

CONFLUENCE

THE COLLEGE OF LETTERS AND SCIENCE • MONTANA STATE UNIVERSITY • DECEMBER, 2004 • VOLUME 1



Yellowstone - It's Hot
L&S's multiple
research perspectives

Ecology database aids
Park management

Students investigate
"bioprospecting"

Also inside:
L&S alums succeed in
business, new memorial
scholarship, workshops
and lectures open to the
public, and MORE



Colleagues and friends of L&S,

Welcome to the College of Letters and Science's new magazine, **Confluence**.

A confluence is a flowing together, a union of streams or lanes or people, a gathering of many into one. On the most literal level, L&S is the place where many branches of knowledge meet.

With fifteen departments in the humanities, social sciences, mathematical sciences, and natural and physical sciences offering approximately fifty undergraduate degree options and thirty graduate programs, L&S is the largest of MSU's colleges. L&S provides three-quarters of the university's core curriculum and half of its undergraduate classes. Students across the campus study with L&S faculty members; thousands of students seek L&S degrees.

The unity in L&S is as clear as our diversity. Whatever the method by which we approach knowledge, whether in a laboratory or an archive, we share common bonds: the liberal arts tradition of discovery and innovation, and the model of the teacher-scholar, echoing Chaucer's 14th-century graduate student: "And gladly would he learn, and gladly teach."

In L&S, nationally and internationally known faculty care deeply about scholarship and about students, with the result that our students engage in research and they experience for themselves the excitement of discovery. Our fine staff maintains that active commitment to students. Not surprisingly, our faculty, staff, and students succeed.

The unity of L&S extends further, to our students' parents, our alumni, our partners, and our supporters. All of you are part of L&S, and we strive to make each of you proud of your association.

This first issue of **Confluence** offers a sample of the excellence in L&S. The feature section on Yellowstone illustrates how L&S's multiple perspectives can be brought to bear on a single significant region, with outstanding outcomes. In what follows are glimpses of faculty, staff, student, and alumni achievements across the college. Please read and enjoy.

Dean, College of Letters and Science

Photo: NPS Photo

TABLE OF CONTENTS

2	Yellowstone: Not Just a Pretty Place	13	Outreach
6	Integrated Ecological Science in Central Yellowstone	14	Alumni
8	Undergraduate Scholars Program: Yellowstone Bioprospecting	16 - 24	Department Highlights
8	Students	25 - 29	Philanthropy
10	Faculty and Staff		
12	Research		



COLLEGE OF LETTERS & SCIENCE

Dean Sara Jayne Steen Associate Dean George Tuthill Associate Dean Adele Pittendrigh Director of Development Kathleen Langenheim Director of Communications Sarah Guggenheim Alexander Assistant to the Dean Kathy Griffith CLS 101 Program Director Valerie Holzngel Information Systems Manager Gary Bummer Administrative Associate Diane Arnold Administrative Associate Linda McGurk

COLLEGE OF LETTERS & SCIENCE ADVISORY BOARD Susan J. Edsall Joseph B. Gary Susan Heyneman Stephen A. Luckey Richard Roehm Steve Rovig

DEPARTMENTS AND DEPARTMENT HEADS

Agricultural Economics & Economics Richard Stroup Cell Biology & Neuroscience Gwen Jacobs Chemistry & Biochemistry Paul Grieco Earth Sciences David Lageson Ecology David Roberts English Michael Beehler History & Philosophy Robert Rydell Mathematical Sciences Kenneth Bowers Microbiology Timothy Ford Modern Languages & Literatures Michael Myers Native American Studies Walter Fleming Physics William Hiscock Political Science Franke Wilmer Psychology Wesley Lynch Sociology & Anthropology John Saltiel

COVER IMAGE: Freshman Kim Dowd is majoring in Biomedical Sciences.

The printing of this magazine has been funded in part by a grant from First Security Bank, Bozeman.

COLLEGE OF LETTERS & SCIENCE

Montana State University
2-205 Wilson Hall
Bozeman, Montana 59717
406-994-4288
406-994-7580 (fax)
lands@montana.edu
www.montana.edu/lettersandscience

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

Editor, Sarah Guggenheim Alexander
Design, Ixtla Vaughan,
www.getidesign.com
Printing by ColorWorld, Bozeman
Contributing Writers:
Evelyn Boswell
Carol Schmidt
Linda McGurk



Y
E
L
L
O
W
S
T
O
N
E

NOT just a pretty place

by Evelyn Boswell and Sarah Alexander

YELLOWSTONE SUPPORTS WIDE-REACHING L&S RESEARCH

Bison. Wolves. Geysers. These are the images that come to mind when people think about Yellowstone National Park.

At Montana State University, however, each of the 15 departments in the College of Letters & Science sees Yellowstone through the lens of its own discipline. The result is a kaleidoscopic view that takes in bacteria as well as large animals and characteristic features. L&S researchers who work in the park are looking at tourism. They're finding parallels between wolves in Yellowstone and in Japan. They're devoting themselves to things like economic diversity, structural tectonics, and statistical modeling.

"Our faculty members provide multi-disciplinary expertise that contributes not only to improved understanding and management of Yellowstone, but has national and international implications as well," said Sara Jayne Steen, dean of the College of Letters & Science.

Yellowstone National Park has always been a scenic and recreational draw for MSU students and faculty, but increasingly the park's role as a natural laboratory and historical archive is playing a crucial role in the research and creative work of the L&S community. And more significantly, this work is receiving national and international recognition.

"Many students are initially attracted to MSU because of the spectacular outdoor setting, but once they're here, they find that our natural setting supports quality research projects for our faculty and students," said MSU president Geoff Gamble.

Dave Lageson, head of the Department of Earth Sciences, came to MSU 24 years ago. He consistently emphasizes the importance of Yellowstone National Park to science education and research.

Photo: NPS Photo

Continued...



YELLOWSTONE SCIENCE HAS HISTORY OF ITS OWN

Her love of science and Yellowstone National Park led Diane Smith to write her first novel, *Letters from Yellowstone* (Penguin Press, 1999). That book, about an amateur botanist's summer experience as the lone woman in a party of male scientists, used fiction to explore issues of naturalist interpretation. Now Smith continues with that theme, having just completed a master's degree with the Department of History and Philosophy and started work on her doctorate as one of the first students in the department's new Ph.D. program.

Smith's master's thesis, "What One Knows One Loves Best: A Brief Administrative History of Science Education in the National Parks, 1916-1925," looks at the early education and interpretative programs of Yellowstone and Yosemite National Parks. In it, she examines how publicists, academics, and park rangers initiated science and natural history programming in the early years of the National Park Service (NPS) and how different approaches evolved.

Smith found that Yellowstone, because of its distance from a large population base, by necessity developed the "naturalist ranger" model that would eventually be put into practice throughout the nation's national parks.

For her research, Smith relied on documents from the NPS, including reports, proceedings, correspondence, training manuals, and materials produced for the visiting public. In addition, she used interdisciplinary resources at MSU to aid her own understanding of biological and natural science subjects. Smith is continuing her research for her doctoral dissertation, with a more specific focus on women naturalists and educators in the early years of the Park Service.



YELLOWSTONE...Continued

"In the geo-sciences, the reason many faculty are at MSU is because of the opportunity for field studies," Lageson said. "You might gain a higher salary at another university, but here we can literally walk out our door to spend a day in the field. Having Yellowstone, and the surrounding ecosystem, at our doorstep is analogous to a physics or chemistry professor having one of the world's best-equipped laboratories—with all the latest technology—at his or her disposal. It's not just that YNP is cool and unique. It cuts deeper than that."

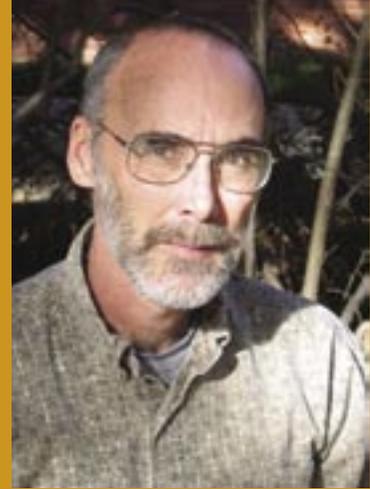
The ecology department, too, has long reaped the benefits of its proximity to the Park's wildlife and plants. Professor Scott Creel recently received widespread attention for his findings on wolf-elk interactions in the Yellowstone ecosystem. Professor Robert Garrott continues to look at the spatial dynamics of the central Yellowstone bison herd. Several graduate students are involved with the integrated ecological science project (see article page 6).

Historian Brett Walker found Yellowstone so enticing that he left Yale University and moved to Bozeman and MSU because of it. Living in an area that was experiencing wolves was crucial, he said, for his research on environmental history in Japan and to his upcoming book, *Creating and Killing the Wolves of Japan: Reflections on the History of Science, Culture and the Environment*.

Researchers in the Department of Microbiology are prospecting for bacteria that grow in Yellowstone's geyser basins. Scientists Joan Henson and Kathy Sheehan, for example, have discovered a fungus that allows a grass in Yellowstone National Park to withstand soil temperatures up to 140 degrees Fahrenheit. Seeing the potential for widespread and varied applications of heat and drought tolerance in plants, the National Science Foundation has committed \$5 million towards more research.

"Where better to conduct this study than Yellowstone?" asked Matt Kane, director of the NSF's Microbial Observatories Program. "The variety of environmental gradients and habitats probably harbors more microbial diversity than any other single site on our planet."

Photo: NPS Photo



WILDLIFE STUDIES NEED NUMBERS GUYS, TOO

Steve Cherry has the perfect job for a statistician who used to be a game warden. He runs the numbers for wildlife researchers who work in Yellowstone National Park and elsewhere.

"It's kind of a hoot," said the associate professor of mathematical sciences, who can tell you how grizzly bears rely on squirrels as easily as he can describe a long-term sampling plan for whitebark pine trees.

