dinner program during which they heard from Regent Ken Alhadeff and President V. Lane Rawlins. To date, more than 65 percent of the students who participated in the FCOC program have confirmed their enrollment for fall 2004—an impressive rate of response, as institutions across the United States compete fiercely to recruit and retain high-achieving students.

"WSU's strategic plan directly addresses the role of diversity in a world-class institution," Rawlins says. "To be the best that we can be, we have to compete for high-achieving students from all economic and ethnic backgrounds, many of whom are offered scholarships and incentives to attend top universities. We liken competition for the top academic performers to recruiting a winning athletic team. We have to convince them that WSU is the best place for them to achieve their goals."

FCOC was made possible through the support of a number of private donors. The Bon-Macy's provided scholarships for participants in the program, as well as event sponsorship. Other donors, including the Ken and Marleen Alhadeff Charitable Foundation, Nordstrom, Safeco, Washington Mutual, Frank and Charlene Blethen, Sally and David Savage, and more than 300 other individuals, contributed more than \$75,000 to get the inaugural program underway and provide scholarships for FCOC attendees who have chosen to attend WSU.

The Second Annual Bon-Macy's Future Cougars of Color Diversity Scholarship Luncheon will be held on Friday, September 10, 2004, from 11:30 a.m. to 1:00 p.m., at the Bon-Macy's in downtown Seattle (Third & Pine). For more information, or to purchase tickets, call the WSU Foundation Office of Scholarships and Diversity at 509-335-2103, or email mrbowen@wsu.edu.

a THOUSAND WORDS



Women's gym jubilee, circa 1911, Washington State College. From *Going to Washington State: A Century of Student Life* written by William L. Stimson as one of three centennial histories.

25th Anniversary *Spotlight*

WASHINGTON STATE UNIVERSITY FOUNDATION

Corner Drug

Owners Provide a Cornerstone for WSU's Pharmacy Program

FOR MORE THAN 50 YEARS, Pullman pharmacists Jim and Trudy Reavis ('39 & '38 B.S. Pharmacy) have supported Washington State University, the community of Pullman, pharmacy students, and fellow professionals in extraordinary ways.



Annual gifts from Jim and Trudy enrich pharmacy programs and scholarships at WSU. They have never missed a year, going back as far as the WSU Foundation has records! Their Pullman businesses, Corner Drug and Family Center Pharmacy, employed hundreds of pharmacy graduates and student interns over the years. The couple devoted countless hours to business, civic, and service organizations in Pullman. They served the Washington State Pharmacy Association with distinction and established a remarkable legacy within the profession. As Pharmacy dean Bill Fassett notes, "Jim and Trudy set high standards of professionalism and commitment to the profession of pharmacy, locally, regionally, and nationally."

Personal contact with customers was one of the most enjoyable aspects of pharmacy, Jim asserts. "I always tried to treat everyone the same and greet them by name," he says. His gracious manner and compassion impressed customers, colleagues, and students such as Mike Poch ('75 B.Pharm.), who was a pharmacy intern at Corner Drug. "You can't help but admire Jim. He took good care of his customers; he always put the patient first," attests Poch.

When Trudy died in November 2000, Jim established a scholarship at WSU in her honor. Trudy was the first WSU woman pharmacy graduate to earn a doctorate in pharmacy (University of Minnesota, 1943) and the first woman president of the state pharmacy association (1984-85). She opened doors for succeeding generations of women in pharmacy.

Gretchen McLean ('02 Pharm.D.) was the first recipient of the Trudy Reavis Memorial Women's Pharmacy Scholarship. She admires Trudy's advocacy, saying, "Trudy had vision for both women and men. She recognized that pharmacy would be full of opportunity."

As the WSU Foundation celebrates its 25th anniversary, the spotlight series will profile individuals and organizations who have been making a difference to the students, faculty, and staff of Washington State University for more than 25 years.

WHAT'S YOUR LEGACY?

DEAR MR. BEARDSLEY,

The cost of attending Washington State University and pursuing my goal to become a veterinarian has been a great financial burden for my family and me, and I would not be where I am today if it were not for support from people like you.

I greatly appreciate your generosity and assistance, and hope to someday follow your example and give back to the students that will be working to complete the same goals and dreams I now pursue. It truly means a lot to my family and me.

Sincerely,

Alicia Gores '05, Zoology/Pre-Vet Med

Alicia Gores is a 2004-05 recipient of the Beardsley Family Foundation Veterinary Medicine Honors Scholarship, which encourages and rewards students participating in the Honors College Veterinary Medicine Program.



For more information about creating your legacy, contact the Gift Planning Office at 800-448-2978.

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