

CONFLUENCE

THE COLLEGE OF LETTERS AND SCIENCE • MONTANA STATE UNIVERSITY • 2006 - 2007 • VOLUME 3



POPPING THE
ACADEMIC BUBBLE
L&S Scholarship Gets Real

LETTER FROM THE DEAN



Dear friends and colleagues,

The Letters and Science website states that the College prepares students for the opportunities and challenges of the 21st century through its dedication to a liberal arts education. Often I am asked about the relevance of this centuries-old educational tradition, which is concerned as much with the process of learning as with content. My answer, time after time, comes in the form of the stories and people that you will read about in this year's *Confluence*.

L&S is home to scientists who identify solutions to environmental and health challenges worldwide; to statisticians and social scientists who provide data that shapes public policy; to researchers who patent the newest technology; and to scholars who inform contemporary cultural debate with the lessons of history, literature, and philosophy.

Both in the classroom and by example, the faculty, students, and alumni of L&S are actively bringing the world of ideas into the world of today.

As always, we continue to take pride in the excellent mentoring of students that takes place here on our Bozeman campus, the hands-on research opportunities offered in both undergraduate and graduate programs, the diverse accomplishments of our alumni, and the vital support of parents, friends, and donors, who make many of these accomplishments possible.

The liberal-arts approach treats learning as an ongoing process of active engagement rather than passive reception. The liberally educated individual is, I believe, well-prepared to help create options and opportunities, clarify problems and choices, build morale and community, and provide a vision of the possibilities for better organizations and a better world.

The proof, as they say, is in these pages. I hope you will read, enjoy, and keep in touch.


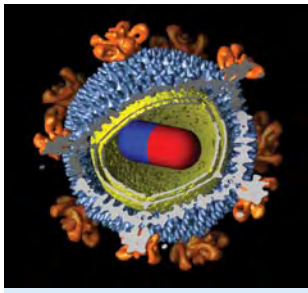

INTERIM DEAN, GEORGE TUTHILL

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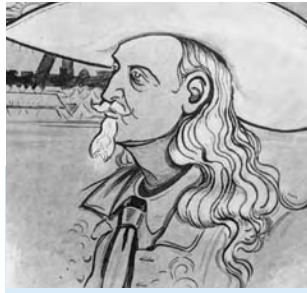
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Confluence is published by the College of Letters and Science, Montana State University.

Editor, [Sarah Guggenheim Alexander](#)

Design: [Ixtla Vaughan](#), '91, [Ryan Sytsma](#), '06, www.getidesign.com

Printing by ColorWorld, Bozeman

BEYOND THE

L&S and the Land Grant Mission of Practicality

By Sarah Alexander

Founded in 1893 as a land-grant university, Montana State University (then the Agricultural College of the State of Montana) was endowed with a mission of practicality. The Morrill Land Grant Act of 1862 provided the financial means for every state to establish a university that would “promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.”

Over a century later, MSU’s programs of study have evolved from the “agriculture, applied science, and domestic economy” that formed its original curriculum, and in the College of Letters and Science alone, students can pursue over 45 fields of undergraduate study offered by fifteen departments. Has this broadening of the academic realm resulted in an institutional bubble, an “ivory tower” where faculty and students engage in lofty pursuits and are disconnected from the everyday world?

“Not at all,” says George Tuthill, Interim Dean of the College of Letters and Science. “In fact, I’d say that we are more involved in the problems of the real world than ever before.” He points to research projects funded by federal agencies and connected to national interests, to student experiences in the field and in the community, to partnerships with local businesses, and to faculty who are regularly questioned and quoted in the local, national, and international media.

In some cases, research leads to practical, patented inventions.

IN SOME CASES,
RESEARCH LEADS TO
PRACTICAL, PATENTED
INVENTIONS.

IVORY TOWER

Currently, chemistry professors Trevor Douglas and John Peters have a patent pending for a hydrogen production reactor aimed at producing hydrogen as an inexpensive fuel alternative. Last year, student Robbie Mealer, a senior in cell biology and neuroscience, patented a new way to measure electrical impulses in cell membranes, allowing scientists to observe the brain sending messages from cell to cell. Physics professor Rufus Cone has no less than three patents to his name and has been instrumental in the establishment of several laser technology companies in the Gallatin Valley (see sidebar page 5).

In other instances, MSU research aids in the establishment and application of public policy. Professors Marsha A. Goetting, family economics specialist in the Department of Agricultural Economics and Economics, and Kristen Ruppel, Native American Studies, will host an April 2007 symposium aimed at helping Indian landowners understand the impact of a new federal law. Tribal leaders, Indian landowners, and Indian land lessees from the intermountain region will discuss and learn about the American Indian Probate Reform Act of 2004 and its effect on Indian land tenure. Ruppel, who teaches Federal Indian Law, will also involve her students in the symposium.

Robin Crough, a political science graduate student in the Master of Public Administration program, is currently assisting Professor Liz Shanahan with a water needs assessment for Montana that will aid efforts to improve regional water resources management. Dr. Shanahan, who joined the political science faculty this year, specializes in land use issues, which she believes are lightning-rod concerns in the American West. "I would like to make a difference in communities across the West, to help policy makers make strategically-planned decisions," she says.

Similarly, ecology professors and graduate students working in the department's Montana Cooperative Fishery Research Unit are investigating the effects of coalbed methane development on the fish populations

Continued....

"[Our students] are getting hands-on experience working in a community, doing something with the knowledge that they are gaining from the classroom to really help a city and the state."

MSU President Geoffrey Gamble

BEYOND THE IVORY TOWER

Continued....

of the Powder River Basin. The Powder River Basin is projected to have up to 70,000 wells in place over the next 20 to 30 years. Funded by the U.S. Bureau of Land Management, the study is designed to provide scientifically sound information to aid agency, tribal, and industry resource managers in making land and water use decisions in Montana and Wyoming.

Even the language and literature studies of the Department of Modern Languages have led to involvement in the public sphere. Spanish professor Patricia Catoira recruited two of her best Spanish students to help the Head Start programs in Bozeman and Belgrade this year. The program needed on-call translators and liaisons between teachers and Spanish-speaking students and their families to conduct screenings, meetings, and appropriate placement. The students receive three credits for their work throughout the year.

Farther afield, three MSU French students received a grant from MSU to volunteer in various non-profit organizations in France. In addition to their day-to-day work, the students will interview the organizations' leaders and evaluate their programs. Faculty sponsor Ada Giusti hopes to include their research in her next book, *Volunteering in the Francophone World*.

These are just a few examples of higher education as an entity that contributes to the public good. And in some instances, the relevance is not always immediately apparent. "Practicality means a different thing in 2006 than in 1893," said Dean Tuthill, referring to the university's original land-grant mission. "Our obligation as a university is to look farther ahead than the next quarter or even the next decade—towards what might become practical in the future."

**"PRACTICALITY
MEANS A
DIFFERENT THING
IN 2006."**

PROFESSOR'S EXPERTISE AIDS PAKISTAN

Linda Young had never been to Pakistan when she was asked to assist its government in preparation for the December 2005 World Trade Organization's annual meeting. Young, a professor of political science and a specialist in global agricultural economics, met with Muhammad Ismail Qureshi, Pakistan's Secretary of Food, Agriculture and Livestock, and his staff to help them consider potential trade negotiating positions.



MSU News

She said Pakistan's location and political and geographic isolation affect its trade plans. The country is bordered by India, with its booming economy and protective trade policy, and to the northwest by war-torn Afghanistan. Also a factor is Pakistan's membership in the G-20, a group of developing nations that have banded together to speak with a common voice in the trade negotiations, even though they have diverse stances on agricultural trade policy.

Young said the members of the Pakistani Ministry of Agriculture favor further liberalization of agricultural trade. "Like many countries, they would like to develop exports of higher-value products, including fruits, such as mangos, and also fresh fish," Young said. "To do that, they have to implement the very high health and safety regulations enforced by developed country importers."

Young said her experiences are enriching her classes at MSU. "I'm definitely using the lessons I learned there in my classes," Young said. "Anything that we can do to bring real world experience back to our students is good. And this was definitely real-world experience."

Excerpted from Carol Schmidt, MSU News

GROWING HIGH-TECH IN THE GALLATIN VALLEY

Rufus Cone, a physics professor, is recognized nationally and internationally for his work in laser optics and materials. Around Gallatin County, he is also known for his part in creating high-tech jobs and building the local laser optics industry.

Cone and his lab are credited with playing a critical role in the development of 12 local companies that specialize in laser optics. Scientific Materials, Inc., for one, was founded in 1989 with a focus on growing high-purity laser crystals. After founder Ralph Hutcheson started collaborating with Cone's group, the Bozeman company also became involved in spectral hole burning.

Scientific Materials is now engaged in frontier computer and communications technology by way of providing crystals to groups that work in those areas.



The company also works with laser materials. William Hiscock, professor and head of the MSU physics department, said Cone, for many years, operated the only laser laboratory at MSU. He is not alone any more. His expertise, professional contacts,

research grants and presence at the university have fostered growth both inside and outside of MSU. Several departments and colleges at MSU are now involved with laser optics. Cone helped strengthened Gallatin Valley's economy by nurturing new laser optics businesses.

Evelyn Boswell

THE HUMAN FACE OF MEDICINE

Each spring, English professor Kimberly Myers teaches medical school. The course, "The Poetics of Healing," is taught to first-year medical students from Montana enrolled in the Washington, Wyoming, Alaska, Montana, Idaho (WWAMI) program at MSU. In it, Myers uses literature, film, patient narratives, and case studies to focus on such issues as patient care and ethics. "It was courageous on WWAMI's part to offer these courses so that students can think about these issues from the start," Myers said.



