Connecting Washington State University, the State, and the World • Summer 2003

Washington State magazine

Cover story

It's Not Easy to Mimic Nature

A Humble Northwest Firm Wins Big
The World's Smallest Motor
Cooking for 7,000

SUMMER 2003
VOLUME 2, NUMBER 3

Washington State magazine

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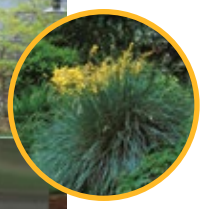
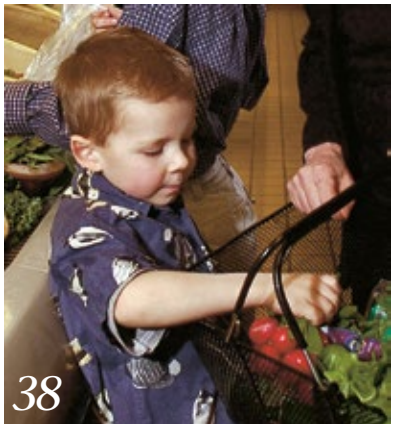
Cover: Shohom Bose Bandyopadhyay, son of Amit Bandyopadhyay and Susmita Bose, has perfected the art of bone-building. See story, page 20. *Photograph by Robert Hubner.*



panoramas

tracking the cougars



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VOLUME 2, NUMBER 3, SUMMER 2003

WORLD WIDE WEB: washington-state-magazine.wsu.edu

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Washington State Magazine
PO Box 641227
Pullman, WA 99164-1227
E-MAIL: wsm@wsu.edu
FAX: 509-335-8734

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

TO SEND THIS MAGAZINE: *Washington State Magazine* is distributed free of charge to graduates, donors, faculty, and staff of Washington State University. With a gift of $25 or more, you can have *WSM* sent to someone who is not currently on our mailing list. For details, go to http://washington-state-magazine.wsu.edu/send.html or contact Sherri Hemphill at 509-335-1686, hemphill@wsu.edu

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LETTERS

PETER CHILSON

Memories of West Africa

Peter Chilson's "Homage to a Difficult Land" [*WSM*, Spring 2003] brought back memories of West Africa from 1959-64, when I worked as an ecologist in Sierra Leone and Ghana. Then the land was not exhausted, so that incorporating newer ideas into the local practices was comparatively easier. I admire Dr. Oumar Badini's courage in undertaking the uphill task of helping his motherland become self-supporting. I could follow with ease Chilson's references to towns and countries of the Sahel region; however, I think most *WSM* readers would have benefited greatly from the inclusion of a map of West Africa.

On another note, I was able to follow the plant names in "A Sense of Place," but a large number of WSU alumni living outside the Pacific Northwest, and especially those in other countries, would have difficulty with the common plant names. I suggest that *WSM* use both the botanical and common names of plants.

I must add that *WSM* has come of age. It is a pleasure to receive and read it. My congratulations to all its staff. Keep up; keep on!

Trilochan S. Bakshi, '58 Ph.D. Botany
Edmonton, Alberta, Canada

Correction: In *WSM,* Spring 2003, a story incorrectly noted that John W. "Jack" Creighton remains on the board of the UAL Corporation. He resigned from the board when he retired as CEO.

Say What?

DAVID WHEELER

I cannot let your major error in history, geography, and international politics slip by without asking for a retraction and clarification. In the bio for author Nathan Mauger [*WSM,* Spring 2003], it is stated that he has reported from "the United States, China, Palestine, and Iraq." Where is "Palestine"? After seven trips to the Middle East, I have yet to find any place with this name. Can you provide information as to its boundaries, date of its founding as a state, type of government, governing bodies including legislators, capital city, ethnic background of its citizenry, etc.?

I believe you will not be able to do this. The term "Palestine" has been used in the past to designate the area that is now Israel, but it never was an official name for any identified land with boundaries. There are no indigenous "Palestinian" people, except for native born Israelis. Those using the term today are only Jordanian Arabs that had to leave Jordan and were forced to leave. Any attempts to show a tie to the land of Israel is fictitious and fabricated.

Cathy Manos Sherman '70

Although we admit to a certain geographical vagueness, we also defer to the word's usage as defined by Encyclopedia Britannica *as an "area of the eastern Mediterranean, comprising parts of modern Israel and Jordan."* Britannica *continues: "The term Palestine has been associated variously and sometimes controversially with this small region.* Both the geographic area designated by and the political status of the name have changed over the course of some three millennia *[our emphasis]. The region, or a part of it, is also known as the Holy Land and is held sacred among Jews, Christians, and Muslims. In the 20th century it has been the object of conflicting claims of Jewish and Arab national movements . . . ."*

"Palestine," Encyclopedia Britannica Online. www.search.eb.com/eb/article?eu=115032.

Fortunate Soldiers

Of the 250 17-year-olds (all became 18 between 10-01-1944 and 12-31-1944) who were cadets in the Army Specialized Training Reserve Program (ASTRP) at Washington State College (from 7-05-1944 through 12-30-1944), 160 are still alive. Our commanding officer, Capt. Henry J. Butherus ('36 Gen. St.), a member of the 1931 Cougar Rose Bowl football team, lives in Walla Walla.

The group of 250 earned more than 200 bachelor's degrees, including over 20 at WSC, more than 50 master's degrees (two from WSC), 11 Ph.D.s, 10 M.D.s, one D.V.M. (from WSC), three dental degrees, one Doctor of Optometry degree, three Ed.D.s, one Doctor of Divinity, four pharmacy degrees, four architecture degrees, 17 law degrees, and six professional accounting certificates. Three individuals became chief executive officers of national corporations.

While no one from the group was killed or wounded in World War II, one was killed and several wounded in the Korean War. Six served as senior-grade field officers in Vietnam. Luckily, no one was killed [in that conflict].

In his book, *Fortunate Soldiers (or soldiers of fortune),* Robert J. Glotzbach, an ASTRP member, tells of the experiences of these young men at WSC (they lived in Ferry Hall), what happened to them in the war years, their careers in civilian life, and a history of their reunions. The book was published in 1997 by Regeneration Resources, P.O. Box 181, Glen Ellen, California 95442.

Hector Thomas Garcia
Co. A, ASTRP Unit 2923
Washington State College
5-05-1944 through 12-30-1944
Grass Valley, California

The Shadow of Death

My husband, Robert W. Meyer, Sr. ('50 Mech. Engr.) attended WSU on the GI Bill after serving in the Army during WWII. He was captured December 18, 1944, during the Battle of the Bulge, while defending the town of Diekirch, Luxembourg, under attack by the German army.

We have traveled back to Luxembourg many times since Bob retired in 1980. In 1982, we found the place on a hillside where he was captured. Until that time, he had not talked of his experience as a prisoner of war.

We were fortunate to meet a former German soldier, Gunther Bach, who had been at the battle site. He was with a bazooka crew and had volunteered to take out the machine gunner walking toward them beside a Sherman tank. He failed. Bob was that machine gunner.

In 1992, Gunther took us to Neubrandenburg, Germany, and the sight of Stalag IIA, where Bob had been held.

I started to put Bob's story in book form in 1992. We thought our children and other family members should know of his POW experience. *The Shadow of Death* tells of Bob's capture, his will to live, and his fight for survival. The 239-page book with more than 100 photos and illustrations is now in its second printing.

In the Spring issue of *WSM, y*ou asked the question: "Written a good book lately?" We believe we have.

Phyllis O. Meyer
Belfair, Washington

For information call 360-275-6450, or e-mail the Meyers at pomeyer@hctc.com

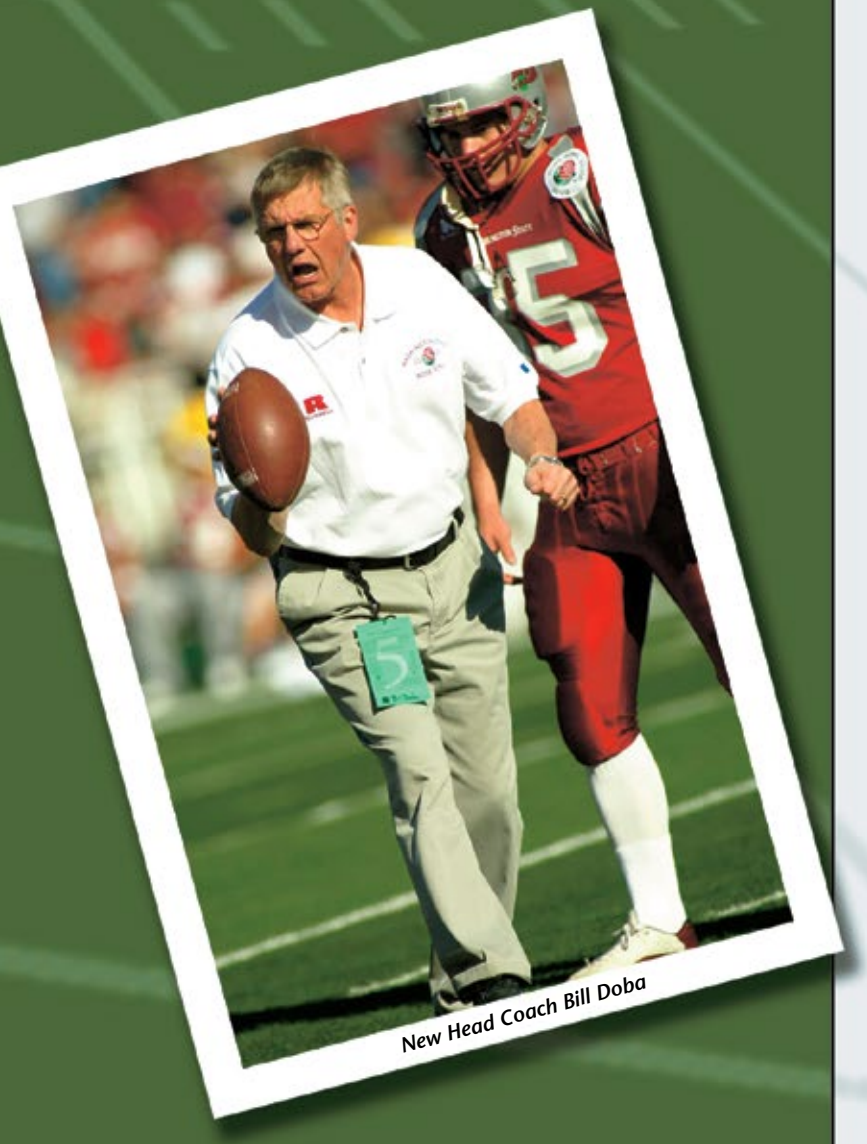
2003 COUGAR FOOTBALL

2003 Rose Bowl

2002 Pac-10 Champions

2001 Sun Bowl

The Cougars 20 wins in the last two seasons ranks #1 in the Pac-10 and #8 in the country



New Head Coach Bill Doba

2003 SEASON OUTLOOK

THE BILL DOBA ERA BEGINS

When Washington State takes the field to open the 2003 football season Aug. 30, a new era will officially be underway. Head Coach **Bill Doba** will make his debut as the leader of the Cougar Nation, and though some familiar faces from last year's Rose Bowl run are gone, the cupboard is far from empty.

Doba has served as WSU's defensive coordinator for the last nine years, so it's no surprise that his first team will be spearheaded by a deep group of returning defenders. The front four will be among the Pac-10's best, even with the loss of Outland Trophy winner Rien Long. Senior tackles **Jeremey Williams** and **Faafetai Tupai** will man the middle, while **Isaac Brown** and **D.D. Acholonu** will look to improve upon their combined career total of 35 sacks off the end.

Sophomore **Will Derting** will lead a group of linebackers that returns seven of its top eight from last season. **Al Genatone** is a steady contributor on the outside, while **Pat Bennett**, **Don Jackson**, and **Kevin Sperry** gained valuable experience a year ago.

The secondary will be led by free safety **Erik Coleman** and cornerback **Jason David**. Coleman led WSU with 86 tackles last season, while David led the nation in interceptions per game.

On the offensive side, quarterback **Matt Kegel** will get his opportunity to direct the WSU offense, and will have plenty of weapons at his disposal. The wide receivers will be led by All-Pac-10 honoree **Devard Darling**, who tied WSU's single season touchdown receptions record with 11. **Sammy Moore**, who averaged over 30 yards per catch in 2002, **Scott Lunde**, and **Trandon Harvey** will join Darling. Tight end **Troy Bienemann** had an impressive freshman campaign. In the backfield the Cougs will look to **Jermaine Green** with his game-breaking ability.

SCHEDULE

August	**30**	**IDAHO IN SEATTLE** **Seahawks Stadium**
September	6	@ Notre Dame
	13	@ Colorado
	20	**NEW MEXICO** **Future Cougar/Band Day**
	27	@ Oregon
October	**4**	**ARIZONA** **Homecoming**
	18	@ Stanford
	25	**OREGON STATE** **Dad's Weekend**
November	1	@ USC
	8	**UCLA** **Armed Forces Day**
	15	**ARIZONA STATE**
	22	@ Washington

2003 VISITORS

IDAHO in Seattle
AUGUST 30

Washington State Football enters a new era Aug. 30 when the Cougars tackle Idaho at Seahawks Stadium in Seattle.

The game will mark Bill Doba's debut as head coach. Doba's defensive unit has only given up three scores to the Vandals in the last two seasons.

Idaho will look to quarterback Brian Lindgren of Walla Walla to lead the passing attack. Lindgren threw for 2,763 yards and 19 touchdowns during his junior campaign.

NEW MEXICO
SEPTEMBER 20 (Band Day and Future Cougar Day)

The Cougars open Martin Stadium with the upstart New Mexico Lobos.

The Lobos finished 7-7 a year ago against a schedule that included North Carolina State, Texas Tech, Air Force, and UCLA. New Mexico earned a trip to the Las Vegas Bowl to conclude the season.

Sophomore tailback Dontrell Moore will be a handful for Washington State's talented front four, as he rushed for 1,201 yards and scored 13 touchdowns as a freshman.

ARIZONA
OCTOBER 4 (Homecoming)

Homecoming will be a battle of the cats as Arizona returns to Martin Stadium for the first time since 1999.

Washington State has been victorious on Homecoming each of the past two years, and also owns a two-game win streak over John Mackovic and the Wildcats. The last meeting between the two teams in Pullman ended with a controversial Hail Mary pass to the end zone with no time remaining, giving the game to UA.

OREGON STATE
OCTOBER 25 (Dad's Day)

The Beavers should be among the pre-season favorites to win the conference, as they return a solid nucleus of players from a team that won eight games in 2002 and played Pittsburgh in the Insight.com Bowl.

The Orange and Black will be led by junior running back Steven Jackson, who emerged as one of the elite running backs in the nation as a sophomore, rushing for 1,656 yards and 15 touchdowns.

UCLA
NOVEMBER 8 (Armed Forces Day)

New Head Coach Karl Dorrell will try to put an end to UCLA's three-game losing skid on the Palouse, which included an emotional 20-14 WSU victory over the Bruins in 2001.

UCLA has plenty of returning weapons on offense, including diminutive sophomore running back Tyler Ebell, who rushed for over 900 yards and nine touchdowns in his freshman campaign. Receivers Tab Perry and Craig Bragg combined for 86 catches and 1,547 yards.

ARIZONA STATE
NOVEMBER 15

Washington State's 44-22 victory over Arizona State last season ended the Sun Devil's Cinderella run toward the Pac-10 crown. With an All-America candidate at quarterback and a speedy defense, ASU should be back in the hunt in 2003.

Third-year head coach Dirk Koetter's air attack will be piloted by junior signal caller Andrew Walter, who threw for 3,877 yards and 28 touchdowns last year.

SEASON TICKET INFORMATION

Reserved Season: $135
With several sell-out games last season, don't get caught without your ticket into Martin Stadium. Purchasing a season ticket is the best way to guarantee you'll see all the action and excitement of Cougar football. Season ticket package does not include the Idaho game.

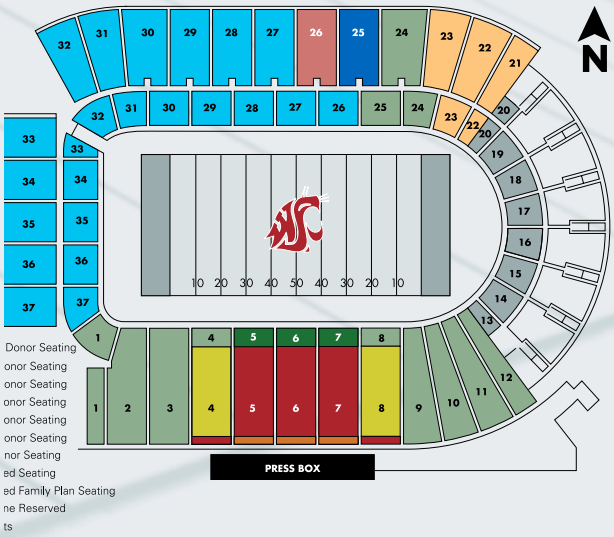
Faculty/Staff: $120
Full-time faculty and staff at WSU can purchase up to two season tickets at this special discounted rate. Payroll deduction over a 3 month period is available. Does not include the Idaho game.

Family Season: $259
A great deal for the family that enjoys cheering on the Cougs together. A family of four (two adults and two youth or one adult and three youth) may sit in the Northwest Dodge Family Fun Zone for the entire season. Extra youth season tickets can be added to the family plan for just **$50**. Does not include the Idaho game.

Faculty/Staff Family Season: $220
Full-time faculty/staff are eligible to purchase a family season pass at a discounted rate for a family of four (two adults and two youth or one adult and three youth). Extra youth season tickets can be added to the family plan for just **$50**. Does not include the Idaho game.

Cougar 3-Pack: $72
Can't make all the home games this season? The Cougar 3-Pack is the way to go. New Mexico (Home Opener), Arizona (Homecoming), and Oregon State (Dad's Weekend).

WSU vs. Idaho (Seattle): $10-$40
Tickets can be purchased on-line at TicketMaster.com or by phone at 206-628-0888 beginning June 1, 2003.



1-800-GO COUGS option 3
wsucougars.com

TICKETS ON SALE NOW

WASHINGTON STATE UNIVERSITY FOOTBALL

GASSING UP IN THE WILD BLUE

U.S. AIR FORCE

Cadets get a taste of their future

FOR ALL BUT ONE of the Air Force cadets, this is their first flight aboard a KC-135R Stratotanker. Someday all six want to jockey Air Force F-16 fighter jets, helicopters, or the big refueling planes.

"Aviation is a field people want to pursue at a young age," says Jay Weaver, a sophomore business management major from Pomeroy. "That was me." He considered attending the Air Force Academy but wanted a college life, too, so chose Washington State University.

"I like what we are doing today," he says, looking ahead to the three-hour flight over the Idaho panhandle and western Montana. "It gives us a good feeling about the Air Force."

Jennifer MacLennan of Pullman completed a degree in architecture last May. Now she's seeking a degree in Spanish and an Air Force commission. Her goal is to fly helicopters. She admits the current world situation scares her a bit—"the uncertainty of not knowing what is going to happen."

While most of Jacob Olds's friends are curious about his involvement in AFROTC, they are supportive. The junior in biology from Mountain Home, Idaho has wanted to fly F-16 jets since he was 10.

After boarding the KC-135R at Spokane's Fairchild Air Force Base, the cadets look for a place to stow their box lunches under the canvas seats. U.S. Air Force TSgt. Joe Riener moves through the cargo bay distributing packets of spongy yellow earplugs.

"Anyone nervous?" he asks in jest. "I wish I wasn't."

Riener has made more than 1,800 flights, many as a boom operator on the big tankers. He is a member of the 92nd Air Refueling Wing at Fairchild, where the WSU and University of Idaho cadets are guests on this Friday in mid-November.

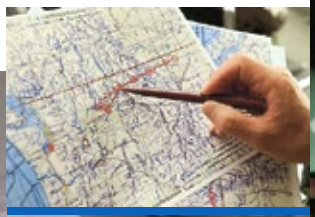
Col. Yoshio Smith, commander of AFROTC Detachment 905 at WSU and chairman of aerospace studies, arranged the visit.

"This is one of the ways we get students excited about what we do," he says. "This is real world, face to face."

An hour before takeoff, Smith lays an eight- by-11-inch map on a table in the command room and explains the mid-air refueling exercise to the cadets. The KC-135R will hook up with a C-17A Globemaster from McChord AFB, Tacoma.

After completing the pre-flight checklist, pilot Col. Dan Simmons says, "Take a deep breath. We're ready to rock and roll." When the Stratotanker levels off at 26,000

Below: Col. Yoshio Smith, right, discusses the flight plan with cadets.
Right: The refueling flight occurred over northern Idaho and western Montana.



PHOTOS BY ROBERT HUBNER

feet, the cadets are free to visit the cockpit, try on headsets, and tune into the exchange between the pilots, navigator, and Riener. He has taken his prone position in the boom bay beneath the plane's tail. Gripping a joystick in his right hand, he peers through a three-by-one-foot-wide window. The 30-foot boom trails below at a 30-degree angle. Four cadets lie on their stomachs in the bay, two on each side of him. They are riding on 30,000 gallons of gasoline, wrapped in the aluminum of a $39.6 million tanker. The C-17A arrives for the rendezvous and closes in less than 23 feet behind. The planes are cruising at 450 mph.

"If you let a gas pump at the gas station run 24 hours straight, you couldn't offload as much gas as we can [3,730 gallons] in four minutes," Riener explains.

The cadets have a bird's eye view of the pilots below maneuvering the Globemaster into position. The linkup is repeated seven times, as three pilots aboard the KC-135R and four pilots on the larger plane behind test their skills.

The 905th Detachment ranks in the top 10 nationally among 144 AFROTC units, according to Col. Smith. The ranking is based on the number of second lieutenants produced. WSU commissioned 28 in 2002, with 39 expected this year. Forty percent of the 185 WSU-UI cadets want to fly.

"For those who want to become pilots, the Air Force offers the best pilot training in the world," Smith says. Cadets are selected to be pilots during their junior year. Training begins after they graduate and are commissioned. The national average acceptance rate is 59 percent. Last year WSU's initial pilot selection rate was 75 percent, when 11 were selected. The total included four cadets chosen to participate in the elite Euro-NATO jet training program, limited to the top 10 percent of the class.

"We are successful, because we brief the cadets about all the ins and outs of the pilot selection process. We also counsel each pilot wannabe one-on-one," Smith says. "We make sure that they get the best score in each of the areas they have control over—their GPA, physical fitness scores, field training, and officer qualifying tests."■

—Pat Caraher

Left: Cadet Jennifer MacLennan watches TSgt. Joe Riener operate the refueling boom.

Below: Cadet Eric Eslick had an opportunity to ride in the cockpit of the KC-135R.

CONTINUOUS HISTORY

PHOTOGRAPH COURTESY OF MARY MALETIS AND THE OLD TOWN HISTORY PROJECT.

HISTORY for Jaqueline Peterson is about buildings and their occupants, about street life, about gypsies and sailors and immigrant workers—and little girls eager to show off their toy airplanes. History is about place and about everyday life.

Peterson, a professor of history at Washington State University at Vancouver, is president of the Old Town History Project in Portland, Oregon, just across the Columbia River from campus. The oldest surviving historic district in Portland, Old Town is bounded by the Willamette River, Burnside, the trainyards, and Broadway.

Prompted by stirrings toward development in the district and the realization that much of Old Town's architecture had already been lost, the project aims to remember the area's rich working class ethnic history in a number of ways.

Project participants are gathering oral histories of the area, taping them for later analysis. Photographs brought in by Old Town residents are digitized as part of a virtual archive and often become part of storefront exhibitions on the area's ethnic history. Such is the case with the accompanying photo of the Maletis family, dating from the 1920s, brought to the Old Town History Project's storefront office by Mary Maletis, who is the little girl with the airplane.

The project has also initiated "insider's tours" of the area. Longtime residents give guided tours of Old Town, sharing their personal perspectives on the area's rich past.

Known variously as Japan Town, the North End, China Town, and other designations, Old Town has been home to many ethnic groups: Greeks, Roma, Scandinavians, African Americans, Native Americans, German and Sephardic Jews, Filipinos, Irish, and southern whites, as well as Chinese and Japanese. This varied and continually shifting heritage was artfully summarized in the first of a series of project art installations in Old Town, called "Illuminations." Animator Rose Bond distilled 120 years of the district's history into a 12-minute animation projected through the second-story windows of the Portland Seaman's Bethel Building.

The "Illuminations" series was inspired by early American torchlight parades. Illustrated banners bearing artisans' and workingmen's party insignia were hung from buildings along the parade route and backlit by candles.

Bond wove together story fragments, symbols, gestures, and sound, telling the story of the 122-year-old building, starting with its first use as a rooming house and chapel for sailors intended to insulate them from the area's Chinese prostitutes. The story of the build-

ing continues through its successive incarnations as Japanese and Chinese businesses, housing, and social clubs and as a fortune-telling parlor.

Early last fall, Bond's "Illumination #1" ran on a number of evenings. Crowds gathered on the street across from the Seaman's Bethel building watched the animated history loop over and over, cheering and applauding each time.

Peterson's public history students helped recreate the story of the Seaman's Bethel Building and other buildings in the district. Peterson hopes to write a book about the district's history. ■

—Tim Steury

TINY MOTORS

At three millimeters square, the P^3—the yellow patch in the rectangle— is the world's smallest engine.

THE PALOUSE PIEZOELECTRIC POWER (P^3) engine is three millimeters wide, three millimeters long, and 100 microns thick, making it the world's smallest engine. Just over 6,447 engines placed side by side would cover a page of this magazine, and each engine would be no thicker than the page on which it rested. The Washington State University researchers who created it believe the P^3 has the potential to one day replace the batteries that power electric devices.

To operate, the P^3 needs only an external heat source, such as a burning fuel, the sun, a wood stove, waste heat from electronics, or even body heat. The P^3 engine consists of a fluid and bubble sealed between two membranes. It converts thermal power to mechanical power when the bubble expands in response to pulses of heat that sometimes near 300 times a second. As the bubble enlarges, so does the entire engine. Between heat pulses, the engine contracts as its heat dissipates. The P^3 expands and contracts so quickly it actually vibrates. One of the engine's membranes is made of silicon; the other is a thin-film piezoelectric generator as wide as a white blood cell (two to three microns). As heat moves in and out of the engine, the expanding and contracting bubble puts pressure on the piezoelectric membrane, which turns the mechanical power created by the engine into electric power.