One of several wildlife studies that involves Cherry is the National Park Service inventory and monitoring project. Researchers monitor the prevalence of white pine blister rust, the severity of infection, and the demographics of whitebark pine trees in the Greater Yellowstone Area. White pine blister rust can keep whitebark pine trees from producing the pine cones that grizzly bears need to prepare for winter. Under normal conditions, squirrels harvest the pine cones and bury them in middens. Grizzly bears dig up the pine cones and eat the seeds.

Cherry is also a member of the Interagency Grizzly Bear Study Team, the Northern Yellowstone Carnivore Working Group, and the U.S. Geological Survey Northern Rocky Mountain Science Center. His work with those groups involves the development of sampling plans, demographic studies, and new methods of modeling. The animals include bears, mountain lions, wolves, bighorn sheep, and cutthroat trout.



In the realm of social sciences, political science professor Jerry Johnson has focused his research on the impact of tourism in the greater Yellowstone ecosystem, as well as the social, political, and economic dynamics of communities near pristine natural areas. Johnson uses economic information to look at the effects of what he calls “tourism-stimulated in-migration” to rural communities. His research is relevant outside of the Yellowstone region as well.



“Every county in the Rocky Mountains is undergoing similar growth and similar patterns,” said Johnson, “and amenity-rich communities across the globe — in Australia and Spain, for instance — are dealing with similar issues.”

So what’s next for Yellowstone research? What kinds of advances are possible because of Yellowstone National Park?

Photo: NPS Photo

“Pick a field,” said geologist Lageson.

President Ulysses Grant set aside Yellowstone’s 2.2 million acres in 1872 as a “public park or pleasuring ground for the benefit and enjoyment of the people.” In the last few decades, however, the Park and the greater Yellowstone ecosystem have been recognized for more than their roles as recreational playgrounds. Because of their size and relatively pristine environment, they are increasingly valued for contributions to academic research and science, a paradigm shift that ultimately may impact the way the Park and surrounding region are managed.

George Rice samples for microorganisms from a geothermal pool. (G. Rice photo)



MSU SCIENTISTS FIND ANCIENT VIRUS IN YELLOWSTONE

A virus found in the thermal pools of Yellowstone National Park has a structure so ancient that it’s believed to sit near the root of the universal tree of life.

The discovery has potential significance in a variety of areas, including the search for life on other planets and the ability to harness viral products for medicine and industry.

Microbiology graduate student George Rice and Professor Mark Young from the College of Agriculture found the virus living among organisms known as archaea in Yellowstone’s Midway Geyser Basin. Archaea, one of the three major forms of life, often thrive in hot, acidic conditions like those in Yellowstone Park.

The Yellowstone discovery was noteworthy, because only 36 viruses have been isolated from archaea out of more than 5,000 known viruses, Young said. The virus was unique, too, because of the shape of its outer coat, or protein shell. The shape was similar to a bacterial virus and an animal virus used for comparison. The similarity suggested that the three viruses have a common ancestor that predates the division of life into its three main forms roughly 3.5 billion years ago.

The MSU scientists published their study in the May 3, 2004, issue of the prestigious *Proceedings of the National Academy of Sciences*.

Excerpted from Annette Trinity-Stevens, MSU News Service



INTEGRATED ECOLOGICAL SCIENCE IN CENTRAL YELLOWSTONE

By Linda McGurk

Yellowstone National Park is a high-profile destination, so it is not surprising that its natural resource policies sometimes spark public controversy,

such as the reintroduction of wolves, the management of bison and wildfires, and the effects of winter recreation. In addition, management often has to rely on short-term studies to resolve the issue.

A unique research project between Montana State University, California State University - Monterey Bay, and the National Park Service (NPS), 13 years in the making, is about to change that. The project, entitled Integrated Ecological Science in Central Yellowstone, is led by Dr. Robert Garrott of the Department of Ecology at MSU and takes a multidisciplinary approach to Park ecology. "Given the very modest beginnings of this project, it is quite satisfying to see what we have been able to accomplish," said Garrott.

When Garrott co-founded the project with Dr. Patrick White, now of NPS, in 1991, they struggled from year to year to get enough funding to keep it afloat and had no real plans to turn it into a long-term study. They had to rely on old equipment and minimum gear, but "we had a passion for what we were doing and simply wouldn't accept the possibility that we couldn't do it," Garrott said.

They managed to keep the ball rolling, and today the project has accrued some of the most comprehensive databases available for large mammals in the Park, including data on population estimates, pregnancy rates, reproduction, recruitment, mortality rates, and migratory patterns.

Three Ph.D. candidates and one M.S. student from MSU's ecology department are currently involved with the Yellowstone program: Matt Becker, Claire Gower, Jason Bruggeman, and Julie Fuller. "It is rare to have such extensive research and the integrated skills of so many people in one single project. Each person tackles a question and builds onto the database," said Matt Becker, who is studying wolf predation rates and

Photo: NPS Photo

prey selection in the Madison-Firehole drainage of the Park since the animals' return in 1996.

The ultimate goals of the project are to understand the ecosystem dynamics, to educate the public about these processes, and to incorporate research results into management decisions. In the case of ongoing controversies like snowmobiling in the Park, for example, policy makers can use research produced through the project to determine the effect of groomed trails on bison migration. "We can provide the science and then it's up to the public and policy makers to decide what to do with it," Matt Becker said.



In the next three years, the research team hopes to produce a series of interpretive videos and publish the most data-rich book on ecological processes in Yellowstone to date. In the future, visitors to Yellowstone may also be able to access the results of the research through "interpretive kiosks" placed at the Park's visitor centers. Computer visualizations of the Park ecosystem, or a "Virtual Park," would enable the user to simulate the effects of a combination of specific climates, management policies, and animal populations. "We're putting the research back to the public. This data is not only intended for scientific publications – we want people like our moms to be able to go down to the Park and have access to it," Matt Becker explained.

For now, the project has secured another three years of funding. What happens after that is anyone's guess. "Perhaps it will be time to pull the collars off the animals and start a new project someplace else....All research projects come to an end and we have been unbelievably fortunate to keep this effort going for so long and to attract such a great group of students and researchers," Garrott said.

www.homepage.montana.edu/~rgarrott/centralyellowstone/

MSU STUDENTS CONSIDER THE ANGLES OF YELLOWSTONE *by Evelyn Boswell*

Seven students, one focus, many angles.

That's what's happening in the new National Conferences for Undergraduate Research (NCUR)/Lancy Scholars program. Seven undergraduate researchers are looking at Yellowstone National Park — specifically bioprospecting — from a variety of perspectives.

Bioprospecting, as its name suggests, involves the search for something valuable. In this case, the "gold" may be plants and microorganisms that have beneficial properties. Perhaps they'll be turned into medicines. Maybe they'll become part of an invention headed for space. Whatever the end product, some of the students in the NCUR/Lancy program are considering the ethical and philosophical questions raised by bioprospecting. Others are approaching the Park as physical scientists.

"It's a good program. The kids are having fun," commented Steve Holmgren, program director and a professor in the Department of Chemistry and Biochemistry.

Darla Cadman, for one, is a biochemistry major who's trying to grow large quantities of an unusual virus called YNPRC179, found in the Ragged Hills and Rabbit Creek areas of Yellowstone. Mackenzie Parker, another biochemistry major, researches an iron storage protein that exists in mammals and bacteria alike. The protein comes from deep sea vents, but he is comparing it to a protein found in Yellowstone Park.

"It's really interesting. You find something new every day," Parker said.

Rebecca Elder, a junior majoring in history, said NCUR/Lancy has enriched her education, particularly as she seeks to understand such questions as, "What is a life form and where do you draw the line between life form and non-organism?"

Ryan Parsons, a senior majoring in philosophy, is investigating the ethical problems inherent in patenting live organisms.

"This led me to [think about] the moral intrinsic worth that living things possess," Parsons said. "It showed how the more we see living organisms as commodities, where ownership is given to individuals or corporations, we lose value in our world view."

Philosophy professor Gordon "Corky" Brittan, who is mentoring four social science students in the program, said the students are breaking intellectual ground as they consider the ethics of commercial development of microorganisms found in the Park and patented.

"Yellowstone is a great outdoor laboratory for MSU," Brittan said. "This research raises scientific questions, but also questions about Park policy that are just as important."

PHYSICS GRADUATE STUDENT RECEIVES PRESTIGIOUS FELLOWSHIP

Johnathon Holroyd, a physics graduate student, was one of eight people in the country to win a \$16,000 Advanced Light Source (ALS) Doctoral Fellowship. Holroyd will spend a year at ALS, a division of the Lawrence Berkeley National Laboratory, using x-ray radiation to further his research on magnetic films. ALS, the world's first third-generation synchrotron radiation source, generates intense x-ray radiation for scientific and technological research.

The fellowship allows beginning researchers

to work at the frontier of synchrotron radiation, to acquire hands-on scientific training, and to develop professional maturity for independent research. The thin magnetic films—some as thin as a few atoms—that are the subject of Holroyd's

research are used in magnetic random access memories, memory devices that retain their information even when power is shut off. This property is interesting in small, portable electronic devices such as cell phones. Holroyd will present the results of his research at a meeting or as a seminar at the end of the fellowship year.



MSU GRAD AND MEDICAL STUDENT IS CO-AUTHOR ON MAJOR RESEARCH PAPER

Few first-year medical students see their name in a major journal for a paper that may lead to a new approach to treating brain trauma.

Pam Fry Durling worked on research that did just that. Published recently in the *Proceedings of the National Academy of Sciences*, the work is drawing attention in both the popular and scientific press because it suggests that treatment after a brain injury needs to take into account how the brain reacts to that trauma over time. The brain, it now appears, reacts differently in the first minutes after injury than it does hours later.