MSU News

It's all part of an academic field called medical humanities, an interdisciplinary melding of science and art. "Medical humanities works to re-humanize medicine, to remind physicians that while science and technology are important, flesh-and-blood human beings are still the heart of medicine," explains Myers. Myers said that top medical schools began to include medical humanities courses and curricula in the late 1960s because medicine had become increasingly limited to curing a disease at the expense of caring for the physical and emotional well being of the patient. Myers upcoming book, *Illness in the Academy*, to be published by Purdue University Press, will be used in medical schools across the country for physician education.

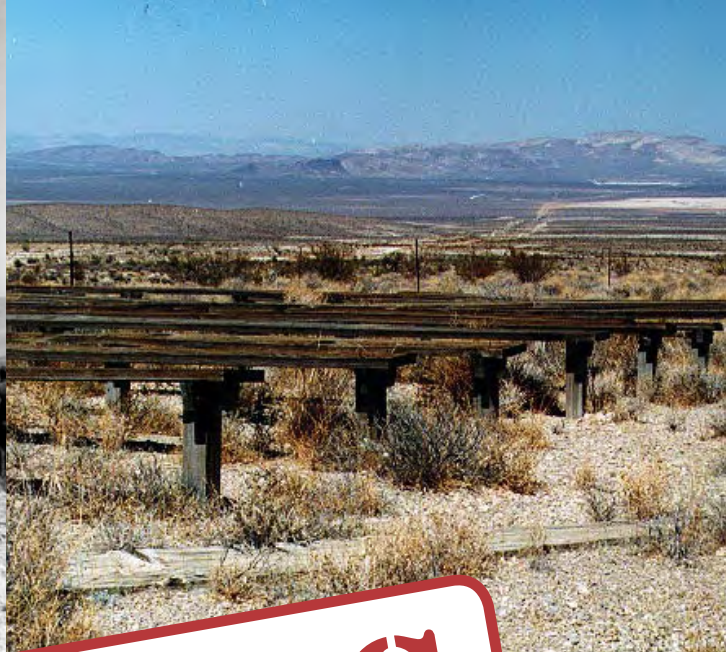
In addition to teaching WWAMI students, Myers teaches a "Medicine and Literature" course for the English department, and lectures across the country in both academic and public venues. She believes that everyone benefits from a greater awareness of medical humanities because it empowers them as health-care consumers.

Excerpted from Carol Schmidt, MSU News





Test Bomb in the 1950's. Photo courtesy of National Security Administration / Nevada Site Office.



From 1951 to 1962, there were 14 atomic detonations at this site. Photo courtesy of the Nevada Site Office.

GOING PUBLIC

Creating a New Kind of Historian

By Jennifer Kelley

MSU-Bozeman might be considered the state's science school, but when the history department implemented their undergraduate Science, the Environment, Technology and Society program (SETS) in 2003, it wasn't a conscious effort to cater to the students. The connection was serendipitous, as the department was just making good use of what they have. "The program really grew out of the departmental strengths," says Professor Tim LeCain, pointing to his and his colleague's interests.

For instance, Sara Pritchard was hired to fill a vacancy in 20th century French history, but as it happened, her interest in environmental history, specifically French culture and its impact on the development of the Rhône River, had a nice overlap with her colleagues' interests in science and technological history. "Tim LeCain, Michael Reidy, Rob Campbell, Brett Walker—we all just happened to have this interest in science and environmental history, in addition to the areas we were hired to

teach in," said Pritchard. The department turned those interests into interesting program options.

The undergraduate SETS program and the Ph.D. program, started in 2004, are aimed at students who are looking to supplement their interests in science, technology, and the environment with a human and societal element that might otherwise be missing. "It's about connecting science and the humanities, not separating them," said LeCain. In fact, the undergraduate program strives to prepare students for careers that straddle the traditional science and humanities divide, while the graduate programs allow students to fully integrate the spheres in their projects.

The graduate programs attract many students with undergraduate science degrees who are looking to integrate a humanities approach to their current studies. Ph.D. candidate Connie Staudohar uses her background as a public health nurse to inform her research into the history of tuberculosis in Montana and a study of Dr. Caroline McGill, the medical doctor who founded the Museum of the Rockies.



2, YIPs observed the atmospheric tests from Frenchman Ranch on Frenchman Ranch. Photo courtesy of NSA.



Sleeping pavilion at the Montana Tuberculosis Sanitarium. Photo courtesy of the Powell County Museum, Deer Lodge



Junior Tyler Watkins catalogues YNP artifacts.

Master's student Jerry Jessee's undergraduate degree is in physical anthropology, and he is now looking at the Nevada test site and how the rise of ecology has informed scientists' understanding of the risks of nuclear testing. "It used to be that scientists assessed the risk of radiation by absorption through the skin. By that account, the risk is relatively minimal, but from an ecological standpoint—where the radiation gets into the soil that grows the grass that the cow eats, whose milk we drink—the risks can't be assessed so simply," said Jessee. He added, "It changes the way we think about the test site."

Staudohar describes the diversity of backgrounds in the seminar room as giving discussions "a perspective on history that is interdisciplinary and satisfying." But even students from a history

background are working on scientifically-informed projects, such as Bob Gardner, who is writing a dissertation on the history of reforestation and tree farms in the Bitterroots.

THE MAIN GOAL OF THE PROGRAM IS FOR STUDENTS "TO BECOME GOOD CITIZENS, TO UNDERSTAND THE POLITICAL, ETHICAL AND SCIENTIFIC DIMENSIONS OF CURRENT AFFAIRS, AND TO HAVE A RICHER UNDERSTANDING OF THE WORLD."

While many students will go on from the undergraduate and graduate programs to traditional careers for historians in museums, teaching, and publishing, others will progress to positions in public policy and work for the U.S. Forest Service, the National Park Service, and the Environmental Protection Agency, for example.

The main goal of the program, Pritchard said, is for students "to become good citizens, to understand the political, ethical and scientific dimensions of current affairs, and to have a richer understanding of the world."

MSU RESEARCHERS FIND BIG USES FOR

TINY PARTICLES

By Evelyn Boswell and
Sarah Alexander

At the bottom of the Pacific Ocean, a heat-loving organism produces hollow protein cages that are so small that 7,000 would fit on the edge of a human hair.

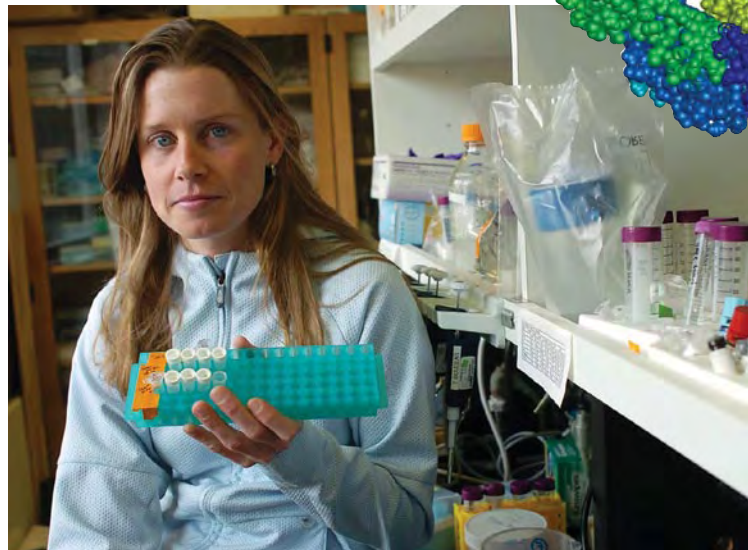
Copies of that protein are now being used by MSU scientists who want to engineer them to deliver drugs to tumors. "Our goal is to deliver cancer drugs only to the tumor and avoid the healthy cells that are also killed by existing anti-cancer agents," said graduate student Michelle Flenniken.

Working under the direction of professors Trevor Douglas (chemistry) and Mark Young (plant sciences and plant pathology), Flenniken obtained the organism's DNA from a protein bank, then took it through a variety of procedures that produced the protein cages. Chemical changes turned the cages fluorescent green so they could be seen under a microscope. Genetic changes caused the cages to attach to tumor cells. In the end, the cages—carrying anti-cancer agents—glowed like the northern lights when they attached to tumor cells.

That's just one example of how MSU researchers are involved with nanotechnology and nanomaterials.

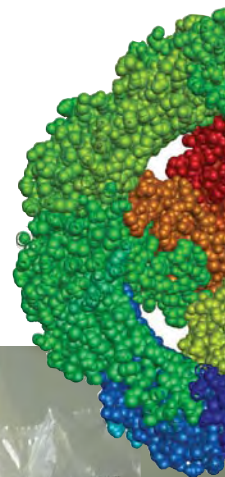
Michelle Flenniken in her laboratory at Montana State University. Flenniken is the recipient of the prestigious Ruth L. Kirschstein award from NIH and is currently doing post doctoral research at the University of California, San Francisco.