The P^3 engine is the work of three associate professors in the WSU School of Mechanical and Materials Engineering: David Bahr, Bob Richards, and Cecilia Richards. The researchers first detected voltage from a P^3 engine in December

DON ZAJAC NAMED WSU DAD OF THE YEAR

DEAN HARE

Don and Meggan Zajac

Like the husband in O. Henry's famous story, "Gift of the Magi," who sold his prized watch to buy his wife a comb for Christmas, Don Zajac sold his vast collection of vintage metal lunch boxes to take his daughter, Meggan Zajac, on a month-long European tour last summer.

As a way of showing her appreciation, Meggan successfully nominated her father for Washington State University's Dad of the Year. He was honored November 2, 2002 at the annual Dad's Weekend breakfast in the Compton Union Building.

Don Zajac, a single father, has been there for his daughter "all of my life, and our relationship has really developed since I've been here at WSU . . . ," she wrote in support of her father, a baker at Costco in Tacoma.

He counseled his daughter when she began dating and trusted her enough to let her determine her own curfew, as long as she left a phone number where she could be reached when she was out. "He still knows what school projects I'm working on [at WSU], and when I have a test," wrote Meggan, a junior in apparel, merchandising, and textiles.

She praises her father for being a "good role model" and for making sacrifices to finance her college education.

An avid antique collector, Don visited thrift stores and garage sales for years to find metal lunch boxes from the 1950s and 1960s to add to his collection. Then he spent most of last year selling off approximately 1,000 lunch boxes on eBay and at antique stores. With the money he received, he fulfilled a dream both he and his daughter had. They spent a month traveling in England, France, Italy, and Greece.

"It meant a lot to me that he would sell his beloved lunch boxes," she wrote, "and most of all that he would pick me above anyone else to travel with."

Meggan added that her father was only two when he lost contact with his own father. Growing up fatherless, he later vowed to be the best dad he could be. "He's truly my best friend," she said.

—Pat Caraher

2000 and are currently in the fifth year of the project. They have made exponential progress over the last two years, with P^3 engines producing 1,000 times more voltage than they did originally—four volts versus four millivolts. Current prototypes produce electrical power measured at one-thousandth of a watt and have powered a blinking LED and a Power Puff Girl's watch in lab tests.

The researchers' progress has attracted the attention of the U.S. military, which has been searching for an alternative to batteries. In March, the School of Mechanical and Materials Engineering and the Center for Materials Research received a contract worth more than $7 million from the Army Space & Missile Defense Command (SMDC) and the Defense Advanced Research Projects Agency (DARPA). The funds allow continued research on the P^3 engine for the next four years in order to produce a portable micro-power generation system that can replace the batteries currently used in military applications.

Batteries are heavy, says Bahr. It is not unusual for a soldier to carry an 80-pound backpack onto the battlefield with batteries accounting for 10 to 20 pounds of that pack. In addition, batteries lose power over time. The P^3, however, needs only a source of heat to continuously produce electric power. "Even in Kabul, you can go out and buy gasoline to heat our engines," says Bob Richards, "but it's hard to find a place that sells rechargeable batteries."

Industry has a growing need for micro-power supplies. Companies are making devices smaller and smaller, but power supplies aren't shrinking with them. "Once people have tiny power supplies, you're going to see tiny airplanes, tiny robots, tiny electronic sensors," says Bob Richards.

Other universities have had limited success developing micro engines. The WSU researchers attribute their success to the simplicity of the P^3 engine. "UC Berkeley, MIT, University of Illinois, Cal Tech, Stanford all have amazing facilities and resources we don't have," says Bob Richards. "Consequently, the engines they build are incredibly complex, so complex that they can't even build them. We're beating them because we don't have the resources to get complex. We were forced to work with what we had, and it worked out well for us."

Power supplies made up of different numbers of P^3 engines could produce one-thousandth of a watt or hundreds of watts. The engines can be put together in various configurations: in sheets, in stacks, or in cubes. This allows for flexibility in tailoring P^3 power supplies to electronic devices with differing shapes. "With the P^3 you don't need to build a device around the limitations of a power supply," says Bahr. "If a device needs eight microwatts, we can give them eight microwatts. If it needs eight megawatts, we can do that too."

The P^3 is fabricated from a silicon wafer using techniques developed for making integrated circuits. Utilizing these techniques, thousands of identical engines can be produced from a single batch of material for pennies apiece. "The engine is very small, very cheap, and made in a way that no other engine has ever been made," says Bob Richards. ■

—Jeff Wolfe

MINDING HER B's & T's

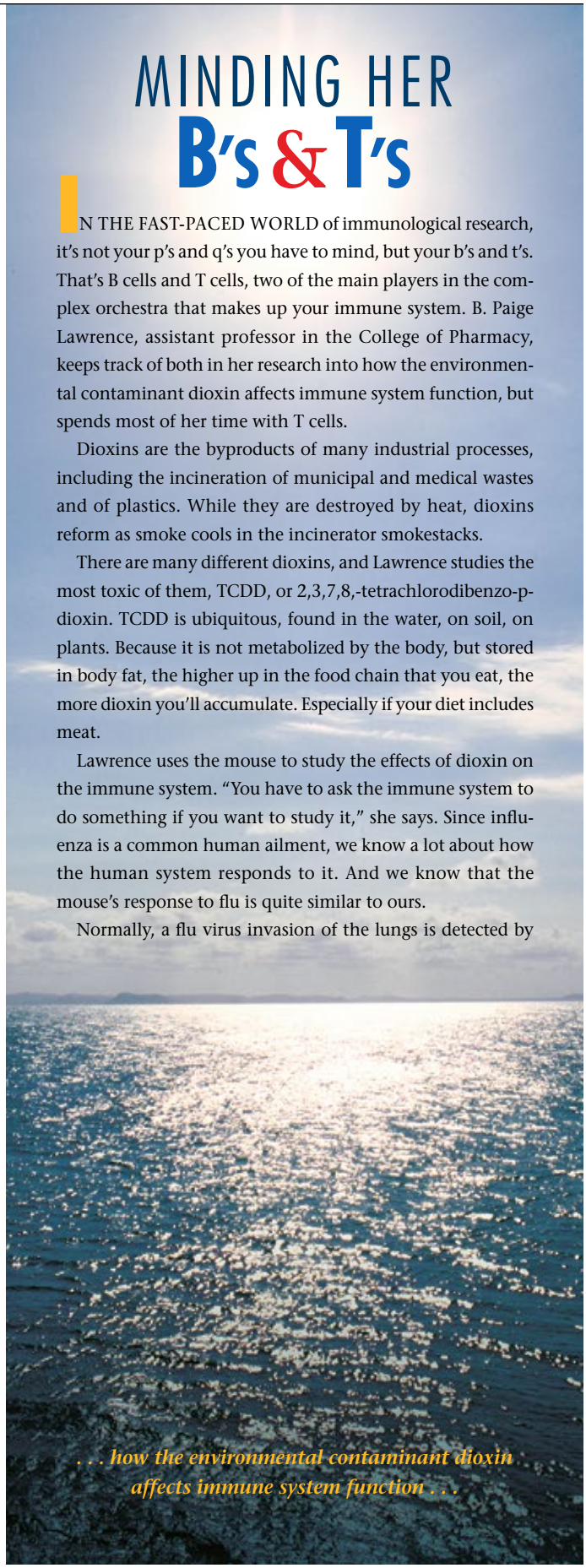
IN THE FAST-PACED WORLD of immunological research, it's not your p's and q's you have to mind, but your b's and t's. That's B cells and T cells, two of the main players in the complex orchestra that makes up your immune system. B. Paige Lawrence, assistant professor in the College of Pharmacy, keeps track of both in her research into how the environmental contaminant dioxin affects immune system function, but spends most of her time with T cells.

Dioxins are the byproducts of many industrial processes, including the incineration of municipal and medical wastes and of plastics. While they are destroyed by heat, dioxins reform as smoke cools in the incinerator smokestacks.

There are many different dioxins, and Lawrence studies the most toxic of them, TCDD, or 2,3,7,8,-tetrachlorodibenzo-p-dioxin. TCDD is ubiquitous, found in the water, on soil, on plants. Because it is not metabolized by the body, but stored in body fat, the higher up in the food chain that you eat, the more dioxin you'll accumulate. Especially if your diet includes meat.

Lawrence uses the mouse to study the effects of dioxin on the immune system. "You have to ask the immune system to do something if you want to study it," she says. Since influenza is a common human ailment, we know a lot about how the human system responds to it. And we know that the mouse's response to flu is quite similar to ours.

Normally, a flu virus invasion of the lungs is detected by



. . . how the environmental contaminant dioxin affects immune system function . . .

several different immune system cells. Some are part of the nonspecific immune response and will fight anything they encounter that's not "you." Others are specific for a part of the flu virus and will respond to and fight only it.

When cells specific to the flu virus encounter it, they travel to lymph nodes near the lungs and activate T cells that also are specific to that virus. The activated T cells then reproduce. If they are "cytotoxic" T cells, their offspring will travel to the lung to kill the cells infected with flu virus. If they are "helper" T cells, their offspring will secrete chemicals that help the cytotoxic T cells and any other immune cells that might get involved in the fight. Helper T cells are the conductors of the immune system orchestra, and without them, all the rest don't know what to do, says Lawrence.

When mice have been exposed to dioxin, neither type of T cell does its job. "It's not that they're dying, but for some reason they're just sitting there doing nothing," says Lawrence.

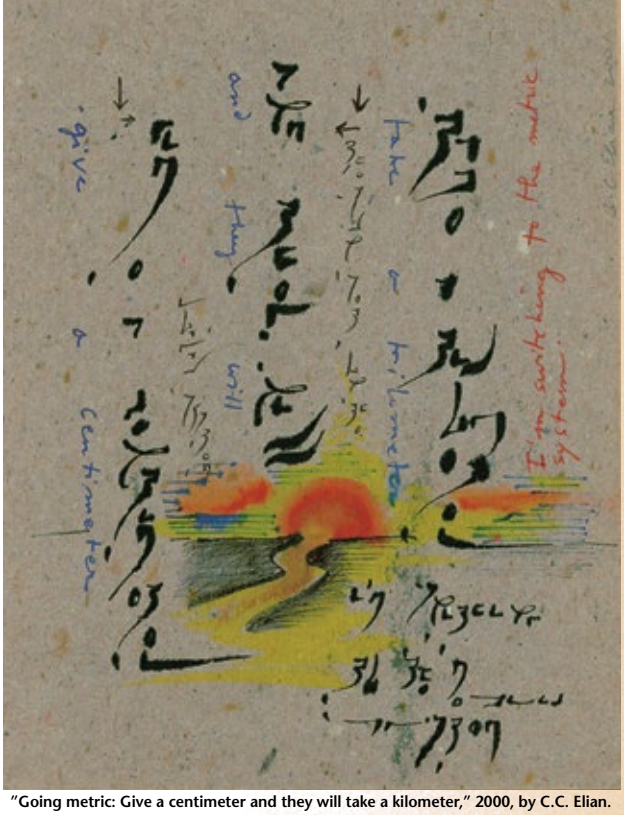
Lawrence's lab is working on several projects aimed at determining how dioxin causes this effect. At this time, they know that dioxin attaches to a specific protein that's found on the inside of all cells in the body that have been surveyed. That attachment ultimately results in a change in the normal function of those cells, mostly by changing what proteins the cell makes. The cellular functions affected by dioxin seem to vary from cell to cell, says Lawrence, and it's not known exactly what is affected in T cells. In fact, it's not yet known for certain that dioxin even attaches directly to a protein within T cells.

Another project is assessing whether prenatal or postnatal exposure to chemicals has an effect on an offspring's immune function. The lab's first experiment designed to address this question gave dioxin to pregnant mice at levels that are immunosuppressive in adult animals. Although live mouse pups were born, most of them died within 24 hours. A fortuitous switch at birth of some to a mother mouse that hadn't been treated with dioxin produced pups that did survive beyond 24 hours. Lawrence suspected that the reason for the death of most of the pups was that the mother's exposure to dioxin inhibited or impaired mammary gland development. A subsequent experiment supported that conclusion.

An additional experiment used lower doses given both during fetal development and after birth via breast feeding. It suggested that exposure to dioxin during fetal development causes defects in the immune function of female but not male offspring. These results are preliminary and will be verified using other pathogens. The lab also plans to test whether exposure to dioxin after, but not before, birth has any effect on immune function, for dioxins and other fat-soluble chemicals have been found in human breast milk.

Lawrence's work is typical of much current research into the effects of environmental chemicals, an example of a paradigm shift that's taken place over the last few years. Early research focused on whether environmental chemicals caused cancer and usually considered high dosage levels. Now many researchers are concerned with much lower exposure levels and concentrate on whether there are effects on development or on any one of a number of body systems such as the immune, reproductive, or neurological systems. ■

—Mary Aegerter



"Going metric: Give a centimeter and they will take a kilometer," 2000, by C.C. Elian.

A NEW LANGUAGE

CLAUDINE ELIAN uses language in her art because, as she puts it, unlike representational art, words exist in their complete state only when they are both written and read. However, she also finds the Latin alphabet static and conforming. So she invented her own alphabet.

Elian, who works under the name C.C. Elian, is a distance education student formerly of Anacortes, now of Brooklyn. But she is not studying art. Art is something you discover on your own, she feels. Rather, she is pursuing a degree in social science.

"A lot of the material I write about has a social bent," she says. She has no interest, though, in simply responding to headlines, looking at her education in social science through Washington State University as training her mind to better contemplate certain problems.

Adult education is a real gift, she says. It's better to go to school later, when you know what you're interested in. Five courses away from a degree, she admits she is distracted by the energy of her art and New York City. At 51, she has no plans to change the direction of her life and art. However, she is determined to finish her degree, for the sake of completion.

Elian's interest in language as art began early. Born in Alsace, she first spoke the Germanic Alsatian dialect. She and her twin brother were orphaned and moved to an orphanage in southern France, where she spoke French. In high school, she taught herself to write in Cyrillic, which "made it a little more interesting."

She works in a "codified calligraphy," which she based on a Pythagorean grid. Why would anyone want to learn a private language in order to "read" her art?

They don't, she says. But that language will guide the reader through the deeper layers.

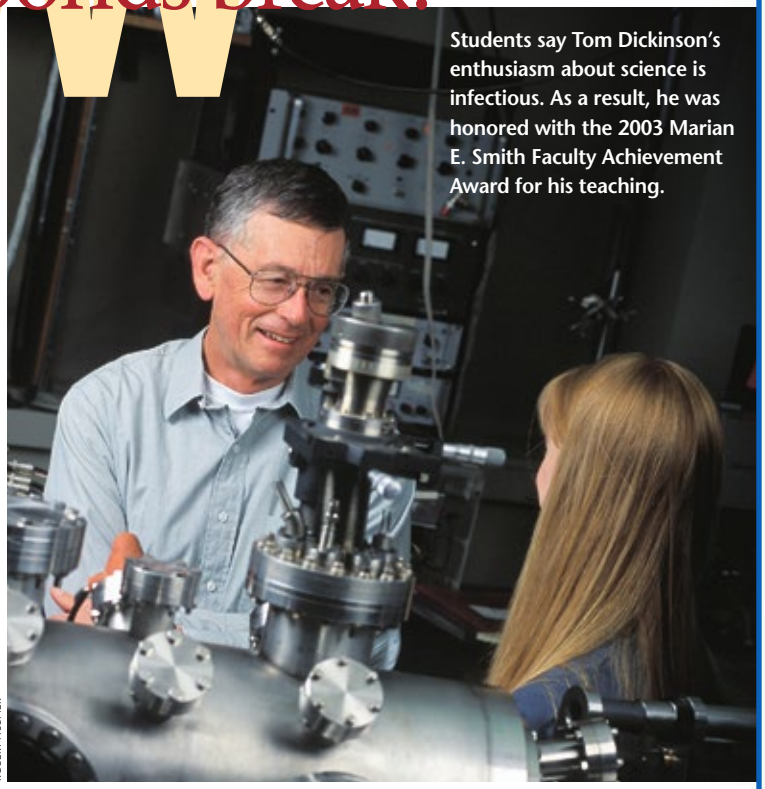
For more on her work, see www.ccelian.com ■

—Tim Steury

How do bonds break?

The underlying question that motivates my current work is, **What are the forces on atoms and ions associated with surfaces that result in these particles leaving or reattaching to the surface when stimulated with an outside agent?** These surfaces may be surrounded by very high vacuum or by an aqueous solution. The stimulation that assists the motion of the atoms or ions may be a laser or electron beam, or it might be a very sharp, hard tip pushing on the surface. In all cases, the rate of particle removal or attachment, the speeds or energies of the particles involved, and even the direction they fly or attach, are of interest. With careful physical measurements we are able to detect these properties and compare the behavior of these particles with models based on fundamental physics and chemistry. Nevertheless, the details of how these particles are displaced are still poorly understood.

—Tom Dickinson, Professor of Physics



ROBERT HUBNER

Students say Tom Dickinson's enthusiasm about science is infectious. As a result, he was honored with the 2003 Marian E. Smith Faculty Achievement Award for his teaching.

PHOTOMICROGRAPHS BY KHIN NWE

THINK SMALL.

Think very small.

Dickinson studies surfaces at the nano-scale. Nano means one-billionth (10^{-9}). Dickinson uses an atomic force microscope to manipulate and image single atoms.

Going tribo. Imagine trying to wash your dishes without water. Using mechanical means to clean dried food off a plate would be laborious. Using water and soap puts dishwashing in the science of "tribochemistry," using both mechanical and chemical means to break the bonds of that dried food from the surface of the plate.

Dickinson uses tribochemistry in a "one-two" punch to break bonds on surfaces of selected materials. In the photographs, he has used an atomic force microscope and water to remove atoms from the surface of brushite, a biomineral that occurs naturally in the early stages of bone and kidney stone formation.

Why would anyone want to remove atoms from a surface? Dickinson's work is of great interest to the microchip industry. A process called "chemical mechanical planarization" (CMP) is at the heart of the chip industry. Think polishing. Microchips have to be very smooth. In fact, chips are polished as many as 15 times during manufacturing. The details of how the process works, says Dickinson, are not well understood. Use too much abrasive material, and the chip's destroyed. Rely too much on chemicals, and nothing happens. Put the two together, and you have CMP.

Sounds simple, right? Again, think nano-scale. Smaller transistors on a chip mean faster, higher performance computers. This planarization process is an annual subject in at least three international professional meetings.

—Tim Steury

WHAT DON'T WE KNOW?

SEASONS|SPORTS

WSU SPORTS INFORMATION

WHITNEY EVANS

All-America high jumper has a head for finance

WHITNEY EVANS LEAVES little to chance. Whether competing in sports or analyzing a stock portfolio for a finance class, her attention to detail pays dividends. The fifth-year scholar-athlete from Calgary is a straight-A student and a six-time track and field All-America. By the time she completes her athletic career at Washington State University in June, she will be the most decorated female athlete in the school's history.

It's late January now, the first track meet in WSU's new air-supported "bubble." Evans arrives early, stretches, and jogs easily. When her name's called, she toes a piece of white tape 14 feet left of the high jump standard and 65 feet away. She'd walked off the first distance herself—heel to toe. She takes one step backwards, rocks on her heels, and begins her graceful, sweeping 10-stride approach. Near the bar, she plants her right foot and pushes off. Her body twists upward, and over she goes, landing on her back. Her best jump is six feet and ¾ inches.

Evans prefers competitors at all heights to jumping alone. "Having someone there to push me is always an incentive," she says.

Only once in seven NCAA championships has she failed to score points, finishing 15th indoors as a sophomore. She's placed second and sixth indoor, and has a third and two fourths outdoors. Add a seventh in the heptathlon. Her 5,579 points in the seven events is the third highest total at WSU.

Evans's achievements have not come without a price. Plagued by chronic patella tendonitis in her right knee, she missed the outdoor season as a sophomore and last year's indoor action. Still, she's won a pair of Pac-10 high jump titles and was runner-up in the 2001 heptathlon.

WSU's team co-captain is "disciplined in her daily routine . . . goal-oriented . . . a high achiever . . . and is fun to be around," says coach Rick Sloan. In four and a half years, she's never been late for anything. She's orderly and precise, but not to a fault. She has it all together.

Like all great athletes, Evans is never satisfied with anything but her best effort. If she wins, but doesn't jump high at a meet, she's disappointed. If she jumps high, but doesn't win, she's disappointed. Winning and jumping high make her happy.

She's a winner in the classroom as well. As a sophomore, she settled on finance as a major. She liked the broad appeal of the subject, "more than just investments and stock analysis." Some day she plans to return to Calgary and pursue a business career—"maybe in the retail clothing area with a franchise, or on my own."

Last May she completed a bachelor's degree with a 3.98 g.p.a. Her favorite courses? Finance 427 (Investments and Securities Analysis) and 428 (Portfolio Theory), taught by Rick Sias, associate professor and holder of the Brinson Chair in Investment Management. A major portion of the courses was dedicated to managing $180 million of WSU's endowment (the "Cougar Investment Fund"). Class members analyzed stocks in 10 different sectors, including energy, basic materials, utilities, and industrials. Students use fundamental and relative valuation techniques, earnings analysis, analyst recommendations, and holdings by professional investors in forming their own recommendations. The University's chief investment officer executed trades based on the class's recommendation.

Several class members also presented their results to the Regents/Foundation Investment Committee.

"We invested three days before the September 11 terrorist attacks," Evans said. "We ended up beating the S&P [Standard and Poor] stock index and made money."

Sias, like his colleagues in finance, is impressed by Evans's work ethic and intelligence. "She's so bright . . . takes her school work seriously, is a very good speaker, poised and prepared."

Because of her injury, Evans was granted an additional year to complete her athletic eligibility. She also decided to pursue an M.B.A.

Though born in Denver, Evans has spent most of her life in Calgary, where her father is an oil and gas consultant. She holds dual U.S.-Canadian citizenship. Competition has taken her to The Netherlands, France, Cuba, and throughout the United States and Canada. This summer, she hopes to represent Canada at the World University Games in South Korea. The 2004 Summer Olympics at Athens are another goal.

For now, she is focusing on her graduate work and her final seasons as a Cougar athlete.

"If you had a whole team of Whitney Evans, you'd win national championships," Sloan says. "You'd never have to worry about grades, or about behavioral things like missing the bus." ■

—Pat Caraher

THEY'RE BACK!

Doba's Football Staff Includes Five Former Cougars

ROBERT HUBNER

Coach Bill Doba's staff includes five former Cougar football players, from left: Mike Levenseller, Timm Rosenbach, George Yarno, Ken Greene, and Mike Walker.

AS ATHLETES Mike Levenseller, Michael Walker, Timm Rosenbach, Ken Greene, and George Yarno brought recognition to Washington State University. Now, as assistant coaches, they are being counted on to help shape the football future at their alma mater.

Who said you can't go home again?

Not Bill Doba.

He's been on the WSU football staff for 15 years, but this is his first as head coach. Cougar pedigrees are obviously important to him. For starters, he convinced assistants Levenseller (offensive coordinator/wide receivers) and Walker (defensive line) to stay, rather than follow former Cougar coach Mike Price to Alabama. He got the same commitment from two other top assistants from the Price regime—Robb Akey (defensive line) and Robin Pflugrad (tight ends/recruiting coordinator). Akey succeeds Doba as WSU defensive coordinator. Pflugrad has been given the additional title of assistant head coach.

Price relinquished his duties January 1 after WSU's 34-14 Rose Bowl loss to Oklahoma. Four assistants went with him to Tuscaloosa. In less than two weeks, Doba had his nine-man staff in place. Of the newcomers, Rosenbach will coach quarterbacks, Greene the defensive secondary, and Yarno the offensive line.

"We wanted to get those Cougars back in the program," Doba said. "They will make for good chemistry in the staff room."

Leon Burtnett (linebackers) and Kelly Skipper (running backs) fill the other vacancies. Burtnett is a one-time head coach at Purdue with NFL experience. Skipper spent the past two years as UCLA offensive coordinator.

Here's the rundown on the Cougar jocks-turned-coaches:

Levenseller joined the WSU staff in 1992. The former wide receiver from Tacoma (Curtis High School) caught 67 passes in 1977 for a WSU and Pac-8 single-season record of 1,224 yards. His career totals: 121 receptions, 2,061 yards.

Walker captained coach Jim Walden's 1981 team that defeated BYU in the Holiday Bowl, WSU's first bowl appearance in 50 years. The defensive lineman was All-Canadian Football League 1987-89. He played in four Grey Cup games—three with Hamilton, the last with Edmonton in 1990. During a 10-year CFL career, he logged 126 games. He has been a full-time Cougar assistant since 1997.

Rosenbach led the Cougars to a 24-22 victory over Houston in the 1988 Aloha Bowl. The fiery quarterback established WSU single-season records for total offense (3,422 yards), passing yards (3,097), touchdown passes (24), and touchdowns responsible for (34). His talent carried him through four seasons in the NFL with Arizona and one year (1994) with Hamilton in the CFL. Since 2001, the Pullman High School graduate has been offensive coordinator and quarterback coach at Eastern Washington University. In his debut year, the Eagles led the nation in total offense—more than 514 yards per game and nearly 42 points.

Greene, the pride of Omak, was a first-team All-America defensive back in 1977 at WSU and first-round pick in the NFL draft. He was a stopper for the St. Louis secondary, leading the team in tackles two of the four seasons there. He played out his final two years with the San Diego Chargers, retiring in '85. His college coaching background includes four years at Fresno State and the past three at Purdue.

Yarno was a three-year starter on the WSU defensive line, 1976-78. As a junior and senior, the Spokane native earned All-West-Coast and All-Pac-10 honors. Eight of his 11 years in the NFL were with Tampa Bay, the rest at Houston, Green Bay, and Atlanta. He was Price's offensive line coach at WSU 1991-94. Idaho, Houston, Arizona State, and Louisiana State have been other coaching stops.

Like Yarno, Burtnett is no stranger to the Palouse. The former Jim Sweeney assistant at WSU (1971) later was 1984 Big Ten Coach of the Year at Purdue, where he ran the show for five years. Doba was one of his assistants there (1983-85). Burtnett spent five seasons with the NFL Indianapolis Colts, including one as offensive coordinator and quarterback coach. He also assisted at Montana State, Wyoming, San Jose State, Michigan State, Fresno State, Northeast Louisiana, and Arkansas State.

Skipper also has ties to Sweeney at Fresno State, both as a player and an assistant. An All-America honorable mention running back, he rushed for 2,237 yards and scored 28 touchdowns as a Bulldog before he was hired full-time at his alma mater in 1991. UCLA hired him in 1998 and promoted him to offensive coordinator in 2001.