As an undergraduate at MSU, Durling worked in the laboratory of cell biology and neuroscience professor Charles Paden. When Anat Biegon at Lawrence Berkeley National Lab in California called Paden looking for student help on a research project, he recommended Durling. The two researchers processed piles of

grant-related paper-work to get Durling to California so she could learn the techniques she would need for the project.

"Pam worked all summer in Berkeley, then brought the work back here," says Paden. During the full year and some of the summer Durling took to finish the work, she was also applying to medical schools, going to interviews, and taking classes.

That Durling was included as an author on the paper with lead researcher Biegon, Paden, and others "was due to her dedication and hard work," says Paden.

Following her first year of medical school as part of the WWAMI program, Durling and her husband Luke, also a medical student, are now in Seattle for their final three years of medical school at the University of Washington.

Excerpted from Carol Flaherty, MSU News Service

Photo: Durling with Professor Paden

GERMAN MAJOR STUDIES ARCHITECTURE IN GERMANY

Amid castles and canals, Montana State University senior Veronica Schreiber studies architecture and languages in Tuebingen, Germany. She is one of about 200 MSU students studying abroad this year.

Schreiber, who is pursuing a double major in German and environmental design, received a German Academic Exchange Scholarship. The scholarship, worth about \$9,000, was awarded to 56 undergraduate students from 46 different Canadian and U.S. universities.

"I chose Europe because of the rich history of the development of Western architecture, and Germany specifically because of its history of using architecture as a means to rebuild the Germans' nation and communicate their identity," Schreiber wrote in an e-mail. "And, I chose to study here because Germany is a leader in sustainable and environmentally conscientious designs."



WILLIAM HISCOCK,



head of the MSU Department of Physics and director of NASA's Montana Space Grant Consortium, received the 2003 Frank J. Malina Astronautics Medal from the International Astronautical Federation. The medal, recognizing excellence in space education, was presented October 8th during the organization's 55th annual meeting in Vancouver, British Columbia. The

organization's 162 members come from the National Aeronautics and Space Administration, the European Space Agency, the Russian Space Agency, and professional organizations and private firms in 45 countries.

Diane D. DeTroye, acting manager of NASA's Space Grant and EPSCoR Programs, said, "Dr. Hiscock is one of the finest directors in the National Space Grant College and Fellowship Program. Bill's passion for space education lives through his exemplary leadership of the Montana Space Grant Consortium. Bill's influence and vision extend far beyond his campus and the state to encompass the impact he has had at the national level in space education."

The letter informing Hiscock of his award spotlighted three Montana Space Grant programs that contributed to his selection as a medalist. One is the Space Public Outreach Team that hires MSU undergraduates to visit K-12 classrooms to explain the latest developments in space. So far, approximately 150 undergraduate students have given presentations to 27,000 students across Montana. This year's presentation focuses on the Cassini mission to Saturn.

"Everyone gets something positive out of it," Hiscock said. "The K-12 classes get the latest science and space exploration news. The undergraduate presenters get public speaking experience and pay."

The second program has sent seven teams of Montana undergraduates to the Johnson Space Center in Texas to fly on a KC-135 astronaut training aircraft, and the third program sends Montana undergraduates to NASA academies during the summer.

Excerpted from Evelyn Boswell, MSU News

DAVID VARRICCHIO,

Assistant Professor of Paleontology in the Department of Earth Sciences, co-authored an article that was published in the September 8, 2004 issue of *Nature*. The article, titled "Fossil hints at devoted parenting in dinosaurs," was based on the discovery of a unique fossil site in China and suggests that dinosaurs cared for their young after hatching. Varricchio's findings have received international attention in the press, with articles appearing in *National Geographic*, the *Washington Post*, the *New York Times*, the *Salt Lake Tribune*, and CBS News Online.



The finding, from Liaoning in China, involves an adult *Psittacosaurus* surrounded by 34 young ones, which are described in the article as "closely associated" with the adult. The small dinosaurs' fossils were all clustered in an area little more than five square feet. The young were all of a similar size, and many were in lifelike postures. The animals died together at the same time, the apparent victims of volcanic debris, flooding, or the collapse of an underground burrow, the researchers concluded.

Crocodiles and birds provide significant care to their young—helping them to hatch, feeding them and protecting them from predators—and scientists have long speculated about whether their distant dinosaur ancestors did as well. The report says that the collection of *Psittacosaurus* young with an adult "is consistent with a biological relationship and post-hatching parental care."

Liu Jinyuan, Dalian Natural History Museum, China

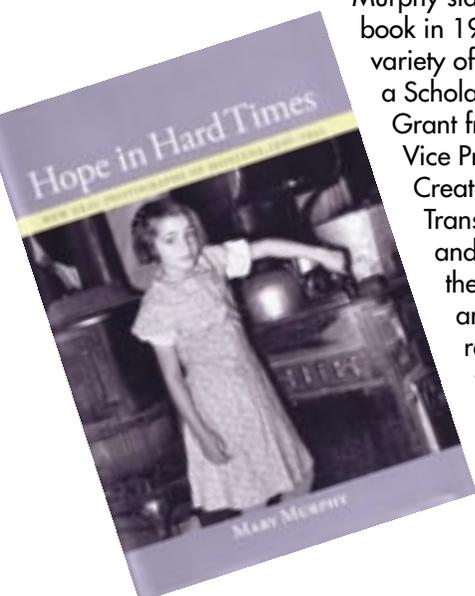
HISTORIAN WINS MONTANA BOOK AWARD

Hope in Hard Times: New Deal Photographs of Montana, 1936-1942 by history professor Mary Murphy was selected as the first place winner of the Montana Book Award. This annual award recognizes literary and/or artistic excellence in a book published in the previous year.

Published by the Montana Historical Society Press, *Hope in Hard Times* draws on more than 140 Farm Security Administration (FSA) photographs taken during the Great Depression. The book looks at Montana during the Depression and the evolving mandate for the men and women who photographed the state for the FSA.

"I think the reason for the book's success is that readers can see the faces, the tragedy, and the strength of resolve of Montanans of that period" says Clark Whithorn, director of the Society Press.

Murphy started working on the book in 1995 with support from a variety of sources. She received a Scholarship and Creativity Grant from MSU's Office of the Vice President for Research, Creativity and Technology Transfer and a Research and Creativity Grant from the College of Letters and Science. She also received funding from the Montana Cultural Trust and the Schnitzler Foundation.



2004 AWARDS

President's Excellence in Teaching Award

The President's Excellence in Teaching Award is presented to MSU faculty members in recognition of extraordinary teaching.

- Stephan Custer, Earth Sciences
- Yuka Hara, Modern Languages and Literatures

Cox Family Fund for Excellence Award

The Cox Award is presented to MSU faculty members in recognition of creative integration of teaching and research.

- Sharon Beehler, English
- Aleksander Rebane, Physics

Charles & Nora L. Wiley Faculty Award for Meritorious Research

The Wiley Award is presented to MSU faculty members in honor of extraordinary achievements in research and creativity.

- Yves Idzerda, Physics

L&S Outstanding Teaching Awards

- Jack Fisher, Sociology and Anthropology (Tenure Track)
- Jane Jelinski, Political Science (Adjunct)
- Kevin Flanagan, Mathematical Sciences (Graduate Teaching Assistant)

L&S Staff Excellence Awards

- Jeannie Gunderson, Physics
- Carolyn Steele, English

RETIRING FACULTY

(and the year they joined MSU faculty)

- Edwin Abbott, Chemistry & Biochemistry (1977)
- John Amend, Chemistry & Biochemistry (1968)
- Gary Bogar, Mathematical Sciences (1968)
- Cliff Bond, Microbiology (1978)
- Keith Cooksey, Microbiology (1982)
- Barbara Cooksey, Microbiology (1983)
- Bill Costerton, Microbiology (1993)
- Kaaren Jacobsen, Political Science (1987)
- Jack Jelinski, Modern Languages and Literatures (1973)
- Judy Keeler, English (1977)
- Dwight Phillips, Cell Biology & Neuroscience (1973)

\$16.6 MILLION GRANT FOR BIOMEDICAL RESEARCH

Montana State University has received a \$16.6 million grant to support biomedical research across Montana, through a program called IDeA Networks of Biomedical Research Excellence (INBRE). The money for that program will be shared with universities, colleges, and tribal colleges across the state, said Adele Pittendrigh, Associate Dean of Letters & Science and INBRE program coordinator.

Undergraduate and graduate students throughout Montana will be involved in all research projects supported by the five-year grant.

INBRE will build on the \$6 million Biomedical Research Infrastructure

Network in Montana (BRIN) that began in 2001 and involved more than 800 undergraduate and graduate students. Both programs were funded by the National Institutes of Health.

"Together, BRIN and INBRE position Montana as a leader in biomedical research, and significantly increase education, research, and ultimately, employment opportunities in the state," said Tim Ford, program director for the new grant and microbiology department head.

Besides opportunities for undergraduates, INBRE will provide graduate fellowships and will increase the number of science researchers at Montana's four-year colleges. It will fund eight research projects at MSU-Billings, Montana Tech, UM-Western, Rocky Mountain College, and Little Big Horn College. It will enhance science education at Montana's six tribal colleges by funding new science faculty and infrastructure. INBRE will also link researchers at four-year colleges with faculty at research institutions and will train researchers in state-of-the-art methods.

Photo: Chemistry professor Martin Teintze and BRIN intern Dustin Slunaker



MILE HIGH, MILE DEEP

The Department of History and Philosophy received a prestigious \$300,000, three-year National Science Foundation grant to help launch its new Ph.D. program, the first doctoral program in the humanities at MSU.



The "Mile High, Mile Deep" grant, written by a team of historians led by Professor Michael Reidy, integrates the history of science and technology with historical and political geography. It explores questions about environmental and cross-cultural histories by examining how humans – whether Delaware Indian prospectors, women explorers in Africa, or Butte mining engineers – qualified and quantified the landscape in ways that radically changed environments around the world.