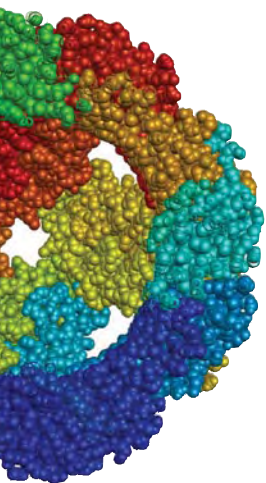
MSU News



Douglas and Young are among a group of scientists who are creating and modifying ultra-small containers for a variety of purposes. Most operate under the virtual umbrella of the Center for Bio-Inspired Nanomaterials (CBIN), which was formed in 2003. The center currently involves 10 faculty members (7 from the College of Letters and Science), 14 postdoctoral researchers, and 22 students in the departments of chemistry, plant sciences and plant pathology, veterinary molecular biology, microbiology, and physics, said Douglas, CBIN director.

The Center for Bio-Inspired Nanomaterials evolved out of a collaboration between Douglas and colleagues at MSU who used viruses or nanoscopic protein cages, and then modified the cages so they could carry a variety of materials. The containers had such unique characteristics that the researchers saw a wide range of potential uses for them. The possibilities spanned from enhancing computer memory to sending drugs to specific parts of the body.





DID YOU KNOW?

A NANOMETER IS ONE BILLIONTH OF A METER. IF A NANOMETER WERE AS BIG AS THE WIDTH OF A PIN HEAD, A METER WOULD BE AS LONG AS A TRIP BETWEEN WASHINGTON D.C., AND ATLANTA, GA.

"It's a scientific and industrial revolution," Yves Idzerda, physics, said in 2003 when talking about nanotechnology and nanomaterials. Idzerda was one of the founders of CBIN, along with Douglas and Young.

The center today focuses on three areas of research, Douglas said. One is magnetic materials. The center has a paper that's been accepted for publication in the Journal of American Chemical Society describing "unusual magnetic phenomenon which are a consequence of making materials inside these cages," Douglas said of this collaboration with Yves Idzerda. The second focus is hydrogen production, and the third focus is medical applications.

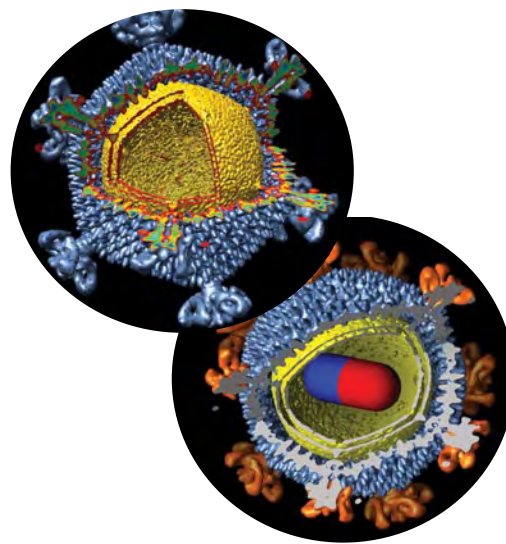


Trevor Douglas holds a model of a protein cage. *MSU News*

Douglas and Young work closely with Specigen, a California-based drug development company that's conducting sponsored research through CBIN to develop viruses as therapeutic agents. According to Specigen, "targeted drug delivery technology represents a paradigm shift in

the diagnosis and treatment of cancer, infectious disease, and cardiovascular disease." In addition, the center works with Stanford Medical School and the National Institute of Health.

Douglas and Young wrote a paper on viruses and nanotechnology that was the cover article in *Science* in May 2006. Related research will also be featured in the pilot episode of "Wired Science," Douglas said. The new television series is a joint project of a PBS



television station in Los Angeles and *Wired* magazine. The episode was filmed at MSU and is expected to air nationally in 2007.

"It's a pretty exciting thing," Douglas said.

Another use for the protein cage technology is in the search for alternative fuel sources.

"IT'S A SCIENTIFIC AND INDUSTRIAL REVOLUTION."

In collaborative work with chemistry professor John Peters, Douglas and Young were able to incorporate platinum particles into the same heat-loving protein cage in order to simulate the function of a hydrogenase enzyme. In natural systems, the hydrogenase enzyme acts to catalyze the reduction of protons to form hydrogen gas. Scaled up to an efficient and affordable process, this biomimetic approach could address the world's growing need for hydrogen as an alternative fuel source.

THREE L&S STUDENTS WIN GOLDWATER SCHOLARSHIP

Three L&S students received prestigious Goldwater Scholarships for undergraduate excellence in science and math. Christoffer Renner of Bozeman, a physics and math major, Eric M. Morschhauser of Wappinger Falls, N.Y., and Brittney M. Pollard of Boise, Idaho, both majoring in earth sciences, were among the 320 students in the nation to receive the coveted scholarships that pay up to \$7,500 a year for two years of undergraduate education.



Eric M. Morschhauser of Wappinger Falls, N.Y., Brittney Pollard of Boise and Christoffer Renner of Bozeman. MSU photo by Jay Thane

46 MSU students—33 of them from Letters and Science—have received Goldwater Scholarships, making MSU among the top institutions in the country for producing Goldwater scholars. Other top institutions include Harvard, Princeton, and Cal Tech.

Renner, whose research has included work in MSU's Spectrum Lab studying optical waveforms, aspires to earn a doctorate in physics. Also an accomplished pianist, Renner will graduate in May 2007 with a double major in physics and math and a minor in music.

Morschhauser recently returned from China where he studied fossils of extinct birds that lived during the time of dinosaurs. His research, housed at the Dalian Museum of Natural History, is under the direction of MSU paleontologist David Varricchio. Morschhauser plans to pursue a doctorate in paleontology.

Pollard is a geology major who works with MSU paleontologist Jack Horner in the research of fossil microbes. Pollard plans to earn a doctorate in earth sciences, which will allow her to teach paleontology at a university level and conduct research.

STUDENT RESEARCHES CULTURAL VIOLENCE IN GERMANY

"Look at those damn Turks! I hate them, in their stupid headscarves and they steal our money!" This outburst from the person Katie Baldwin described as a "sweet, 80-year-old grandmother" was the impetus for a research project that would lead Baldwin to Tübingen, Germany, for the 06-07 academic year. Her topic, "Youth Perspectives and Pop Culture: Turkish Immigration and Integration in Germany," explores the history, politics, and emotion of Turkish immigration that, said Baldwin, "ignites racist rhetoric from otherwise tolerant, educated people."

Baldwin, a junior with a double major in history and German, received several grants, including support from MSU's Undergraduate Scholars Program, to fund her research in Germany. In collaboration with her faculty mentor, Patricia Simpson, professor of German and a specialist in contemporary German culture (see page 23), she wrote survey questions which she will distribute at universities and high schools in several German cities. The questions ask the participants about their perspectives on immigration and their relationship to cultural violence.



Baldwin is no newcomer to international issues. Since the fifth grade, Baldwin has been active with the Girls International Forum (GIF). Based in Minnesota, GIF strives to give young women a place to voice their opinions and the tools to be activists in both local and global arenas. This past March, Baldwin traveled to Yogyakarta, Indonesia, to work with local girls on GIF programs in their community.

GIF, says Baldwin, has inspired her to participate in the larger world. Baldwin hopes her research in Germany will be used to study immigration, Islamic/Western ideological rifts, and cultural barriers globally.

CINDERELLA ON ICE

Anna Madorsky was a typical student, co-president of the MSU Anthropology Club who liked to work out and hang out, until the day she decided to return to the world of women's figure skating. In less than a year she went from a retired junior skater to the elite cadre of female figure skaters in the country and a 17th-place finish at the U.S. National Figure Skating Competition last January.

"It is an incredible story," said her coach, Bob Crowley. "You just don't hear about athletes who leave a sport and come back five years later with far greater success than when they left."

The 22-year-old senior anthropology major from Gates Mills, Ohio, said there was never a time when she doesn't remember skating. She began taking lessons when she was about three. By the time she was 16, Madorsky had won a roomful of medals and moved to Fairfax, Virginia to train. But after high school, she walked away from skating, initially enrolling at Virginia's Radford University. In the second semester of her sophomore year she took a National Outdoor Leadership School course, fell in love with the West, and transferred to MSU.

After her decision to take up figure skating again, Madorsky practiced every day, entered a string of competitions, and gradually improved her ranking. She skated to first at senior regionals in Jackson, Wyoming, which qualified her for sectionals in Sacramento, California, a tough, competitive area for figure skaters. She finished in the top four at sectionals, which made her one of the top 20 female skaters in the country and qualified her for nationals.

"She was a figure skater from Bozeman, Montana, and MSU, and no one expected her to be a good



Photo by Paul Harvath

skater," Crowley said. "Our goal was for her to go out and do the best she could," said Crowley, who said he and Madorsky had no expectations she would be higher than 20th. "She did a nice job with it" and finished 17th.

"We're quite proud of Anna," said Larry Carucci, anthropology professor and Madorsky's adviser. "She's one of our best students and has done superbly in what is a very rigorous course of study. I think it's especially important for kids to see someone like Anna who can excel not only in academics, but have other skills as well."

Though still enrolled at MSU, Madorsky is currently living in California in order to train. On October 7, 2006, she took first place at the Northwest Pacific Regional Championships and will go on to compete at sectionals in November.

Excerpted from Carol Schmidt, MSU News

MICROBIOLOGIST HONORED FOR PUBLIC HEALTH RESEARCH

Tim Ford, professor and head of the Department of Microbiology, received the first Gen-Probe Joseph Award from the American Society for Microbiology. The award, given in memory of J. Mehsen Joseph, honors a distinguished microbiologist who has exhibited exemplary leadership and service in the field of public health. Dr. Ford has made significant contributions to drinking water microbiology and to the understanding of the microbial ecology of fresh water and sediment ecosystems. His work on drinking water has resulted in elevated awareness of health risks from water in countries around the world.



