

DISCOVERY

Newsletter of Research and Scholarship

Research Roundup



White House visit intriguing, memorable for Bozeman scholar

by Annette Trinity-Stevens

A Sept. 17 visit to a White House symposium left a Bozeman scholar excited and intrigued by discussions of women's role in the literature of the American West.

"I appreciated the wide range of people they had there," said Linda Karell, an associate professor of English at Montana State University-Bozeman. The event, she added, was "exciting and smart and intriguing. I think they did a really good job."

Karell was one of about 150 people whom First Lady Laura Bush invited to a breakfast reception and symposium on "Women of the West."

Part of a White House series saluting America's authors, the event focused on Willa Cather, Edna Ferber and Laura Ingalls Wilder.

"These women helped forge the Western identity," Bush said in her opening remarks. "Through their words, we come to appreciate who we are as people and what we can achieve as individuals."

Well-planned and highly orchestrated, the symposium drew more than an academic audience, Karell said.

"There were young people, old people, writers, independent scholars, high school students, family members, and representatives from Hollywood," Karell said. "I think it was an opportunity to bring people together who might not otherwise have come together."

Laura Ingalls Wilder wrote the "Little House" series, which Bush said she spent countless hours reading with her mother. Cather, Bush



Linda Karell. Photo by Linda Best.

continued, described Nebraska with "forlorn clarity," and Ferber developed "great sympathy for both real and fictional characters."

Symposium panelists included Melissa Gilbert, who played Laura in the "Little House" television series and now heads the Screen Actors Guild; Cather biographer Sharon O'Brien; historian Patricia Limerick; and former Bozeman authors Linda Peavy and Ursula Smith, who

worked on the recent PBS series "Frontier House."

"The content, while not radical, was very current and thoughtful," Karell commented.

The way the authors overlooked issues of racism and slavery, for example, drew comment as did myths of the West that distort the true experiences of both men and women in the frontier.

"I was impressed and encouraged by the kind of speakers they had—those who have challenged perceived understandings of Western history and literature," Karell said.

Before leaving the East Wing, Karell was able to personally thank the First Lady, whose invitation unexpectedly arrived in Karell's Bozeman mailbox about a month ago.

Although she has written about Cather and has a book due out in December on collaboration in western American literature, Karell wasn't sure which activity might have caught the attention of the White House staff.

Annette Trinity-Stevens directs research communications at MSU-Bozeman.

El Nino's bigger brother

Most of us have heard about the El Nino weather phenomenon. It lasts six to 18 months and causes warmer, drier winters in Montana. But few have heard about El Nino's "bigger, badder brother," a climate pattern known as PDO, or Pacific Decadal Oscillation. PDOs cause periods of relative wet or dry in our region that are two or three decades long. Two complete PDO cycles have been documented this century, and climatologists aren't sure whether we're about to leave a dry PDO and enter a wet one, said Greg Pederson, a graduate student in Land Resources and Environmental Sciences at MSU. Both El Nino and PDO are caused by changes in sea surface temperatures in the Pacific Ocean.

Crop markets

Wheat and barley production has been subsidized by the federal government for decades. Now alternative crops like canola, safflower and peas will qualify as well, thanks to a new federal farm bill. Often, though, the marketplace offers a better price than the one guaranteed by the government, says MSU agricultural economist Vince Smith. That's why he and several other economists are exploring opportunities and strategies for marketing alternative crops. Montana farmers are already including some of the crops in next year's production plans, so understanding the market is critical, Smith said. Besides MSU, the project involves Fort Peck Community College and the Montana Grain Growers Association.

Afternoon sigh



Perhaps you've heard of the "3 p.m. sigh." That's when parents who work away from home realize their children are about to get out of school, and no one will be in the house waiting for them. Many parents feel torn between their employer and their kids, says Dan Moshavi, MSU assistant professor of management. "There're stresses around 'Can I be there for my child as much as I would like to be?'" Employers can reduce that stress and improve customer satisfaction at the same time by offering family-friendly policies like flexible hours or the chance to work from home a couple days a week, Moshavi said. Research has shown a direct link between employee satisfaction and customer satisfaction, particularly in service companies.

Position added to seek grant funding for women and minorities

MSU-Bozeman has added an administrative position to enhance research opportunities for women and minorities.



Susan Capalbo, a professor of agricultural economics and economics, was named Director of Special Projects for Enhancing Diversity, effective last summer. It is a part-time position that reports to Vice President for Research Tom McCoy.

Capalbo said that while enhancing diversity on a college campus is a broad topic, she sees her position as one to identify and seek more opportunities for and about women and minorities in grant-funded research and outreach programs.

The National Science Foundation's ADVANCE program, for example, funds proposals aimed at changing a university's institutional structure so that more women can advance in science and engineering. The same program also funds leadership awards and awards that help female faculty get started in their careers.