The project will explore, for example, how Western engineers and surveyors developed important ecological knowledge in the process of mining; how indigenous peoples formulated sophisticated scientific and technological concepts to understand and utilize their environments; and how varied cultures constructed diverse concepts of space — their views and actions suggesting deep cross-cultural similarities and patterns.

Funding from the grant will support the training of two graduate students for three years each. The grant also supports hiring and training three postdoctoral fellows who will help prepare and teach courses related to the "Mile High, Mile Deep" theme. Finally, the award supports three conferences related to the overall project.

"Creating Space," the first of the conferences, was held in September 2004 at Montana's 320 Ranch. The conference explored how different cultures produced different notions of space over time, and how these ideas, in turn, shaped ecological, social, cultural, and political developments.



CAFÉ SCIENTIFIQUE

At Bozeman's first Café Scientifique, the mother of a seven-week-old infant listened intently to immunology professor John Cohen from the University of Colorado speak about the history of vaccinations. "I'm getting pressure from my mother-in-law not to immunize my baby," she said. "So I'm here to learn about the issues for myself."

Co-sponsored by INBRE-BRIN (see page 12) and Letters & Science, the September talk at Ferraro's Fine Italian Restaurant was entitled "Why bother to immunize our kids? Aren't all those diseases gone? And aren't vaccines harmful?" After his introduction, Cohen fielded questions and facilitated lively discussion among the gathered members of the Bozeman and MSU communities.



The Café Scientifique idea, based on the French Café Philosophique, started in England in 1998 and has spread to a handful of locations in the U.S. In the Café, community members come together in a friendly locale to hear a short talk on a current scientific topic. Following the presentation, there is time for questions, answers, and general discussion. Cambridge University's *Varsity Magazine* wrote, "Café Scientifique tries to take science away from the bum-numbing chairs of the classroom and into big, fluffy sofas....It tries to play a role in promoting public engagement in science; making it accountable, because science is no longer for the scientist alone."

INBRE-BRIN and L&S plan to sponsor four Cafés during the academic year. For more information, call (406) 994-7531 or email: lhowell@montana.edu.

LETTERS & SCIENCE OFFERS WORKSHOPS, LECTURES

Fascinated by Yellowstone's volcanoes? Want to try your hand at archeology? Resolved to learn more about Montana's history?

Letters & Science's Landscapes of the Mind program offers these and other opportunities to students as well as adult learners through a new series of unique summer workshops and academic-year lectures. Topics span the subjects of L&S disciplines and feature L&S faculty, as well as visiting national and international scholars.

In July 2004, geology professor Todd Feeley's weekend course "Super Volcanoes of Yellowstone National Park" included a Bozeman businessman, a couple with a summer home in Big Sky, and an MSU undergraduate. Despite their different backgrounds, according to Feeley, they all shared a common interest in learning about Yellowstone.

For a weekend immersion in "Mining Town Women," an incoming graduate student in history, a sophomore pursuing a women's studies minor, and a third-grade teacher from Paris, France, joined history professor Mary Murphy for two days of discussion and field trips. Murphy, author of *Mining Cultures: Men, Women, and Leisure in Butte, 1914-41* led the students through historic Nevada City, Montana, organized a private visit to the McFarland Curatorial Center in Virginia City, and provided historic photographs, texts, and films to enhance their learning experience.



"It was a great group," said Murphy, "Being out in the field very much set the tone for the class."

The workshop series continues in summer 2005 with 6-8 weekend courses. Several of last year's courses will be offered again—such as "Dinosaur Paleontology," "Super Volcanoes of Yellowstone," and "Mining Town Women"—as well as new workshops on topics such as Shakespeare, railways in Montana, and law and order in the Old West.

During the academic year, Landscapes of the Mind sponsors a series of public lectures. David Quammen, internationally acclaimed author, kicked off the fall 2004 series at the Museum of the Rockies with a talk on his most recent book, *Monster of God: The Man-Eating Predator in the Jungles of History and the Mind*. Other lecture topics during the academic year 2004-05 include evolutionary history, race and religion, and space science.

To receive updates on Landscapes of the Mind offerings by mail or email, contact L&S at (406) 994-4288 or lands@montana.edu.

Photo: Geology professor Todd Feeley and workshop participants

MSU ALUMS TRANSLATE L&S DEGREES INTO BUSINESS SUCCESS

Emily Shellabarger graduated from Montana State University in 1976 with a degree in psychology, and nearly enough credits for a minor in biology. Today, she is the Vice President of Information Systems for First Security Bank, a Bozeman-based bank with seven branches in Montana. Her psychology degree, she says, “is who I am. It’s in every decision I make.”

How does a psychology major end up in banking? “What I learned at MSU was a base to grow on,” says Shellabarger.

Three other successful L&S alumni echo this sentiment.

Kevin Seth, a partner at Edgewood Management Company in New York City, majored in political science, graduating in 1983 with a minor in economics. Seth helps oversee about \$2.2 billion of funds, as well as 21 employees. “The education I received at MSU expanded my horizons both intellectually and geographically,” says Seth. “My degree helped me in the sense that I was given a well-rounded education.”

“I learned that thinking analytically and measuring results are integral to managing data,” says Tom Hassenauer ('81) of his microbiology degree. “This is a critical crossover skill in what I do today.” Hassenauer is Senior Category Manager for Food Services America in Seattle, Washington, responsible for creating growth in five different food service product categories. His job involves managing the specific categories, negotiating with manufacturers, and maximizing the company’s return on investments.

Bruce Gerlach, Executive Vice President of First Security Bank, also an L&S graduate, received his history degree in 1973. This year Gerlach celebrates 32 years with the bank, having worked up through the ranks from loan officer trainee to loan officer to the number-two position in the \$420 million bank system.

Gerlach is adamant that a liberal-arts degree gives one a well-rounded education that produces a better employee. “The liberal arts degree enables one to be a better communicator,” says Gerlach. “Banking is about communicating and developing relationships.”

“The biggest opportunities may be waiting in your peripheral vision.”

He believes many financial organizations miss out when they only hire candidates with business degrees.

Dean of Letters and Science Sara Jayne Steen is pleased to see alumni in the field articulating the importance of an L&S degree. “L&S students learn to think critically and solve problems, to communicate clearly, to understand various disciplines and cultures, and to develop the engagement that will make them life-long learners and leaders. Not surprisingly, our students are in high demand by employers and have rewarding careers.”

Tom Hassenauer has advice for today’s students: “Keep the blinders off. The biggest opportunities may be waiting in your peripheral vision.”



Bruce Gerlach and Emily Shellabarger

IRVING WEISSMAN: RESEARCH PIONEER

When Irving Weissman ('61, Pre-medicine; '92, Honorary Doctorate) entered Montana State University as a freshman, he had already worked as a research assistant at the McLaughlin Research Institute in Great Falls and co-authored two scientific papers. By the time he graduated, his interest in understanding and treating disease had matured into a life-long pursuit.

Currently the director of the Institute for Cancer and Stem Cell Biology and Medicine at Stanford University, Weissman is known for his ground-breaking research in biology. He pioneered the science of isolating blood-forming stem cells from mice, and in collaboration with others discovered human stem cells that produce blood cell progenitors and nervous tissue. In January 2003, Weissman announced that the Stanford Institute would create new human embryonic stem cell lines through nuclear transfer.



Recently, Dr. Weissman served as head of a National Academy of Sciences panel to make recommendations to Congress on the science of human cloning and stem-cell research.

The panel recommended a legally enforceable ban on human reproductive cloning, but not on nuclear transplantation to produce stem cells. In his testimony, Weissman stated, "This research can potentially cure many fatal diseases."

Dr. Weissman's ties to Montana remain strong. In addition to serving on the McLaughlin Institute's Advisory Board, he brings a group of research students to his family's cabin for a yearly team-building retreat. He often hosts scientists from around the world to share in his other great passion, fly-fishing. Weissman has also established a scholarship in MSU's Department of Microbiology.

SUSAN EDSALL'S INTO THE BLUE

Four years ago, lifelong aviator and Montana native Wayne Edsall was enjoying life's golden years, rebuilding antique airplanes and flying them over the Big Sky country of Montana. When a devastating stroke suddenly left him unable to read, write, or speak, it seemed his flying days were over. The doctors gave his family a dire prognosis: learn to live with his disability.

IN MEMORIAM

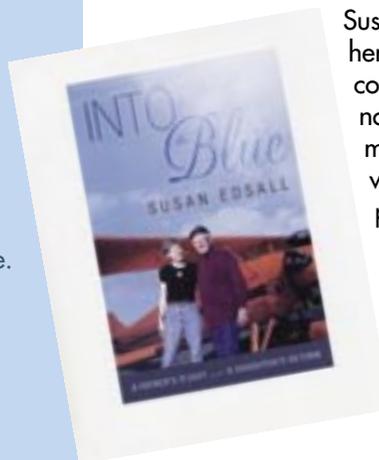
Tyler J. Helmer, 22, of Salt Lake City, Utah, died Sunday, September 19, 2004, in Salt Lake City. Helmer graduated from MSU with honors in May 2004 with a degree in microbiology.

Born May 28, 1982 to Thomas J. and JoVayne (Erck) Helmer, Tyler had a passion for people and adventure. He was an avid outdoorsman who excelled in snow skiing, rock climbing, and mountain biking. He also enjoyed fly-fishing, hunting, and backpacking. Tyler spent summers during his college years as a U.S. Forest Service firefighter.

While at MSU, Tyler worked in Professor Mike White's laboratory, researching infectious disease. After graduating, he accepted a position in the molecular cellular biology Ph.D. program at the University of Utah in Salt Lake City.

"Tyler had incredible potential," remembered Dr. Tim Ford, department head of Microbiology. "He was one of our best students."

Tyler will be remembered fondly by the Department of Microbiology, the College of Letters & Science, and the MSU community.