In Russia, Ford's research group established that water is a source of exposure to both infectious agents and elevated levels of disinfection byproducts. Research in the Indian cities of Hyderabad and Varanasi on the Ganges River demonstrated a relationship between sewage pollution, water use patterns, and disease incidence. As a result, efforts are underway to change water use patterns to reduce disease risks. On Montana's Indian reservations, Ford's group is focusing on exposure assessment studies and mitigation strategies that are based on community participation.

HISTORY PROF HIGHLIGHTS BUFFALO BILL



In an era when electricity was a novelty, Buffalo Bill electrified a continent and transmitted a culture, says Bob Rydell, professor of history and co-author of *Buffalo Bill in Bologna*. The book, co-written with Rob Kroes of the Netherlands and published by the University of Chicago Press, was nominated for a 2006 Pulitzer Prize in history.

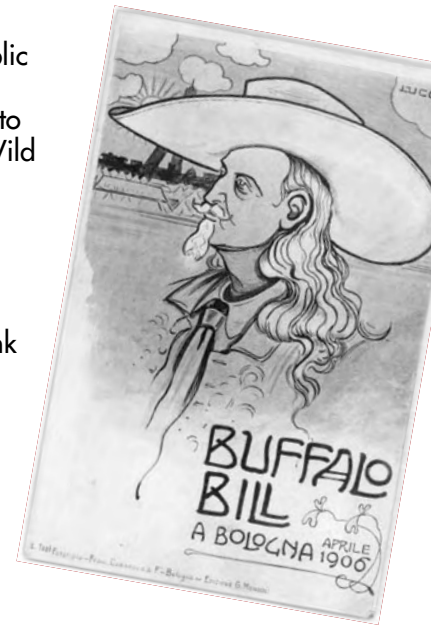
"He was immensely popular," Bob Rydell said of William F. "Buffalo Bill" Cody, who took his Wild West show to Europe in the late 1800s.

Buffalo Bill's show was so spectacular that Queen Victoria made her first public appearance in 25 years to attend, Rydell said. The pope gave Buffalo Bill a special blessing. Kings, princes, and as many as 30,000 Europeans flocked to each show to watch the former scout and legendary showman portray the Wild West with its cowboys and Indians, sharpshooters, trick riders, prairie fires, cyclones, and much more.

According to Rydell, Buffalo Bill knew how to entertain the masses, but his impact was much more significant than the numbers he drew. The Wild West shows were a major transmitter of American mass culture between 1869 and 1922, Rydell said. Disagreeing with those who think the Americanization of the world began much later or started with McDonald's, Rydell said, "American mass culture was really in place by the beginning of the 20th century."

The Wild West shows portrayed American heroism and industry, Rydell said. They depicted conquest and progress. They introduced the Europeans to popcorn, the Colt revolver, and the Winchester repeating rifle. They showed how the Wild West was very much a part of the industrialized West.

Excerpted from Evelyn Boswell, MSU News



GRIECO NAMED REGENTS PROFESSOR

Paul Grieco, professor of chemistry and biochemistry, was named a Regents' Professor by the Montana Board of Regents. The honorary lifetime title recognizes Grieco's service to MSU and "his unique contribution to the science of organic chemistry."

Grieco was praised for his excellence as a scholar, his outstanding abilities as a mentor and teacher, his collaborations with other MSU scientists, and his generosity to the Montana University System. Grieco has raised more than \$6 million in research funds at MSU and has transformed every department he has joined, according to the background document. He has published more than 250 articles in scientific journals and received many major awards. He has mentored 98 Ph.D. students and 75 postdoctoral fellows in his career. He consults with local technology companies and is a partner in a new venture—Zdye LLC in Bozeman—that is expected to bring substantial royalties to MSU.

"Paul is one of the most distinguished scientists in the Montana University System," the officials wrote. "He is distinguished by the skill and creativity of his work, his international recognition within the scientific community, and his service in return to that community."

Grieco is the fourth MSU professor—all from the College of Letters and Science—to become a Regents' Professor. The others are Jack Horner, paleontology; Gordon Brittan, philosophy; and John Carlsten, physics.



Excerpted from Evelyn Boswell, MSU News

2006 AWARDS

Cox Family Fund for Excellence Award

Dana Longcope, Physics
John Marsh, Economics

MSU Meritorious Technology/Science Award

Rufus Cone, Physics

Charles & Nora L. Wiley Award for Meritorious Research

John Peters, Chemistry and Biochemistry
Brett Walker, History and Philosophy

James and Mary Ross Provost's Award for Excellence in Teaching and Scholarship

Larry Carucci, Sociology and Anthropology

President's Excellence in Teaching Award

John Carlsten, Physics

President's Excellence in Outreach Award

Marsha Goetting, Agricultural Economics
and Economics

L&S Dean's Award for Meritorious Research

Ada Giusti, Modern Languages and Literatures
Neil Cornish, Physics

L&S Outstanding Teaching Awards

Mark Pernarowski, Mathematical Sciences
(Tenure Track)

Anneke Metz, Chemistry and Biochemistry
(Adjunct)

Jerome Trouba, Mathematical Sciences
(Graduate Teaching Assistant)

Celion Aspensen, Native American Studies
(Graduate Teaching Assistant)

L&S Employee Excellence Awards

Teresa Klusmann, English
Jeremy Gay, Physics

RETIRING FACULTY

(and the year they joined MSU faculty)
Richard Gillette, Mathematical Sciences (1967)
Dallas Johnson, Chemistry and Biochemistry (1983)
Ray Larsen, Chemistry and Biochemistry (1970)
Carolyn Leavengood, Modern Languages
and Literatures (1988)
Ray Pratt, Political Science (1971)
Bill Quimby, Mathematical Sciences (1986)
Ann Rusoff, Cell Biology and Neuroscience (1985)
David Schrupp, Political Science (1993)

THE WATER YOU DRINK

Once a month, MSU students Crystal Richards and Emily Colgate head to Montana's Crow Indian reservation to swab faucets and collect water from taps and streams.

One afternoon a week, students at Little Big Horn College leave the classroom for similar reasons.



Photo courtesy of Mari Eggers

Together, the MSU and Little Big Horn College students are monitoring drinking water on the reservation for this INBRE-funded project.

Montana INBRE is a federally-funded, statewide network of universities, colleges and research institutes who want to expand biomedical research opportunities for faculty and students in Montana.

"It's really the first opportunity we have had to offer our science majors research experience on issues relevant to the local community as opposed to going away for a summer, working on issues in somebody else's community," Mari Eggers said of the project. Eggers teaches biology and environmental science at Little Big Horn College.

Colgate is an MSU graduate student in microbiology. She and Richards, a senior in cell biology and neuroscience, are supervised by Tim Ford, head of microbiology and program director for Montana INBRE.

Students from both schools are looking at pathogens and chemical pollution in the reservation's water. The Little Big Horn College students are testing for coliform bacteria and other water quality parameters like pH, nitrates, dissolved oxygen and conductivity. Richards and Colgate take the water samples back to MSU, where they test for *Helicobacter pylori*, which is associated with stomach ulcers and other gastric problems. Students from both schools will eventually look for two additional bacteria, *Mycobacterium* and *Legionella*. The students are also collecting sediment cores, which will be tested for mercury and other contaminants.

The project addresses environmental health on a reservation-wide scale and may expand to reservations across the state, Richards and Colgate said. But they added that it has affected their own lives, as well.

"Since I started this project, I pretty much fell in love with microbiology and decided I wanted to go to grad school," Richards said. "I didn't know that before."

Colgate said, "I think I'm becoming a lot more interested in the public health side and would like to get into medicine maybe and combine the clinical and research."

Excerpted from Evelyn Boswell, MSU News

RESEARCH RECAP

MSU leads the country in Yellowstone National Park research. In recent years, MSU received more than five times the number of National Science Foundation grants for Yellowstone studies than its nearest competition, Stanford and UCLA. In addition, the Institute for Scientific Information database shows that MSU leads the number of published scientific articles on Yellowstone with almost three times as many publications as the nearest competitor. "Yellowstone is the highest quality natural laboratory in North America and affords scientists at MSU an extraordinary opportunity to conduct high-impact science," said Dave Roberts, head of the Department of Ecology.

People who complain that their comments are taken out of context may have a point. The meaning of words, sentences, and even sounds can change drastically when placed in a different context, says Keith Hutchison, professor of psychology. Hutchison and David Balota from Washington University in St. Louis received a \$290,000 grant from the National Science Foundation to explore how context affects word recognition. They will give word recognition tests to subjects and use their findings to create a database of 3,000 commonly used words. The database will be available to researchers who want to test their theories about words.

Ecology professors Billie Kerans and Thomas McMahon received almost \$246,000 to carry out a statewide study of patterns in whirling disease risk and salmonid population response. They will be working with statistics professor Jim Robison-Cox and graduate student Elai Keran to look at the spatial distribution and spread of the disease. Whirling disease was discovered in Montana in 1994 and has been a major contributor to the loss of rainbow trout in the region.

CAFÉ CONTINUES TO DRAW A CROWD

"Technology is fine, but doctors need to pay more attention to their patients," Dr. Abraham Verghese said April 27, 2006, in Bozeman. Verghese, a pioneer in medical humanities and the author of the best-selling book, *My Own Country: A Doctor's Story*, lectures throughout the world about the importance of humans over medical technology.