"I think this says a lot about the strength of our program and Bill Doba's leadership that we have that many Cougars with excellent coaching credentials who wanted to come back," said WSU athletic director Jim Sterk. ■

—Pat Caraher

◆ THE OTHER SIDE OF THE COIN ◆

THE FRIENDS You Keep & the WEALTH You Reap

by John R. Nofsinger '88, '96

People evaluate information through social interaction with others.

THERE'S AN OLD SAYING that you can be judged by the friends you keep. But do your friends also affect your wealth?

Ever notice how a group of people who spend time together, whether in a social group or work environment, tend to develop similar tastes, interests, and lifestyles? The reason is that people evaluate information through social interaction with others. This is especially true for topics you may consider to be difficult. Many people consider financial decision-making to be hard. Should I contribute to my retirement plan at work? How much should I contribute? What should I invest in?

The answers to these questions should depend on your own situation. Your age, level of wealth, income, and aversion to taking risks are important characteristics to consider when making financial decisions. Yet we often abandon these characteristics in favor of doing what our friends and colleagues are doing. That is, our beliefs about the importance of contributing to a pension plan, owning stocks, or buying a house are often more influenced by the beliefs and choices of others, and less by our own needs.

There are several basic rules about your financial decisions that will enhance your long-term wealth. Financial advisors, experts, and academics alike advocate these ideas. Anyone who has some interest in financial matters has probably read about them. Yet many people do not follow these simple rules and set themselves up for great disappointment. Consider these important rules:

Contribute to your 401(k) plan. Indeed, contribute the most money that is allowed by law. If you cannot afford to maximize your contribution now, then slowly increase your contributions each time you receive a raise. Even though this advice has been given for two decades, one third of the people eligible to contribute do not. Most of those who do contribute do so at very minimum levels.

Diversify your investments. Do not put all your eggs into one basket. Your portfolio should consist of a mix of stocks, bonds, and cash. If your retirement plan has choices for real estate or commodities (such as gold), then own some of them too. Many people are not well diversified. About one-quarter of 401(k) participants hold no stock investments. Another quarter hold more than 80 percent of their portfolio in stock investments. That makes half of these employees under-diversified. Consider the sad effect of under-diversification on Enron employees. Even though their 401(k) plan offered 18 different choices, 62 percent of the assets were invested in the company's stock. When Enron's stock price fell 99 percent in a matter of months, employees lost more than one billion dollars in retirement funds.

Invest for the long-term. It is better to have a long-term focus in your investing. This does not mean that you should never sell an investment. It is good to periodically monitor and update your portfolio. The most important long-term decision is how to allocate your assets among stocks, bonds, and cash. In the long run, your overall return is driven more by how much money you put in stocks, not by which stocks you buy. Many investors spend too much time on stock selection and not enough on asset allocation.

Do you follow these basic financial rules? A common reason for not following through on these rules has to do with the beliefs of your friends. What they believe about these topics influences your beliefs and decisions. Make financial decisions based on what is best for you. At stake are your retirement income and your wealth. You are the one who is affected by your decisions—make sure they are good ones. In fact, it may even be time to start influencing your social group's beliefs. After all, that's what friends are for! ■

John R. Nofsinger is a Washington State University finance professor and author of Infectious Greed *(Financial Times/ Prentice Hall 2003). He can be reached at John_Nofsinger @wsu.edu.*

DAVID WHEELER ILLUSTRATION

THE GREAT CONVERSATION

by Robert Force

AS DIVERSE as the State, each of Washington State University's 10 learning centers has its own character, determined both by location and by the personality of its staff. But they share a common mission—to provide opportunity throughout the state to all place-bound adults who desire further education. The learning centers combine "high tech" delivery methods and "high touch" service by the resident staffs, to provide opportunity that would not otherwise be available. Last fall, North Olympic Peninsula Learning Center coordinator Robert Force presented this evocative paean to the experience to Provost Robert Bates and other visiting administrators.

COURTESY OF LINDA HODGES GALLERY, SEATTLE

"The Music Bringer," 2002, by David DeVillier.

ONE SATURDAY EVENING I was wearing my Washington State University sweatshirt and sitting in a sports bar in Bellingham, watching the Cougar game. A couple sat down in front of me. She was wearing a Cougar cap. At half time we got to talking. She told me her son is a recent WSU graduate in criminal justice.

She asked me if I was a Cougar grad. No, I said, but I work for the University, and I went on to describe the 10 WSU learning centers across the state—how we work with place-bound students for degree completion, as well as with any person of any age seeking an education—for a degree, for personal enhancement, for workforce training—it doesn't matter why.

I described for her the new Master of Emergency Preparedness degree which her son could pursue at a distance, while working—that it would be a natural fit with Crim J, especially in this changing marketplace. I gave her my card. Then the second half started, and we went back to yelling at the TV.

Three blocks away, my father-in-law was dying, and the family was on alternate shifts of hospice care.

Just about the time the last overtime field goal went through the uprights, so did my father-in-law.

Dave didn't go to college, but he sent his two daughters to WSU. Back at the nursing home, I broke out a bottle of cognac, and we each offered a toast to his memory. Mine was thanks that he and his wife had brought my wonderful wife into the world.

Thirty-five years earlier, 10 blocks in another direction, I had dropped out of Western Washington University to become a folk musician. It was an age for such a thing. I saw music as a vehicle to gain an understanding of people and the world around me.

Turns out this was true.

There is a story from Sufi tradition of a woman who is led by fate to learn first rope making, then mast building, and eventually, cloth weaving—each on the shore of a strange land. Finally, she is cast ashore a fourth time.

In this land, the king was seeking a solution. He wanted to visit places throughout his kingdom, but he also wanted to take with him the comforts of his palace.

So the woman, drawing on her lifetime of knowledge about ropes, about masts, and about cloth, invented the first tent. In gratitude, the king elevated her to a high position, and she lived out her days in wealth and privilege.

These learning centers are just such a tent. And its inventor—WSU—has been visited by Purdue, Nebraska, Alaska, Illinois, Cornell, who have all come to marvel at its structure and take back with them our vision of lifelong learning and community access to education.

And I am like the woman in the story.

After 25 years of musical wanderings, I returned to school before there was a thing called distance education. I enrolled in seven colleges, more or less simultaneously—finally got a bachelor's degree, then went on for my master's.

Along the way I learned to listen to people. I learned about love, dreams, divorce, financial burdens, death, hope, and the incredible empowerment education bestows.

I learned that life is not about jobs, it is about entering into the great conversation that stretches across the gulf of time. And that once that conversation is begun, the world becomes a much different place.

When I speak with those who come through our doors—and by the way, more than 20,000 walked through those doors last year for various meetings and classes—I spend a lot of time listening. For I know about falling asleep at dinner parties because you're working and going to school and raising a family. I know about arrests, drugs, murders, suicides.

And even if I am a Cougar only by marriage, in this community, I *am* Washington State University. What I do is world class, and I do it face to face. I advise, I recruit, I send students to Pullman, I build community partnerships, I proctor tests, and I hold the hands of students whose grandmother died, or whose son's best friend was just killed in a car wreck. Our entire staff is WSU building community in more ways than I can describe. We're one of 10 groups of people doing this at learning centers throughout the state—people who live in and know their communities. Person by person, one at a time, we find pathways to the future. ■

For more information visit http://learningcenters.wsu.edu/

Dedicated members of the Pullman campus community braved a rainy evening for the 16th annual Dr. Martin Luther King, Jr. Community Celebration and Unity March on Monday, February 10, 2003. (The spots in the image—including the large white one at top center—are rain drops illuminated by the camera's strobe light.)

ROBERT HUBNER

Bose and Asay are named to National Academy of Engineering

ANJAN BOSE AND JAMES R. ASAY have been named members of the National Academy of Engineering (NAE), the most prestigious honor in the engineering field. Bose is dean of the College of Engineering and Architecture at Washington State University and distinguished professor in power engineering. Asay is research professor and associate director of WSU's Institute for Shock Physics.

Election to the NAE comes from peers within the academy, based on nominees' outstanding contributions to their field. Founded in 1964, the NAE serves with the National Academy of Sciences as an advisory board for the federal government through the National Research Council. Out of approximately 10 million academic and industrial engineers in the United States, only about 2,000 are members of the NAE.

Bose was named to the group for his "development of training simulators and computational tools for reliable power-system operation and for contributions to education and research on power systems."

Bose's research in the operation

LEVELING THE

IN SOFTBALL, success or failure happens when the ball meets the bat. The faster a batted ball travels, the greater the likelihood of a batter's success. Softball bat manufacturers are using technology to create bats that hit the ball harder than ever—but not everyone is pleased with the results.

Recent advances in softball bat performance raised concerns with the Amateur Softball Association (ASA) that softball bats generating high batted ball speeds were giving individuals an unfair advantage in competition and creating safety problems, says Lloyd Smith, an associate professor in the School of Mechanical and Materials Engineering at Washington State University.

Since 2000, the ASA, the national governing body of softball in the United States, has required softball bats to be ASA-certified before use in sanctioned play. Certification is based on the ball speed a softball bat can produce . However, the ASA discovered the bats they tested and certified were performing noticeably better in competition than their tests had predicted. In the summer of 2002, the ASA asked Smith, who had previously tested baseball bats, to figure out why the test was failing.

Smith started his search for an answer at an ASA championship tournament.

Using high-speed cameras and players with different skill levels, he discovered the weight of a bat does

and control of the electric power grid has led to major breakthroughs in power system control technology that are in industrial practice today, including better computer controls of electric generation and transmission systems to avoid blackouts. He developed the real-time computer simulator that is used to train power grid operators all over the world. He is an expert in how to maintain the reliability of the power grid given the changes taking place in deregulating the power industry. He has served on a blue-ribbon power outage study team appointed by the U.S. Secretary of Energy to study several power outages that took place in the East and Midwest, has continued to be a technical leader in the industry, and is a prominent consultant.

Asay was named for his "leadership in engineering research and management of shock waves and for the development of tools that have contributed to national security."

Asay was a leading scientist at Sandia National Laboratories before joining the Institute for Shock Physics in 2002. At Sandia, he led several research programs on high-pressure material response as the deputy director of shock physics applications. He is internationally known for his work in shock wave research and high-pressure science and is noted for leading the development of new pulsed power techniques for magnetically compressing materials to very high pressures. He has served on several national committees, including a National Academy of Sciences panel that evaluated space debris hazards. He also served on a National Security Advisory Committee to assess nuclear defense technologies. He received his doctorate in physics from WSU in 1971.

ROBERT HUBNER

James R. Asay and Anjan Bose

Asay and Bose will be formally inducted into the NAE at the group's annual meeting on October 12, 2003, at the National Academies Building in Washington, D.C. ■

PLAYING FIELD

not affect its swing speed. Players swung a 28-ounce bat just as fast as a 26-ounce bat. Instead, Smith found swing speed to be dependent on a bat's mass moment of inertia (MOI).

"Imagine you're swinging a pole that has adjustable weights attached to it," says Smith. "If you move all the weight close to your hands, you will swing the pole much faster than if you moved all the weight to the end of the pole. The MOI describes this effect."

Currently, the ASA uses a test created by the American Society for Testing and Materials (ASTM) to certify bats. Smith says that one reason the ASA test doesn't accurately predict a bat's performance is that it uses a bat's weight instead of its MOI to determine batted ball speed.

Smith found other flaws in the test as well—for example, selection of where the ball hits the bat during testing. In the ASTM test, the ball strikes each tested bat in a location known as the center of percussion. It was believed that a bat's center of percussion corresponded with its "sweet spot," a location that provides the highest batted ball speed. Smith found, however, that while manipulating the distribution of weight within a bat (changing the bat's MOI) changes the location of the center of percussion, the location of the sweet spot remains the same. As a result, bats that show similar performance in current laboratory tests don't necessary perform at the same level in competition. "My job is to put the brakes on that," says Smith.

Smith has built a bat-testing lab at WSU to more accurately predict the performance of bats. The results obtained from preliminary testing are being used to recommend changes to ASA's current testing method. There are currently two labs certified to test softball bats for the ASA. WSU will likely have the third certified lab by the end of 2003, says Smith.

—Jeff Wolfe

ROBERT HUBNER

With an air-powered gun, Lloyd Smith shoots softballs at bats to more accurately predict the bats' performance.

"Waterwise" garden at the Bellevue Botanical Garden, with purple alliums in bloom, mid-May.

MARY ROBSON

A SENSE OF PLACE

Emerald Winters, Brown Summers

by Mary Robson

HOW DRY IT IS! Understanding the summer climate west of the Cascades baffles lots of residents. The "emerald green" attitude extends to believing that summer months wrap themselves in rain and mist just as winter does. However, our "modified Mediterranean" climate makes water planning as important in Seattle as it is in Spokane.

Summer of 2002 brought only 4.6 inches of rain at Sea-Tac (May 1 through November 1). September and October, usually good planting months, totaled only 1.08 inches combined. Another way to get perspective on this summer rainfall total—just imagine you've planted hybrid rhododendrons in April. They require about an inch per week, ideally consuming about 24 inches from May through October. Since less than five inches fell, the rhododendron needs about 20 extra inches from irrigation. Summer often brings gray, rainless days that reduce moisture loss, but don't add water. Often a shower may just wet the grass and dampen all the cushions on outdoor furniture. Soil under tree and shrub canopies—and deep into root areas—remains dry.

Gardens—and gardeners—need sensible plant choices that will manage summer dryness without needing much irrigation. With water costs going up and a growing population that just keeps demanding more, it's comforting to grow plants suited to water realities. Local demonstrations, such as the Waterwise Garden at the Bellevue Botanical Garden, educate by showing what works best.

Grouping thirsty plants saves effort and water. Soaker hoses tucked around rhododendrons and roses dribble water to roots without wasting it. (A sprinkler system swishing water into the air may lose nearly 50 percent to evaporation.) Good soil preparation helps to retain applied water.

Champion plants for dry summers include a number of broadleaf evergreen shrubs not hardy in eastern Washington. One of the most beautiful is the "strawberry tree," *Arbutus unedo*. This shrubby tree, growing very slowly to about 25 feet, is related to the native madrona and has the same beautiful russet bark color. Place it in a sunny area. Leaves are shiny deep green, and the fall flowers dangle in white pendants. The tree is named for its fruit, globes of strawberry red—edible, but not particularly tasty. The flowers and fruit occur at the same time, generally in November and December, giving the garden welcome late-fall color.

If you like a feathery, open plant, consider *Nandina domestica,* called "heavenly bamboo," though not related to the common bamboo. *Nandina* is available in several different cultivar sizes, from small, low growers that almost make a ground cover (*Nandina domestica "Compacta"*) to six-footers in the standard plant, *Nandina domestica*. *Nandina* is beautiful all year round, with pinkish spring growth that becomes green as it matures. Foliage looks bronze in winter. Legend says that in Oriental households a *nandina* beside the front door served to listen to the worries of the head of the household. So if you don't mind speaking to plants, this one might work! *Nandina* will grow in both sun and shade, but has brighter leaf color in sun. Some cultivars may survive icy winters down to 10 degrees below zero, but it's most often seen in mild Japanese-influenced gardens.

Another good small shrub is hebe, available in many different cultivars. I grow the standard *Hebe buxifolia*, a tidy three-foot shrub with tight-packed, deep-green leaves. Hebes are native to Australia and New Zealand, but are perfectly adapted to the maritime Northwest. All hebes like sun. Some of the cultivars, such as "Patty's Purple," can expire in sudden winter freezes.

Of all the summer favorites, I appreciate hardy fuchsias the most for their glorious color. These are cousins, or perhaps brothers and sisters, of the basket fuchsias, but they do well all year outdoors planted as garden shrubs. Some like damp soils, but the common *Fuchsia magellanica*, with long, four-foot wands draped in dangling red and purple flowers, tolerates low summer water. These are beautiful this year after our mild winter, because long, graceful stems continue to persist through winter.

These agreeable plants contribute gracefully to the look and feel of the water-sensible summer garden west of the Cascades. ■

Mary Robson is a Cooperative Extension horticulture agent in Seattle.

Nurses come face to face with trauma during wartime

Wartime nursing is similar in many ways to modern day trauma and emergency care. The Iraqi war, as with previous wars, will result in injuries to the body and mind. The quality of the care received shapes the future of those affected: individuals who are far from their homes and families. Military nurses can assure such quality, and are critical to the events happening around our world.

Mel Haberman, WSU College of Nursing associate dean for research and an Army Nurse Corp lieutenant colonel (retired), served as a staff nurse at William Beaumont Army Medical Center in El Paso, Texas during the Vietnam War. "As a staff nurse in the U.S. Army's Shock and Trauma Research Unit, we took care of soldiers who were wounded in Vietnam and transported back to the States for medical care," said Haberman. "We learned to care for burn patients, treat shock and trauma, perform emergency surgery under less than ideal circumstances, and conduct research on trauma-related injuries."

"The ability to adapt principles to rapidly changing situations is the essence of critical thinking during a wartime situation, says **Ed Gruber**, a U.S. Air Force lieutenant colonel (retired) and WSU College of Nursing clinical professor. Gruber was assigned to Bien Hoa Airbase from 1970-71 during the Vietnam War. "My duties included management of non-professional staff, supervising the Limited Privileged Communication Program with about 20 heroin addicts, and carrying out humanitarian missions to care for the Vietnamese living in villages near the base," said Gruber.

Melody Rasmor, WSU Vancouver College of Nursing clinical assistant professor, served as an Army Reserve lieutenant colonel stationed in Italy during Operation Desert Storm in 1991. She is now assigned to Madigan Army Medical Center at Fort Lewis in support of Operation Iraqi Freedom, and expressed a passionate spirit for her civilian and military nursing careers.

"The experience of being in these situations provides a different perspective to the world each time you're involved," said Rasmor. "The people you meet as a nurse and the lives you touch, whether in the field or in a hospital, are incredible. The real test comes when you are face to face with a fellow soldier who, at that moment, needs you more than anyone else in the world."

WASHINGTON STATE UNIVERSITY

World Class. Face to Face.

Ed Gruber (with camera, above, and photo left) in Vietnam, 1970-71.

Real-world learning

"Many, if not most, of the major advances in shock and trauma medicine and nursing have come from wartime experiences," said Haberman. "I learned there is a psychological and a social aspect to every trauma-related injury, and I constantly utilize this knowledge in my teaching and research efforts."

"My military nursing experience has been extremely useful in the classroom, because I'm able to stress the prioritization and adaptation skills necessary to practice contemporary nursing care in a rapidly changing environment," said Gruber.

"Many of my experiences will be relevant to our nursing students," said Rasmor. "They need to know that their education and training can and does impact people at home and half a world away."

Your support of the College of Nursing, particularly in this time of great need for health care professionals, is truly appreciated. Your continued contributions to our scholarship and advancement efforts will measurably impact the College as we work to address the health care needs of our communities, our state, and our country—now and for future generations.

nursing.wsu.edu

Right: Ed Gruber, Vietnam, 1970-71.

Below: Melody Rasmor with sons Levi and Matthew.

PHOTO BY GEORGE NAN

Building the Perfect Bone

by Tina Hilding • photography by Robert Hubner

With a new child as inspiration, a husband-and-wife team have set out to solve the daunting problem of how to imitate nature's growth of the human bone.

LIKE ALL NEW PARENTS, Amit Bandyopadhyay and Susmita Bose are awed by the perfection of their new son.

But Bandyopadhyay and Bose, a husband-and-wife research team in the School of Mechanical and Materials Engineering at Washington State University, have more appreciation than the average parent for how truly difficult it is to achieve that perfection. For much of their young careers, they have worked to develop a good imitation of just one part of their perfect son—his bones.

"It's very difficult to mimic nature," says Bose.

Being able to develop a good bone imitation with the same physical, mechanical, and biological properties as real bones would be invaluable to the medical community. As a high percentage of the U.S. population moves towards retirement age, increasing numbers of people are suffering from age-related bone problems, such as arthritis. Other bone problems can occur for a variety of reasons, from cancer to injuries to rheumatoid arthritis. Every year, approximately 800,000 bone grafting or replacement procedures are done in the U.S.

For people with damaged bones, current treatments call for the use of either metal screws or plates, or portions of bone from other parts of their own bodies or from the bodies of others. The first successful joint replacements were done more than 40 years ago, when steel implants were fixed to hip bones by means of an acrylic cement. Although the technology remains largely unchanged, it now uses lighter-weight metals and better cements.

However, current treatments with metal implants do not necessarily cure people permanently. Metal can release ions into the body, with potentially long-term negative health effects. Also, because the metal pieces are stronger than bones, the body relies on the metal pieces to take stress and weight. The lack of stress on surrounding bones eventually makes them weaker, just as bones that don't get weight-bearing exercise become weak.

State-of-the-art hip replacements are currently made of mostly titanium-based alloys. They are low-density and can carry weight. However, the lack of tissue bonding and significantly higher stiffness compared to natural bone limits their average lifetime to about 10 years. Despite substantial efforts to improve them, the durability of metal bone replacements has not improved.

Using real bone pieces for bone grafting also creates problems. When bone pieces are taken from the patient's own body, two surgeries are required, creating additional trauma for the patient. Bone pieces taken from other people's bodies carry the chance of rejection or transmission of viral diseases.

IMITATING NATURE?

To build the perfect bone, Bandyopadhyay and Bose started with detailed images of bones. Medical imaging has advanced greatly in recent years, so a computer tomography (CT) scan or magnetic resonance imaging (MRI) can give a very good picture of what a bone problem looks like.

The researchers in this case took a CT scan of a horse hoof submerged in water to simulate the tissue that would surround a real bone. The information from the CT scan was used to construct a computer automated design (CAD) file. The CAD file was programmed to provide instructions to a fused deposition modeling machine, which uses a technology called rapid prototyping to build the bone imitation. This is a familiar technology to Bandyopadhyay. In the late 1990s, he received a prestigious Young Investigator Program award from the Office of Naval Research and the CAREER award from the National Science Foundation for his research on rapid prototyping.

Based on the information in the CAD file, the head of the fused deposition modeling machine moves like a fancy glue gun, squeezing out a heated polymer. Building one layer at a time, the machine generates a three-dimensional

Bandyopadhyay and Bose used a CT scan of a horse's hoof to develop bone imitations with their fused deposition modeling machine. Shown left to right are the bone, plastic model, and ceramic models. The ceramic model's complex porous architecture is visible at the far right.

WSU ELECTRON MICROSCOPY CENTER

A further complication of breast cancer is that the cancer cells spread through the bloodstream and attach to bone. This scanning electron micrograph shows breast cancer cells sticking to the surface of an experimental ceramic that mimics bone. Howard Hosick hopes to use a device made of this ceramic to filter metastasizing cancer cells from the bloodstream.

a motley crew, a wild idea

NOT ONLY DO BREAST cancer tumors wreak their devastation on-site, they also slough off billions of cells daily, whereupon the cells spread via the bloodstream throughout the victim's body. Even worse, they are attracted to bone, where they can develop into excruciatingly painful bone cancer.

Howard Hosick is a developmental biologist and works primarily with breast cancer, so he carried this familiarity with the cancer's habits into his work with Amit Bandyopadhyay and Susmita Bose. Why not, it occurred to him one day, turn that attraction against the cancer cells? If they are attracted to bone, might they not be attracted to the ceramic bone? And might that attraction not be used to filter the cells out of the victim's bloodstream?

These questions have brought Jay Wright to Hosick's office this February afternoon. Wright is a neuroscientist and an expert microsurgeon. He is considering Hosick's ideas and contemplating the possibility of attaching such a filter to a rat's bloodstream.

Originally, Hosick had imagined inserting a tiny ceramic filter directly into a blood vessel downstream from the tumor. But he and Wright have rejected the idea as a dead end. Bose could make one out of nanopowders, says Hosick. But it would be very fragile. And very expensive. Besides, what happens when it clogs up? There's also the fact that rats, the initial test patients, have very tiny blood vessels.

So now he and Wright are considering a method similar to kidney dialysis. Divert the blood from the bloodstream—probably tap right into the carotid, says Wright—filter it, put it back into the bloodstream. Like an oil filter. The trick, says Wright, will be figuring out when to change it.

Such a filter obviously would not remove all the itinerant cells. But every filtered cell would be one less threat. Hosick envisions such a device being most useful during surgery, for when a tumor is disturbed, it throws off even more than its usual billions.

Hosick's work with the concept has been encouraging. In tests conducted by his graduate student Jessica Moore, few blood cells stuck to the ceramic. But cells from an aggressive breast cancer line "stuck like crazy."

It's a "promising start," he says.

Meanwhile, the web of interactions has spread widely. What began as collaboration on artificial bones has drawn in a motley crowd. "Brain expert, surgeon, engineers, IT people, organic chemists—working on breast cancer," says Hosick. "I love these interfaces."

—Tim Steury

model. Similar to the way in which one can make either contact prints from a photographic negative or finished prints in a variety of sizes, the process can be used to make either the controlled porosity structure itself with a specific shape and size, or a mold of it. Using the horse's hoof and a "negative" of a plastic bone model, Bandyopadhyay and Bose worked with their graduate student, Jens Darsell, to create an artificial ceramic bone graft. The sophisticated ceramic bone model perfectly imitates the shape and complicated porous architecture of a real bone.

ENTER THE BIOLOGIST

The bone implant looks perfect, as perfect as the real thing. But looks can be deceiving.

For a bone implant to work, real bone cells need to be able to grow on it in the same way that bones grow in a newborn baby. So the materials engineers contacted Howard Hosick, professor in the schools of Molecular Biosciences and Biological Sciences. Hosick began working with Bandyopadhyay and Bose to assess how live bone cells interact with the fine porous architecture of their bone imitation. Bone cells grow differently depending on the porosity of the implant. Hosick and his research group have addressed questions such as adhesion to find out which bone implant materials allow the most real bone cells to bond to them. He also has looked at how cells grow and differentiate on the bone implant.

Hosick says that throwing together scientists with very different expertise is exactly when research starts getting fun. "We're getting to the real action," he says.

BRINGING BONES TO HOSPITALS AND THE REGIONAL ECONOMY

Bandyopadhyay, Bose, and Hosick would like to connect patients to their research. For years, regional leaders have been working to get biomedical research expertise at WSU together with clinicians at area research hospitals. Community leaders have become aware that the researchers' bone work could be a positive step in that direction, and the investigators have recently applied for grants to foster economic development through creation of a biotechnology center in the region. The idea is to link some of the innovative research in biomedicine with people who can use it—physicians and hospitals in the Spokane area.

"In Spokane, we have a terrific medical community with world-class physicians, and at WSU, we have wonderful basic science," says Hosick "This would be a seed to put these strong components together."