Susan Edsall (English '83) and her sister knew that if their father couldn't fly, he'd just as soon not live. Throwing conventional medical rehabilitation to the wind, the sisters returned to their parents' home in the Gallatin Valley and embarked on a courageous rehabilitation program of their own to get their father back into the cockpit of his biplane.

From that experience came writer Susan Edsall's memoir of their journey together, *Into the Blue: A Father's Flight and a Daughter's Return*. Published in 2004 by St. Martin's Press, the book chronicles how the Edsall family proved the experts wrong in order to keep Wayne Edsall's dream alive.

Susan Edsall, a non-profit consultant and writer, has received significant recognition for her book, including appearances on national television. In addition, Edsall has received invitations to medical conferences to talk about the important role families can play in stroke rehabilitation.



LETTERS & SCIENCE DEPARTMENT HIGHLIGHTS

The confluence of intellectual tradition, discovery, and innovation makes Letters and Science the heart of it all.

At the College of Letters and Science, we've been improving our students' educational experience. Since 2000, L&S has helped create a new introductory seminar and core curriculum for the university, added 14 new undergraduate and graduate degree programs, received authorization to build a new chemistry and biochemistry building, and expended over \$100 million in grant-funded research, allowing students to engage in undergraduate and graduate scholarship with faculty — among many other exciting developments.

CELL BIOLOGY AND NEUROSCIENCE

One of the greatest challenges of the current scientific era is to understand complex biological systems, from macromolecular complexes to the human brain. In the fall of 2002, Montana State University received a \$1.9 million, four-year grant from the Howard Hughes Medical Institute (HHMI) to help the undergraduate biological sciences program meet this challenge. Under the direction of Gwen

Jacobs, Department Head of Cell Biology & Neuroscience, a group of faculty met regularly to develop and implement a new introductory biology series. The new curriculum is geared toward students pursuing science as a major and interested in a more interdisciplinary and quantitative approach to their study of

biology. The three-semester course sequence, begun this year, advances the state of the art with regard to multidisciplinary, collaborative, academic training. Labs associated with the classes allow students to learn the experimental process, ask research questions, collect data, and analyze that data.

In addition, HHMI provided funds to renovate undergraduate laboratory space to create a state-of-the-art teaching facility with new equipment. For more information visit www.hughes.montana.edu.

Professor Linda Hyman joined the department as the new Vice-Provost of the Division of Health Sciences and Director of the WWAMI medical school program. Hyman brings her expertise in medical education and a research program in yeast genetics to the department. The establishment of the Division of Health Sciences is an important step towards building strength and recognition of biomedical research on campus as well as focusing on the importance of the WWAMI program. Hyman is connecting with the community in the areas of rural health, medical education, bioterrorism, and many other areas of research.



CHEMISTRY and BIOCHEMISTRY

The Board of Regents approved funding plans for a new chemistry building, slated to begin

construction in summer 2005. The facility will provide needed space for chemistry and biochemistry research programs, enabling a rich laboratory experience for undergraduate and graduate students, as well as a safer, healthier environment in which to conduct research. The new facility will also allow for growth of the Center for Biologically Inspired Nanomaterials, an increase in energy-related research and education, and expansion of chemistry and biochemistry graduate programs. In addition, MSU has already entered partnerships with the private sector that involve scientists who will be housed in this new facility.

The Center for Bio-Inspired Nanomaterials (CBIN), established in July 2003, blends the efforts of five MSU researchers who are working on various aspects of nanotechnology, and other scientists who may join them. Directed by chemistry professor Trevor Douglas, the CBIN research group also includes David Singel and Mary Cloninger in chemistry, Yves Idzerda in physics, and Mark Young in plant sciences and plant pathology. CBIN research hinges on the discovery that protein viruses can be emptied and turned into ultra-miniature containers. The containers are so small that researchers talk about them as 1,000 times less than the width of a hair. Their properties are so unique that scientists say they can transform our understanding of everything from computer memory, satellites, and high definition TV to artificial hips and the treatment of tumors. "Nanoscience is a revolution," says Douglas. "It's going to fundamentally change technology." CBIN concentrates on two areas of the field: one involves magnetic materials and the other focuses on the delivery of medication to specific parts of the body.



EARTH SCIENCES

Dr. Brian Horton, a 1994 Master of Science graduate of the Department of Earth Sciences and currently Assistant Professor of Geology at UCLA, has been selected to receive the 2004 Donath Medal of the Geological Society of America. Known as the GSA Young Scientist Award, the Donath Medal is given annually to a young scientist (under 35 years old) for outstanding achievement in contributing to geologic knowledge through original research that marks a major advance in the earth sciences. Dr. Horton's research has focused on the tectonic controls on sedimentation in foreland basins of western North America, Bolivia, Tibet, and Iran. Dr. Horton was awarded the Donath Medal at the 2004 Geological Society of America Annual Meeting in November 2004.

Former Department of Earth Sciences graduate students are making significant contributions to snow avalanche science and prediction in the region. Chris Landry (M.S. 2002) currently serves as Director of the Center for Snow and Avalanche Science in Silverton, Colorado. Chris McCollister (M.S. 2004) and Spencer Logan (M.S. 2004) are avalanche forecasters at the Bridger-Teton National Forest Avalanche Center and Colorado Avalanche Information Center, respectively. Jeff Deems (M.S. 2002) is currently a doctoral student in the Department of Geosciences at Colorado State University. Their successes in the field point to the importance of the new snow science undergraduate option, the only one available in the U.S, and of the graduate program as one of the few snow science graduate research and education programs in North America.



ECOLOGY

Ecology professor Scott Creel's research on winter elk behavior was featured recently in a story on CNN.com. His research showed that it was hunger, not bravery, which was allowing wolves to walk right up to bull elk and eat them. Oblivious to danger at dinner time, bull elk in the Gallatin Canyon, Montana, are about six times more likely than females to be killed by wolves, says Creel. Creel and his team of researchers, which includes ecology graduate students John Winnie and Dave Christianson and Ken Hamlin with Montana Fish, Wildlife and Parks, originally thought the bulls ignored wolves because the bulls were "the big, bad dudes in town." Instead, the scientists learned that the bull elk are simply famished. Entering winter in much worse condition than the cows, they're desperately trying to cope with the weight they lost during mating season. According to Winnie, "They simply cannot stop grazing since they are already in such crummy shape." The researchers plan to continue their research at least three more years and expand their project to see how elk responses to predators affect calves.



Professors Bob Garrott and Jay Rotella are working on a long-term study of Weddell seals, funded by a five-year National Science Foundation grant. The Erebus Bay Weddell seal population study in eastern McMurdo Sound, Antarctica, began in 1968 and is one of the longest field investigations of a long-lived mammal in existence. Over the 35-year period of this study, over 16,000 animals have been tagged and 161,994 re-sighting records logged in the current database. Garrott and Rotella are building upon this foundation with new field initiatives to annually mark all pups born, replace lost or broken tags, and perform multiple mark-recapture censuses of the seal colonies. The study is an extremely valuable resource for understanding population dynamics of terrestrial and marine mammals with life-history characteristics similar to those of the Weddell seals.

AGRICULTURAL ECONOMICS and ECONOMICS

Professor David Buschena and master's student John Batastini are cooperating on the first extensive study of the effects of wolves on hunter opportunities, hunter success, and hunter demand. Utilizing statistics published by Montana Fish, Wildlife and Parks, their study focuses on elk, moose, and bighorn sheep—species that are both vulnerable to wolves and in high demand in Montana. Using statistical procedures, they estimate the effects that wolves have had on the number of permits issued, on the success rates of hunters, and on hunter interest in regions with established wolf populations. Buschena is an associate professor who earned his doctoral degree from the University of California Berkeley.



Recent census data indicating a decline in labor force participation among mothers of small children has prompted economics professors Wendy Stock and Christiana Stoddard to carefully examine the myriad of factors that influence labor market participation by mothers. Their analysis is designed to assess changes over time in factors and influences associated with mothers' labor force participation. They have engaged master's student Katie Genadek in an extension of the work that examines the relationships between divorce laws and mothers' labor force participation. Stock and Stoddard, along with Professor Susan Capalbo, are co-teaching a new seminar titled "Women in the Economy" for the University Honors Program.

Photo: NPS Photo

ENGLISH

The Department of English was a major sponsor of the conference of the Western Literature Association, held this past October at Big Sky Resort. Organized by Professor Susan Kollin, president of the WLA, the conference brought together more than 300 scholars on western literature and culture from around the world. Through scholarly papers and public readings, participants

sought to rethink the culture of the "new west" and its representations in literature, art, and architecture. This is the first time this national conference has been held in Montana. Dr. Kollin, who teaches courses in environmental cultural studies, western American literature, American Studies, and feminist theory, is the author of *Nature's State: Imagining Alaska*

as *the Last Frontier* and is currently working on a new book on "anti-western" fiction and film.

Beginning in February 2005, the English Department will be organizing a series of "salons" or book discussions to be held at Borders book store in Bozeman. Topics for these public salons will range from the works of Carl Hiaasen and J. R. R. Tolkien to the poets of the Beat generation. Participants will be asked to read one or more suggested books, and English Department faculty will facilitate the lively, in-depth discussions. The salons will be open to the public, with all residents of the area encouraged to attend and participate.



Photo: Big Sky Ski Resort

HISTORY and PHILOSOPHY

Two grant programs funded by the U.S. Department of Education are adding breadth and depth to Bozeman K-12 teachers' knowledge of American history. The Teaching American History (TAH) Program, entitled "From the World of Lewis and Clark to the World of Tomorrow," began in 2002 with a three-year \$992,000 grant. During the summer of 2004, the Bozeman School District and its partners received a second \$1,000,000 grant for the new "Telling Lives, Teaching Lives" History and Biography program, which is entering the first of three years. Directed by Robert Rydell, professor and chair of the Department of History and Philosophy, and Jim Bruggeman, principal of Irving Elementary School, the project is managed by L&S's Danice Roller (B.A. English, '00, M.A. History, '02).