At this particular lecture, there was no lectern, no microphone, and no PowerPoint. Instead, there was food, drink, and a packed house at Ferraro's Fine Italian Restaurant in Bozeman. Verghese's talk was part of the Café Scientifique series, co-sponsored by the College of Letters and Science and Montana INBRE (see page 23), which provides a relaxed setting for people to learn about current scientific research.



MSU News

Verghese was one of three well-known scientists brought to Bozeman by Café Scientifique during the '05-'06 academic year. The other speakers were Dr. Patricia L. Meinhardt, executive medical director of the Center for Occupational and Environmental Medicine in Elmira, NY, who spoke on water issues, and Dr. Keith Benson, principal of Green College and professor in the Department of History at the University of British Columbia whose talk was entitled, "Charles Darwin, Flounder Eyes, and Intelligent Design."

Café Scientifique continues this year and welcomes public attendance. For more information visit: <http://inbre-brin.montana.edu>

ART EXHIBIT LINKS UNIVERSITY, MUSEUM, COMMUNITY

Part of the world's oldest, largest, and most complete collection of African-American art came to Bozeman last spring, along with the collector himself, courtesy of a unique collaboration between the College of Letters and Science, the Museum of the Rockies, and the University of Delaware.

The Museum of the Rockies displayed 56 pieces from the "Paul R. Jones Collection: A Century of African American Art" for over two months, beginning on March 4, 2006. This was the first time the exhibit, which is permanently

housed at the University of Delaware in Newark, DE, had ever traveled to the Rocky Mountain West.

A variety of events surrounding the Paul R. Jones exhibit, including a public lecture by Jones, a gallery talk by the exhibit's curator, and a symposium for local K-12 teachers, represented the first large-scale, coordinated effort to integrate the Museum's resources with campus curriculum, according to Sara Jayne Steen, then Dean of Letters and Science. Steen added, "The collaboration helps the university enrich educational opportunities by increasing the interdisciplinary nature of various curricula, providing hands-on experiences, and broadening students' exposure to national cultural history." Several MSU courses, including CLS 101, L&S's first-year-student seminar, integrated the exhibit into their curriculum.

Jones, a native of Alabama, attended Alabama State University and Howard University, but was denied admission to the University of Alabama Law School under the restrictive racial segregation laws. After college, he rose to important positions in the U.S. Department of Justice's Community Relations Service, helping ease tensions during the civil rights struggle of the 1960s. He donated his expansive collection to the University of Delaware in 2001.



Samuel Guilford, *9 Lives*, 1999.

TRIBES BENEFIT FROM ALUM'S EXPERTISE

When Russell Stands-Over-Bull (Geology, '87) left his home in the heart of Crow country to attend Montana State University, it was a difficult transition. Nearly 20 years later, he has a M.A. and Ph.D. from the Colorado School of Mines, over ten years of international geology experience, and his own company in Billings, Montana.



"Life is out there and it's for the taking," Stands-Over-Bull told Anne Sasso in an interview for ScienceCareers.org. "Whether you're from the affluent suburbs of Beverly Hills, the inner city of Brooklyn, or from the Indian reservations of Montana, life isn't easy, but success awaits everyone out there."

Stands-Over-Bull at MSU teepee blessing ceremony, 2005

Stands-Over-Bull grew up in the Powder River Basin, which is thought to contain one of the largest coal deposits in the world.

His father, who was the tribal president during the 1970s, was always concerned that the tribe didn't have the knowledge they needed to manage their natural resources wisely. When Stands-Over-Bull brought his family back to the Crow Reservation, in 2001 he put his geologic experience to work on just that issue. His company, Arrow Creek Resources, is dedicated to helping Indian tribes assess and develop their natural resources. He helps them understand the natural resource business, decide what sort of expertise is needed, and how to evaluate proposals.

He hopes that his search for buried coal seams and oil and gas reservoirs will benefit the Native American community. "Right now their financial base is pretty weak, but I think that'll improve as they begin to take more ownership of the economic projects that are being thought of today," said Stands-Over-Bull.

Stands-Over-Bull is also an adjunct professor in the Department of Earth Sciences at MSU and serves on the university's Council of Elders, a presidential advisory council made up of representatives from all of Montana's Indian tribes.

"LIFE IS OUT THERE AND IT'S FOR THE TAKING."

MONTANAN RETURNS HOME TO HEAD BLM

Gene Terland (Fish and Wildlife, '73) will be the Bureau of Land Management's (BLM) new state director for Montana and the Dakotas. Terland has been the agency's associate state director in Utah since 2003.

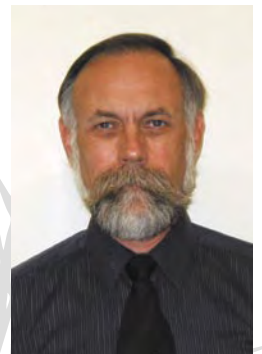
Terland, a Montana native who began his BLM career in Oregon in 1974, has also served in a variety of leadership roles in Idaho and Alaska. According to BLM Director Kathleen Clarke, "Gene's background and experience are a great fit for the resource issues facing Montana and the Dakotas."

In 1997-98, Terland helped develop a management plan for a 4.6 million-acre portion of the National Petroleum Reserve in Alaska. Working with multiple agencies and the public, the project resulted in the offering of oil and gas leases in portions of the area for the first time in 20 years, while providing protection for environmentally sensitive areas and resources.

Terland expects his work in Montana and the Dakotas, where the BLM manages 8.3 million acres of public land and 50 million acres of subsurface mineral rights, to be equally interesting. "Working to balance the public's interests with demands for the lands and resources is always challenging," said Terland.

"Throughout my career I have found that the best solutions to the challenges we face as public land managers come from the collaborative efforts of our stakeholders."

Terland is excited to be returning to Montana with his wife, Dee. "It feels great to be coming home after 32 years."



IN MEMORIAM: GEOLOGY GRAD DIES IN FRENCH ALPS

Doug Coombs (Earth Sciences, '81), revered in the world of extreme skiing, died in a ski accident in the French Alps on April 3, 2006. He was 48.

According to published accounts, Coombs was skiing with three other Americans when his skis slipped on a rock as he peered over a cliff looking for one of his companions. Chad VanderHam, 31, who had fallen moments before while attempting to ski a steep couloir, also died in the fall.

Coombs was born in Boston and grew up skiing in Vermont, New Hampshire and Maine. He majored in geology at MSU, where he was also a member of the ski team. He took his first snow and avalanche course with retired earth sciences professor, John Montagne, and enjoyed plenty of field research in the Bridger Mountains. He also met his future wife, Emily, at MSU.



Wade McKay-focusproductions.com

After graduating, Coombs moved to Jackson Hole, Wyoming, where he worked for a heli-skiing guide service. Over the years, he was the first person to descend some 250 slopes in Antarctica, Chile, France, Switzerland, Kyrgyzstan, Alaska, and elsewhere in the United States. He appeared in several documentary films about the sport. He and Emily started their own company, Valdez Heli-Ski Guides, in Alaska and also founded Steep Skiing Camps Worldwide in Jackson, Wyoming. In 1997, they moved the business to Europe, setting up operations in Verbier, Switzerland, and La Grave, France.

The Coombses and their son, David, 3, spent much of their time at La Grave, which is dominated by a range called La Meije. The spectacular setting had had an immediate impact on him, Coombs wrote on his web site.

"When I first arrived at La Grave," he wrote, "and stared at the majestic glaciated peak of La Meije (13,065 feet), I imagined endless ski runs that would last a lifetime."



LETTERS
& SCIENCE
DEPARTMENT
HIGHLIGHTS

CELL BIOLOGY AND NEUROSCIENCE



MSU Student Julian Herrera explains his summer research project

Cell Biology and Neuroscience hosts two increasingly successful summer research programs—Complex Biological Systems (CBS) Summer Undergraduate Research and Research Experience for Undergraduates (REU). In 2006, the combined programs had 259

applications for just 22

available spots. Funded by the Howard Hughes Medical Institute, the CBS program is geared towards students with prior lab experience and provides them with the opportunity to work full-time in a research lab on an independent research project under the guidance of a faculty mentor. The REU program, for students with an interest in biological science but little or no research experience, teaches biological research methods followed by eight weeks of hands-on lab experience with faculty researchers. Students present their research findings in poster sessions at the end of the program.

The Lariat Project, headed by faculty member Gwen Jacobs and funded by the National Center for Research Resources at NIH, held the Lariat Summit in August 2006 at MSU. Lariat works to provide a high-speed telecommunications network for biomedical researchers in Alaska, Hawaii, Idaho, Montana, Nevada, and Wyoming, enabling scientists and educators to take advantage of the remote research resources and expertise readily available to scientists in other areas of the country. The summit, titled "Connecting Minority-Serving Institutions to Advanced Cyberinfrastructure," involved approximately 30 participants from institutions in the West in an effort to ensure their involvement in advanced information, communication, computation, and collaboration technologies. The West has nearly 100 minority-serving institutions that are often the last to be served, if served at all, by leading-edge advances in technology. The result of the summit was an action plan to be shared with state and federal legislators, federal funding agencies, and private foundations.