"This is a real opportunity to work with the upper administration at MSU to look at factors that continue to keep women and minorities significantly under-represented in science and engineering fields and under-advanced in general in the nation's colleges and universities," Capalbo said.

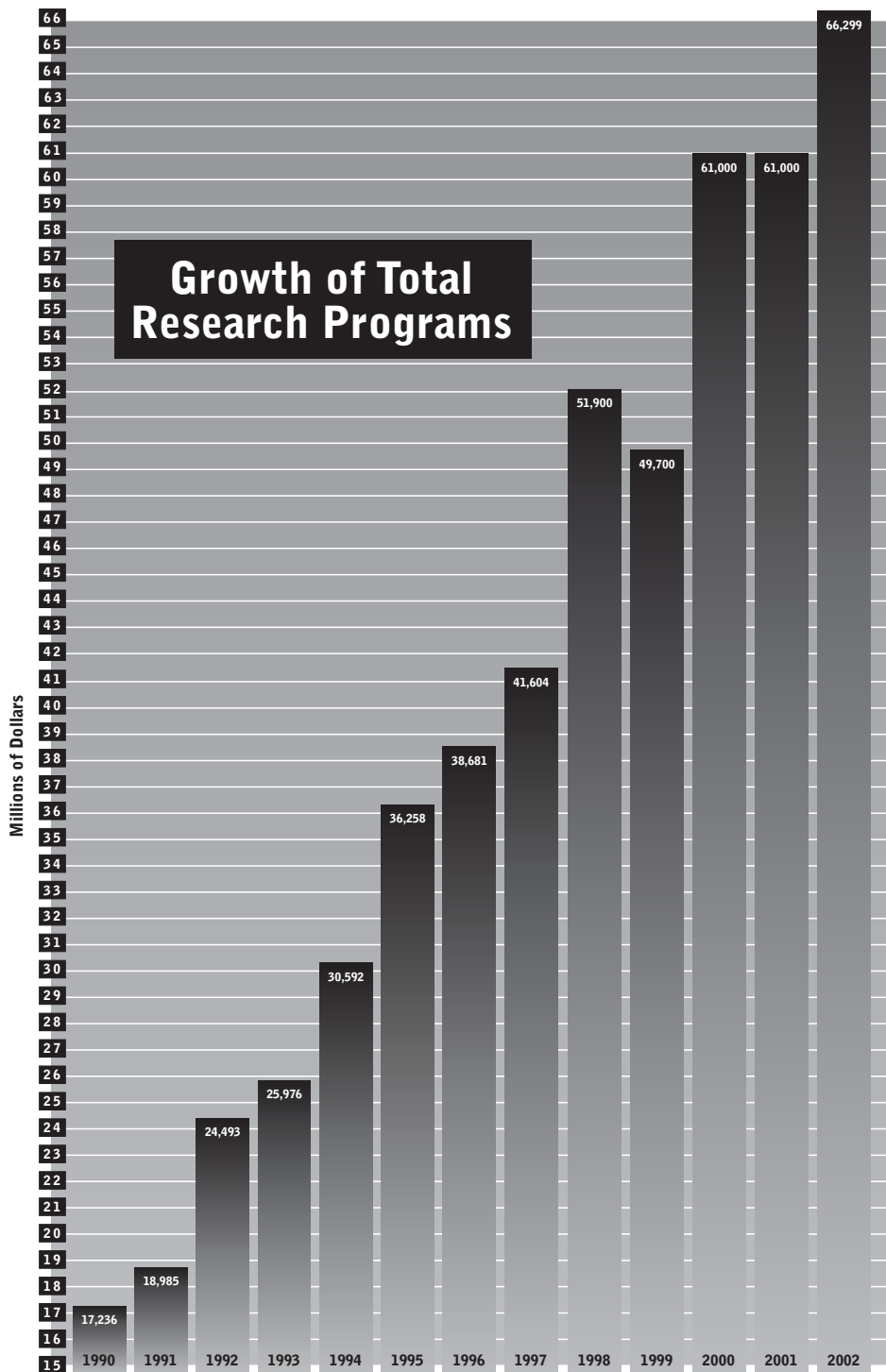
Goals for the position include increasing the recruitment and retention of women and minorities in tenure-track lines and in graduate programs. Another is making changes designed to get more women and minorities into mainstream research and creative activities at MSU, Capalbo said. Some options include slower career paces to accommodate family responsibilities or more flexible schedules that might help women progress at the same level as men.

No stranger to campus-wide initiatives or gender issues, Capalbo chaired the university's Long Range Planning Committee in the mid-1990s and currently chairs the equity and student-welfare subcommittee for National Collegiate Athletic Association recertification of the MSU athletics program.

"These committee assignments whetted my appetite and made me feel like I have something to offer [the institution]," she said.