"From the World of Lewis and Clark" and "Telling Lives" are comprehensive professional development programs in which American history content is the central focus. "From the World of Lewis and Clark" focuses primarily on themes of cultural contact and "Telling Lives" focuses

on themes of multiple perspectives by pairing the biographies and primary source documents of famous and not-so famous Americans. Both examine how different groups of Americans built the American republic across the centuries.

Both grant programs are possible due to partnerships among the Bozeman School District, the College of Letters and Science (the Departments of History and Philosophy and of Native American Studies), the Museum of the Rockies, and the National Council for History Education.

MATHEMATICAL SCIENCES

Department of Mathematical Sciences faculty members are working with scientists from around the world on two problems of interest to the U.S. Air Force. One project develops advanced numerical methods that aid in the analysis, design, and optimization of control systems for Micro Unmanned Aerial Vehicles. These tiny aircraft are used in intelligence gathering. The research focuses on the optimal placement of sensors and actuators for feedback control systems. The work includes collaborators from across the country in mechanical engineering as well as scientists at the Air Force Research Laboratory at Eglin Air Force Base in Shalimar, Florida.



The other project uses advanced numerical methods to correct for the turbulence-induced wavefront irregularities in extremely large ground-based telescopes. Without these corrections, the image resolution would be no better than that which Galileo obtained with his crude instruments more than 400 years ago. To obtain diffraction-limited resolution, the telescopes use adaptive optics, or AO. The computational challenges in AO for large telescopes arise when trying to integrate large numbers of sensors and actuators quickly and accurately. Other important applications of AO include laser weapons systems, secure laser communications, and human vision. These latter applications range from laser surgery to the treatment of retinal diseases to the understanding of the fundamental processes involved in vision. This work involves international collaborators from the Center for Adaptive Optics at the University of California Santa Cruz, the European Southern Observatory, Lawrence Livermore National Laboratory, and the Maui High Performance Computing Center.

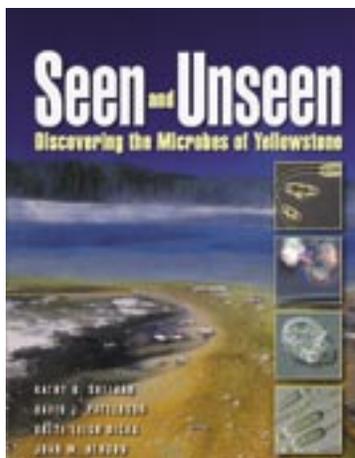
MICROBIOLOGY

Professors Michael Franklin and Al Jesaitis are collaborating on research focusing on how the immune system responds to microbial biofilm infections. The human immune system is usually adept at clearing bacterial infections. However, this protective system has difficulty clearing infections when the bacteria are associated with surfaces and growing in microbial communities known as biofilms. When bacterial biofilms infect artificial implant devices, it is almost impossible to treat these infections with antibiotics. In addition, the human immune response is not able to resolve these infections and the implant device must be removed. The goals of these studies are to identify the relevant factors and use them to develop new strategies to treat bacterial biofilm infections.

Kathy Sheehan, with the WWAMI Medical Education Program, and Joan Henson, professor of microbiology, along with other collaborators, have compiled a guide to the microbes of Yellowstone National Park. *Seen and Unseen: Discovering the Microbes of Yellowstone*, to be published spring

2005 by Globe Pequot Press, takes readers on a tour of Yellowstone's microbial flora and fauna. Photographed using state-of-the-art technology, each microbe pictured in the book is presented together with photographs of the environment in which the organism is found. Readers will discover the amazing heat-tolerant bacteria that color many of the park's scalding hot springs, the microbes that allow a

bison to digest grass, algae that thrive in acid, and microbial mats in every color of the rainbow. *Seen and Unseen* is a unique approach to the natural history of Yellowstone.

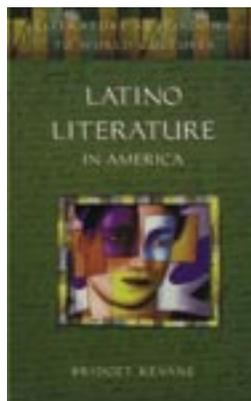


MODERN LANGUAGES AND LITERATURES

Latino Literature in America, by professor of Spanish Bridget Kevane, was published in 2003 by Greenwood Press. Reflecting the growing awareness of the impact of Latino writers on the literary scene, works such as *House on Mango Street*, *Line of the Sun*, *Bless Me Ultima*, and *In the Time of Butterflies* are becoming frequently assigned readings in academic settings. Kevane's book surveys the contributions of eight notable Latino writers, including Julia Alvarez, Sandra

Cisneros, and Oscar Hijuelos. Kevane illuminates such themes as acculturation, generational differences, immigration, assimilation, and exile. Language, religion, and gender issues are explored against the cultural backdrop, along with the social impact of such historical events as "Operation Bootstrap" in Puerto Rico, the early days of Castro's Cuba, and the Trujillo Dictatorship in the Dominican Republic. Kevane, who grew up

in Puerto Rico, is also co-editor of *Latina Self-Portraits: Interviews with Contemporary Women Writers* (University of New Mexico Press, 2000).



Professor Chris Pinet is in his sixth year as Editor in Chief of *The French Review*, and has just been elected to a third, three-year term. The *Review* is the official journal of the American Association of Teachers of French and has the largest circulation of any scholarly journal of French studies in the world. With six issues annually, the *Review* publishes articles and reviews on French and francophone literature, cinema, society and culture, linguistics, technology, and pedagogy.

NATIVE AMERICAN STUDIES

Professor Emeritus Henrietta Mann and Professor Wayne Stein attended the opening ceremonies for the National Museum of the American Indian in Washington, D.C., in September 2004. The museum is the first museum in the country dedicated exclusively to Native Americans and the first to present all exhibitions from a Native viewpoint. "Our cultures are still vibrant and alive and we bring them with us today. This museum stands as that symbol, that our spirit is indomitable," said Mann. Mann and Stein are both members of the museum's Board of Trustees; Mann currently serves as vice-chair of the board.



Department head Walter Fleming, and Professors Lisa Aldred and Wayne Stein participated in a five-week faculty and curriculum development seminar in Peru and Guatemala this past summer. The trip, organized by Lynette Chandler and Scott Friskics of Fort Belknap Tribal College, was funded by a \$60,000 Fulbright grant. Chandler received both her bachelor's degree (English '00) and master's degree (Native American Studies '02) from MSU. Participating faculty visited the great cultural centers and archaeological sites, such as Machu Picchu in Peru and Tikal in Guatemala, and met with local scholars. The grant's objective was to facilitate a deeper understanding of the similarities between the religious, cultural, and philosophical traditions of the Incas, the Mayas, and the North American Indians. "We wanted to look at other indigenous communities so we could internationalize our Native American studies classes in Montana," Chandler said. The trip will help participants develop new courses and seminars, and enrich existing courses.

Photo: Jeff Tinsley

PHYSICS

Students in the Space Science and Engineering Laboratory (SSEL) are building the first satellite ever in Montana as part of the MEROPE project. The entirely student-run project is part of the Montana Space Grant Consortium. The satellite will be launched from Kazakhstan in mid-March, 2005, using a converted Russian SS-18 ballistic missile, and will then be operated by students from a ground station at MSU. MEROPE, which is the name of a star in the Pleiades cluster, is an acronym for Montana Earth Orbiting Pico Explorer. The MEROPE satellite will repeat the science mission of Explorer 1, the first U.S. satellite, which was sent to space February 1, 1958. The satellite will hold complex communication and scientific equipment, but will not weigh more than 2.2 pounds. The MEROPE satellite will circle the earth at about 15,600 mph and will pass over Montana twice each day. When the satellite is overhead, students at a Bozeman mission control center will have between 10 and 15 minutes to download data and send new instructions to the craft.

According to Dave Klumpar, professor of Physics and SSEL director, the purpose of MEROPE is not so much astrophysical discovery as it is to provide space-science students with hands-on experience building sophisticated hardware. "There's a tremendous market for young, new talent," he said. "The space business is quite multifaceted, from large to small manufacturers."

The satellite, including launch, is projected to cost less than \$50,000 and is entirely funded through government and private grants.



POLITICAL SCIENCE

Thanks to a new scholarship program for students working on congressional internships in Washington, D.C., political science major Tony Cerise spent the



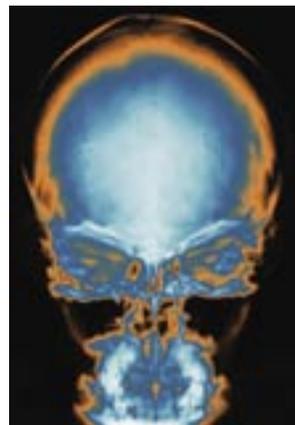
summer working with the Senate Finance Committee. In addition to attending numerous committee hearings, Tony was a regular at weekly staff meetings, briefings, and meetings with lobbyists. The research component of his

internship involved preparing reports as a member of the staff "Tax Team" that compiled an issue briefing binder on "Taxes and Terrorist Financing," and as a member of the "Health Policy Team," for which he researched the costs, benefits, and impacts of the proposed temporary Medicare Prescription Drug card. Tony said of his experience, "My work over the summer allowed me to use a great deal from my course studies as well as the opportunity to finish my degree with a strong experiential learning experience."

The Local Government Center, under the direction of Jane Jelinski, convened the Montana Mayors Academy held at MSU in February and attended by 37 of Montana's elected mayors. The center also published an issue of the *Montana Policy Review* on the theme "Creating a Culture of Ethics and Integrity in Montana's Law Enforcement Community" for Montana's Sheriffs and Peace Officers Association. In May, the Local Government Center's annual Municipal Institute was held in conjunction with an Elected Officials workshop and another Montana Mayors Academy in Billings. One hundred elected municipal officials, 92 city clerks, treasurers, and finance officers, and 50 city attorneys attended this event.