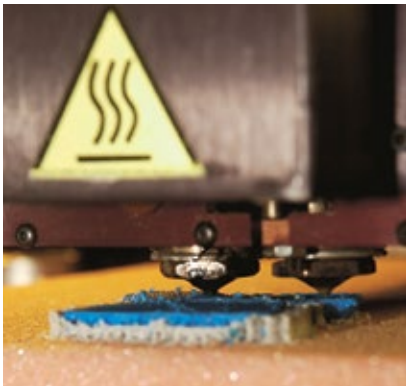
MEANWHILE, BACK IN MATERIALS . . .

Bandyopadhyay and Bose are still working to improve their bone implants, particularly in strength. Like human bones riddled with osteoporosis, the intricately constructed bone imitations have a tendency to crumble.

Although they used the same materials that are in bone, something appears to be missing. To simulate the properties of real bones Bandyopadhyay and Bose thought of taking their recipe to the nanoscale, or molecular level. If they can create a powder in nanometer grain size, which is one-billionth of a meter, they theorize, they create more surface area to which the particles can bond. The resulting material will be stronger.

Bose focused her research to synthesize ultrafine powders of calcium phosphate-based ceramics using novel processing methods. So far, the researchers have brought the particle size down to 50 nanometers, or 1/2000th the diameter of a human hair They have found that these nanometer-sized particles of calcium phosphate bond more efficiently than commercially available powder. They are also working to add to their recipe other mineral ions that are typically found in the human body. They hope that adding minute amounts of magnesium or sodium will strengthen their bone while avoiding the body's tendency to reject foreign materials. Bose recently received a Faculty Early CAREER Development Award from the National Science Foundation to continue this work.

A fused deposition modeling machine uses rapid prototyping to build the bone imitation. The head of the machine moves like a fancy glue gun, squeezing out a heated polymer. Building one layer at a time, the machine generates a three-dimensional model.



Shohom Bose Bandyopadhyay

ONE MORE LOOK AT PERFECTION

Since the arrival of their son last summer, Bandyopadhyay and Bose have participated in many of those middle-of-the-night events so common to parenthood. Peering into his crib, they've watched in wonder as their son takes his perfectly-made thumb and finds his tiny mouth.

"It's just not easy to imitate that," says Bose. ■

Tina Hilding is the publications, communications, and public relations coordinator for the College of Engineering and Architecture.

STEVE KEATING, COURTESY OF MILLER/HULL PARTNERSHIP.

Fisher Pavilion, Seattle Center.

"Prob

There are no stars at Miller/Hull Partnership. Rather, it is a humble Northwest architectural firm doing really good work. Its integrity, teamwork, and aversion to "style" recently won the firm a place in architecture's pantheon.

lem" Is a Good Word

by Tina Hilding

ART GRICE. COURTESY OF MILLER/HULL PARTNERSHIP.

Bainbridge Island's City Hall

THEIR BUILDINGS are community hallmarks. The Fisher Pavilion at Seattle Center. Bainbridge Island's City Hall. The Discovery Park Visitor Center in Seattle. They're beautifully built to meet the needs of their communities in an environmentally friendly way. But please don't say they have a "style." That's one of the least favorite words around Miller/Hull Partnership's downtown Seattle offices. Surprising, since the architecture firm, led by four Washington State University alumni, recently won the 2003 American Institute of Architects Firm Award. Inaugurated in 1961, this most prestigious award in U.S. architecture annually recognizes architects who have consistently produced distinguished work. Miller/Hull is only the second firm in the Northwest ever to have received the award.

Searching for the correct idea

Rather than having a particular style, the Miller/Hull partners contend that solving problems well and honestly has been the key to their success. The firm is known for providing direct, rational solutions appropriate for program and site conditions. It also believes strongly in environmental balance and energy conservation. Sustainable design has always been an abiding principle of the firm, coming about naturally from its sensitive response to the project site. Rather than stylistic trappings, the firm is known for its sense of direct honesty and beauty. Its success is evident in that it has won more than 100 design awards in its 25-year history, including two national awards from the AIA.

"We listen to our clients to really solve the problem on a case-by-case basis," says Norman Strong ('78 Architecture). "There are constraints and opportunities in each project. You get the best you can for the client. If you do it with a twist, and do something that is unexpected, we gauge that as being a success. "You can do what's expected, but what can you do beyond that?"

Although its clientele varies widely, the firm has had the most impact with small, publicly funded projects that benefit the community. In particular, Miller/Hull has worked to portray the heart of communities through its architecture. When it designed a building for King County that would house alcoholic rehabilitation programs, it worked for a building that would capture the idea of rehabilitation. The building came to represent a bridge that led residents back to their healthy lives. Similarly, what could be thought of as a mundane recycling transfer station on Vashon Island instead became beautiful, with the building itself reflecting the community's concern for environmental conservation.

"They take real unique advantage of the context of being in the Northwest," says Greg Kessler, director of WSU's School of Architecture and Construction Man-

JAMES F. HOUSEL. COURTESY OF PRINCETON ARCHITECTURAL PRESS.

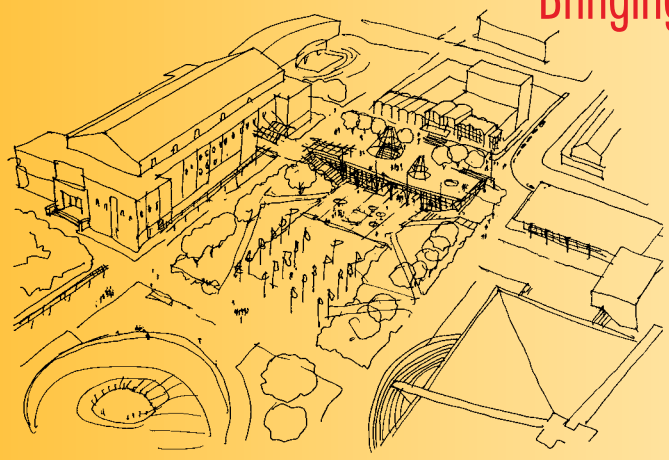
Left to right:
Norman H. Strong '78
Robert E. Hull '68
David E. Miller '68
Craig A. Curtis '84

STEVE KEATING. COURTESY OF MILLER/HULL PARTNERSHIP.

FISHER PAVILION opened last summer. It has more than 14,000 square feet of floor exhibition space. One side is entirely glass, looking out on the International Fountain and Green. Giant garage-like doors roll up, allowing for easy equipment deliveries. Its rooftop plaza is composed of different colored, square-foot-sized tiles that form a pixilated design, so that from the top of the nearby Space Needle, one appears to be looking down on a pond with ripples. The building has won several architectural awards.

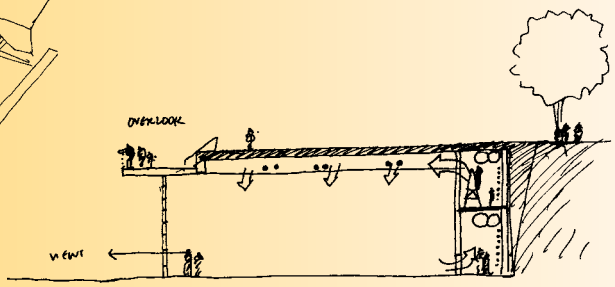
Bringing Design Concepts to the Public

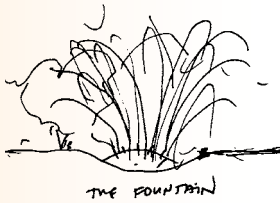
With the Fisher Pavilion, the architects brought eight concepts to the public, an unusually large number. At public meetings, they discussed how the various options solved or didn't solve site problems. One concept split the building in half to create a view corridor. Another called for a building entirely of glass. The review process is grueling, because projects come under the scrutiny of so many interested parties, and project elements can get chipped away. Miller/Hull's



Everyone liked this option because it solves so many problems, yet keeps the unifying site concept of the great public green, includes the roof plaza for extra events, and provides views of the fountain from the Children's Theater.

DRAWINGS COURTESY OF MILLER/HULL PARTNERSHIP.





Accessing and changing the mechanical, electrical, lighting, and sound systems easily and quickly are important. A two-story service corridor allows Seattle Center staff to work behind the scenes to make quick changes.

agement. "They pay attention to the integration of architecture with the landscape and have understanding of how architecture can enhance the human experience and improve the quality of life.

"They work with a palette of materials that's intrinsically appropriate for this environment," he adds.

A tumultuous time

The Miller/Hull Partnership had its beginnings at WSU, where David E. Miller ('68 Arch.) and Robert E. Hull ('68 Arch.) met as classmates in architecture. It was the late 1960s. Protests against the Vietnam War were sweeping campuses throughout the country, including Pullman.

For Hull, who grew up in Moses Lake, the experience at WSU was liberating. For the first time in his life, he traveled to places like Berkeley and Chicago. The radicalism of the times spilled over into his architecture world. The small group of architecture students and professors to which he belonged became a cohesive group of friends in their explorations. Miller, from Seattle, remembers virtually living in the architecture building.

"We had great conversations about design in and out of the studio," he says.

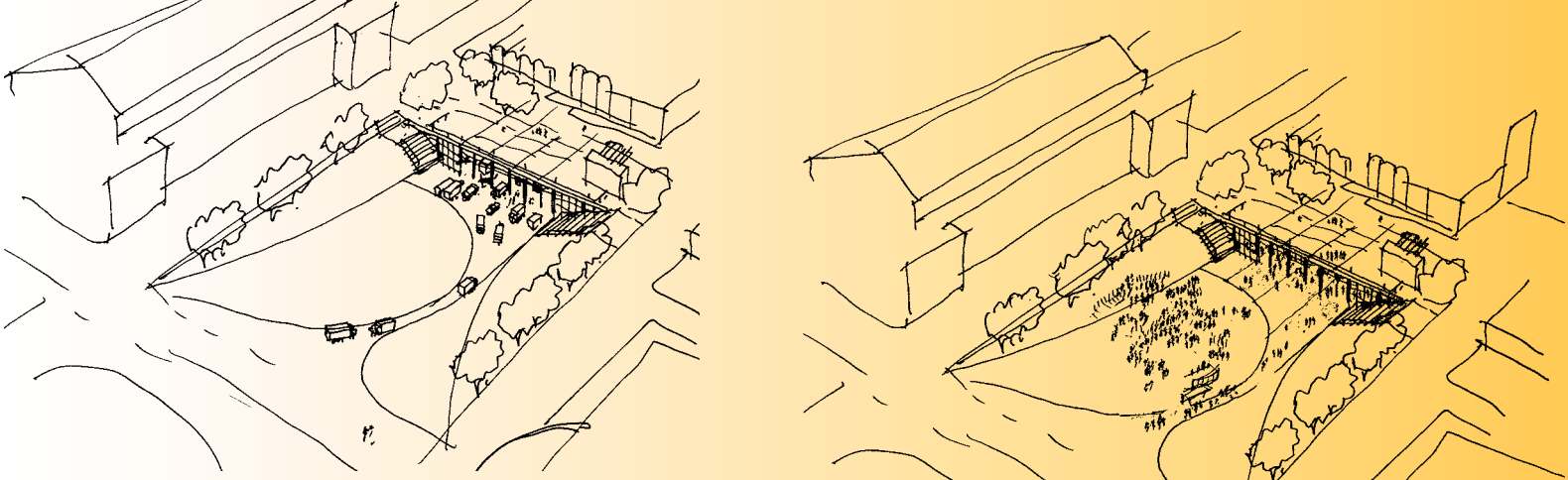
Miller and Hull became good friends. The pair liked the vernacular forms they saw in the rural area around Pullman, examining silos and grain terminals. They liked the directness and rational, engineered approach to those buildings and spent hours studying and sketching them.

At one point, they developed a scheme to develop housing underneath freeways. Another time, a group of students under the direction of Professor Donald Heil built their own portable housing and assembled it next to the Grande Ronde River. They lived in their structures over a month, learning firsthand about context, forms and relationships, structure and thermal comfort. The emotional experience ended when the students destroyed their creation by setting fire to their "village" in a giant bonfire.

"People were trying new ideas, and we stretched our imaginations," says Miller.

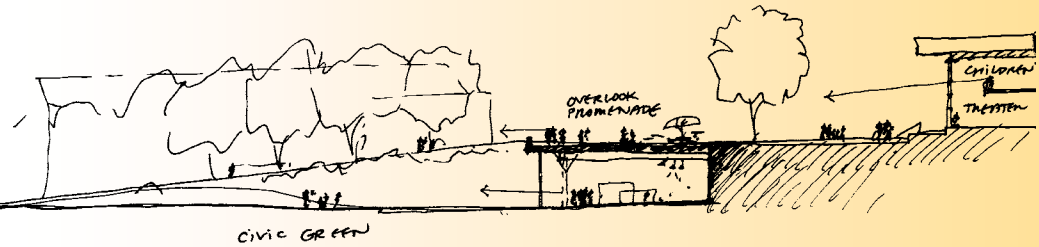
Hull gives credit to his WSU professors, especially David M. Scott, for forcing him and his classmates to look at creative ways to solve problems. They continue to use those lessons on their projects today. Through diagramming and hand-drawings, the architects search for the right solutions. As they solve problems and gather feedback, they also think about form, climate, the site, the landscape, and structure.

"If you can solve a problem in a poetic, artistic way, there's your concept," Hull says. "If you come up with a strong conceptual idea, then it is a



success comes from having a strong concept from the start, says Hull. The architects also avoid "dumbing down" their presentations for a general audience.

Concepts for loading and set-up prior to an event (above left). The public is kept out during load-in days to avoid conflicts. Once the event is underway, all deliveries and load-in cease. The center green is used for public events only (above right).



By sinking the building down into the site and excavating out in front, the entire public realm can be used, including the roof terrace above with its views from the Children's Theater. From the pavilion itself, the public can enjoy large-scale views of the green and fountain.

recipe for success. We learned that early on at WSU."

One problem at a time

In fact, the firm prides itself on its problem-solving.

"By problems, I don't mean bad problems," says Hull. "'Problem' is a good word. It allows us to get in, really analyze, and solve that project."

So, for instance, when Miller/Hull was asked to design a new pavilion for the Seattle Center, the partners first looked at the problems that they needed to solve. The first Flag Pavilion at Seattle Center was built in 1962, meant to serve as a temporary building during the World's Fair. Forty years later, the building stood in the middle of Seattle Center, blocking views to the center's most prominent feature, the International Fountain. How would the replacement for the Flag Pavilion open up views? Another problem involved how to make the building usable for an almost incomprehensible variety of uses. The building is used for everything from dog and cat shows to ice skating and everything in between, including, literally, whirling dervishes. More than a dozen major festivals use the building.

The initial problem-solving on any project comes from the designer's brain. In this case, Hull thought of excavating the site and lowering the building to a subterranean level, allowing other users in the area, particularly a children's theater nearby, to have a view of the fountain over the building. At the same time, the building could still be big enough to host huge crowds. Excavating the site also created additional green space in front of the building, creating a civic center that previously didn't exist.

THINKING MULTI-DIMENSIONALLY

A good designer, says Hull, thinks multi-dimensionally. So the designer will be thinking about the functions of the building, what the client is like, and the potential project costs at the same time as he's thinking about shade on the site and materials.

From there, the designer diagrams the project concept. The diagram doesn't show how the building will look. Rather, it describes ideas and ways to solve problems. A diagram of the Fisher Pavilion, for example, might show a concept of how all the assorted users are going to use the electrical and mechanical systems.

Once an idea is established, it becomes a mantra for the team to coalesce around, and the team spirit takes over. Miller/Hull holds a weekly design panel every Thursday afternoon. Everyone in the office is invited, and snacks are provided. The panel allows team members to gain practice with presenting and selling their ideas, and the project is also improved through constructive criticism.

In building a public building, the architects also bring their concepts to the public.

"In the early phases, you convey through diagrams not necessarily how it's going to look, but how it's going to work," says Hull. "If people understand it, they have a sense of ownership from the start, and they'll buy into it. You can talk about your concept, and people respond to that."

Good balance

Along with creativity and conceptual development, the Miller/Hull partners also know good technique. They might have crazy ideas, but they know drawing, three-dimensional modeling, structural concepts, materials, finishes, and color.

Because the WSU architecture program has historically included a strong emphasis on the technical aspects of both architecture and engineering, the Miller/Hull partners learned the nuts and bolts of architecture, from structures, thermo-comfort, and acoustics to cost analysis and post-construction evaluation.

Hull admits he struggled through some of his civil engineering courses.

"We were always the boneheads," he says, trying to keep up with the left-brained engineering students. Now, the partners not only use their knowledge of structures to create beautiful buildings, they are known for extracting expression through the structural.

"That is a very strong part of our architectural design today," says Hull. "When you look at our buildings, you understand how they are put together."

The Miller/Hull partners also know the basics and discipline of drawing. Drawing, says Hull, is how architects arrive at design, and being comfortable with drawing in any form is all-important in terms of attacking concepts.

In an age when professional drawings are always done on the computer, Miller and Hull still look at their applicants' free-hand drawings in deciding whether to hire them.

Forming Miller/Hull

After graduation, Miller and Hull both joined the Peace Corps. In Afghanistan, Hull designed schools with available building materials—mostly mud, brick, and wood. Miller, meanwhile, headed to Brazil, where he built housing near Brasilia. Hull observed practices that had been in place for more than a thousand years, such as the use of passive solar energy and building orientation to keep living spaces comfortable throughout the year. Both noted the spare and efficient, yet beautiful, indigenous architecture. Their experiences helped solidify their ideas in sustainable development that they continue to use today.

"We learned about simplicity and being able to do a lot with a little," says Miller.

Returning from Peace Corps service, Miller and Hull put in time with architectural firms on the East Coast and in the Northwest. Miller enrolled at the University of Illinois, where he completed a Master of Architecture degree. In addition to his design work, he teaches architecture at the University of Washington.

The two friends met again in Vancouver, British Columbia, where both worked for the Vancouver-based firm, Rhone & Iredale. After becoming partners in the firm, they started a Seattle branch office. When the company dissolved in 1977, they launched Miller/Hull.

The firm is unusual in its strong collaborative culture. An award-winning building is not known as a Miller design or anyone else's design. Rather, buildings are consistently identified as Miller/Hull buildings, and the name of the lead architect is a well-kept secret.

"There are no 'stars,'" says Hull. "Rather, it's a team of people who get involved and

THE FIRST WINNER

The Portland-based Zimmer/Gunsul/Frasca Partnership, which includes Washington State University alumnus Brooks Gunsul ('52 Arch. Engr.), is the only other firm in the Northwest besides the Miller/Hull Partnership to have received the American Institute of Architects Firm Award. ZGF won the award in 1991.

Gunsul became a partner in the firm in 1966 and retired to Bend, Oregon, in 2001. ZGF was involved in the technical design aspects of WSU's New Holland Library and developed master planning for the WSU Vancouver campus, as well as many projects throughout the country, including the Oregon Convention Center, the Oregon Museum of Sciences and Industry, and the Seattle World Trade Center.

JAMES F. HOUSEL

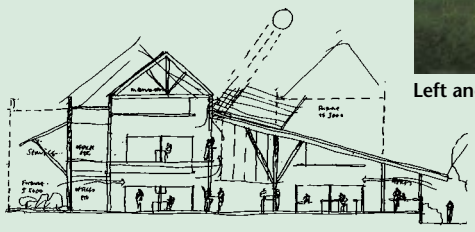
JAMES F. HOUSEL

Above: Discovery Park Visitor Center

Above, right: Vashon Island Transfer and Recycling Station

ART GRICE

Left and above: City Hall, Bainbridge Island



Photos and drawing this page courtesy of Princeton Architectural Press. See Sheri Olson, *Miller/Hull: Architects of the Pacific Northwest.* New York: Princeton Architectural Press, 2001.

Right: Recently completed Shock Physics Building, Washington State University, Pullman

SHAWN TONER, COURTESY OF MILLER/HULL PARTNERSHIP.

Below: 1310 East Union Live Work Lofts, Seattle

JAMES F. HOUSEL, COURTESY OF MILLER/HULL PARTNERSHIP.

follow the project from start to finish."

Miller/Hull has worked to stay small. Strong was hired in 1979 as the third employee. He impressed the principals with a student project he had done to renovate the WSU engineering shops. Craig Curtis ('83, Arch., '84 Const. Mgmt.) joined Miller/Hull in 1986 after working three years in San Diego. His background in architecture and construction management proved to be an asset.

"We share the same values professionally and personally," he says.

The firm now numbers 48 employees in the office, including four other WSU graduates, in addition to the partners.

The partners remain tied to their academic roots. Miller/Hull recently completed WSU's new Shock Physics Building on the Pullman campus. Their firm often hosts student critiques, and a representative from the firm serves on the School of Architecture and Construction Management advisory board. They consider their service an investment in architecture in the Northwest.

Winning the award

For weeks, the partners had known that the firm was a finalist for the AIA award. They were told a phone call announcing the winner would come at 10:30 on a Thursday morning in early December. Hull was designated to answer the call. Not wanting to jinx his chances, he didn't prepare any remarks.

When the call came, Hull says, he suddenly found himself on a speaker phone, mumbling through some "aw, gee whiz" remarks before 70 esteemed colleagues. After the initial shock wore off, he found it much easier to articulate what the award means. The award, he says, gave the firm a sense of validity. The honor is not just for a few of its nicest buildings, but rather shows the consistency of its work, the way the firm conducts itself, how its office works as a team, and its community service.

In his letter of support for Miller/Hull, Douglas Kelbaugh, dean and professor of architecture and urban planning at the University of Michigan, wrote that over time, architects' personal values and personalities inevitably come out in their work. "The bedrock values that ultimately come through with Miller/Hull are integrity, modesty, and honest virtue, whether it is environmental sensitivity, community service, structural clarity, or professional incorruptibility," he wrote.

The award represents a challenge for the future. Miller/Hull is now linked with the other top architectural firms that have won the award, such as Skidmore, Owings & Merrill, who designed Chicago's Sears Tower, and Cesar Pelli & Associates, architects of the Petronas Twin Towers in Malaysia. From now on, any Miller/Hull project will be scrutinized more closely and examined in this new light.

"It is a challenge to work smarter and do the job even better," says Hull. "We don't want to change the culture of the firm," adds Curtis. "We're a humble Northwest firm that does really good work." ■

Tina Hilding is the publications, communications, and public relations coordinator for the College of Engineering and Architecture.

ooking for 7,000

by Pat Caraher • photography by Robert Hubner

Greg Blanchard jiggles a long knife through a tray of rice crispy treats, careful not to scatter the red, yellow, green, and brown M&Ms on top. "The students love these," the associate manager of the Rotunda says, placing the treats on a ✳

LATE-NIGHT DINING

Flix Café

A line begins to form at 6:45 p.m. in front of Flix. The popular café opens 15 minutes later. Soon all 130 seats are filled.

The décor is Hollywood: Humphrey Bogart, James Dean, Marilyn Monroe, and Orson Welles stare out from movie posters on the wall.

Roy Orbison's "Pretty Woman" plays on the jukebox, while students shoot pool. Flix is a place for students to socialize, fill their coffee cups, drink Ferdinand's milkshakes, and satisfy late-night cravings for food.

Three years ago WSU engaged a national consulting firm to provide new concepts in dining services for the campus. Students also met in focus groups to discuss options. They answered computer-based questionnaires. Faculty and staff were invited to do likewise.

"One thing we saw we could do was provide late-night dining for students and a place for them to gather, study, eat, and enjoy a drug-free, alcohol free environment," says Liz Khosravi, associate director of WSU Dining Services.

Dinner is served from 7 to 11 p.m. The menu features Ivar's Clam Chowder on Fridays, fish and chips, chili, chicken strips, and burgers. Students can order Egg 'n Cheese McCougar, the omelet of the day, and a side of hash browns before the 2 a.m. closing.

Flix and the nearby convenience market attract 870 customers per night on average. "This is one of the most popular things we've done," says Greg Blanchard.

✳ dessert line. The Rotunda does the largest volume of WSU's three dining halls. It is the only dining hall on the south side of the Pullman campus, where 60 percent of the students in residence halls live. When filled, the circular dining room seats 760. The Rotunda averages 3,500 servings ✳

BIG TASTES, BIG WASTE

WSU dining halls recycle 85 percent of everything that comes in the back door. Some 1,900 half-pint milk cartons and nearly 2,000 12- and 16-ounce Coke cups are run through a pulper daily at the Rotunda. Along with food waste, the material is trucked across campus to the University's compost site at the rate of 600 pounds per day.

Campus-wide, WSU saved more than $200,000 in landfill, labor, and gasoline costs in 2001 by composting 160 tons of dining hall food waste, according to Judi Dunn, recycling education coordinator. The food wastes and pulp are mixed with greenhouse plant material, soil, animal manure, wood chips, and shrub and grass clippings to make compost for application to University fields. It is also sold in bulk to commercial nurseries and greenhouses.

daily, Regents 1,500, and Wilmer-Davis 1,400.

Rotunda sales, including those at Flix, a popular after-hours café in the basement, totaled nearly $6 million last year. Blanchard budgeted $1.2 million for food, $980,000 for labor.

WSU Dining Services is a $15 million operation campus-wide.

On a whirlwind tour through the spacious kitchen, Blanchard talks about a new combination oven that offers the convenience of a separate steamer with dry heat in the same unit. Now he covets a tilt fryer, nearly five feet long. With the sides up and using cooking oil for stir-fry food, he could provide 300 servings at one time, rather than the current 60 to 70.

So what are students eating?

Just about everything.

And how much?

Students put away 800 slices of pizza a day. For many, it is an "add on" to cheeseburgers, French fries—300 pounds per day—entrée, salad, dessert, and beverages.

Moving into the Rotunda, Blanchard says, "The food options begin here." To his left is a large rectangular cooler containing 800 half-pint cartons of milk. Students consume more than 2,500 half-pints per day. Nearby "grab and go" items include yogurts, boxed juices, cream cheese, and peanut butter. Push a button in one of the dozen clear plastic dispensers, and cereal flows like sawdust out of a hopper. Lucky Charms and Cinnamon Toast Crunch rank first and second, respectively. Pancakes, waffles, eggs, and hash brown potatoes are other breakfast options. On Wednesday evenings students consume 400 to 500 six-ounce New York steaks, prepared 30 at a time on covered grills on the loading dock.

Students surveyed listed their favorite foods as steak, barbecued ribs, chicken strips, cheese lasagna, mashed potatoes and gravy, and corn on the cob.