CHEMISTRY AND BIOCHEMISTRY

Professors Martin Lawrence and Mark Young are seen sampling hot springs in Yellowstone National Park on the cover of the August issue of the *Journal of Virology* [80(16) 2006]. The issue highlights research by Eric Larson, a graduate student with Lawrence, and by Dr. Walid Maaty, a postdoctoral researcher in Professor Brian Bothner's



Photo by Brian Bothner.

lab, on *Sulfolobus turreted* icosahedral virus (STIV). Studies of this double-stranded DNA virus, which can be found only in the waters of acidic hot springs such as those in Yellowstone National Park, have led to a better understanding of the origin and evolution of viruses. Research on STIV and its host, *Sulfolobus*, has also identified the inherent properties that provide its resistance to acid and heat, providing insight into life in extreme environments. The findings may also have applications in biotechnology.

Professor Joan Broderick joined the faculty of the Department of Chemistry

and Biochemistry in 2005. Broderick graduated summa cum laude from Washington State University in 1987 and received her Ph.D. from Northwestern University in 1992. Most recently, Broderick was a full professor at Michigan State University. Considered to be one of the best biochemists working in the field, her focus is on bioinorganic chemistry, specifically the mechanisms of metalloenzyme-mediated reactions, the mechanisms of biological radical reactions, and bioremediation. Department head David Singel characterizes her recruitment as a "great triumph for the department."



EARTH SCIENCES

Geology professor Todd Feeley, along with several undergraduate and graduate students, has created a self-led geologic trail guide for Mount St. Helens in Washington. Based on several years of research, the guide describes the dramatic volcanic geology on the north side of the 8,365 foot volcano visible while hiking the 8.76 mile trail from the Johnston Ridge Observatory to Windy Ridge. Many geologic features visible from the trail were created during the May 18, 1980 – 1986 eruptive episode, although younger and older geologic features are also visible, including spectacular views into the currently active crater. The guide will continue to be updated as eruptive activity at the volcano continues. Together with Ph.D.

student Sandra Underwood, Feeley's research centers on determining hydrogen isotope ratios of water-bearing minerals in rocks from Mount St. Helens in order to better understand eruption mechanisms and magma



Image courtesy of USGS / Cascades Volcano Observatory.

degassing processes during explosive and non-explosive volcanic eruptions.

Every year, new graduate students in geology and paleontology leave the MSU campus behind for a mandatory fall field trip. This past September 2006, students and faculty traveled through the Teton and Gros Ventre mountain ranges of northern Wyoming, as well as Idaho's Snake River plain, as they studied advanced field relationships in structural geology, regional tectonics, regional stratigraphy, basin development, and sedimentation. The annual field trip is sponsored in part by Marathon Oil, which recently donated \$125,000 to the Department of Earth Sciences for such field trips, as well as for graduate and undergraduate scholarships, a departmental geotech position, and other student activities such as colloquiums.



Image courtesy of Dave Lageson.

ECOLOGY

The Department of Ecology is leading the university's effort to be known as the "University of Yellowstone." (See page 14.) Department faculty work on numerous aspects of terrestrial and aquatic ecology in the greater Yellowstone ecosystem, with particular emphasis on the ongoing impacts of wolf re-introduction, endangered fish species, aquatic invasive species, and regional land use change.

Professors Robert Garrott and Scott Creel, with graduate students and collaborators, continue to examine the effects of wolf re-introduction in the Yellowstone region. While Yellowstone National Park visitors thrill at the sight of wolf packs interacting with elk and bison herds, a great number of more subtle interactions are being studied. Changes in elk behavior and diet may lead to changes in the vegetation that in turn lead to changes in the availability of habitat for a variety of other animals. In another project, Professor Andy Hansen and graduate student Lisa Baril are investigating the response of songbirds to the notable increase in willows in Yellowstone's Lamar Valley as a possible side effect of wolf re-introduction.

On the aquatic side, Professor Thomas McMahon, along with graduate student Andrew Munro and colleague

James Ruzicki, sleuthed out the origin of the introduction of lake trout to Yellowstone Lake by analysis of chemical markers in fish. Professor Alexander Zale and graduate student Amber Steed are investigating the spatial dynamics of Arctic Grayling in the Gibbon River of Yellowstone National Park. Professor Billie Kerans and colleagues are investigating the distribution and ecological consequences of the invasion of New Zealand mud snails into rivers in the region. Professor Andy Hansen, graduate students Patricia Gude and Danielle Jones, and colleagues are investigating how changes in land use will lead to changes in animal habitat and resource availability. Such changes will affect not only how the native flora and fauna will inhabit the Yellowstone region, but how residents and visitors will experience the land as well.



Graduate student Dave Christianson examines an elk dropping to see if it's worth keeping as a sample.

AGRICULTURAL ECONOMICS AND ECONOMICS

Once again, the department partnered with the MSU Honors Program to offer, "Money and Music," culminating in a successful trip to Austria and Germany in May. The course, which is offered every other year, focuses on the interface of creativity, technology, and economic incentives in the creation of music.



Students studied German-speaking composers including Bach, Strauss, Brahms, Mozart, and Berg. They met as a class once a week during the spring semester and then traveled for two weeks to Vienna, Salzburg, and Munich to explore the history and music that

they had examined throughout the course. Students gained a unique learning experience while visiting historical musical sites and attending concerts throughout their trip. "Money and Music" was co-taught by Agricultural Economics professor Vincent Smith and Greg Young, music professor and Vice Provost for Undergraduate Education.

The Big Sky Carbon Sequestration Partnership (BSCSP), directed by Economics professor Susan Capalbo, is nearing completion of year one of a carbon sequestration research project funded by the U.S. Department of Energy. Moving into the second year of this four year grant, several components of the research will move from feasibility analyses to implementation. A pilot test well will be drilled to evaluate the potential to inject CO₂ in Mafic rock that underlies most of the Pacific Northwest.

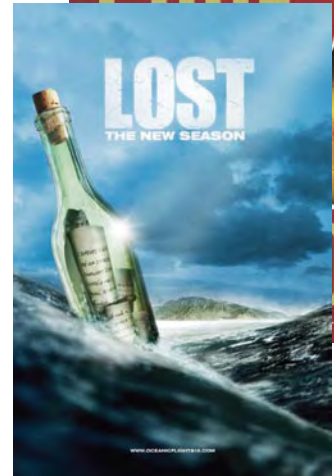


Flue gas from a coal-fired power plant in Wyoming will be treated to remove the CO₂ for injection in an existing oil field in the Powder River Basin and used as a means to enhance oil recovery while sequestering the CO₂ in deep sedimentary rocks. And much of the GIS work will be completed

for construction of a national carbon atlas that will allow states to begin to locate power plants in areas where it is economically preferable to sequester CO₂.

ENGLISH

Why is *The DaVinci Code* so popular? What do the TV series "Lost" and "Survivor" have in common with Robinson Crusoe? These were just two of the topics addressed at recent Talking Books Salons (by professors Gwen Morgan and Marvin Lansverk), a discussion series co-sponsored by the Department of English and Borders Books. The salons, which provide an opportunity to discuss common topics of interest in a social and informal setting, are patterned after the marathon discussions, coined "salons," of the beatnik era. Faculty members bring their knowledge and relevant input to the topic and encourage participants from the community to join the conversation with their own ideas and observations. The Salon series continues strong in academic year '06-'07, with topics including Jack Kerouac's classic, *On the Road*, and Shakespeare's portrayals of ancient Rome.



New faculty member Lisa Eckert recently published *How Does It Mean? Engaging Reluctant Readers through Literary Theory* (Heinemann) as part of her ongoing research on literacy pedagogy. The book, which describes Eckert's personal experience teaching literary theory to high school

students, takes literary theory out of the ivory tower and into the secondary school classroom. Eckert found that not only are high school students capable of applying theoretical approaches to literature, they in fact become more interested in reading and, as a result, can better construct meaning from complex literary works. Eckert spent ten years teaching high school English before earning her Ph.D. in English education from Western Michigan University in 2002.





Subhani De Silva cataloguing artifacts at the YNP Heritage and Research Center.

HISTORY AND PHILOSOPHY

Writer David Quammen will be the next Wallace Stegner Professor in Western American Studies. Quammen, a freelance writer, author and speaker, was a Rhodes Scholar and has degrees from Yale University and Oxford University. He has published 11 books, including *The Reluctant Mr. Darwin*, *The Flight of the Iguana*, and *The Song of the Dodo*. He has been published in many national magazines and won numerous awards, including an honorary doctorate from MSU in 2000. According

to department head Brett Walker, Quammen writes eloquently about complex subjects in a way that general audiences can understand. "I consider him to be one of the finest science writers of our generation," Walker said. "He takes incredibly complicated topics and talks about them in a very compelling way."

Quammen will hold the chair during the 2007 spring semester, with the possibility of continuing through the 2007-08 academic year if funding is available. Quammen will be the keynote

speaker for the Michael P. Malone Memorial Conference in January and will present the annual Wallace Stegner Lecture. He also will work throughout the semester with graduate students on writing and research.

Eight students are participating in an internship program at the Yellowstone National Park Heritage and Research Center in 2006-2007. This unique opportunity for students provides hands-on experience in historical research, digital archival work, cultural resource management, and museum studies while they live in Yellowstone for a summer or a semester. Seniors Chris Hensleigh and Subhani De Silva, and Ph.D. candidate Brad Snow, spent this past summer collecting and cataloguing artifacts—including articles, photographs, and souvenirs—from different periods of YNP's history and preparing them for exhibition. According to De Silva, "From cataloging objects to developing exhibits, the hands-on experience prepared me professionally for the museum field."