PSYCHOLOGY

When our attention is focused elsewhere or is divided among several tasks, our automatic habits tend to dominate performance. For instance, a person might purchase some gas from an attendant and then drive off without filling the tank, or deposit quarters into a laundry machine, close the door, and push start without actually putting the clothes in. Dr. Keith Hutchison, who joined the Psychology faculty in 2003, runs an Attention and Memory lab at MSU in which undergraduate and graduate students help conduct research on this phenomenon. They are designing ways to test the function of the brain's pre-



frontal cortex, an area largely responsible for our ability to multi-task and pay attention. Collaborative research with colleagues from Washington University in St. Louis indicates that these kinds of tests may prove valuable in the early detection of Alzheimer's disease.

Professor Richard Martell received an \$86,820 grant from the National Science Foundation for a research project entitled "From Bias to Exclusion, Why So Few Women at the Top?" The project, in collaboration with

Department of Mathematical Sciences professor Jim Robison-Cox, started in June 2004 and continues through June 2005. Relying on computer simulation methodology, the aim is to understand how gender bias leads to the exclusion of women at senior levels of management. His previous research on the subject was recently mentioned on the ABC News website in an article titled, "Obstacles to Women's Success in Academe." Martell has also published research on methodological improvements in the measurement of stereotypes and detection of bias in work performance evaluations. Currently, he is investigating the nature of "false memory," in which people report stereotypic behaviors of women and people of color that, in reality, were not observed.

SOCIOLOGY AND ANTHROPOLOGY

Sociology senior Jenny Folsom, working on her senior thesis, is examining the Gender Development Inequality Index (GDI), a composite index used by the United Nations and the World Bank to measure development as it relates to gender disparity. Currently, the GDI measures development according to levels of education, income, and healthcare. Folsom, whose research focuses on African countries, has developed a revised index that takes into account factors that more closely reflect African values, issues, and ways of life. Supervised by Professor Steven Swinford, she plans to examine how the rankings change when her index is applied and how those changes might inform aid to developing countries. Folsom will present her findings at the Pacific Sociological Association conference in April 2005.

Professor Seth Feinberg has developed an undergraduate study-abroad course, "Exploring Slavery, Colonialism, & Racial Inequality." The fall 2004 course, worth three credits, offers a sociological examination of slavery and contemporary manifestations of racism in the United States and globally, and culminates in a two-week study abroad experience in Ghana, West Africa. The trip to Ghana will include visits to rural and urban areas, meetings with Ghanaian scholars, trips to wildlife preserves, and tours along the Slave Coast. According to Feinberg, Ghana was an obvious choice for the course given the history of colonization and slavery along the coast. Ghana is also the home of the contemporary Pan-African movement.



SCHOLARSHIP ESTABLISHED IN MEMORY OF FORMER MSU PROFESSOR

Robert Vance Thurston was a man who laughed loud and worked hard; he had an unwavering social conscience, and he dedicated his life to making the world better for future generations. While teaching at both the high school and university levels, he encouraged students to pursue careers in environmental science.

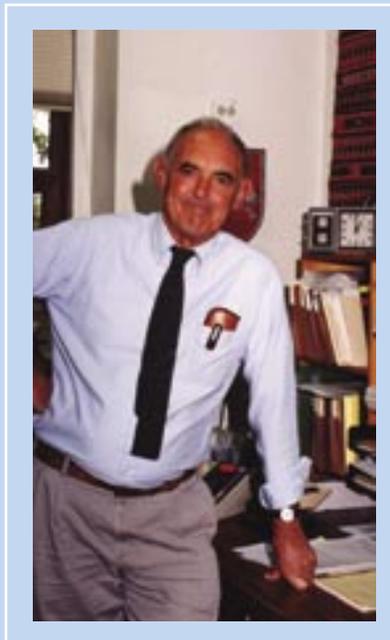
Thurston was the founding director of the Fisheries Bioassay Laboratory at Montana State University, and a research professor in the Department of Chemistry & Biochemistry.

“Dr. Thurston was a tireless advocate of scientifically sound environmental standards, donating his time to countless organizations involved in the development of environmental regulations. He believed that knowledge should be shared at all levels,” said Tom Willingham, a friend and former colleague of Thurston at the U.S. Environmental Protection Agency, who set up the Robert Vance Thurston Memorial Scholarship. Willingham, an environmental toxicologist, now conducts research in the Department of Microbiology at MSU. “Dr. Thurston was a giver and the best way for me to remember him is to ensure that his spirit of sharing knowledge continues.”

The Thurston Memorial Scholarship will be granted to an undergraduate student with an environmental science major and a desire to help others. Majors in six L&S departments— Microbiology, Cell Biology & Neuroscience, Ecology, Earth Sciences, and Chemistry & Biochemistry—will be eligible for the award.

Thurston earned his doctorate in zoology from

MSU and also held degrees in economics, science education, chemistry, and limnology. Before joining the MSU faculty in 1971, he taught at the University of Maine-Farmington, the University of Wisconsin, and the Massachusetts Institute of Technology.



A water quality expert and an internationally recognized authority on ammonia toxicity, Thurston’s research specialties also included fish physiology, aquatic toxicity testing, and water quality monitoring.

Dr. Thurston was very active in international environmental research projects, most prominently in the Baltic republics, the former Soviet Union, and Mexico. He helped establish the first U.S.-Lithuania environmental research and education agreement in 1989, while Lithuania was still part of the Soviet Union, and brought many Lithuanian researchers to MSU for technical training.

Thurston died on February 16, 2002. At the time of his death, he was the project manager of a North Atlantic Treaty Organization (NATO) grant to conduct field studies in the Baltic republics, and one of the principal leaders of a 19-nation NATO study on nutrient loadings to rivers and estuaries.

For more information, or to contribute to the Thurston Memorial Scholarship, contact Kathleen Langenheim by phone (406-994-4288) or email (katlang@montana.edu).

Photo: Courtesy of Thurston Family

THE DEAN'S CIRCLE

We are grateful to all of our alumni and friends who have supported the programs, faculty, and students in the College of Letters and Science with lifetime gifts that total \$10,000 or more as of June 30, 2004.

Abbott Labs
 Glenn and Lee Allinger
 American Indian Education Foundation
 ASARCO Incorporated
 Bell Jones Quinisk & Palmer
 Big Sky Western Bank
 Lila M. Bishop
 William and Corinne Bryant
 David and Marjorie Burgan
 Harlan and Terri Byker
 Cinnabar Foundation
 Liz Claiborne & Art Ortenberg Foundation
 Gerald and Barbara Hand Clow
 R. A. and Margaret Craig
 Patrick and Vicki Davison
 Judson and Elisabeth Dayton
 Elise R. Donohue
 Dow Chemical Company Foundation
 Dow Corning Corporation
 John and Patricia Drumheller
 Richard and Ann Dye
 Energy Laboratories
 William H. Fay
 First Interstate BancSystem Foundation
 Arthur Fry
 Margaret and Paul Gessaman
 Irene and Arthur Grad
 Robert H. Graham
 Greater Montana Foundation
 Karen Greytak
 Margaret M. Hausser
 William Randolph Hearst Foundation
 Susan Scott Heyneman Foundation
 Susan and John Heyneman
 Larry Johnson, ILX Lightwave Corporation
 Algardas and Ellen Jesaitis
 Lucy R. Jones
 Sheldon and Audrey Katz
 The Sheldon and Audrey Katz Foundation, Inc.
 Robert S. & Grayce B. Kerr Foundation
 Joan Kitchens
 Mary Kopriva
 Roger Lang, Jr.
 Laura Jane Musser Fund
 Anadel S. Law
 Chi-Tang and Yen Li
 Whitney and Elizabeth MacMillan
 Mrs. Robert W. Martin, Jr.
 Thomas and Laurie McGuane
 Microsoft Giving Campaign
 John and Phoebe Montagne
 Montana Community Foundation
 New England Aquarium
 Ortho Pharmaceutical
 Andrea L. Pagenkopf
 Pew Charitable Trust
 Piper Family Fund - Minneapolis Foundation
 Stuart and Marjory Robertson
 Phil and Lee Rostad
 Joseph and Miriam Sample
 Homer A. & Mildred S. Scott Foundation
 James and Christine Scott
 Simms Fishing Products
 Edmund A. Stanley Jr.
 Mary P. Stegner
 Sun Ranch, LLC
 Anne E. F. Sweeney
 Robert and Janet Swenson
 Tektronix Company
 William and Gwen Tietz
 Tordik Wildlife Foundation, Inc.
 Virginia M. Walker
 Edward S. Walsh
 Mary H. Walter

Irving L. Weissman
 Albert and Susan Wells
 WEM Foundation
 Charles A. Weyerhaeuser Memorial Foundation
 Charlotte & Edward Wheeler Foundation, Inc.
 James H. Wilder

ANNUAL GIVING

Thank you to all of our alumni and friends who have supported the College of Letters and Science in the past year between July 1, 2003, and June 30, 2004.