A fruit bar offers fresh and canned fruit (3,200 pounds total per week). All baked goods are prepared in the WSU bakery for distribution to the dining halls. At the self-service deli bar, students build 1,200 pounds of sandwiches per week. Fixings include five meats, egg salad, tuna fish, and imitation crab. The salad bar fares even better—more than 3,000 pounds per week at nine cents per ounce. A typical salad weighs two to three ounces.

Other venues? The pasta bar on Tuesdays and Thursdays totals 1,000 pounds, including Alfredo, chicken Alfredo, beef ravioli, and spaghetti. The bar converts to tacos and nachos—850 pounds per week—on Sundays, Mondays, and Wednesdays.

Are the students worried about their intake?

"I don't know," Blanchard responds blankly. "They're young. They will run it off. Or work it off some way."

A dietitian is on the staff. Day and week menus are posted on the entryway wall. So is information on calories, fats, proteins, carbohydrates, food allergies, and food options for vegetarians.

International students typically try as many foods as possible, at least once, before settling on their favorites. White rice is available at lunch and dinner. Chicken fried rice, shrimp rice, Mexican rice, and rice pilaf—a big hit with vegetarians—is offered weekly.

The newest fare includes Thai, Japanese, Mediterranean, and Caribbean cuisine with "lots of vegetables." Students like it.

At least once each semester, the Rotunda digs deep into its pockets to offer an eight-ounce serving of prime rib.

"It was expensive," Blanchard says, "but several times a year we can afford to subsidize it for our students." ■

WITH EYES WIDE OPEN

by Pat Caraher • photography by Laurence Chen

Margarita Mendoza de Sugiyama is on the lookout for crooks, "really slimy crooks," con artists who prey on the elderly, the illiterate, the limited-English-speaking. People from other countries

" . . . in everything we've done in seeking justice for people who don't have a voice, . . . we are helping them gain the ability to make future wise choices."

are easy targets, she says. They don't know how the system of justice works in America.

Working out of Seattle, the director of consumer services for the Washington State Office of the Attorney General oversees consumer resource centers there and in Bellingham, Kennewick, Spokane, Tacoma, and Vancouver. Her staff includes 16 permanent employees statewide and as many as 130 temporary consumer representatives, typically college students and community volunteers. They work to provide the consumer resource centers with consumer information and to reconcile consumer and business disputes. Through initial contacts, they determine if complaints fall under the Consumer Protection Act, and under which agency's jurisdiction. The complaint data collected is also used by attorneys to take legal action on behalf of the state. In 2002, Mendoza de Sugiyama's staff answered 189,886 consumer calls, handled 23,810 complaints, and facilitated $5.3 million in restitution.

COURTESY OF MARGARITA MENDOZA DE SUGIYAMA.

A grassroots idealist wanting to make positive things happen.

Mendoza de Sugiyama tells of seasonal scams and bogus holiday travel packages. People pay for dream vacation packages that turn out to be nightmares—cockroaches in the rooms, or perhaps no rooms at all.

While the 2001 western Washington earthquake proved to be an economic hit for many, it was an opportunity for others. Con artists drove the neighborhoods looking for houses where bricks had fallen away from the exterior. The charlatans promised to repair the damage. Instead, they took the money and ran.

Mendoza de Sugiyama is particularly sensitive to the vulnerable. "The elderly are easily preyed on," she says. They are talked into purchasing expensive vacuum cleaners and other things they don't need, including products promising wonderful health. One internet-based promoter claimed his special dietary supplements and herbs would cure cancer. The attorney general's response was to send out an alert and take the owner to court to shut the business down.

Mendoza de Sugiyama wants people to know they have rights, too. They can file a complaint with the AG's office by calling 1-800-551-4636 or by filing on-line at www.wa.gov/ago/consumer/forms.

"It [consumer fraud] is everywhere," the director says. "Anything that was done door-to-door is now being done on the Internet, too."

Her greatest frustrations are that there are never enough people, never enough time or money to educate Washington consumers and businesses about protecting themselves from scams. An on-going effort is to recruit volunteers who have a public service interest to join the consumer resource centers as representatives.

There are rewards, as well, she says. "I've felt that in everything we've done in seeking justice for people who don't have a voice, who are vulnerable, we are helping them gain the ability to make future wise choices. That's meaningful to me."

THE ADVOCATE

THE BESPECTACLED CHICANA tends to look at her work, people, and life with her eyes wide open.

Last June, Margarita Mendoza de Sugiyama ('74 Psychology) returned to Pullman as one of three faculty-in-residence for a five-day National Education for Women Leadership Institute. Thirty-two women, ages 18 to 40, attended. Most were college students from the Northwest. The workshop was designed to help young women become politically involved and to serve the underserved.

"These women are the future," Mendoza de Sugiyama explained late one afternoon.

All her adult life she's been an advocate of those who don't have a voice. Her father and her mother's family made their home in Moxee City and Yakima, but worked in the fields throughout Washington. They instilled in their 11 children, including Margarita, the second oldest, the values of "justice and honesty" and the importance of giving back to their people and community. Her mother, grandmother, and great-grandmother were strong role models. She aspires to be like them.

"I'll never make it, they were in life much nicer than me," she said with a contagious laugh. "But I have the genetics of those incredible women."

Her husband, Masao Sugiyama, holds a doctorate in mathematics from WSU.

After graduating from WSU, she directed the University's Upward Bound program, a nationally funded education enrichment program for Yakima Valley high school youth from lower income families. From that time on, she's always chosen professions that involve her in social justice issues.

She worked for the Idaho Human Rights Commission in Boise in 1975. Later she worked for Washington governors Booth Gardner and Mike Lowry. Most recently, she was diversity program manager for the Washington State Department of Labor and Industry for five

years. State attorney general Christine Gregoire appointed her to her current position in Seattle nearly three years ago.

Elaine Yoder Zakarison ('54 Sociology) of Pullman is a close friend. The retired director of the WSU YWCA remembers the "angry young student" when their paths first crossed in the YWCA office in 1969. Margarita saw things she thought needed to be done at WSU, and Zakarison provided a listening ear.

"Margarita is truly one of the most gifted, talented, and amazing young women I've worked with," Zakarison says. "She is . . . completely dedicated to social issues and making this world a better place for people."

"WSU refined what I am today, a person with a highly developed social conscience," Mendoza de Sugiyama said proudly. She found lifelong mentors like Zakarison and "clarified the family value most important to me—justice."

"Elaine Zakarison radicalized more women on this campus to address issues of injustice," she explained. The issues were important to male and female alike. In support of the United Farm Workers, students boycotted scab lettuce and grapes sold in Pullman grocery stores and served in WSU dining halls. In addition, students took a stand against apartheid and racism, and participated in racial justice training sessions.

In 1970, President Glenn Terrell suspended classes to enable students to attend a racial justice workshop. Margarita and others attracted prominent speakers. More than 20,000 members of the University and Pullman communities packed Bohler Gym for sessions that ran two days.

WSU provided funds to bring in speakers and racial justice trainers. Later, the University formed a cadre of students of color to recruit ethnic minority students. Programs in Chicano Studies, Black Studies, and Native American studies were created.

"These were significant financial commitments by the University," Mendoza de Sugiyama emphasized. Returning to WSU to participate in programs like the National Education for Women Leadership Institute is her way of giving back.

Margarita Mendoza de Sugiyama

In fact, she considers herself "a gift to this University." Not in a boasting way, but as a grassroots idealist wanting to make positive things happen.

"A university needs the energy and perspective of students who have a very different view of policies, procedures, and programs that are not inclusive," she says. As a student insider, for example, she was able to provide "a broader awareness" of what the University could do to recruit students from ethnic communities in the state that traditionally don't have large numbers on the campus.

She's grateful for the University's initial accomplishments in the areas of diversity, gender issues, human rights, and social justice. She acknowledges the efforts toward those ends of "extraordinary, ordinary women," among them Zakarison, Felicia Gaskins, associate vice provost for human resource development, and Barbara Dingle, retired YWCA secretary. "They cared about students . . . were so down home and authentic. They gave us students the gift of seeing ourselves and our potential through their eyes," she said. ■

Survival

photography by Jeff T. Green

Science

by Al Ruddy

Joanna Ellington champions fecundity

She began working on endangered species. Now physiologist Joanna Ellington wonders if humans are putting at risk their own capacity to procreate.

One of a relatively small but growing number of scientists concerned with male reproduction problems, Ellington is troubled by the levels of chemicals in the environment and other prescribed compounds that cause infertility, miscarriages, cancer, and other diseases.

After all, she points out, man is a mouse when it comes to producing sperm. Even rats, like those used in most comparative animal studies, produce millions more sperm cells than humans. How we survived at all as a species, considering our level of reproductive prowess, would give Darwin pause.

The body of evidence about male reproductive dysfunction is growing rapidly and has spawned its own scientific organization, the American Society of Andrology, of which Ellington is a member and by which she has been chosen, from a field of international candidates, to receive the prestigious Young Andrologist Award for 2003. The award recognizes the impact on the field of andrology by researchers under 45. Andrology is the science of diseases of males, especially diseases of the male reproductive organs.

With a degree in veterinary medicine from the University of Tennessee, Ellington worked in Germany in the early 1980s on a successful project to protect Pinzgauers, an endangered cattle breed. Later, she was one of the first woman large-animal practitioners in the Puget Sound area. But her dairy practice declined with the industry. She returned to school, earning a doctorate in reproductive physiology from Cornell University.

Ellington joined the Health Education and Research Center at Washington State University at Spokane in 1995, and later became the director of biomedical development. The appointment, she says, provides a rare opportunity for a research physiologist to work directly with specialists in pharmacology and with WSU's Center for Reproductive Biology.

Her most recent collaboration is with Clarke St. Dennis, a WSU Spokane assistant professor and psychopharmacology specialist at Sacred Heart Medical Center. The two are principal investigators on a $143,000, two-year research project funded by the National Institute of Child Health and Human Development, exploring the effects of SSRI (selective serotonin reuptake inhibitor) antidepressants on male reproductive success.

The major myth about infertility has now been exploded, says Ellington. Although physicians and reproduction specialists traditionally have approached infertility as primarily a female problem, the reality is that 50 to 60 percent of infertility issues are traced to the male.

One of the root problems is damaged DNA in the sperm. Because sperm cells lack the proteins that do the DNA repair work in all the other cells in the body, sperm DNA, or chromatin, is especially vulnerable to environmentally toxic compounds. The researchers believe hormonal imbalances also compromise that basic genetic code.

To make the matter even more complex, the brain, which controls all cell functions, cannot distinguish between different sex hormones present in the body. The brain simply shuts down the production of all sex hormones when one rises above its normal level.

Ellington and St. Dennis suspect SSRI antidepressants cause infertility by altering sperm DNA. SSRIs produce an elevated level of the sex hormone prolactin through complicated interactions among serotonin, dopamine, and prolactin.

Antidepressant usage in growing. Four million men nationwide in the reproductive ages 20 to 45 take SSRIs such as Prozac, Paxil, and Zoloft.

Sperm samples from volunteer patients in the Spokane research project are being analyzed by Don Evenson, a South Dakota State University scientist who has pioneered test methods for determining DNA damage in those cells. Volunteers are still being accepted to broaden the project's scope.

Ellington's immediate objective is to help infertile couples conceive. But there are other issues in her global view. What does the worldwide decrease in sperm production mean in the long term? How will environmentally offending chemicals affect future reproduction? Will antidepressants given to children with attention deficit disorders alter their capacity to have healthy children?

Until science can bring some light to these questions, Ellington takes an environmentally cautious tone. To her two young boys she serves a menu high in organic foods, anticipating eventual grandmotherhood. ■

Joanna Ellington takes an environmentally cautious approach to feeding her sons, Rayne and Sage.

Al Ruddy is the former director of WSU News and Information.

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Sid Pearson ('67)

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LOCAL INDEPENDENT PHARMACISTS

WSU GRADUATES

CLASS NOTES

1930s

Irvin Johnson ('32 Pharm.) lives at Parkhurst House, 2450 May Street, Hood River, Oregon 97301. He owned pharmacies in College Place and Seattle but sold them to join a brother in the oil business in Hood River. At one time, he owned a restaurant and a tire store. He celebrated his 93rd birthday April 2, 2003. He welcomes letters and visits from friends.

Helen Cox Sutton ('33 Phys. Ed.) is a board member and exerciser at the West Seattle YMCA. Her activities include volunteering at service clubs, church, and schools, and directing the South Seattle Community College Foundation. Before retiring, she owned a women's apparel store for 42 years in West Seattle. She is a past president of the west Seattle Chamber of Commerce.

Remo P. Fausti ('39 Speech/Comm., M.A. '47 Speech), Olympia, WSU professor emeritus of speech, writes: "My 85th birthday was the garage burning to ashes. The Almighty has an interesting sense of humor. Have a new one. All is well. Aging is wonderful considering the alternative. A granddaughter is coming to WSU."

1940s

Keith E. Peterson ('45 D.V.M.) and wife, **Dorothy J. Schwab Peterson** ('45 Home Ec.), write from Basye, Virginia: "We still are able to enjoy the golf and skiing here in the Shenandoah Valley. We travel both domestic and foreign."

Marjorie DeMoss Casebolt ('47 Home Ec. Educ.) of Wauna, Washington, reports: "My book, *Margarita,*

Eliminating chaos: "Organization isn't about shifting things around"

"My goal is to get people organized and work myself out of a job."

—Laura Leist Bishop

LAURA LEIST BISHOP is organized. She says she always has been. That doesn't mean her office is tidy all the time. But ask her for anything, and she can find it. At home everything is arranged in her kitchen—canned food in one area, appliances in another. Clothes are in the closet. Garden implements line one wall of her garage, athletic gear another.

Because she is organized, she manages her time better. She knows what needs to be done tonight to be ready for tomorrow. Sometimes she plans three days ahead. "Because I do that," she says, "I'm able to accomplish a lot."

As president of Eliminate Chaos, Bishop provides professional organizing services to corporations, small businesses, and individuals. Her goal is to increase efficiency and reduce stress in homes and offices, thus providing clients with "more time for life."

After spending a decade in the corporate world as a business analyst, the Washington State University graduate ('90 Management Information Systems) grew tired of the 60- to 80-hour work week. With the encouragement of friends and relatives, she decided to capitalize on the skills she had developed in the business sector. In 2000, she founded Eliminate Chaos. Working out of her Mill Creek home, she has established a revolving client base numbering 75.

Bishop was recognized by the *Puget Sound Business Journal* as one of the 2001 "40 Under 40 Entrepreneurs" in Washington. She is author of a book of tips, *Eliminate Chaos in Your Home,* and is working on two new books.

Many professionals are good at what they do. Still, they can benefit from advice that streamlines their business procedures, Bishop says. On a walk-through of a home or office, Bishop has clients explain how the existing system works, or doesn't. She wants to know what is going on in her clients' lives, what bothers them the most in trying to get organized. They discuss options for bringing order to various spaces. While clients have similar needs, she recognizes those needs may be at different technical levels. As a result, she designs systems based on clients' individual strengths and tailors systems to their particular needs.

One firm had a dozen employees who worked with 50 contractors. Eight different systems were in place to track business transactions. After conducting an analysis, Bishop introduced new software that reduced the number of systems to two. Now the office manager spends less time training employees on multiple systems.

Bishop helps clients bring order to their home and work place.

KATHRYN SAUBER

Bishop introduced Microsoft Outlook to several law firms in Seattle and trained attorneys individually on their needs for tracking data specific to their law practice. In addition, she has shown firms how to utilize the global calendar to schedule appointments with clients.

For those conditioned to living in chaos, Bishop says, "One of the most frustrating things is figuring out *where* to start organizing, or more importantly, *how.*" While some people resist change, most are at a point in life where they want to get organized. They need someone to "hold their hand and work with them."

For example, Bishop has had clients call and say they can't find things in their kitchen. Her solution is to pull everything out of the cupboards and drawers. This gives people a fresh start, as if they just moved in. They can see what is there, group similar items together, and get rid of what is not needed. Then they look at what is left and the amount of space available, and determine what things need to be organized before they are put back or stored elsewhere.

At that point, the "system" is in place. All people have to do is maintain it, because now everything has a "home" where it remains when it's not in use.

"My goal is to get people organized and work myself out of a job," says Bishop. She now works 60-hour weeks, but not all the hours are billable.

She likes being her own boss and doing what she likes. "The work is extremely rewarding—to hear the sigh of relief when clients know they are organized and in control," she says.

—Pat Caraher

A Guatemalan Peace Corps Experience, was published in 2001. It is available at Amazon.com." She served in the Peace Corps health and nutrition program from 1989 to 1992 in a small town in Guatemala.

1950s

LeRoy Desilet ('50 Speech/Comm.) of Sequim has been retired since 1990. He writes that he is recovering slowly from a fractured spine. "My wife, Elaine, and I spend hours in our yard and it is lovely. Maybe I can get back at golf in the spring." During his WSC days, he was sports director of KWSC Radio, covering Cougar football, basketball, baseball, track, and ski jumping, among other sports.

Ray Graves ('50 Polit. Sci.) of Lakewood is author of *Washington's Historical Courthouses,* a book available at major bookstores. He is an attorney with McGavick Graves P.S., Tacoma.

Jay Rockey ('50 Gen. St.), founder and chair of The Rockey Company, a Seattle public relations firm, received the inaugural lifetime achievement award from the Puget Sound Chapter of the Public Relations Society of America during the chapter's December 5, 2002 holiday party. The award was renamed the Jay Rockey Lifetime Achievement Award after its first recipient. During a 40-plus-year professional career, he served as director of public relations and advertising for the Seattle World's Fair in 1962. He was chair of the WSU Foundation in 1990-92, and 1993 recipient of the Weldon B. Gibson Distinguished Volunteer Award from the WSU Foundation.

Bill McCaw ('51 Animal Sci, '52 M.A. Animal Sci.) and **Sarita McCaw** ('53 Speech Comm.) of Walla Walla celebrated their 50th wedding anniversary April 10, 2002. Bill recently retired as manager of the Walla Walla Choral Society. A luthier, he makes stringed instruments, including guitars, cellos, and banjos. Sarita was a communications instructor at Walla Walla Community College from 1969 to 2002.

Retirees **Garry Ray Miller** ('57 Chem. Engr.) and his wife, Dixie, write from Waco, Texas: "We are still traveling all we can, particularly in Hawaii. Go to funerals. Play golf. Play with the grandchildren."

Raymond Seegers ('58 Music, '58 Teaching Cert.) has retired as an agent and manager of performing artists. He originally was a music educator and later worked for Columbia Artists in North Hollywood and New York. After retiring from Columbia in 1993, he started Seegers Artists Mgt.

1960s

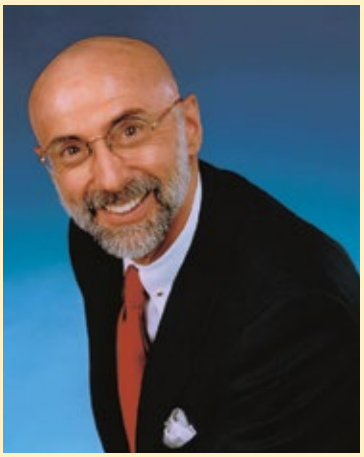
Adolf Sgambelluri ('60 Police Sci.) is the federal security director of the Antonio B. Won Pat International Airport in Guam. Previously, he served as the vice president of special projects and programs at Guam Community College and as the executive director of the college's Pro-Tech Institute. At one time, he was director of the Guam Department of Corrections and chief of police.

Carol Kepner Kirkby ('61 Phys. Ed.) of Burlington is a member of the board of directors of Soroptimist International of the Americas, a volunteer service organization for women in business, management, and the professions. She joined Soroptimist in 1976 and has served as club president and Northwestern Region governor. She is a counselor at Skagit Valley College and volunteers for Girl Scouts, American Red Cross, Skagit Women's Alliance & Network, and the Women's Leadership Project.

THE BEST ORGANIZATIONS ARE RUN BY LOVERS

"It's about seizing life when others are just sleepwalking."

—Allen Johnson



Allen Johnson, counseling psychologist

COUNSELING psychologist Allen Johnson has been called everything from a "headpeeper" and "bug doctor" to a "shrink." He takes issue with the latter label. In reality, he says he's "an expander."

He believes in the human capacity to create a better, more joyful world. It's a message he gladly shares with others in his conversations, seminars, and two books, *This Side of Crazy* and *The Power Within: The Five Disciplines of Personal Effectiveness.*

After completing a doctorate at Washington State University ('85 Coun. Psych.), he spent six years as the principal organization and leadership development consultant for ICF Kaiser, an international, 3,500-employee construction and engineering company in Richland. While working there and with other firms, he discovered that problems employees face deal not with tasks, but with relationships. People come into an organization with "high spirits and low task skills." Over time, they get better at their tasks, but their interpersonal skills lag behind.

In 1985, he created his own company, Johnson Dynamics, which specializes in human and organization development. His consulting work has taken him to nearly every state in the country, as well as Mexico, Bermuda, and the Bahamas. Audiences have ranged in size from a dozen to thousands. Now financially independent, he chooses to scale back his business travel and, instead, supplement his schedule with writing, volunteer youth services, and outdoor activities. He works out of his Richland home.

Johnson finds some people vibrant, full of life. They take on challenges with gusto. Others "just put in their time." The contrast fascinates him. He set out to develop a correlation study between peace and joy and the work people do. He found that those who are most fulfilled, young at heart, are the "most disciplined." He identified five irreducible disciplines: love, responsibility, vision, commitment, and service. They are the basis of his second book, *The Power Within,* completed in December 2000. He makes it clear that while these resources are often underused—even abused—they are available to all of us.

The disciplines are "about what people do" to become more purposeful, more at peace. "It's about seizing life when others are just sleepwalking."

The book is full of anecdotes and simple models that challenge readers to nourish their own minds and spirits as well as those of others, to live lives of nobility, to avoid procrastination, to listen, to resolve conflict, to build community, and to initiate small acts of kindness.

This Side of Crazy, published in 1990, is a collection of "light-hearted columns" Johnson wrote for *The Tri-City Herald* over a two-year period in the late '80s.

In the corporate world, Johnson says, the main problem is that people spend 65 to 85 percent of their time doing the things that have a "sense of urgency, but are not necessarily important."

Regardless of their position in the hierarchy of the company—from the entry clerk to the CEO—they need to receive and give love.

"The best organizations are run by lovers," he says. "They love their clients. They take care of them like family. And they take care of their internal associates like family, too.

"If that makes the CEOs of the world uncomfortable, I'm sorry, because that's the way it is."

—Pat Caraher

THRIVING IN RURAL AMERICA

Ochs uses computer technology to stay on family farm

WANTED: PERSON WITH a bachelor's degree in fine arts to help design and create software programs; location: Dusty, Washington, population 10.

These are just the kind of people whom Jon Ochs, president, CEO, and founder of Eureka Software, Inc., may soon be looking to hire for the multimedia communications company he runs from his family farm in very rural Eastern Washington.

"We actually have four employees that are here all the time, so it is no longer a mom and pop business," he says, sitting on the porch patio. "And there is work for a bunch more."

For generations, the Ochs family, whose ancestors emigrated from the Volga River Valley in Russia, has cultivated a 1,200-acre farm near Dusty, 34 miles from Pullman.

Ochs attended several universities in Europe and eventually earned a doctorate in mathematics at Washington State University in 1974 before he made his way back to the homestead to resume farming.

Then, in the early '80s, he developed a keen interest in computers and what they could do after a friend plunked one down on his desk one day and told him to check it out.

"We started tinkering with computers very early on. Our first serious work was doing a global communications piece which connected the Foreign Agriculture Service with an out-group of various agricultural cooperative groups in the United States.

"We were thinking it would be a great thing for agriculture . . . to find out what crops are like in Turkey and to follow out trade leads and things like that," he said. "It was a little before its time."

As technology became more advanced, so did the services Eureka Software was able to provide, including the production of Web sites, touch-screen kiosks, and publishing projects that integrate the Web and CD-ROM.

"We did a lot of CD-ROMs in the early '90s," he said. "We did *The Complete World Bartender's Guide*, the *Better Homes and Gardens CD Cookbook*, and did *Americans in Space*." So far, Eureka Software is responsible for the distribution of over 2.5 million CD-ROM units.

But Ochs didn't stop there. He and his wife, Li, vice president and project manager of Eureka Software, put the farm into native grasses and are currently focusing their business on hydro-relicensing for large waterworks projects, knowledge management systems that aid re-licensing, online banking services, and Internet commerce.

And he runs it all from an old bunkhouse behind the main living quarters that he converted to a technologically packed office hooked to the outside world by a satellite dish in the back yard.

"This is my grandfather's place and my father's and mine and so on," Ochs said. "We are kind of too stubborn to leave."

His success and tenacity caught the attention of Bill Gillis, director of WSU's recently established Center to Bridge the Digital Divide, through WSU Cooperative Extension. Gillis decided to feature Ochs on the center's six-part television program called *Digital Pathways*. The program is designed to show business, health care, education, local government, and civic leaders what can be done if broadband communications connections are brought into a community. On the first part, called "Stories from the Front Lines," Ochs explained how he broke into the world of high technology and what others can do if they have even the most basic telecommunications connections.

"Jon is an example of the lone wolf concept," said Scott Fedale, director of the Digital Pathways program and chairman of the information department in the College of Agriculture and Home Economics. "The community of Dusty didn't bring connectivity in. Jon found different ways to do it himself."

"It is true that there is a big digital divide, certainly in this state, between the east and west side," Ochs says. "Somehow we have to build infrastructure so that we are not being third-world out here. Because there is a digital divide, there is also an economic divide in this state."

But Ochs and others are proving that hope does exist for small communities struggling to survive and that they can be revitalized through the use of computers, the Internet, and modern telecommunications.

Many small communities are beginning to recognize this for themselves; and the *Digital Pathways* series, designed to air only in Washington, has become so successful that people are starting to watch it all over the nation.

"We had 19 states that paid to watch our 'Rural Telework' project because Washington has been a leader in this area nationally," Fedale says.

—Emmy Sunleaf

Emmy Sunleaf ('02 Agri. Econ.) is a writer for the College of Veterinary Medicine.

INSET: EMMY SUNLEAF

Jon and Li Ochs operate Eureka Software from the family farm in Dusty.

PHOTO COURTESY OF EUREKA SOFTWARE, INC.

Picha, Herrick, Murdock honored by WSU Alumni Association

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

DOUGLAS T. PICHA

Douglas T. Picha, founding executive director of the Children's Hospital Foundation and the Children's Hospital Guild Association, was honored at the November 23, 2002 Apple Cup rally on the Pullman campus.