Despite her new position, Capalbo will continue her own research. Currently she is leading a large study on the connection between mitigation of greenhouse gases and soil carbon sequestration practices on agricultural lands.

Research expenditures rise



Research expenditures—or dollars spent from grant funds—grew to \$66 million at MSU during fiscal year 2002, which ended July 1. Faculty and staff compete for these funds, which come primarily from the federal government. Nearly 2,000 research and scholarly projects are under way at MSU across the disciplines.

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For more information, call 994-5607 or visit www.montana.edu/wwwvr.

The next generation of library catalog

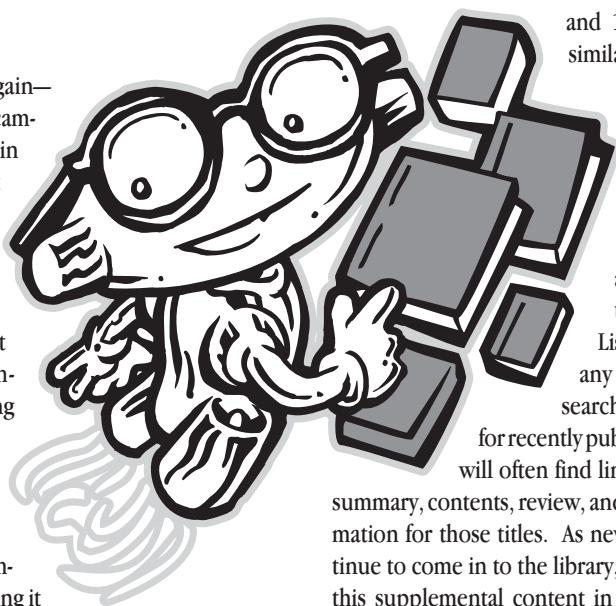
by Zan Zauha

Here we are again—snow is in the air, campus activities are in full swing—and it seems as if nothing much has changed since last spring. But while you were out writing, researching, and indulging in sundry summer luxuries, things did indeed change. The Web got bigger, the number of people surfing it grew, and the quality of things they found there got better or worse—depending on your attitude. The Web offerings of the MSU Libraries also changed while you weren't looking—for the better, of course.

If you haven't visited the Web site of the MSU-Bozeman Libraries [www.lib.montana.edu] since last spring, note our new Web look, but pause specifically to explore the latest library catalog interface. Implemented in the latter part of August, this user interface is very different. It incorporates many innovative features and promises more to come. Designed to meet increasing user demands and expectations, the new interface offers higher levels of content, connection, and flexibility.

Once you click into the Library Catalog from the home page, the links to lists of bestsellers and award winners are the most noticeable new features. Want to quickly identify some quality reading choices? Look into the "Pulitzer Prize for Fiction" link in the Recommended Reading Lists box. Curious about Jhumpa Lahiri's 2000 Pulitzer Prize winning collection of short stories? Click on the Bozeman link to the full record and discover not only where her book is located in the library, but what reviewers said about it, the names of the individual stories in it, and a color graphic of the cover—because, in all honesty, sometimes we do judge a book by its cover.

Want to find titles similar to Herbert Bix's 2001 Pulitzer nonfiction winner, "Hirohito and the Making of Modern Japan"? Click on the "More like this" link within the detailed record



and 18 titles sharing similar subject headings will immediately pop up. Similar content and search capabilities are available from the Best Sellers Lists. In fact, when any regular catalog search yields records for recently published titles, you will often find links to additional summary, contents, review, and graphical information for those titles. As new materials continue to come in to the library, the presence of this supplemental content in the catalog will increase.

Still available from the catalog, of course, are key links to important resources such as the E-Journal Finder, where lists of electronic journal packages can be searched by title and accessed online; the Reserve Desk, where students can search for items on physical reserve; E-Reserves, linked in the upper right-hand box, where students can zoom directly into the full text of virtual reserve items; and a lifeline into Reference Help options, where students, faculty, and staff can find the easiest possible way to get research assistance from a living, breathing professional.

The future will bring still more changes to the new catalog interface, including customization for users who log in and ask the software to remember their favorite subjects, authors, and other information. Potentially on the horizon as well is more user empowerment in general—to do routine account functions like placing holds and renewing books online. Broadened search capabilities that enable one-stop queries of multiple databases are also on the cards.

To find out what else is new in the library, physically and virtually, or for help finding what you want in the new catalog, call or stop in at the newly renovated Renne Library reference desk. If you find Web sites or topics that you think might be of interest to the MSU community, please send me an e-mail message at jjzauha@montana.edu.

Jan Zauha is the reference team leader for the MSU Libraries.

Program aims for high-tech businesses

An opportunity to create more high-tech businesses in Montana came last month in the form of a new federal grant aimed at home-growing those companies rather than recruiting them from outside the state.