MATHEMATICAL SCIENCES

MSU statisticians are actively collaborating with researchers from numerous fields to find answers to complex questions. For example, recent hire Mark Greenwood is analyzing geological data from Himalayan valleys and Pennsylvanian drumlins to describe effects of glaciation. He uses a relatively new statistical tool called functional data analysis. Several projects involve estimation of animal populations in and around Yellowstone National Park. Steve Cherry serves on the Interagency Grizzly Bear Task Force, which is charged with estimating the number of grizzly bears in the Greater Yellowstone Ecosystem. The input of a statistician is crucial in the highly-charged debate about delisting of the grizzly bear from the endangered species list. In addition to estimating the population of bears, Steve is also collaborating on estimation and modeling of important food sources for bears, including white bark pine seed cones, spawning cutthroat trout, and winter-killed ungulates in Yellowstone Park.

A new graduate program in Ecological and Environmental Statistics is the result of a new collaboration with the Department of Ecology and the College of Agriculture's Department of Land Resources and Environmental Sciences. The M.S. program currently involves 17 faculty members from the three departments and began enrolling students this year. Students take a healthy mix of interdisciplinary coursework, demonstrate competence in technical knowledge, scientific writing, and presentation, and conduct research or consulting in the science of ecology or environmental sciences. This program will produce students equipped to facilitate communication between science and society, between scientists and the general public, and between scientists and those who make policy based on scientific knowledge. The Greater Yellowstone Ecosystem is recognized by scientists around the world as an outstanding natural laboratory for ecology and environmental science.

MICROBIOLOGY

Two new faculty members were recruited to the microbiology department. Dr. Dionne Law, an epidemiologist trained at the University of North Carolina Chapel Hill School of Public Health, joined the microbiology faculty in September 2006. She recently completed a three year fellowship with the NIEHS and brings invaluable expertise in both infectious disease and environmental health epidemiology to MSU. Using her background in geography, she approaches epidemiology from a spatial perspective, and she is excited to be in Montana where people think spatially. Her current research interests include sexually transmitted infections on the Northern Frontier.



Dr. Matthew Fields, from Miami University, Ohio, will join the faculty in January and will fill a joint appointment between the Department of Microbiology and the Center for Biofilm Engineering (CBE). His expertise in microbial physiology promises to strengthen departmental collaborations with the CBE.



Dr. Harvey Fineberg addresses conference participants in Big Sky.

Tim Ford continues to direct the Montana INBRE program, a statewide biomedical research network which aims to increase the state's biomedical research capacity by supporting cutting-edge research and creating a pipeline for future generations of researchers. Dr. Harvey Fineberg, the President of the Institute of Medicine, was the keynote speaker for the Montana INBRE Annual Research Meeting, held in Big Sky in September. Dr. Fineberg provided an inspirational address about the institute's work in the contentious political climate in Washington, D.C. and the institute's unique ability to draw on the best minds to effect positive change. He met informally with audience members following his speech, giving local scientists a rare opportunity to meet with the man who is arguably in the most senior and influential position in biomedical sciences globally.

MODERN LANGUAGES AND LITERATURE

Professor Patricia Simpson will publish two major scholarly works this year. Her first book, *The Erotics of War in German Romanticism*, appears this winter from Bucknell University Press. In this study of literature, philosophy, and the visual arts in the late 18th and early 19th century, Simpson argues that gender discourse plays a central role in the representation of war. Simpson also co-edited *The Enlightened Eye: Goethe and Visual Culture*, which will appear from the European publisher Rodopi. This collection of essays showcases interdisciplinary work from the fields of German studies, art history, history of science, and theater history and promises to bring new energy and insights into visual culture in the Age of Goethe. Simpson, who is respected internationally for her research in contemporary German culture, already has a new book project in the works. *Cultures and Critiques of Violence in the New German Street* will take a look at the representation of violence in post-Wall Germany.



Immigration is the topic of a two-part film and discussion series in November 2006, presented by the Department of Modern Languages and the Bozeman Film Festival. The series features two award-winning foreign films—“Balseros,” a film about Cuban raft refugees, and “Vas, Vis et Deviens,” about Ethiopian Jews in refugee camps—both of which will be followed by panel discussions. Professors Ada Giusti, Patricia Catoira, and Bridget Kevane will participate in the panels, along with local filmmaker Paula Mozen and journalist Michael Finkel. The topic, according to Kevane, is unquestionably relevant. “Immigrants will come [to Bozeman],” she said. “What effect will that have on jobs and the area's culture?” Kevane notes that the department has seen a steady increase in requests for Spanish translators from law enforcement and the medical and social service communities.

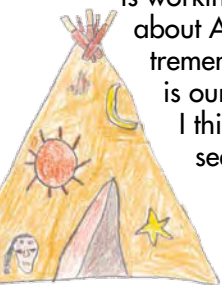


Still shot from “Vas Vis et Deviens”

NATIVE AMERICAN STUDIES

Shane Doyle, a graduate of the Native American Studies master's program and an adjunct professor, is working with the Bozeman school district and three smaller districts in the Gallatin Valley on curriculum about American Indians. Indian Education for All, a state law passed in 1999, requires Montana schools to teach all students about the state's American Indian tribes and reservations. However, the requirement was not funded until a special legislative session in 2005, and schools are just starting to receive money to implement the programs. Doyle, a member of the Crow Tribe, said if teachers wanted to include information about American Indians in their lessons in the past, they had to do extra research because it was not incorporated into curriculums or textbooks.

That took time most teachers didn't have, he said. Doyle is working to develop lessons that include information about American Indians. "I think it's going to have a tremendous impact," Doyle said. "What it represents is our mainstream society really embracing diversity. I think the positive effects will be seen at every level."



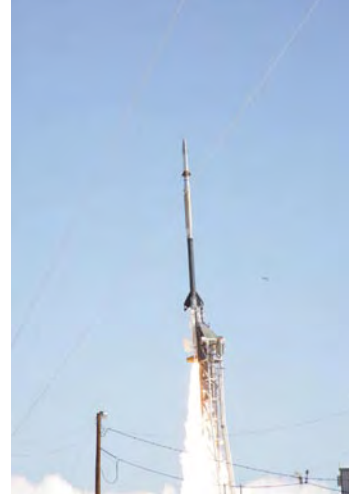
Architects from AmerIndian in St. Paul, Minnesota, in collaboration with ThinkOne Architects of Bozeman, have completed preliminary sketches for the new Native

American Student Center at MSU. The 18,000 square foot building incorporates the symbology of the feather, signifying success, and the turtle, a symbol of mother earth or home. Speaking of the building's feather-like shape, university president Geoff Gamble said, "The new Native American Student Center will mirror this symbol of achievement—of students who can take flight—and be a true gift to the university community, and to all the citizens of Montana." Since 1976, the current student center in the basement of Wilson Hall has been a home-away-from-home for Native students, but the steady growth of the Native American student population at MSU has strained the physical capacity of this space and its ability to meet the needs of these students.



PHYSICS

A NASA rocket bearing a payload built at Montana State University blasted into space shortly before noon on February 8, 2006, above New Mexico's White Sands Missile Range. The 60-foot, 1,000-pound payload took pictures of the sun with high-resolution cameras before parachuting back to earth. It was the first NASA sounding rocket payload ever built in Montana, according to physics department head Bill Hiscock.



The project, called MOSES, for Multi-Order Solar Extreme ultraviolet Spectrograph, was led by physics professor Charles Kankelborg and involved over 30 undergraduate students. The launch of the rocket capped five years of work, most of it done by students who machined parts, designed electrical and cooling systems, wrote software, and assembled the payload. Equipped with sensors similar to those on digital cameras, the payload gathered high-resolution images of the sun. Scientists hope that MOSES and other spacecraft will help reveal what's behind the

sun's magnetic and, at times, explosive qualities. Solar flares and explosions pack enormous amounts of energy that can interfere with satellites, cell phones, power grids, and other technologies.



MSU News

Professor Neil Cornish was appointed to the astrophysics subcommittee of the Science Committee of the NASA Advisory Council. The committee, which meets four times a year, helps to identify scientific issues that have

profound societal importance, further the nation's Vision for Space Exploration, and to which NASA can make a defining contribution. Cornish is the youngest of the 18 subcommittee members. Other members direct major observatories or large NASA missions or are professors at institutions like Harvard, Princeton, and Cambridge. The appointment is the latest in a series of honors for the Australian-born scientist. Cornish was recently part of the group that determined that the universe is at least 78 billion light years across, a finding that Discover magazine listed as one of the top 100 discoveries of 2004.

POLITICAL SCIENCE

Professor Eric Austin, director of the department's Master of Public Education program, recently



completed a study of a community development collaboration between the City of Kalamazoo, Michigan and many of the community organizations responsible for providing the city's service and development programs. The purpose of the initiative is the re-development of community and economic resources in the target neighborhoods. The research was

designed to better understand and provide additional support and recommendations for participatory decision-making within the initiative. This work provided an opportunity to further develop the emerging theory of collaborative community development and to put that knowledge into action in a way that benefits "real world" community work. Austin joined the political science faculty in August 2005.

Professor Linda Young (see page 4) traveled to Buenos Aires in October to participate in a workshop on agriculture and trade sponsored by the Organization for Economic Cooperation and Development, the World Trade Organization, and the Inter-American Development Bank. The workshop provided a venue for discussing the agricultural trade negotiations under the World Trade Organization. Young is also administering a capacity building program in agricultural trade policy on behalf of the International Agricultural Trade Research Consortium. A grant from the Hewlett Foundation will sponsor 12 researchers from developing countries to engage in a joint research program. This research will investigate the policies needed to sustain an open interface with world markets while addressing domestic policy goals for consumers and the development of competitive agricultural sectors.