Picha is responsible for planning, managing, and directing a comprehensive effort to attract volunteers and private financial support for Children's Hospital in Seattle. Gifts

BILL STICKNEY

Douglas T. Picha

in fiscal 2000-2001 totalled more than $36 million. The foundation has been listed among *The Chronicle of Philanthropy's* top 400 fundraising organizations in the country since the listing began in 1991. And the Guild Association is the largest hospital auxiliary in the U.S., encompassing more than 486 guilds and 8,400 volunteer members.

Picha ('74 History) joined Children's Hospital in 1980 as director of community relations.

A certified fundraising executive, Picha taught a course on managing non-profit organizations for five years through the University of Washington's Business Extension School. He is active in the Seattle Rotary Club and serves on the board of governors of the Children's Miracle Network, representing more than 150 hospitals in North America. On Bainbridge Island, where he and his wife, Cassie, live with their four children, he volunteers his time in the school district and various youth activities.

"Doug has selflessly committed himself to informing the community of the need and the priority of helping and healing children," said Rhoda Altom '80, one of Picha's nominators for the alumni award

KATHERINE HERRICK

Teaching colleagues describe Katherine "Kathy" Herrick as "a total professional, who cares deeply about her students." She was honored February 10, 2003 at a meeting of the Beaverton (Oregon) School District board.

DAN McCUE

Katherine Herrick

Herrick has been a prevention and health specialist for the Beaverton School District since 2000. After graduating from WSU ('74 Educ., minor in Child & Fam. St.), she obtained a master's degree in teaching at Lewis and Clark College.

Prior to taking her current position, she was a counselor/student assistance facilitator in two middle schools and a high school in the Beaverton district for 13 years. Dedicated to becoming a better counselor, she completed a certificate in Alcohol/Drug Studies at Seattle University (1986) and a counseling license at the University of Portland (1993).

Carol Steele, a counselor at Portland's Sunset High School, calls Herrick "a superb counselor" who "cares about students' emotional health, physical health, social lives, and future plans after high school."

Every week for five years she volunteered her time to run a recovery group to help students stay drug-free and sober. According to Steele, many of those students credit Herrick for "profoundly positive changes" in their lives.

GEORGE MURDOCK

George Murdock

George L. Murdock, superintendent of the Umatilla-Morro Education Service District in Pendleton, Oregon, has devoted nearly four decades to education. He was honored by WSU February 13, 2003 at a board meeting of the Pendleton School District. His citation reads, "for visionary, enthusiastic and effective leadership as a principal, superintendent and consultant in public education, and for exemplary volunteer service to his community and alma mater."

Murdock ('64 Agri.) has been in his current position since 1999, after serving as superintendent of schools in Pasco for six years. A 1999 story in the *Tri-City Herald* credited him with "restoring peace in the [Pasco] school district and shifting attention from political unpleasantness to the business of schools: educating children." Under his direction, the district found financial stability, constructed four new buildings, introduced an alternative middle school and teen parenting program, returned to a neighborhood school concept, and assumed a regional role in school technology.

Murdock was assistant superintendent (1982-91) and deputy superintendent (1991-93) of Walla Walla Public Schools. He began his career in Chehalis as a journalism/business teacher at W.F. West High School, in 1966, moving up to assistant principal, then principal in 1974.

His peers elected him president of the Washington State Superintendents, 1996-97; the Washington Association of School Personnel Administrators, 1985; and the Washington Association of Secondary School Principals, 1978. He was 1997 Superintendent of the Year in Washington.

—Pat Caraher

Susane Marie Barr ('62 Educ.), a teacher at Peninsula Elementary in Moses Lake, received a $9,000 Gates Computer Grant to upgrade classroom technology. The grant was awarded through the Teacher Leadership Program.

Richard Perteet ('65 Civil Engr.) has changed roles within Perteet Engineering from president to chairman of the board of directors. The company he founded in 1988 has 90 employees, with offices in Everett, Lakewood, and Snoqualmie. He will be a senior project manager in charge of a major new roadway design in Renton, until he retires in 2004.

James Henry Helm ('66 Ag. Educ., '68 M.S. Agron.), Lacombe, Alberta, has been inducted into the University of Alberta Agricultural Hall of Fame. He joined the UA in 1973 to create a feed grain development program, the first developmental research program in the Alberta Department of Agriculture. The program became the Field Crop Development Center (FCDC). He released the first varieties of feed barley, Empress and Abee, from the program in 1982. He is working with the International Wheat and Maize Improvement Centre in Mexico to develop multiple-disease-resistant barley varieties. The latest facility for the FCDC is named the "J.H. Helm Cereal Research Center." His three children graduated from WSU: **Lisa** ('90 Music), **Jon** ('93 Music), and **Jeffrey** ('98 Biology).

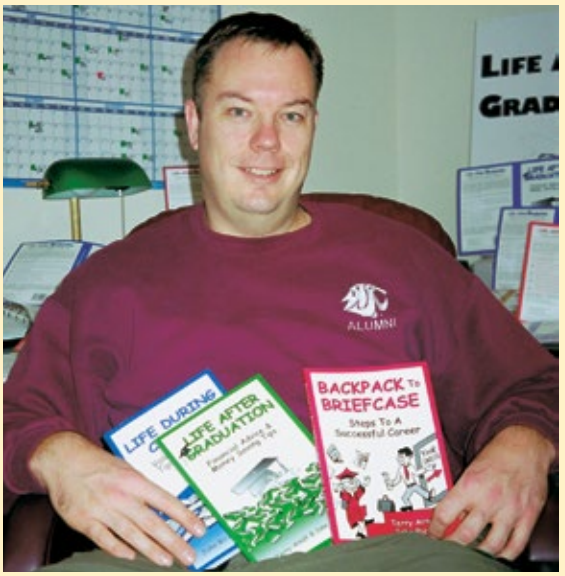
J. Eric Schuster ('66 Geology), Tumwater, is semi-retired, working three days a week for the Washington State Department of Natural Resources, Division of Geology and Earth Resources, in Olympia. A geologist, he specializes in creating digital geologic maps.

Susan Anderson Carlson ('68 Food Sci. & Hum. Nutr.), professor of nutrition at the University of Kansas School of Allied Health, was made an honorary member of the American Dietetics Association at the 2002 Food and Nutrition Conference and Exhibition in Kansas City, Kansas. The Kansas City, Missouri, resident was recognized for her pioneering research that contributed to identifying roles of dietary long-chain fatty acids, especially docosahexaenoic acid (DHA), in infant development. She also was cited for her advocacy of nutrition as an important, but frequently uncontrolled, variable, with research collaborators in the basic and clinical sciences. An enthusiastic promoter of registered dietitians, she serves as a preceptor for interns and a research advisor for nutrition graduate students

Eric Jensen ('68 Soc., '73 M.A. Soc., '78 Ph.D. Soc.) is a professor of soci-

Adjusting to life during college and after

Books address many concerns of students and young alumni



Entrepreneur Terry Arndt and partner continue to expand their markets.

BTHE TIME he graduated from Washington State University, Terry Arndt ('93 Horticulture) had accumulated $20,000 in student loans, $5,000 in credit card bills, and car payments. Fortunately, he found a job right away, and a financial advisor. She suggested he pay off his high-interest credit cards first. Then he began making extra payments on his student loans. There were other budget considerations. Health insurance premiums. Income tax. A vacation. A year after marrying Melissa Segars ('94 Music), he enrolled in the University of Florida's M.B.A. program. More expenses.

Adjusting to life after college was not the smooth transition he expected. Arndt experienced the agony of living paycheck-to-paycheck. Now he is helping others budget better. In 1999, he and John Ricchini founded their own company, Life After Graduation, LLC. They've also written a trilogy of nationally marketed books that provide advice and money-saving tips for college students and recent graduates.

Arndt and Ricchini met in graduate school. As part of a course in entrepreneurship, the pair entered a business proposal in the 1999 UF Business Plan of the Year competition. Of the 18 proposals submitted, five finalists were chosen to compete for the $5,000 first prize. Although the Life After Graduation proposal was among the five, it did not win.

After the competition, Arndt and Ricchini refined their business plan and decided to pursue their idea. Initially they used the Internet as an inexpensive way to promote their business and books. Response to their first book, *Life After Graduation*, published in 2000, was positive.

That same year, they established their company's headquarters in Alexandria, Virginia. Their second book, *Life During College*, was published during the 2001-02 school year, followed by *Backpack to Briefcase* in early 2003.

Meanwhile, the partners kept their day jobs. Arndt is assistant director of membership and marketing for the National Club Association in Washington, D.C. He lives in Virginia, a long way from his hometown of Royal City, Washington. Ricchini is manager of financial planning and analysis at the University of South Florida Physicians Group.

Life After Graduation addresses many important budgeting concerns: identifying and ranking financial goals, and determining income and fixed and variable expenses. The book provides advice on credit cards—when to use them, credit card reports, and credit card debt. There are valuable tips on education loans, health insurance, banking, the basics of investing, negotiating rent and requesting discounts from the landlord, and purchasing versus leasing cars.

Initially the partners marketed *Life After Graduation* to approximately half of the colleges and universities in the country. Within two months, the original press run of 2,000 books sold out. Sales provided capital for a second run of 10,000 and money to develop a website, expand marketing to the rest of the U.S., investigate other projects, and complete the final two books.

Alumni associations, career services, and various other college departments at nearly 200 schools, including the WSU athletic department, provide students with one of Life After Graduation's books. *Life During College* is now used as part of a one-credit required course for freshmen at such universities as Indiana State, Iowa State, Rhode Island, North Dakota, Marshall, and Virginia Tech.

A measure of the company's success is that their first competitor entered the market in 2001.

"That kept us on our toes and kept us motivated," Arndt says.

For others intent on starting their own business, he offers encouragement. "The only way you know if you can do it is to try. And if you plan to do it while maintaining your current job, get used to a lot of late nights—I mean a *lot* of them."

—Pat Caraher

ology at the University of Idaho. He was a Fulbright Lecturer and Research Scholar at the University of Aarhus in Aarhus, Denmark, spring semester, 2001-02. He conducted research on comparative drug control policies with a focus on the newly independent nations of Eastern and Central Europe. He also presented lectures on U.S. drug control and criminal justice policy at universities and research centers in Denmark, Sweden, Switzerland, and Poland. His latest book, *Drug War, American Style: Failed Policy and Its Alternatives*, with Jurg Gerber, was published in 2001 by Garland Publishing, New York.

Ammon McWashington ('68 Phys. Ed.) is athletic director for the Seattle School District. His son, **Shawn McWashington** ('97 Comm., '02 M.A. Adm.) is studying for a doctorate in sports administration at Florida State University. Both played football for WSU. Ammon was a running back on the 1965 "Cardiac Cougars" that went 7-3. Shawn was one of the "Fab Five" receivers on WSU's 1998 Rose Bowl team that went 10-2.

DID YOU KNOW?

Philosophy professor Frank Fraser Potter and his wife, Irene, regularly invited top students into their home on the edge of the Washington State College campus. There the Potters helped spark intellectual curiosity and the exchange of ideas through group conversation. They are credited with creating an environment that produced Rhodes Scholars in the late 1930s, '40s, and '50s. Here's a list of alumni who became Rhodes Scholars:

John Howard Binns '16 English

Shirl Hyde Blalock '07 unknown academic area

Birdsall N. Carle '39 D.V.M.

Robert W. Clower '48 Economics

Paul M. Craven '48 Chemistry

Charles H. Jepsen '47 Political Science

Eugene Kenneth McClaskey '33 English

Russell McCormmach '55 Physical Sciences

Earl H. Pritchard '28 History

Richard Sackett Thompson '55 Political Science

1970s

Nelson Bills ('71, Ph.D. Ag. Econ.) was cited for one of the two projects honored with "Outstanding Public Issues Education Program Awards" during the 2002 National Public Policy Education Conference in Reno. The Agricultural, Food and Public Policy Preference Survey polled farmers and ranchers in 27 states for their opinions on existing and alternative federal farm programs. Kansas State University tabulated more than 14,000 responses. Bills, a member of the Cornell University faculty, was one of four national project leaders. The annual awards conferred by the Farm Foundation and the National Public Policy Education Committee recognize outstanding public policy programs developed by individuals or by groups at the local, state, or national level.

William "Hal" Godwin ('72 M.S. Psych., '75 Ph.D. Clinical Psych.), vice president of student affairs at the University of Idaho for the past 13 years, was named executive director of Student Benefits, Health and Wellness at UI. He also returned to the classroom as a professor in the College of Education. He joined UI in 1975 as a psychologist in the Student Counseling Center. Later he served the university in the positions of director of major gifts, centennial coordinator, and interim director of athletics.

In early December 2002, **Lawrence K. Mahuna** ('72 Psych.) was named the 11th police chief on the Big Island of Hawaii. He had been acting chief since last August, and previously was assistant chief responsible for the Administrative Bureau. He joined the police department in 1973. He oversees more than 600 staff members and a $35 million annual budget.

Nancy McDougal ('72 Polit. Sci.), Phoenix, Arizona, has joined National Tobacco as director of national accounts in the sales department. Earlier she was Arizona Regional Merchandising Manager at Circle K (Conoco Phillips), former chairperson for Arizona Food Marketing Alliance, and served on the Arizona Lottery Retail Advisory Board.

Paul Sunderland ('73 Agron.) was named the 2002 Ag Star Individual at the Ag Fest in Salem, Oregon. He is the director of Multnomah County Extension Service of Oregon State University, ex-officio board member of the Oregon Agri-Business Council, and active in the Oregon Agri-Business Education Corporation. This past year, he was an Extension Fellow of the National Association of Counties in Washington, D.C., working on federal issues and legislation.

Bruce DeGooyer ('74 English), Bloomington, Illinois, has been named director of learning and development for COUNTRY Insurance & Financial Services. He oversees the Corporate Learning and Development Division. He joined the firm in 1994. He is a member of both the national and central Illinois chapters of the American Society for Training and Development and the Society for Insurance Trainers and Educators. He also is a member of the Bloomington Board of Trustees for the Illinois Symphony Orchestra and a volunteer for the BroMenn Regional Medical Center Foundation.

Sue Erickson Abitz ('75 Elem. Educ.) taught at a drug rehabilitation facility for adolescents for nearly five years, tutored, and now is substitute teaching in the Spokane and Central Valley school districts. Her siblings are Cougars—**Craig** '74, **Karen** '77, and **Scott** '81. And she's converted her son's playroom into a "Cougar Room." Sue is heading a reunion for all WSU alumni who lived in Scott Hall (1970-80). The date will be in late July at Lower Twin Lakes near Rathdrum, Idaho. "Bring sleeping bags, swim gear and old photo albums," she writes. RSVP Sue at 509-891-5655 or by e-mail at jwabitz@aol.com

Tom Drumheller ('75 Hotel & Rest. Adm.) writes: "In January 2002, I left Steve Martin Management Co., where I was president, and started my own company, Escape Lodging Co. We have the Inn at Cannon Beach, Oregon, and just finished a project called the Ocean Lodge & Beach Bungalows, www.theoceanlodge.com. We also purchased the majority of stock in Cousins Restaurant in The Dalles, Oregon."

John F. "Jack" Elliot ('75 Ag. Educ.), professor of agricultural education at the University of Arizona, was one of two people in the Western region honored with the USDA 2002 Food and Agriculture Sciences Excellence in Teaching Award. He was recognized for his distinguished record in teaching agricultural technology management and education. He is the first UA faculty member to be honored with the USDA's highest award for teaching excellence. The award includes a $2,000 stipend. He has chaired the teacher-certification review committee of the Arizona State Board of Education Career and Technical Education Advisory Committee, conducts numerous statewide workshops for secondary school and vocational education teachers, and has written 21 state curricula for high-school-level agri-science programs. Active in international agricultural and extension education, he has conducted workshops and assessed curricula in several countries, including Russia, Lithuania, and Namibia. He also has written more than 90 publications.

Sid Gustafson ('76 Veterinary Sci.), a practicing veterinarian in Bozeman, Montana, has written a novel, *Prisoners of Flight.* It is scheduled to be published by The Permanent Press, Sag Harbor, New York, in June 2003. A second book, *First Aid for the Active Dog*, is scheduled for publication at the same time by Alpine Press.

The Gordon Brothers Cellars in Pasco has been sold to Legacy Estates Group, a California wine company, according to **Jeff Gordon** ('77 Ag. Econ.). Jeff and his brother, Bill, founded the winery in 1980. Their first chardonnay was released in 1985. Jeff bought Bill's share in 1998.

The Port of Tacoma has promoted **Jeffrey L. Smith** ('77 Bus. Adm. & Acct.) senior director, finance and administration. The 17-year port veteran now oversees the port's finance, accounting, budget, treasury, and customer service operations. He has been a CPA in Washington since 1980.

Former Cougar pitcher **Bob Sherwood** ('78 Comm.) is senior director, real estate, for the Boston Market Corp. Last year he was transferred from the Chicago area to San Clemente, California. He returned to the WSU campus in September 2002 with other members of the Cougar baseball team that played in the 1976 College World Series. An All Northern Division pitcher in 1977, he won 30 career games, second only to **Joe McIntosh's** ('73 Zool.) school record of 34.

Cedric L. Watkins ('78 Bus. Adm.) and his wife, Micha'l, operate The Watkins Group, LLC, a 10-person estate planning law firm in Los Angeles. He played football for WSU coaches Jim Sweeney ('74), Jackie Sherrill ('75), and Warren Powers ('76), and was a Cougar long jumper in 1974 and 1975. He earned his M.B.A. (1980) from Pepperdine University and his law degree (1996) from Loyola University Law School. He writes: "I am really proud of our football team's accomplishments in the past, and especially in 2002. My wife and I, along with our son, Cedric, Jr. (San Diego State '97), attended the Rose Bowl game with our two daughters (14, 15). My letterman's jacket still fits."

Sue Ellerman Ershler ('79 Bus. Adm.) Kirkland, has taken on a new responsibility as director of sales for a seven-state region for Kinko's.

Brad Fisher ('79 Real Estate) is the director of investments, US Bancorp Piper Jaffray's, in the Tri-Cities. He recently completed the chartered

retirement specialist program, covering comprehensive retirement planning.

Scott K. Jones ('79 Bus. Adm.) was named Industry Leader of the Year for 2002 by the Spokane Insurance Associates. He is the president and CEO of Fidelity Associates Insurance & Financial Services in Spokane.

1980s

Joe Hall ('80 Bus. Adm.) is a partner in the Hall-Copeland Ford Lincoln Mercury Nissan auto-truck dealership. He has 22 years of experience in the business and joined the Lewiston, Idaho firm more than five years ago. The company has over 75 employees.

Lisa Beckett Berger ('81 M.S. Phys. Ed.), along with her 1992 Pomona-Pitzer College women's tennis team, was inducted into the Pomona-Pitzer Athletic Hall of Fame. She coached her team to the 1992 NCAA championship and titles for singles and doubles matches. She was the women's assistant coach at WSU from 1980 to 1982 and is now an associate professor of physical education at Pomona-Pitzer.

David C. Meyer ('81 Comm., '83 Psych.) has been *Morning Edition* host of KPLU radio at Pacific Lutheran University in Parkland since 1988. He worked for public radio station KWSU while at WSU and helped build student radio station KZUU. After college, he went into commercial radio, anchoring afternoon newscasts at WMRE in Boston. Then he was news director at KEDO-AM/KLYK-FM in Longview. He returned to public radio in 1987 as *Weekend Edition* host at KPLU. He writes: "I enjoy the in-depth coverage and creative freedom offered by public radio. I'm proud of the quality of our broadcast journalism. Although commercial radio can be more lucrative in terms of paychecks, money can't buy happiness." He collects science fiction novels and movie props.

Shelley J. Smith ('84 M.A. Anthro.) is co-editor and wrote portions of *The Archaeology Education Handbook: Sharing the Past with Kids,* published in April 2000 by Altamira Press, a division of Rowman and Littlefield, Walnut Creek, California. She is a resource manager for the Bureau of Land Management in Salt Lake City.

Jeff Boyce ('85 B.S. Forestry) is a forest ecologist with Meridian Environmental in Seattle. The employee-owned consulting firm specializes in environmental sciences, regulatory compliance and permitting, and project management services throughout the Pacific Northwest and Alaska.

As president of The Hotel Group, Inc., **Douglas N. Dreher** ('87 Hotel & Rest. Adm.), Edmonds, is responsible for all managed and owned properties, new

A tale of many cities

"Across the globe, 18,000 people are killed or maimed by landmines every year."
—Clint Borgen

AS A BOY, CLINT BORGEN dreamed of having an interesting life, radically different from the humdrum sleepiness of Anacortes, Washington, his commercial-fishing-oriented hometown. He played spy games with a seemingly fearless older brother and best friend. At 20, Borgen became a firefighter. No small wonder that the next year (1999) he hopped a flight to Macedonia for a month of volunteer service, simply because he had watched television images of Albanian refugees and wanted to see the war zone for himself.

Returning safely to another somnolent community, this time Pullman, Borgen ('03 Comm.) published a book late last year about his four-year, 13-country marathon of travel, some of it done while pursuing a degree at Washington State University. The book, *Geneva Nights: Kosovo Refugee Camps to Swiss Hostess Bars, The Colorful Life of a Young International,* details—well, travel, sex, and politics.

There's Borgen's brief stint as a ground crew member/bin jockey for American West Airlines in Phoenix, Arizona, where he loaded planes with everything from tropical fish to corpses. ("It's not uncommon for poorly wrapped bodies to leak fluids into the bin, which often ends up on the luggage.") The job's only perk was free travel.

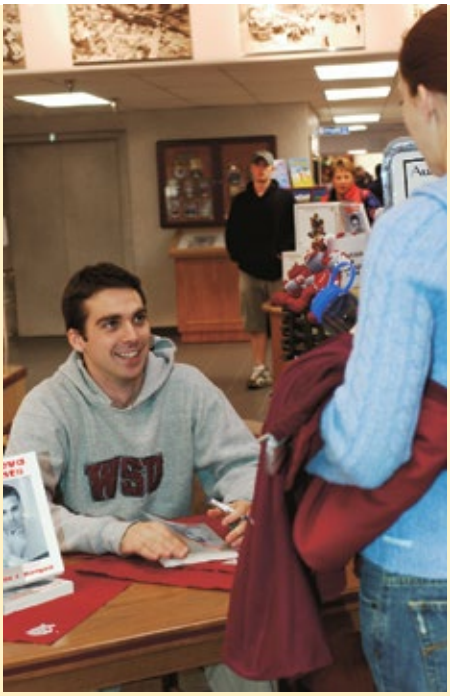
There's his three-month stay in Geneva, Switzerland, during an internship with the United Nations High Commission for Refugees. Borgen worked in UNHCR's media relations office by day and dodged high-class prostitutes in the hostess bars surrounding his apartment by night.

But it all started with that first trip to Macedonia.

"I realized it was crazy ahead of time," he said last December. "I didn't realize how crazy it was until I got there."

His first five hours in the Balkans, Borgen had a customs agent at the airport nearly pull a gun in front of him, shared road space with armored vehicles, saw anti-American graffiti, kept his window rolled up because of the threat of Molotov cocktails, and was nearly run over by an angry teenager on a motorcycle.

Borgen taught English and asked survey questions at refugee camps next to the Kosovo border, working among tens of thousands of people forced to flee their homes for the bare shelter of a tent. Whether infants or elderly, the refugees lived, breathed, and slept on packed earth, some so battered by their experiences they could only sit in their tents and stare at the ground. The treatment for one seven-year-old's toothache was a visit to a filthy office to have his tooth yanked out with no benefit of painkillers by a drunk, angry dentist.


SHELLY HANKS

Recent grad Clint Borgen autographs copies of *Geneva Nights* in the Bookie.

Borgen also saw firsthand the results of America's abysmal foreign policy. In one refugee camp, two children playing in their family's tent discovered a pair of landmines, not an out-of-the-ordinary occurrence in a region peppered with the explosive devices.

Borgen learned about the United States's refusal in 1997 to sign a U.N. treaty to ban anti-personnel landmines. Why? To keep mines on the North Korean border, according to the official response. Landmines made in the U.S., once their largest exporter, are found all over the world.

Borgen writes, "Across the globe, 18,000 people are killed or maimed by landmines every year. Eighty percent of those are civilians, with children accounting for a third. Most troubling for me was learning of the United States' lack of participation in eliminating these devices from hell. The country I imagined would be the leader in banning landmines is in fact the single greatest obstacle to a landmine-free world."

Even after witnessing a war zone's miseries, Borgen says he would repeat the experience. He says he wants to help refugees again and ultimately work with another aid agency and the United Nations.

"It's incredible to see a totally different side of the world," he says. "As soon as you meet one of the refugees, you realize, 'I could be one of these people.'"

—Nella Letizia

hotel development, acquisitions, and strategic planning. The Edmonds-based hotel group owns and manages 25 properties in 10 states, including Alaska, California, Washington, Texas, Arizona, and Tennessee. During his 13 years with the firm, he's supervised hotels throughout the U.S. and Canada.

Mitchell Roach ('87 Mgmt. Info. Sys.), Pasco, is the senior account manager for Popular Financial Services. He completed the adoption of his wife's son, Austin, April 8, 2002. He writes, "Austin . . . saw his first Cougar football game this past year (2001) as WSU downed the Oregon State Beavers. He had his picture taken with Butch!"

Michael Wasem ('88 Comm.) is communications manager for the Port of Tacoma.

Kristin Holly ('89 Psych.) is a mental health therapist for the Child and Adolescent Psychiatric Unit at Providence Portland Medical Center. In 2000, she spent three months backpacking in Europe. She writes, "I enjoy local theatre, ballet and the arts, as well as live music every chance I get."

Michelle Johnson ('89 Elect. Engr.) has been promoted to technical group manager of the Radiation and Health Technology group at Pacific Northwest National Laboratory in Richland. She joined PNNL in 1992.

1990s

Crystal Donner ('90 Civil Engr.) became the executive vice president at Perteet Engineering in Everett. Her focus is on the engineering operations of the company. She joined the company in 1996 as a project manager and was promoted to lead the transportation design team.

Naval Petty Officer First Class **Todd J. Hack** ('90 Hist.) received the Military Outstanding Volunteer Service Medal for three years of public service to youth of Meridian, Mississippi, and Newport News and Hampton, Virginia. He tutored children at several public schools and coached civilian and military youth soccer. He is the public affairs officer with the Whidbey Island Naval Air Reserve in Oak Harbor.

Shelly Morris Mumma ('90 Comm.), Lincoln, Nebraska, is pursuing a doctorate in Leadership Studies at the University of Nebraska. She still works full-time as assistant director of Student Life and director of Campus Activities at Nebraska Wesleyan University.