The Partnership for Innovation program creates a strategy for sprouting new technology companies here and nurturing them through private-public partnerships.

The three-year grant is funded by the National Science Foundation.

"We know that some entrepreneurs do find their way to Montana," said program leader and TechLink Center director Will Swearingen. "They may have come here from somewhere else to start a company, but that's not happening fast enough. We want to apply a shock treatment to that process by using a 'grow-your-own' strategy."

The program creates a partnership among Bozeman's TechLink Center, which finds NASA and Department of Defense technologies for companies to commercialize; the Governor's Office of Economic Opportunity; the College of Business at MSU-Bozeman, which trains students in entrepreneurial skills; and the Technology Venture Center in Bozeman.

The TVC is a private, not-for-profit organization that links entrepreneurs with investors, mentors and a business incubator.

In a nutshell, the partnership combines technology, talent, capital and know-how as a way of starting high-tech companies in rural states, said project participants.

"One of our top priorities is to find ways to drive more innovation and technology into industry in this state," the state's chief business officer David Gibson said. "So we hope with this project to demonstrate best practices and get a foothold on how we can best drive technology from the universities and from the federal system into businesses."

In the high-tech sector, Montana suffers from a lack of deal flow, said TVC director John O'Donnell.

"There aren't enough entrepreneurs knocking on the door," he said. "Rather than wait for the deals to come through the door, we'll go find them."

Under the new program, TechLink will match technology from the university system or the federal government with potential business owners. Students from the Center for Entrepreneurship for the New West in the MSU College of Business will be assigned to the entrepreneurs to provide market analyses and other research while learning how to become entrepreneurs themselves.

TVC will provide links with investors and specialized services. Start-ups can apply for small "seed" grants from the federal grant money. The governor's office will help give the project a state-wide focus.

"The program could fail without any one of the participants," said business dean Richard Semenik. "That's what's so exciting about this."

The program is open to all potential entrepreneurs with an eye toward attracting more female- and Native American-owned companies.

Wildland firefighters burn calories like climbers, soldiers

by Annette Trinity-Stevens

Hot Shot firefighters burn calories at levels equal to mountain climbers and combat soldiers, according to a recent study that sheds more light on the energy requirements of wildland fire crews.

"To get to be a Hot Shot to begin with is incredibly difficult," said study leader Dan Heil, an exercise physiology professor at Montana State University in Bozeman. "But once there, these individuals pride themselves on being the hardest workers and the most reliable workers."

Keeping the elite firefighters, who work long, hot days in steep terrain carrying heavy loads, properly fueled and hydrated is the focus of ongoing studies funded by the U.S. Forest Service.

Heil's report, published in *Applied Ergonomics*, shows that electronic activity monitors worn in firefighter's shirt pockets are just as accurate as using urine samples to measure how many calories crew members expend.

"It's not a lot of fun," Heil said of the technique that required researchers to collect urine samples for days. Although accurate, the urine analysis is expensive and doesn't show patterns or bursts of activity that occur throughout the day.

"We need more information to understand how individual bouts of activity and individual behavioral patterns contribute to total daily



Not enough is known about the physical demands of Hot Shot crews during actual firefighting. (Photo by Travis Pfister)

energy expenditures," Heil said.

Heil had 10 Hot Shots from the Helena-based crew wear the matchbook-sized activity monitors in their chest pockets for 21 consecutive days during the grueling 2000 fire season.

Measuring mostly upper-body movements, the monitors recorded activity data once per minute. Electronic sensors measure changes in velocity, making the monitors more accurate than pedometers, which register simple up-and-down movements with a pendulum. Heil downloaded the data from the monitors and analyzed the results.

He found that the firefighters burned calories on par with Marines conducting cold-weather field exercises; with an Army platoon

training for jungle warfare; and with mountain climbers scaling Mount Shisha Pangma in the Himalayas.

Finding out he burns calories like a soldier or mountain climber came as no surprise to Travis Pfister, 25, of Missoula.

A firefighter with the Lolo Inter-agency Hot Shot crew, Pfister said he carries about 70 pounds of equipment, including a chain saw, fuel and tools. The terrain can vary from relatively flat to a 40 percent grade, and the shifts can vary from eight hours to up to 16 hours a day.

"It's a pretty cool little project," Pfister said of the research. "They're concerned about our nutrition and

trying to make sure we get enough of everything so we can keep doing this and stay healthy."

Last summer Heil helped scientists at the University of Montana monitor firefighters' blood glucose levels to better understand how well the firefighters' food consumption matched their energy expenditures.

Next summer he may help the same research team evaluate how well the Hot Shots monitor their hydration levels. The studies could give managers an objective way of dictating when crews take breaks.

"These are two more layers [of information] to see how well firefighters are doing," Heil explained. "They'll work themselves to the bone before they'll say they're tired."