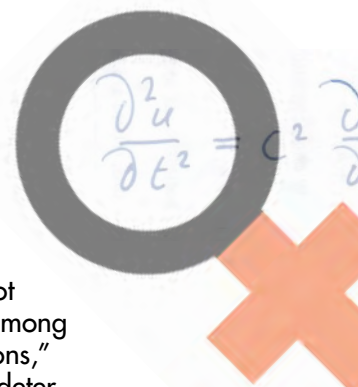
PSYCHOLOGY



Stereotypes influence people's expectations and actual performance at home, at school, and on the job, according to Professor Jessi Smith, who recently joined the faculty of the Department of Psychology. Women, for instance, are stereotyped as less proficient than men at math. Thus, for women who are working on a difficult math task, the situation can take on a more threatening meaning than it does for people who are not subject to the negative stereotype. This was the subject of Smith's article, "The Interplay among Stereotypes, Performance-Avoidance Goals, and Women's Math Performance Expectations," published February 2005 in *Sex Roles*, where she explored the "math culture" that may deter

women from performing well in or persisting at math. Smith received her Ph.D. from the University of Utah in 2002 and comes to MSU after four years at The Ohio State University. As director of the Motivation and Diversity Lab, Smith's research in social psychology centers on intrinsic motivation, goals, and stereotype processes, particularly as they relate to gender and achievement. Her research also extends to stereotypes about men's and women's emotional sensitivity, parenting skills, and nursing abilities.

The research interests of Professor Michelle Meade, also new to the psychology faculty, lie in the intersection of cognitive and social processes as they relate to human memory. She is interested in the malleability of memory and factors that lead to memory errors as well as factors that improve memory. Meade received her Ph.D. from Washington University in St. Louis in 2003. She was a postdoctoral fellow at the University of Illinois at Urbana-Champaign, where she conducted research in the Productive Aging Laboratory on such issues as the effect of age on memory. Her current research examines the ability to improve older adults' memory through collaboration, the role of source confusion in memory distortion, and individual differences in memory performance.



SOCIOLOGY AND ANTHROPOLOGY

Larry Carucci, professor of anthropology and one of four L&S Distinguished Professors named in 2006 (see page 28), is co-author of a new book that sets out to fill a gap in the histories of World War II. *Memories of War: Micronesians in the Pacific War*, to be published in 2007 by the University of Hawai'i Press, features remembrances by the islanders who found themselves in the middle of a foreign war fought with advanced destructive technologies. The remembrances, which take the various forms of ritual commemorations, stories, dances, songs, and interviews, allow Micronesians to speak for themselves about their wartime experiences and reveal distinctively Micronesian cultural memories of war. Carucci, who is internationally recognized for his research on Micronesia and the Pacific Islands, is one of the world's leading experts on Marshall Islanders and is fluent in the Marshallese language. One important component of his research



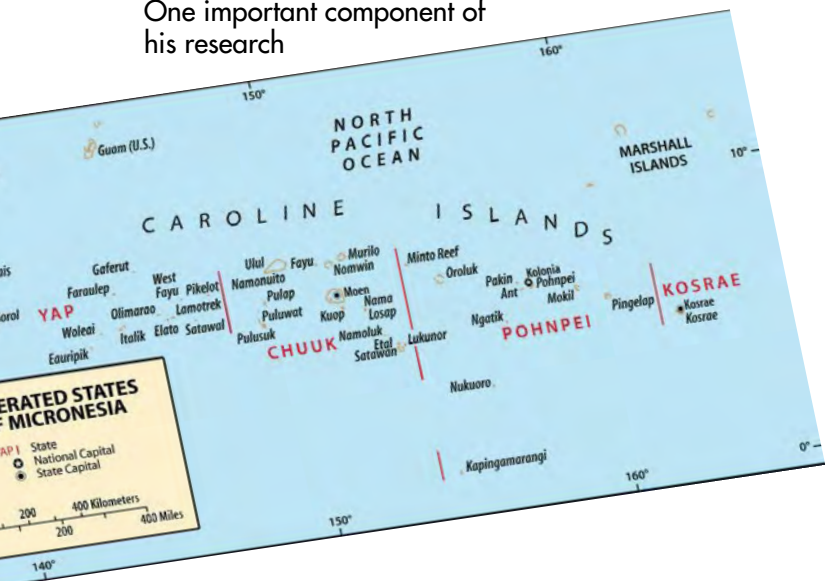
NPS Photo

centers on the far-reaching consequences of war and preparation for war on people's lives. Carucci's co-authors are Suzanne Falgout, from the University of Hawai'i, and Lin Poyer of the University of Wyoming.



Dr. David Eitle joined the Sociology faculty in August 2006 and recently published

several papers on the relationship between race, crime, and the criminal justice system. *Social Science Quarterly* recently published "Economic Segregation, Race, and Homicide," which examined the association between economic segregation and homicide rates. Eitle's work has established him as a nationally recognized expert in this area. "Understanding how racial and economic stratification influence the patterning of crime, as well as our justice systems' responses to crime, is a core foundation of criminology," said Eitle. Additionally, his groundbreaking work in examining school organizational factors and their role in juvenile delinquency and school violence has been recognized nationally and some of his research in this area has been funded by the prestigious Spencer Foundation.



YELLOWTAIL NAMED TO KATZ CHAIR



William Yellowtail, a Crow Indian who was once the regional director of the Environmental Protection Agency, has been appointed the new Katz Endowed Chair in Native American Studies.

Yellowtail said he would develop curriculum and leadership activities that will center on what he terms “personal Indian sovereignty,” as well as the future of Native peoples in the West.

“I like to reflect forward rather than backward,” said Yellowtail, who differentiates the term from the more familiar tribal sovereignty. “Part of that has to do with economics, but mostly individual sovereignty has to do with a mindset and point of view of building your own world, charting your own destiny, being in charge of your own self, your family, and your future.”

Yellowtail is the second occupant of the MSU endowed chair in Native American Studies. The first was Henrietta Mann, an internationally recognized Indian educator and member of the Southern Cheyenne Tribe. Mann is currently a special assistant to MSU President Geoff Gamble.

“Bill brings to the program a familiarity with the state and particularly state government, which we feel is significant as the department reaches out to the tribal communities,” said Walter Fleming, head of the Department of Native American Studies. He said Yellowtail was appointed to a two-year term in the endowed chair, with a third year possible if funds allow.

A graduate of Dartmouth College, Yellowtail will teach courses in Native American Studies, as well as providing leadership in the academic and American Indian communities in the areas

of research, instruction, and enhancement of American Indian cultures. He said instead of looking back at Native history, it would be his goal to work with MSU students to help them determine “where we as American Indian people want to see ourselves and our communities a century from now.”

Yellowtail grew up on his family’s ranch in Wyola. He has also been the executive director of the Montana Inter-Tribal Policy Board and director of human resources development and education for the Crow Tribe. He served three terms as a Montana Senator, representing Big Horn, Rosebud and Powder River Counties. In 1993, former U.S. President Bill Clinton appointed Yellowtail as regional administrator for the EPA’s Region 8 office, headquartered in Denver. Yellowtail currently serves on the board of directors for the Burton K. Wheeler Center for Public Policy, based at MSU, as well as the National Audubon Society.

The Katz Endowed Chair in Native American Studies is named for Sheldon and Audrey Katz of Silver Spring, Maryland.



Bill Yellowtail on his ranch near Wyola, MT

Excerpted from Carol Schmidt, MSU News

L&S DISTINGUISHED PROFESSORS NAMED

A statistician, an anthropologist, a physicist, and a microbiologist have been appointed the first Distinguished Professors in the College of Letters and Science.

John Borkowski, mathematical sciences; Larry Carucci, anthropology; Rufus Cone, physics; and Al Jesaitis, microbiology, were honored at a reception on September 21, 2006. Each will also give a public lecture during the 06-07 academic year.

All have national and international standing in their fields, have published their work, hold multiple professional honors, and have been exceptional teachers and mentors.

"These four individuals have made extraordinary contributions to the college, MSU and the scholarly community at large," said interim dean George Tuthill. "It is an honor to work with them and a pleasure to acknowledge them."

The new program, which appoints the professorships for three-year terms, was instituted by the previous dean, Sara Jayne Steen. "It is good for morale, and it is good for the university," she said. "And it is a way to show the public what outstanding people they have working with their children and for the state of Montana." The professorships are supported through donations to the college.

John Borkowski has analyzed and interpreted data for Yellowstone National Park, providing insights into issues of national importance, like the effects of winter recreation on wildlife. He has made significant contributions in the areas of response surface methodology, design construction, and assessment.



Professors Carucci, Jesaitis, Cone, and Borkowski

Larry Carucci became MSU's first cultural anthropologist in 1985. He is internationally recognized for his research on Micronesia and the Pacific Islands. He is one of the world's foremost expert on Marshall Islanders.

Rufus Cone is internationally-known in the field of laser optics and materials. In his 32 years at MSU, he has received numerous awards, held visiting positions around the world, and attracted grant support from state, national and international sources. He holds three patents based on his work at MSU.

Al Jesaitis was head of MSU's microbiology department from 1992 to 1998. He is nationally recognized for his research in the field of immunology. His work on the human neutrophil has contributed significantly to the treatment of inflammatory diseases.

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