Staci Corn Wanichek ('90 Comm.) and Cassie Corn Rothstrom are business partners with their mother, Cheryl Corn, in Evergreen Labs, Walla Walla. In 1997, they developed a stain remover, Wine Away, to eliminate red wine stains. Made of fruit and vegetable extracts, the product is now being marketed throughout the U.S. and in 15 other countries. Staci is president and national sales manager for the company, Cassie is vice president, and mom is marketing director.

Tom Merz ('91 Civil Engr., '98 M.S. Civil Engr.) has joined the civil and structural engineering department of Meier Enterprises in Kennewick.

David Elmenhurst ('94 Account.) is the manager of LeMaster & Daniels, a Walla Walla accounting and tax consulting firm.

Seattle writer **Georgie Nickell** ('94 Comm.) is author of a novel, *I Only Smoke on Thursdays*, published October 2002.

Robert Richmond ('95 Civ. Engr.) is employed by JTC in Pasco. He married **Heather Eayrs** ('94 Social Sci.) March 31, 2002. She manages Mel's Inter-City Collision in Kennewick. They live in Walla Walla.

Steven Carbonetti ('96 Land. Arch.) is a landscape architect in Kirkland.

Heidi Cosner Fox ('97 English, '97 Teaching Cert.) teaches English at North County High School in Glen Burnie, Maryland. She married Casey Fox June 25, 2002 in Kailua-Kona, Hawaii.

Juleen Esvelt ('98 Civil Engr., '99 M.A. Structural Engr.) joined the engineering staff of Harms & Associates, Pasco. Earlier she was an engineer for Structural Research Co. in Rice, Washington, and I.L. Gross Structural Engineers in Seattle.

Melanie Longmeier ('98 Food Sci.), a quality control supervisor for Safeway Corp. in Sandy, Oregon, married Darren Oeck November 17, 2001.

Tim Blair ('99 Civil Engr.) married **Krista Carlton** ('01 Human Resources) September 1, 2002. Tim works for Toothman Orton Engineering. Krista is employed by GAP Inc. in Boise, Idaho.

Lynsi Carothers ('99 Nursing) married Harlan Slind May 20, 2002. She is a registered nurse in bone marrow transplant at the University of Washington Medical Center in Seattle.

Timothy Dalton ('99 Bus. Adm.) was named executive director of the Downtown Kennewick and Columbia Drive Association. He previously directed the Pasco Farmers Market for five years.

Tracy Olberding ('99 M.S. Civil Engr.), Pasco, is the executive director of the Washington State Potato Foundation.

After three years in the Chevron Texaco Corporate New York office, **Trisha Roché** ('99 Bus. Adm.) has relocated to San Ramon, California. She manages all corporate sponsorships, including the U.S. Olympic Committee, NASCAR, CART, and the Metropolitan Opera.

2000s

Marine Corps First Lt. **Robert Kleinpast** ('00 Crim. Just.) was promoted to his current rank while serving with 2nd Assault Amphibian Battalion, 2nd Marine Division at Camp Lejeune, North Carolina.

Sarah Norberg ('00 Animal Sci.) received both the Featherston Graduate Teaching Award from the Department of Animal Sciences and the Graduate Student Award for Outstanding Teaching at Purdue University.

Renata Presby ('00 Arch. Studies, '00 Arch.) has joined the architectural department of Meier Enterprises in Kennewick.

Jason Slagle ('00 Hist., '00 Teaching Cert.) married **Trudy Hester** ('99 Soc.) March 31, 2002. He is an English teacher and coach at Kennewick High School. She is a buyer in the corporate purchasing department at Lamb Weston.

Jennifer Sutton ('00 Exercise Sci.) married Talon Wiser June 23, 2002, in Kennewick. She is the fitness director for Pasco Gold's Gym.

Jonathan Scott ('01 Mgmt. Info. Sys.), a technology coordinator in Yakima, married Amy Scott July 28, 2002.

Navy Ensign **Jon Sunderland** ('01 Decision Sci.) was designated Naval Aviator at Randolph Air Force Base, Texas.

Patrick Valdez ('01 Mech. Engr.) is a development engineer at Battelle, where his wife, Catherine, is an assistant. They live in Kennewick.

Michelle Yates Mandis ('02 M.S. Env. Engr.) has joined Portage Environmental Inc. as a specialist engineer. She is contributing to such projects as documenting feed sources of the various Hanford 200 Area (chemical processing) waste streams for the Hanford Defined Waste Soil Inventory and Best Basis Inventory models. She spent the summer in Okinawa, Japan, completing hazardous materials assessments at Kadena Air Base.

Wayne Stigge ('02 M.A. Agribusiness) married Kellie Pope June 23, 2002.

IN MEMORIAM

1920s

Benjamin S. Malloy ('27 Agri.), 99, February 2, 2003, Seattle. Built and managed apartment complexes, a total of 123 units in Seattle.

Joe Lyle Dirstine ('29 Pharm.), 95, February 25, 2003, Spokane. Manager of the Deaconess Hospital pharmacy when he retired in 1974.

Lylia Miller ('29 Engl.), 94, December 11, 2002, Spokane. Taught in Wilbur and Colfax, and at North Pines Junior High in Spokane for many years.

Constance Washburn Van Horn ('29 Liberal Arts), 93, September 13, 2002, Mesa, Arizona. Homemaker. Past president of Whatcom County Federated Women's Clubs. Spent most of her married life on a poultry farm in Marietta, then in the early 1950s moved to Lummi Island for reef netting.

1930s

Warren Green ('30 Gen. St.), 93, December 20, 2002, Seattle. Worked on the early development of television at RCA laboratories. Started a business for repairing radios and wiring for electricity during the Great Depression. Enjoyed a 37-year career at Pacific Telephone & Telegraph. Collector of discarded electronic equipment, including some on display in the Seattle Museum of History & Industry.

Theodore M. Mathison ('30 Elect. Engr.), 95, February 23, 2003, Des Moines, Washington. Boeing engineer for 31 years. Retired in 1972 as chief of flight test instrumentations systems, technology unit. Donated five acres of forested land and a house he built—his home for 55 years—to the city of Burien for use as a park.

Dorothy Hammett ('31 Home Ec.), 83, November 12, 2002, Seattle. Taught at Edmonds High School. After raising her children, received her master's degree from the University of Washington. Taught in the Seattle schools for 16 years.

Joseph James Livers ('33 M.A. Math.), 99, January 31, 2003, Seattle. Statistician for Boeing in Seattle, 1951-64. Later taught mathematics at Highline Community College, where he was chairman of the math and science department, 1965-69.

Erling Logan ('33 Educ.), 90, December 6, 2002, Ashland, Oregon. Taught school in Alaska, Wyoming, California, and Idaho. Owned a hotel in Sandpoint, Idaho. Intelligence officer in the U.S. Marine Corps during World War II, retiring as a major in 1959. Managed food distribution to European refugees for the U.N. Relief and Rehabilitation Administration in Shanghai, China.

Leo Reed Thomas ('35 Econ.), 90, December 2, 2002, Highline. Owned Seahurst Oil Co. President of the Washington Oil Heat Institute. Member of the Highline Savings and Loan board. World traveler in retirement. Phi Delta Theta fraternity.

James Webb ('35 Agri. Sci.,'35 Ag. Educ.), 92, June 8, 2002, Ritzville. Started the agricultural education program at Ritzville High and taught for 34 years, 1935-71. High school principal, 1949-51. Board member of the East Columbia Basin Irrigation District, 1974-87.

Cecil Bond ('36 Ag. Econ.), 92, February 7, 2003, Lewiston, Idaho. Yakima County extension agent in 1937. Chairman of the Asotin County Cooperative Extension Service, 1938-72.

John Bley ('37 Mining Engr.), 89, October 2, 2002, Spokane. Began a career in mining in Holden. Manager of mining enterprises in Nye, Montana, and White Pine, Michigan. Retired in 1975.

George Moline ('37 Bus. Adm.), 87, October 17, 2002, Hayden, Idaho. Owned The Blue Topaz Jewelry Store in Spokane.

Thomas Hyslop, Sr. ('38 Agri.), 87, December 14, 2002, Spokane. Served in the Army Air Corps during WWII and retired as major. Moved to Spokane after the war and assumed management of the family farm until retirement in 1986. Honored as Conservation Farmer of the Year for the Davenport-Reardon District (1950), Spokane County Cattleman of the Year (1953), and Conservation Farmer of the Year for Spokane County (1981). Received the WSU Alumni Achievement Award in 1990. Named to the WSU Board of Regents in 1983.

Lyle N. McAlister ('38 Geol.), March 1, 2002, Lakewood, Colorado. Army lieutenant colonel with the 17th Airborne in Battle of the Bulge in WWII. Earned a Ph.D. in history at the University of California, Berkeley in 1950. Retired from the University of Florida faculty in 1985.

Stanley Schwartze ('38 Ag. Econ., '39 Ag. Educ.), December 23, 2000, Edmonds. Alpha Gamma Rho fraternity.

Winifred Sewell ('38 Engl.), 85, October 23, 2002, Newport. Received her master's degree in library science from Columbia University. Librarian for University of Maryland and National Institutes of Health. Served on the 1958 International Federation of Pharmacy's pharmaceutical abstract commission, the 1965 National Academy of Sciences committee on modern methods of handling chemical information, and the 1966 State Department library exchange program with the Soviet Union.

IN MEMORIAM

Bhatia built Honors, International Programs

CAREER EDUCATOR Vishnu N. "Vic" Bhatia was a builder. Not with bricks and mortar, but with vision, drive, and diplomacy. He demonstrated this during his 47 years (1951-98) at Washington State University as a teacher, administrator, innovator, and ambassador. His efforts were not limited to pharmacy, his chosen field, but were interdisciplinary, as well as international.

His greatest contributions were as head of the Honors Program (1964-93) and director of International Education (1973-90). Shortly after his arrival at WSU, he and other faculty colleagues, including mathematics professors Sidney Hacker and Donald Bushaw, began laying groundwork for an academic program that would rank among the very best—one with a balanced curriculum, designed to promote intellectual curiosity and critical thinking long past graduation.

The Honors Program was introduced in 1960, initially under Hacker's direction, and from 1964 to 1993 under Bhatia. He was very imaginative in how the program might be conducted, and rather paternalistic, according to Bushaw. Bhatia called most of the shots. "That was probably good, because he did it very well. He was very personable. He was the leader. The students were devoted to him."

Some of the best professors across campus were invited to teach in Honors. Its small class size attracted many of the University's top scholars, also by invitation. In 1979, Gene Maeroff, then education editor of *The New York Times,* wrote, "The extent to which an honors student pursues a deeper and more far-ranging education is seen at Washington State, where . . . the Honors Program . . . is widely regarded as one of the strongest in the country."

ROBERT HUBNER

Vishnu N. "Vic" Bhatia

Honors became a model for other U.S. universities. It flourished under Bhatia and his successors, Jane Lawrence (1994-99) and current dean, Mary Wack. In 1998 the Honors Program was elevated to the status of Honors College, which claims 3,800 alumni.

All of this pleased Bhatia, who died in Pullman January 16, 2003, at 78.

"The Honors curriculum gives students an opportunity to look at knowledge and civilization in the broadest perceptive," Bhatia would say.

Paul G. Lauren was an example. The1969 Honors graduate in history and political science went on to become the founding director of the Mansfield Center at the University of Montana, and to write books on international history and diplomacy. Bhatia provided "a marvelous model of excellence, of the value of studying many disciplines, of compassion, and of deep commitment to his students and the program," Lauren said.

A native of Lucknow, India, Bhatia was the youngest of seven children. After earning a doctorate in pharmacy, he joined WSU's College of Pharmacy, where he held a faculty appointment for 41 years. Most of his efforts, however, were devoted to Honors and International Education.

Early on, Bhatia developed a fondness for Denmark, where WSU developed a cooperative exchange program in business administration in Copenhagen. Over the last 15 or 20 years, more than 1,000 WSU students have studied in Denmark. In 1990, Bhatia was granted Danish knighthood for the decades he devoted to building bridges between the Scandinavian nation and WSU. His travels on behalf of the University took him to Europe, Japan, China, South America, the Middle East, and India. In the late '80s and early '90s, as many as 2,000 WSU students were involved in study abroad annually, three-fourths coming to the U.S.

"He was able to convey the importance of internationalism to the University and students, to have people look beyond their own little comfort zone, to look outside themselves, and discover how study abroad can benefit their lives," says Uta Hutnak, Bhatia's assistant in International Education from 1985 to 1990.

When Bhatia was considering retirement in the early 1990s, President Samuel Smith asked him to stay on as his special assistant. "Vic had built these two wonderful programs—and had a great influence on general education reform, and on the intellectual quality of our institution," Smith said.

Memorial contributions may be made to the V.N. Bhatia Lectureship, c/o the WSU Foundation, 255 E. Main, Suite 200, Pullman, Washington 99164-1927.

—Pat Caraher

IN MEMORIAM *continued*

Robert E. Lee ('39 Pharm.), 87, October 9, 2002, Tucson, Arizona. Served in the Air Force during WWII. Toured the U.S. with his parents and wife, Betty Graham. Recalled to the Air Force for the Korean War. Bought the Best Drug Store in Safford, Arizona, 1967-75. In 1973, president of the Safford Graham County Chamber of Commerce and of the Arizona Pharmaceutical Association. Selected 1975 "Man of the Year" by the Safford Graham County Chamber of Commerce.

1940s

John Eisenhauer ('40 Zool.), 83, October 2, 2002, Spokane. Graduated from the Washington University Medical School in St. Louis. Served with the Army Medical Corps during WWII. Spent 10 years as staff physician at Ray Brook State TB Sanitarium in New York, following a three-year battle with tuberculosis contracted while on duty in Japan. Worked at the Veterans Administration Hospital in Spokane until 1986.

Betty L. Sabol ('42 Bact.), 85, November 17, 2002, Lake City. Endocrinologist at Children's Hospital, Seattle, for more than 20 years.

Marvin Gilberg ('43 Zool.), 81, June 8, 2002, Ross, California. Member of WSC's 1941 basketball team that played in the NCAA finals. Graduated from School of Dentistry, University of California, San Francisco. Practiced dentistry in San Francisco for 40 years.

Maxine West Hallstrom ('43 Home Ec.), 81, August 2, 2002, Yakima. Taught home economics at Centralia High School and spent 23 years as elementary librarian at Highland. Retired in 1979.

Patricia (Knerr) Bockmeyer ('45 Engl.), 78, December 14, 2002, Spokane. Taught high school English in Spokane at Rogers High, 1945-51, and at Shadle Park High, 1962-82.

Gary Fletcher ('45 Pharm.), 59, October 16, 2002, Vancouver. Pharmacist at Bi-Mart, Fred Meyer, and Southwest Washington Medical Center. Army veteran and past president of Southwest Washington Pharmacy Association.

White gave students and colleagues "a sense of hope and pride"

MORE THAN HALF of Washington State University's living pharmacy alumni graduated during Allen I. White's 39-year tenure (1940-1979) as professor and/or dean of the College of Pharmacy. He was appointed dean in 1960, a position he held until retirement 19 years later. Last June, he and his wife, Edith, moved from Pullman to Fountain Hills, Arizona, where he died December 23, 2002, at age 88.

The Silverton, Oregon, native and son of a Lutheran minister completed three degrees from the University of Minnesota—a bachelor's degree in pharmacy (1937) and both a master's degree (1938) and a doctorate in pharmaceutical chemistry (1940). In 1983 he won the UM's Alumni Outstanding Achievement Award.

At WSU, his career was devoted to working with students, faculty, colleagues, and the health care profession.

"He influenced the lives of countless individuals," says William Fassett, dean of the College of Pharmacy. "The extremely strong support that today's alumni give to the college is founded in large part on the student-oriented character of Al White . . . ."

White led the transformation in pharmacy education at WSU away from a heavy emphasis on basic science and an orientation toward drug products. He advocated a more balanced model—one emphasizing the clinical role of the modern pharmacist whose drug expertise is made available in a patient-focused practice.

"He taught me to teach by motivation, rather than intimidation," says R. Keith Campbell ('64 Pharm.), associate dean of the college. "He . . . was a good leader because he gave us all a sense of hope and pride in who we were and what we were trying to accomplish."

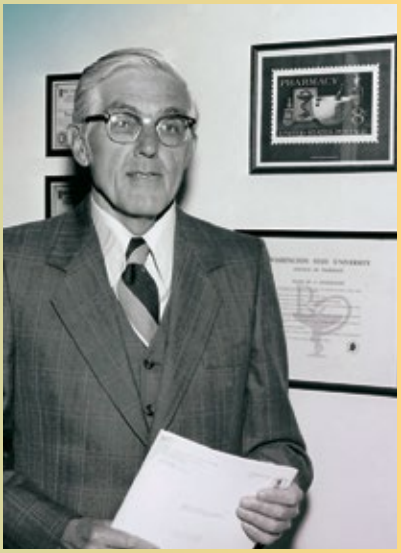
One of White's first charges as dean was to "go out and get some more students." With the assistance of the Washington Pharmaceutical Association, he met with high school and community college faculty and counselors to discuss career opportunities for students in pharmacy. In the decade leading up to his retirement, pharmacy enrollment grew to 250-255 students in the professional education program, with an additional 15 to 18 graduate students.

Earlier, however, things were not so rosy. In a December 1973 report, the state Council on Higher Education recommended there be only one college of pharmacy in the state and expressed a strong preference that it be located at the University of Washington. In response, White fired off a letter to WSU president Glenn Terrell, stating, "It seems clear to me that the College of Pharmacy should expect a fight for its life." The college survived and now has a Doctor of Pharmacy program at WSU Spokane.

White became involved in the internal affairs of the University as a member of the influential faculty "Committee of Forty," 1945-46; as a faculty representative on the Athletic Council, 1946-48; and on the Council of Academic Deans, 1960-79.

During the college's centennial celebration in 1992, the pharmacy care laboratory in Wegner Hall was named in his honor. He served as president of the American Association of Colleges of Pharmacy, 1973-74.

A dedicated scholar, he had 83 publications to his credit. And after retiring, he wrote *The History of the Washington State University College of Pharmacy, 1891-1991,* published in 1996. The history connects events in the college with those that took place at WSU and throughout the state and documents the struggles and achievements of the faculty and



Allen I. White

alumni and their dedication to quality pharmacy education at WSU.

White believed the advances in scientific and technical knowledge and the social, economic, and political changes that occurred during the 20th century had profound effects on the delivery of health care globally.

"The challenge for the pharmacy faculty," he wrote, "was inherent in those changes . . . not in passively observing them, but in responding to them with the development of fresh approaches in pharmaceutical education that would prepare its students to participate effectively in the emerging systems for health care."

Last year the College of Pharmacy established the Allen I. White Endowed Professorship, an effort to raise half a million dollars to augment the work of a professor and a graduate assistant. Memorial gifts may be made to the endowment, c/o the WSU Foundation, 255 E. Main, Suite 200, Pullman, Washington 99164-1927.

—Pat Caraher

Margaret Miller Iltz ('45 Pharm.), 77, November 6, 2002, Moses Lake. Owned the Odessa Drug Store.

Ida Sue Saunders ('45 Phys. Ed.), 80, December 23, 2002, Pullman. Owned and operated Saunders Floor Covering in Pullman with her husband, Harold "Tobe" Saunders, 1942-90. Purchased Cougar World Travel, Pullman, in 1988 and the "Inn at Priest Lake," Idaho, in 1998.

Donald R. Aries ('48 Phys. Ed., '54 M.Ed.), 81, January 11, 2003, Spokane. Taught physical education and social studies at Spokane's Mead High. Head baseball coach and assistant in football and basketball. Served in the Navy, 1943-46; recalled to active duty in the Korean War. Returned to Mead in 1953 as district physical education coordinator and athletic director, along with his former duties. Central Valley High vice principal, 1958-62. University High principal, 1962-72. Teacher, counselor, and debate and tennis coach at East Valley High, 1972-78. Executive director of New Hope Training Center in Spokane, 1980-86.

Robert Gilden ('47 Ag. Engr., '51 M.S. Ag. Engr.), 66, December 4, 2002, Blaine. Taught in Lacey. Later was a coach and administrator at Pateros High School. Moved to Tonasket in 1965 as high school principal and later administrative assistant to the superintendent. Moved to Blaine in 1977 as superintendent. Retired in 1990. Sigma Chi fraternity.

Philip A. Chapman ('49 Geol.), 78, February 13, 2002, Shelton.

Warren Durham ('49 Comm.), 77, October 15, 2002, Spokane, cancer. Advertising consultant, marketing consultant, newspaper publisher, movie producer, and TV host. Hosted a short-lived TV series called *Big Band Days*, which was seen on the now-defunct Channel America cable network. Announcer at KHQ and KFPY radio in Spokane.

Elvin Johnson ('49 Forestry), 79, December 3, 2000, Camano Island. Army officer with the 10th Mountain Division in WWII, fought in Italy, receiving the Bronze Star, Purple Heart, and Combat Infantry Badge. Professor emeritus at San Francisco State University, park ranger at Mt. Rainier, member of the U.S. Ski Team, coached several collegiate championship ski teams at SFSU, charter member and chairman of the NCAA Ski Rules Committee, assistant chief of course at the 1960 Winter Olympics at Squaw Valley, California. Climbed Mt. Rainier 22 times. Inducted to the Pacific Northwest Ski Hall of Fame in 1990.

IN MEMORIAM

George E. Duvall, gentleman scholar

GEORGE E. DUVALL, 82, a pioneer of shock physics research and professor emeritus at Washington State University, died January 3, 2003, in Vancouver. He was internationally recognized as a founder and leader in studies related to shock wave propagation in solids and liquids. Many colleagues regarded him as the dean of U.S. shock wave science.

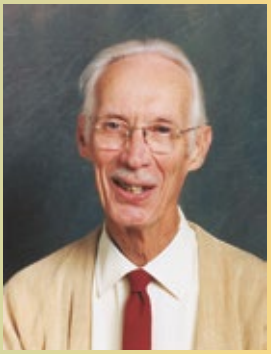
The Louisiana native spent his youth in Oregon. His studies at Oregon State University were interrupted in 1941 when he joined the University of California's Division of War Research to work on underwater acoustics problems. He returned to OSU in 1945 to finish his bachelor's degree, and completed a doctorate in physics at MIT in 1948. His first job was with General Electric at Richland. There he worked on nuclear reactor problems and developed the concept of the lattice test reactor, which was later built by the company. In 1953, he moved to the Stanford Research Institute.

During the next decade at SRI, he built the Poulter Lab's international reputation in the theoretical understanding of phenomena in the field of shock wave propagation. He also mentored a generation of distinguished research scientists.

While in Seattle for a 1954 American Physical Society meeting, he struck up a conversation with William Band, then WSU chair of physics. Duvall invited Band to be a summer visitor at SRI the next year, and Band became involved in shock wave research. Thus began a long relationship between the two institutions. Many WSU physics graduate students went to SRI. In 1964, Duvall left the directorship of the Poulter Lab to join the WSU faculty.

At WSU, he was content to focus on a variety of scientific problems, and supervised the doctoral dissertations of more than 25 students. His work was instrumental in furthering research efforts to seek a microscopic understanding of shock-induced changes in condensed materials. He established WSU's Shock Dynamics Laboratory in 1968. That same year Yogendra Gupta, current director of WSU's Institute for Shock Physics, and James Asay, associate director, came to WSU to study with Duvall.

"He was first my teacher, then a wonderful colleague . . . ," Gupta says. "I did not just learn science from George Duvall. Science is generally learned on your own. I learned how to conduct myself as a scientist from George Duvall."



George E. Duvall

Years later, in a speech published in *Shock Compression of Condensed Matter*, Duvall spoke about the teaching/learning process: "It must be understood by both the teacher and the aspiring student that learning to be a scientist is not like learning to ride a bicycle, or to cook . . . . The science student is in the process of becoming a person who is different from the ordinary. The scientist . . . evaluates things differently, and he often finds it difficult or impossible to communicate effectively with others who are not scientists. To be sure, he must learn a great many things that are contained in books, but ultimately he must acquire attitudes, abilities, and perspectives that are unique to science and which can be learned only by doing, observing, thinking, and interacting with practicing scientists."

Duvall put WSU on the research map, Gupta says. "This was the era that saw the advent of the research group. Prior to this, researchers often worked alone. . . .

"In his day the university was about civility and discourse," says Gupta. "Duvall had a keen intellect and incredible integrity. He was a gentleman scholar, but at scientific meetings, he did not shy away from vigorous scientific interchange. He did not engage in small talk. In a discussion, he spoke his mind—but in a most gracious manner. To me, he personified the civility that is often missing in our society today."

Duvall's reputation persisted after his retirement from WSU in 1988. "In the '50s and '60s, shock wave research was being done primarily only in Russia and in the U.S.," says Gupta. "When the best known Russian shock wave physicist, Altschuler, came to the U.S. in 1991, he visited two places—Lawrence Livermore Labs and WSU. Altschuler spoke no English and Duvall no Russian. But with a translator, the two distinguished scientists spent the day discussing shock physics."

Memorial donations may be made to WSU, Department of Physics, c/o George E. Duvall Scholarship Fund, PO Box 642814, Pullman, Washington 99164-2814.

—Sharon Hatch

IN MEMORIAM

IN MEMORIAM *continued*

1950s

Theodore Allen ('51 Bus. Adm.), February 20, 2002, Anderson Island.

Howard Chandler ('51, Elect. Engr.), 79, November 1, 2002, Seattle. Partner with his father on the Orondo Ferry. Worked for IBM for 33 years.

Dale Christian ('51 Polit. Sci.), 81, December 18, 2002, Boise. Worked for Household Insurance Corp. for entire career. Assistant manager in Spokane, 1950-55, and manager in Lewiston, 1955-58. Moved to Boise in 1958 to sell life insurance and mutual funds with Household Finance.

L. Clint Luce ('52 Ag. Sci, '58 M.S. Ag. Sci.), 78, January 15, 2003, Pullman. Coached the WSU livestock judging team as a graduate student. County extension agent in Whitman County, 1954-88.

Terrence McMahon ('52 Bus. Adm.), 72, December 7, 2002, Coeur d'Alene, Idaho. In 1955, became district salesman for Phillips Petroleum in Coeur d'Alene. Worked for Panhandle Realty, 1962-66. Started Northwest Real Estate in 1966. Co-founded the Coeur d'Alene Multiple Listing Service.

Dale Kassel ('53 Speech/Comm.), 72, January 25, 2003, Dallas, Texas. After a career in advertising, became a character actor. Appeared in such feature films as *JFK*, *Semi-Tough*, *Harley*, and *West of Hester Street*. Also appeared in theatrical productions, music videos, and print media.

Robert Schmidt ('53 Agri.), 72, December 6, 2002, Rosalia. After graduation, formed a farming partnership with his brother to manage the family farm until 1987. Thirty-year volunteer firefighter for Spokane County Fire District 3. Served on the Washington State Association of Conservation Districts and Spokane County Conservation District.

Phillip M. Davenport ('54 Gen. St.), 71, March 6, 2003, Wenatchee. University of Washington Medical School graduate, 1958. Retired as a flight surgeon in the Air Force with the rank of captain in 1963, then started a residency at Wayne State University in Detroit. Dermatologist at the Wenatchee Valley Clinic, 1966-99.

Herbert Lewis Collison ('55 Agri.), February 10, 2002, Minnesota. Tank platoon leader in Korea, awarded the Bronze Star. Worked for ranches in California and New Mexico, and in 1959 joined the Minnesota Farm Bureau as an extension agent. Investment banker for most of his career.

Raymond Leo Turcotte ('55 D.V.M.), 83, September 1, 2002, Laurel, Montana. Served in the Army during WWII, earning the Bronze Star and Purple Heart. Veterinarian in Laurel for 30 years. One of the first veterinarians in the U.S. to own a helicopter as part of the veterinary service.

Rhea Ball Rogers ('56 Home Ec.), August 18, 2002, Fallbrook, California. Taught school more than 33 years.

Gordon Bryan ('57 Phys. Sci.), 68, February 6, 2003, Colfax. Draftsman and designer for Ball Aerospace in the Pullman area. Opened Bryan's Antiques with his wife, Joyce Powell, in Colfax in 1989.

Wallace London ('57 Agri.), 68, May 23, 2002, Wenatchee. Horticulturist for N.W. Wholesale for 30 years. Alpha Gamma Rho fraternity.

Michael Connacher ('59 Agri.), 71, February 3, 2003, Otis Orchards. Owned Concrete Cleaning and developed several technologies for decontaminating concrete surfaces.

Dale Newland ('59 Geog.), February 3, 2003, Spokane. Field representative for the Social Security Administration. Retired in 1997.

1960s

Robert Marx ('61 Speech), 63, October 17, 2002, Fairfax County, Virginia. Army communications officer during the Vietnam War. Author of *Army Studies History of the U.S. Army's Communications in Vietnam*. Project manager with Satellite Business Systems and IBM.

Mary Deffenbaugh Baker ('64 M.S. Bact.), 76, December 11, 2002, Ashland, Ohio. Worked at Children's Hospital, Philadelphia, in cleft-palate research, publishing numerous scholarly papers.

Valaray Borneman ('64 Elem. Educ.), 60, December 18, 2002, Bellingham, cancer. Elementary school teacher in the Bellingham Public Schools for 24 years.

Sara Gilman ('67 Psych, '74 Vet. Sci.), 58, November 17, 2002, Seattle. Enlisted in the U.S. Navy in 1974. Commissioned through the Medical Services in 1976. Completed an M.D. in neurophysiology at George Washington University in 1945. Her research included the effects of decompression rates on the nervous system of deep-sea divers. Among the first women dive officers in the Navy. Retired as lieutenant commander March 1996. Founder, president, and CEO of Scientifica, Inc., a successful effort to provide preclinical, clinical, and regulatory writing and editing services to pharmaceutical, medical device, and biotechnology communities.

1970s

John "Jack" Francis ('71 M.S. Phys. Ed.), 85, October 29, 2002, Vancouver. Flew 65 missions in the Air Force during WWII. Under his direction in 1962, the high schools in the Vancouver School District began an annual all-city musical, mounting elaborate productions of shows such as *Li'l Abner*, *The Music Man*, and *South Pacific*. President of the Washington State Music Educators Association.

Daniel Birk ('73 Police Sci.), 51, October 26, 2002, Woodland. Worked for USNR Logging Equipment Co. and was a Civil War reenactor with the Northwest Civil War Council, part of Rockridge Artillery.

Darryl Holling ('75 Wildlife Biol. & Range Mgmt.), 50, March 7, 2003, Post Falls, Idaho. Chief operator for the city of Post Falls in the Wastewater Treatment Department. Joined the department in 1994.

Brian Blank ('79 Bact.), December 30, 2002, Oakesdale. Member of the Washington Pork Producers and voted Pork Producer of the Year. Phi Beta Kappa fraternity.

1980s

Thomas P. Kuhn ('86 Comm.), 42, February 14, 2003, Redmond, Washington. Graduate of Circle In The Square, New York City. Performer and writer. Member of Screen Actors Guild. Appeared in local theater, print advertisements, and in local and national radio and television commercials.

Joseph Schad ('87 M.S. Engr.), 65, December 6, 2002, Spokane. Worked for General Motors in Kansas City, 1961-72. Moved to Spokane in 1972 to work at Warren, Little and Lund as a project manager and engineer. Owned Comfort Engineering, a mechanical contracting firm, 1978-93.

1990s

Gerald Alan Dickens ('93 Pharm.), 44, of Pullman, February 23, Spokane, following an illness. Pharmacist at Rite Aid in Pullman. Held B.S. (1984) and M.S.(1987) degrees in biology from South Dakota State University.

Amy King Robinson ('97 Human Nutr. & Food Sci.), 29, November 11, 2002, Centralia, cancer. Worked for the Research and Development Department of Starbucks Coffee in Seattle.

Faculty & Staff

Walter Clore ('47 Ph.D. Hort.), 91, February 3, 2003, Prosser. Faculty member at WSU's Irrigated Agriculture Research and Extension Center in Prosser, 1934-76. Washington wine pioneer. His significant contribution to the wine industry was finding the optimum locations to grow wine grapes in the state. In 1993, the WSU Foundation established the Walter Clore Scholarship for students interested in the wine industry. The Washington state legislature formally titled him Father of Washington's Wine Industry in 2001. A planned $6 million wine and culinary center in Prosser will be named for him.

John C. Sheppard, 79, February 18, 2003, Pullman. Army combat medic with the 103rd Infantry Division during WWII. Received Purple Heart for wounds, including the loss of a leg, while serving in eastern France in November 1944. Earned doctorate in nuclear chemistry at Washington University in St. Louis. Member of the WSU College of Engineering faculty from 1972 until retiring in 1991.

Balazx G. Zombori, 32, December 23, 2002, Pullman, car accident. Became an assistant professor of civil and environmental engineering at WSU in 2002. Served as research faculty in WSU's Wood Materials and Engineering Laboratory.

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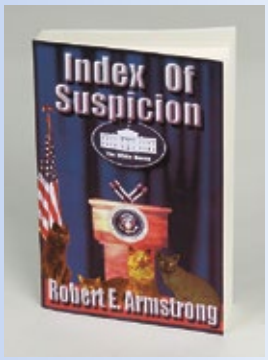
Please include the year(s) you graduated, the degree(s) you received—e.g., Bachelor of Business Administration—and your current address and occupation. Obituary notices may also be sent to *WSM*.

BOOKS, etc.



Index of Suspicion

By Robert E. Armstrong '62
iUniverse, Lincoln, Nebraska, 2002

Don't read *Index of Suspicion* by Robert E. Armstrong until all your pets have had fresh rabies vaccinations. Using his knowledge as a veterinarian—he graduated from WSU's College of Veterinary Medicine in 1962—Armstrong has constructed a complex and frightening plot that hinges on the deliberate infection of people with the rabies virus as an instrument of murder.

Set in Texas, where Armstrong now lives, this fast-paced whodunnit stars an aging veterinarian who becomes caught up in the rabies plot. Armed with his technical knowledge and plenty of courage, the vet investigates the death of a presidential candidate and a grand old dame of the Texas political scene.

Armstrong graces the story with the strong and capable character of the veterinarian's wife. Although she is always producing home-baked food for her husband, she also shares in his investigation. In the end her excellent marksmanship helps wind up the story.

Index of Suspicion is Armstrong's second mystery. (His first book, *Canis,* was reviewed in *Hilltopics* June 2001.) It will hold readers' interest as its complicated plot unfolds. Armstrong is to be commended for educating readers about rabies while providing us with a gripping story. And unlike many authors of hard-boiled mysteries, he does not drench his prose with profanity or sex.

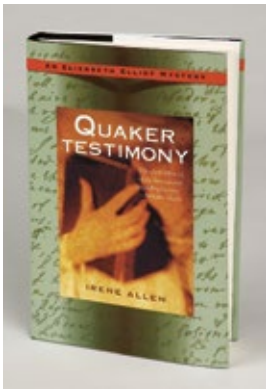
But don't read this book shortly before bed. The scenes of rabid animals and people slowly dying can certainly cause nightmares.

—E. Kirsten Peters, Ph.D.

E. Kirsten Peters is an instructor in geology at Washington State University. As Irene Allen, she is the author of a children's adventure novel and four mysteries, including* Quaker Testimony*, reviewed below.

Quaker Testimony

By Irene Allen
St. Martin's Press,
New York, 1996



I assure you that I did not take offense when on page 182 of Irene Allen's murder-mystery, *Quaker Testimony,* the question is asked, in effect, "How would you feel if *your* sister married an Army officer?" Here's why: This story is woven around the strong Quaker conviction that war must be resisted. As a former Marine enlisted man and a career Air Force officer, I can find no fault with that. I feel strongly that these Quaker ideals are exactly the ideals that deserve defending. The problem, as revealed in this story, is that not all Quakers agree on what form war resistance must take. In that setting, a murder has occurred. A war tax protester has been brutally shot to death, and it is probable that the killer is among the faithful.

The unlikely protagonist, Friend Elizabeth Elliot, is relentless in her desire to protect the blameless. And she has unlimited opportunity, as many potential suspects begin to appear among the gentle Quaker congregation. Even Elizabeth is a suspect. What Elizabeth soon learns is that to protect the innocent she must establish the guilt of someone, probably someone close to her. Irene Allen, the author, is aware of the requirement in all homicide investigations to firmly establish means, motive, and opportunity. Therefore, this clever author sends Friend Elizabeth into the investigation well armed with facts, clues, time lines, and forensic evidence. You can take it from me, this Friend is no slouch. She tests each and every presumption in her obliging pursuit of Quaker justice.

Read this book. Thee will love it.

Irene Allen, by the way, is the pen-name of E. Kirsten Peters, who, when she's not writing murder-mysteries, teaches geology at Washington State University. *Quaker Testimony* is the third in a series which also includes *Quaker Silence, Quaker Witness*, and *Quaker Indictment*.

—Robert E. Armstrong ('62 D.V.M., M.S.)

Robert E. Armstrong is the author of two veterinary mystery/thrillers,* Canis *and* Index of Suspicion*, reviewed above.

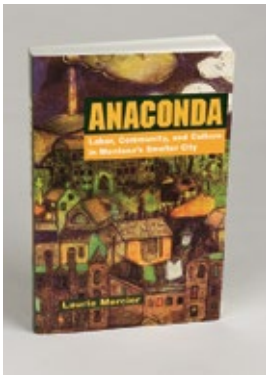
Anaconda: Labor, Community and Culture in Montana's Smelter City

By Laurie Mercier
University of Illinois Press, Chicago, Springfield, Urbana-Champaign, 2001

Anaconda, in southwest Montana, was home to the world's largest copper smelter. Marcus Daly established the first smelter in 1884. In 1980, the last plant closed its doors. *Anaconda* deals primarily with the community from the 1930s through the 1970s, and focuses on social life, work, unions, and the role of women in an industrialized western town.

An associate professor of history at Washington State University at Vancouver, Laurie Mercier undertook much of the research for *Anaconda* while she served as state oral historian for Montana.

The strength of Mercier's work is her attention to women. She doesn't ignore the male story, but she continually brings her tale back to the role of women—in politics, in the home, and in the factory.



Mercier carefully records how national and international events affected Anaconda—the Depression strengthened unions, while World War II created opportunity for women. This attention to the larger picture is critical, for the smelters came to be controlled by international conglomerates. When foreign investments provided greater corporate earnings, Anaconda's fate was sealed. Like so many communities based on extractive resources, it eventually declined as business moved elsewhere. In 1980, the Atlantic Richfield Corporation closed the last smelter, forever changing the complexion of this town of 10,000.

Mercier has written a solid, extremely well-researched history of a western community. It holds up well when compared to several other significant Montana studies penned in the past two decades.

My only criticism is that Mercier has the background to have gone beyond those previous works. For an author who has been one of the strongest national advocates for the use of oral history as a legitimate scholarly resource, she surprisingly does not really allow her narrators to have a "voice." We get short quotations from them occasion-

ally, but we don't get to know—to love or to hate—any of the characters.

But it is too easy to critique a book for something it isn't, or was not intended to be. For presenting working class life, with an emphasis on ethnic diversity and gender roles, *Anaconda* is an outstanding study.

—Keith Petersen '73

Keith Petersen is Idaho's coordinator of the Lewis and Clark Bicentennial Commemoration.

Smoke Follows Beauty

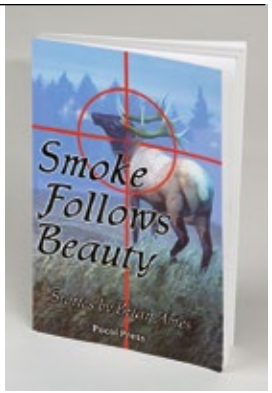
By Brian Ames '85
Pocol Press, Clifton, Virginia, 2002

There's a scene in "The Kanasket Chicken Killings" that illuminates a great deal of what Brian Ames ('85 Political Science) is up to in his collection of short stories, *Smoke Follows Beauty*. As he's replacing the camshaft of a road grader, mechanic Henri DeLaat, trying to make sense out of what's been happening on his farm, reduces the confusing events he's been living through to a mathematical formula: "A, there are chickens going missing. B, it is probably the work of coyotes. C, coyotes can be stopped. D, how? A plus B plus C equals D, a simple equation." Immediately, he drops a bolt into a greasepan, bends over to retrieve it, cracks his head against the undercarriage of the grader, then sits down hard, stunned by the blow. Suddenly the answer comes to him: "D, kill them, kill them all."

It's as though the powers, whatever they may be, were telling him, "It's not about intellect, dummy, it's about blood." Accepting his role as predator, Henri becomes part of the fabric of confusion and dissolution which, Ames seems to suggest, is the essence of reality.

In story after story, Ames's characters confront that reality, often in the context of magical or otherwise unusual circumstances. In "A Taste Like Fear," Dr. Mullenix, a "real" mathematician, complacently hunts big game in Africa. But his self-satisfaction—and his mathematical certainty about the world—are shattered forever when he encounters, half-buried at the edge of a watering hole on the savannah, the mutilated, ravaged body of what appears to be a Maasai woman—except for the wings growing out of her back. ". . . [W]hat kind of place is this?" Mullenix asks in bewilderment. "In what place can one of God's own angelic beings be violated and murdered?"

Things don't *always* turn out badly for Ames's protagonists. In the book's concluding story, "Something for Nothing, but Only Once," an elk hunter sits at the edge of a clearing, waiting for game. Suddenly the charred end of a fallen log sprouts a face, and the face speaks to him: *"There are no elk in this area. The elk are over at Glass Creek."* The hunter drives to the Glass Creek drainage, walks 40 yards into the woods, and *voilà*! a magnificent bull elk steps into the crosshairs of his rifle. After downing the elk, quartering it, and packing it to his pickup, the hunter meditates, "I know, as I hike out slick in the bull's fluids, that it's a one-time deal. You *can* get away with it once in a while."



Smoke Follows Beauty is Ames's first published book. Despite its flaws—chiefly the less-than-careful editing—it's an impressive debut for this writer of talent and conviction, and it deserves to be widely read.

For examples of Ames's writing, visit his home page at http://home.attbi.com/~tendollardog/

—George Bedirian

NEWS from the Washington State University Foundation

The 2002-2003 Sahlin

Recipients of the 2002-2003 Sahlin Faculty Excellence Awards at Washington State University exemplify the University's "World Class. Face to Face." tag line. Working collaboratively with students, colleagues, and peers, they explore cutting-edge fields and inspire others to excellence.

Psychology professor Thomas A. Brigham, School of Biological Sciences professor Gerald E. Edwards, and public services librarian Alice Spitzer are making a difference at WSU through creative instruction, innovative research, and dedicated service to local and global communities.

Noted for his creativity and enthusiasm in the classroom, Thomas A. Brigham, winner of the Sahlin Faculty Excellence Award for Instruction, breathes life into the subjects he teaches by engaging students in the classroom. He believes that learning should be a collaborative process between teacher and students, and he tailors his instructional techniques and materials to inspire and motivate his students. "Learning should be exciting," he asserts.

This award is a distinctive honor at WSU, notes Frances McSweeney, vice provost for faculty affairs and professor of psychology. In a letter supporting Brigham's nomination, she points to the national and international recognition he has received for innovative research and instruction. As a past recipient of the College of Liberal Arts William F. Mullen Award for Excellence in Teaching and the Faculty Distinguished Achievement Award, "it seems entirely appropriate that he would receive this University-wide award," she wrote.

Colleagues and collaborators praise Gerald Edwards for his productivity, commitment, and creative approach to research. The Sahlin Faculty Excellence Award for Research, Scholarship, and the Arts recognizes Edwards's significant advances in the field of photosynthesis, which placed the University in the national spotlight last year when he was recognized by the American Society of Plant Biologists.

Thomas A. Brigham, Professor, Psychology

Known for his modesty, Edwards credits his achievements to the senior scientists who have been his mentors, the students he has worked with, and his collaborators in the U.S. and abroad. "Working with them has been very rewarding," he notes. "It is very gratifying when one's research is recognized by peers in his or her field. Being recognized across disci-

Faculty Excellence Awards

plinary boundaries, as the Sahlin award does, goes a step further."

Alice Spitzer, winner of the Sahlin Faculty Excellence Award for Public Service, firmly believes that people can make a difference in their local community and in society at large by getting involved in activities that reflect their interests and abilities. "Public service is not only life enriching for those around us, it also enriches our own lives tremendously."

Spitzer's belief is affirmed by co-workers and volunteers in the organizations in which she shares her time and resources. In a letter of nomination, colleague Lynn Chmelir writes, "With Alice, service is a way of life." Spitzer's activities range from her career as public services librarian on the WSU campus, to work in the Pullman-Moscow area, to engagement with other countries. The projects she supports reflect her concerns for the environment,

Alice Spitzer, Librarian, WSU Libraries

Gerald E. Edwards, Professor, School of Biological Sciences

her community, and improving the quality of life for people around the world.

Brigham, Edwards, and Spitzer each receive a cash award of $2,500 from an endowment created by Spokane residents and Washington State alumni Lee Sahlin ('47 B.A. Economics and '48 Education) and his wife, Jody ('49 B.A. Fine Arts). The endowment established the Sahlins as Benefactors of WSU in 1994. The couple's generosity to WSU has been sustained over more than 40 years. Lee Sahlin was part of the original WSU Foundation Board of Trustees and worked side-by-side with the late Weldon B. "Hoot" Gibson during the organization's formative years.

The Sahlins established these awards to recognize excellence. Committees choose recipients based on criteria recommended by the WSU provost and determined by the president.

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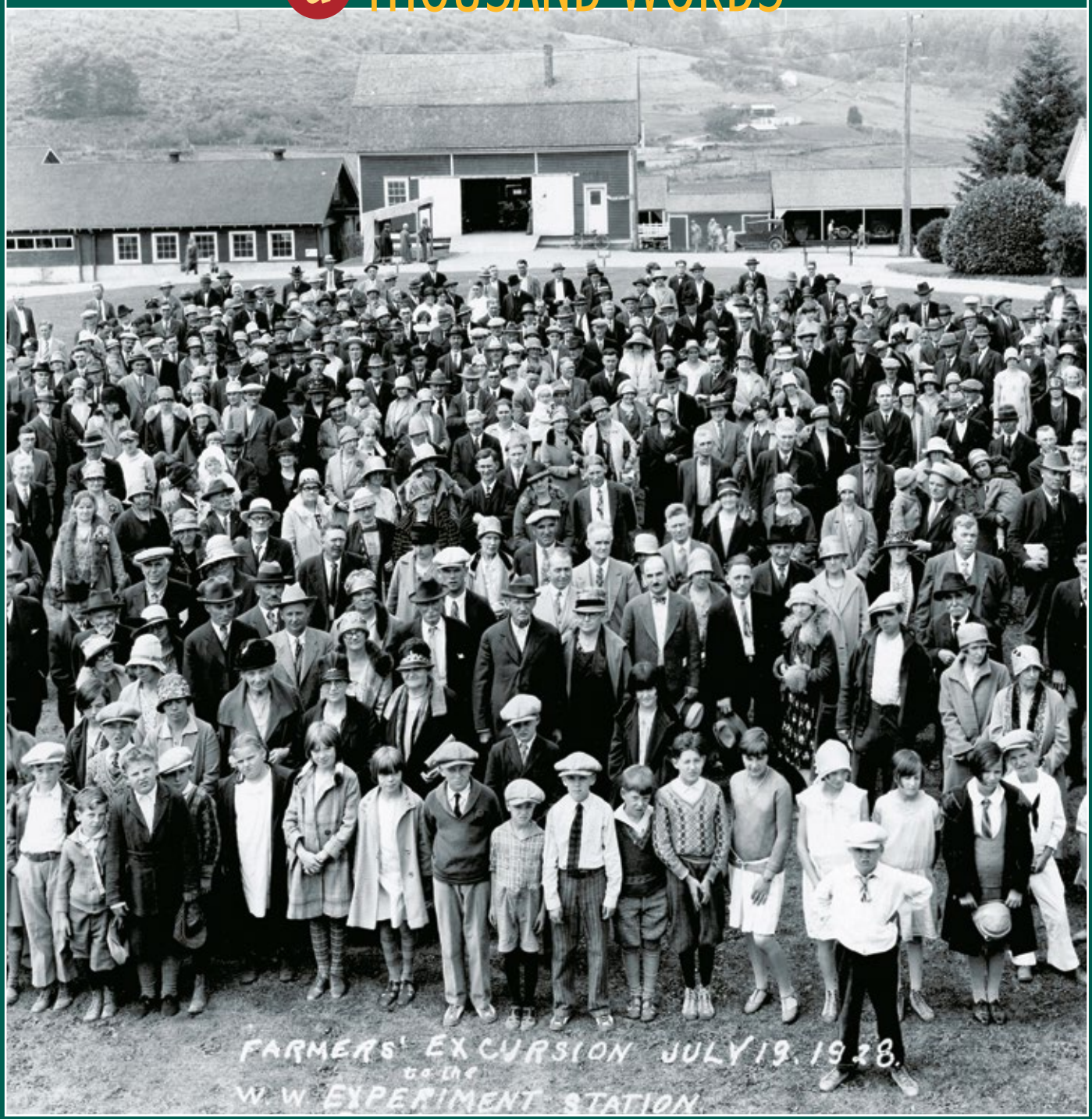

According to Jim Kropf of the current experiment station at Puyallup, the Farmer's Excursion was a social as well as an educational function. His parents would attend from their farm 25 miles away, a considerable trip in a Model A. Attendees would see the latest in vegetable and berry varieties and learn about the latest discoveries in entomology and soils. There might also have been poultry and dairy demonstrations. And definitely a picnic. PHOTO COURTESY OF MANUSCRIPTS, ARCHIVES, AND SPECIAL COLLECTIONS, WSU LIBRARIES.

Anneliese Andrews:
Smart People…More Results

When industry leaders search for the best experts in computer software analysis, they often turn to Anneliese Andrews, holder of the Huie-Rogers Endowed Chair in Computer Science at Washington State University. Prof. Andrews's collaborative—and exhaustive—research to develop innovative testing procedures breaks new ground in software engineering, bringing recognition to WSU's computer science programs. She and her research partners develop protocols and methodology for software testing that will ultimately impact every industry and consumer relying on dependable products and systems for computers and other electronic devices.

Anneliese Andrews, holder of the Huie-Rogers Endowed Chair in Computer Science

Andrews fills an important niche in Washington State's world-class software engineering program. Her expertise in software forensics and testing adds another dimension to the University's base of expertise in imbedded systems, network security, and bio-informatics. Her guidance is instrumental in preparing students and researchers for an industry that demands performance.

Andrews arrived at WSU from Colorado State University two years ago as the top choice for the Huie-Rogers chair, established by Renton residents and Cougar alumni Floyd ('73, '74) and Judy ('74) Huie-Rogers. As former director of the Colorado Advanced Software Institute, Andrews says she applied for the Huie-Rogers chair because it was a significant way to advance her career. An endowed chair opens a door to the next level, she notes, providing resources for accelerated research, international collaboration, and instruction in cutting-edge fields.

Computer software analysis is a labor-intensive, time-consuming, and extremely expensive process. Andrews works with students and researchers, assessing issues such as software stability and the costs and benefits of software maintenance, and determining the effectiveness and efficiency of testing procedures.

Andrews is adamant in declaring her personal admiration and respect for Floyd and Judy Huie-Rogers, who created a second endowed chair in computer science at WSU in February 2003, emphasizing the need for highly qualified computer scientists and engineers in Washington. By recruiting a top expert, WSU's software engineering program—and the industry—will see tremendous benefits, Andrews asserts. "I am, by nature, a collaborator. I believe very strongly that when two smart people get together, you get even more results."

WASHINGTON STATE UNIVERSITY FOUNDATION

"Unrestricted gifts provide unexpected opportunities to strengthen key programs within the College of Business and Economics. Ollie Williams's endowment becomes the venture fund to support graduate students and attract outstanding faculty in accounting. His faith in allowing us this flexibility is most appreciated."

—Len Jessup, Dean, College of Business and Economics

Chris Lewis, WSU accounting student, discusses course information with Associate Professor of Accounting Sue Gill.

What's Your Legacy?

The late Orus "Ollie" Williams recognized the value of creating a lasting legacy. Ollie, who earned his accounting degree from WSC in 1930, supported his alma mater with modest annual gifts for nearly 35 years, before making his ultimate gift to Washington State University through his bequest. At his death, a portion of Ollie's estate established an unrestricted endowment for the College of Business and Economics. By including WSU in his estate plan, Ollie's legacy will further opportunities for excellence within the College of Business and Economics.

A bequest to fund scholarships, endow professorships, or support other University priorities will allow you to leave a lasting legacy at Washington State University.

For more information on bequests, contact the Gift Planning Office, Washington State University Foundation, PO Box 641925, Pullman, Washington 99164-1925, 800-448-2978, gift-planning@wsu.edu, http://wsufoundation.wsu.edu/giftplanning.

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