\$10,000 AND OVER

Abbott Labs
 American Indian Education Foundation
 Larry Johnson, ILX Lightwave Corporation
 Sheldon and Audrey Katz
 Anne E. F. Sweeney
 Tektronix Company

\$5,000 AND OVER

Charlotte Johnson Fund
 *Cinnabar Foundation
 Elise R. Donohue
 John E. Freyer
 *Margaret and Paul Gessaman
 Julie J. Kidd
 *James H. Wilder

\$1,000 AND OVER

Melvin and Nancy Atwater
 Earl and Alma Baker
 Brokaw Family Foundation
 Burlington Northern
 *Susan L. Dougherty
 Exxon Mobil Foundation
 Fidelity Investments Charitable Giving
 Arthur Fry
 Karen Greyak
 Anne Freyer Harrill
 Manford and Mary Hotchkiss
 Rebecca Hurst
 Mark D. Johnston
 Frederick and Josephine Knowlton
 Land Title Guarantee Company
 Minneapolis Foundation
 Iris Model
 Sandra Roe
 Samuel and Carolyn Rogers
 Steven Rovig and Brian Giddens
 Barbara Rumsey
 Sener Johnston Family Fund
 Farwell and Linda Smith
 Sara Jayne Steen
 Elizabeth Stoddard
 Technisonic Studios Inc.
 William and Gwen Tietz
 *Charles and Dorothy Tordik
 *Tordik Wildlife Foundation, Inc.
 Vishay
 *Virginia M. Walker
 Xerox Foundation
 Thomas W. Zadick

\$500 AND OVER

Nina and Archibald Alexander
 Gordon Bakken
 Steve and Judy Bayless
 Bibler Foundation
 Bill and Pamela Bryan, Jr.
 *David and Marjorie Burgan
 *Robert D. Chew
 Thomas and Donna Clarke
 Howard and Sharon Davis
 *Ingrid and Leo DeGreef
 Robert and Martha Eng
 Nancy Farner
 *Irene and Arthur Grad
 David J. Houghland
 *Jeffrey and Belinda Johnson
 Richard and Marjorie Johnson
 William and Colleen Lee
 Lockheed Martin

John R. Lund
 Montana Environmental Health Association
 Nuclear Imaging of Idaho Incorporated
 Mary and John Palmer
 Jean Robinson
 Lee B. Rostad
 Ryan's Greater Montana Leasing Corporation
 Paul J. Schuele
 Timothy and Sally Schultz
 Clay and Colette Skurdal
 Kenneth and Kristi Spain
 Arthur and Mary Vender
 Dana and Robert Ware
 John and Judith Weigand
 *Irving L. Weissman
 *Robert F. Williams

\$250 AND OVER

Eugene and Beverly Allen
 Denise Andres
 *Bruce L. Bachman
 Clay and Mari Baker
 *Richard and Virginia Bell
 John and Joy Birkeland
 Arthur H. Bosworth II
 Jeffrey B. Carpenter
 Donald A. Childress
 Mrs. Glen F. Cole
 Brian and Shelly Colony
 Micky and Kris Diede
 L.C. Fulenwider III
 Gloria S. Garrison
 *Marc Gomez
 Carol Greer
 David and Marilyn Haas
 *Chester and Margaret Haun
 Gregory and Connie Johnson
 *Willis and Dorothy Johnston
 *Mark and Kathy Juedeman
 Kevin T. Kilty
 Stephen J. Knapp
 *Mary J. Kujawa
 *Lori S. Layman
 Jack and Mary Lentfer
 Samuel and Kathy McCullum
 Sue Monahan
 Pierce and Margaret Mullen
 Patrick and Debbi Murray
 Thomas W. Mussehl
 Andrew and Sally Norris
 Old Republic National Title Insurance Company
 Cindy G. Pallatino
 Sam and Wanda Pearce
 Clem C. Pellett
 Harold D. Picton
 Sackett Family Fund
 Gary and Darlene Sackett
 Donald A. Singer
 James G. Webster IV
 Daphne Minton White and Scott White
 Brian R. Wilkinson
 James A. Wilson

UP TO \$250

ABM Corporation
 Bernard and Carita Adams
 Bernard and Paulette Adams
 David C. Adams
 David and Marilyn Aden
 Patricia M. Adkins
 William and Joanne Adkins
 *Perry and Kimberly Adkison
 David and Christine Agnew
 *Virginia L. Aho
 Air Liquide America Corporation
 Katherine and Richard Aldrich
 Marcee J. Allen
 Tracie and Keith Allen
 Marti Alter
 Andrea Alvarez
 Kurt L. Alt
 American Express
 *Edward and Stella Anacker

Bradley H. Anderson
 Bruce and Kathleen Anderson
 Sara J. Anderson
 Scott and Alice Anderson
 Shiell and Kendra Anderson
 *Thomas P. Anderson
 Virginia K. Anderson
 Bonnie R. Andrew
 Denise M. Anstegui
 Amy J. Archer
 Scot L. Armstrong
 Shane and Nichole Arthur
 Ethelind E. Austin
 David and Karen Ayers
 *Kenneth and Elaine Baarson
 Jeffrey and Colette Bailey-Darland
 Gary L. Baker
 *Graeme L. Baker
 *Vaughn L. Baker
 M. L. Chad and Shannon Bakich
 Margaret and Robert Balke
 Ball Corporation
 P.D. and Greta Balstad
 Daniel P. Bancroft
 Farrell and Bernice Bandow
 Susan Banet
 Jennifer Banghart
 Shigeo Banks
 Dutch and Pam Bansbach
 William and Bonnie Barger
 *Thomas W. Barnhart
 David R. Barnidge
 Carol and Anthony Barone
 Karen E. Bartelt
 Darryl B. Barton
 Curtis M. Batt
 Shawn and Patricia Bayless
 W. David and Shelley Bayless
 Bayview Dental
 Marcia Beaumont
 Helen M. Bechtel
 Todd Beck
 *Marjorie Beckman
 Becton Dickinson Company
 Wayne and Darcy Belgarde
 Daniel and Nancy Belk
 Linda Bell
 Richard and Lise Bellmar
 Kevin and Nicole Benge
 Mark D. Benner
 William R. Bentley
 James and Janet Bergum
 Nancy and Donald Bertrand
 Edith R. Best
 Kathleen D. Biehl
 Heather L. Bienvenue
 Billings Family Eyecare
 Kevin M. Billingslea
 Ronald and Mary Billstein
 Joan P. Birkland
 *Gary K. Bissonnette
 Michael and Jacqueline Bjorklund
 Geoffrey A. Black
 Kristi V. Blackburn
 John and Ilene Blanchard
 Robert K. Blasing
 Richard and Virginia Blevins
 Andrew W. Boehm
 *Boeing Company
 *Shawn R. Bohannon
 John and Nancy Bohyer
 Marleigh A. Bollinger
 Karen M. Booker
 Daniel R. Bornhoff
 Glenn and Kathleen Bos
 Kenneth and Sandra Bowers
 *Michael and Cristi Boyd
 Steven and Pamela Boyer
 Richard Q. Boylan
 Brad A. Boyland
 Bruce A. Braaten
 Dennis P. Brady
 Michael D. Brand

* denotes those individuals who have faithfully supported the College of Letters & Science every year for five years or more.

Robert J. Brandle
 George and Karen Bray
 Arthur and Mary Jean Brazda
 Robert F. Brebrick Jr.
 Richard and Monica Brelsford
 Julia F. Brethower
 Scott and Anne Breum
 Bristol Myers Squibb
 *Ruth Brocklebank
 Charles and Sally Broughton
 Alan G. Brown
 Donald J. Brown
 Geraldine Brown
 C. Willing and Mary Browne
 Todd M. Bruck
 *Cheryl and Mark Brunson
 Ray and Pamela Brunson
 Amey Buchanankadri
 Sara and Jeremy Budge
 David and Connie Bull
 Ronald and Sharon Burghard
 Maurice and Polly Burke
 Robert A. Burt
 *Corlann G. Bush
 Theresa C. Bushman
 Paul and Jane Butkay
 *Dorothy E. Butkunas
 Tommy and Nancy Butler
 Tanya W. Call
 James and Marty Campbell
 *Milton and Marguerite Campbell
 Roy B. Campbell
 George M. Canon
 Lewis and Julie Card
 Jeffrey and Michelle Carda
 Kari L. Cargill
 Edith J. Carlson
 *Tim and Debbie Carlson
 Lynda M. Carroll
 Richard and Mary Carter
 Louis and Caye Carufel
 Kathryn and Christopher Catlett
 John and Judith Cauhorn
 David and Maria Caussyn
 *Joseph E. Cavanaugh
 Julie and James Cerenzia
 Scott and Diane Chapman
 Jack and Vanessa Childress
 Trucilla J. Chin
 Chip 'n Away LLC
 John and Ellen Christensen
 Larry and Jane Christensen
 Leo and Carolyn Clabaugh
 Joel and Terri Clairmont
 Christine Clark
 Malcolm and Leta Clark
 Julie C. Clay
 Franklyn and Janice Clikeman
 Louis and Sue Clinton
 Juliann and Ray Clum
 Matthew T. Cochenour
 Michael and Stephanie Coleman
 Leonard G. Collins
 Bradley R. Colman
 Duane C. Colmey
 Stanley and Chyrel Coloff
 Thomas Combs
 Commonweal Consulting, LLC
 *Mary Ann and R. A. Comstock
 Gary M. Connelley
 Conoco Phillips
 Willis M. Conover
 Thomas and Nancy Cook
 Gerald M. Cooper
 Pamela E. Cooper-Cook
 Richard R. Copp
 Martha H. Cordell
 Sandra L. Corey
 Ann and Joseph Costello
 Marni and Ed Cota
 Robert B. Cotner
 *Thomas and Judy Cowan
 Chauna and Anthony Craig

Laurel Crary
 Dustin Craven
 Rhonda P. Craver
 John M. Creamer
 Jason and Jody Creasman
 Karelee M. Creek
 Peter and Ann Crites
 *Wayne and Judith Craft
 Wendall and Floy Cross
 Charles and Virginia Crowley
 Eddy A. Crowley
 Peter M. Cudlip
 Craig and Teri Cummings
 Mark and Lisa Cunnane
 D. D. Bigge Incorporated
 *William J. Dakin
 Michael and Julie Dalsoglio
 Mark and Lois Daniels
 *Dorothy C. Dannis
 Robert E. Danskin
 Paula F. Darejeh
 *George and Shirley Darragh
 Jason and Katie Daughenbaugh
 David and Diana Davallou
 Clifford N. Davis
 Merrell C. Davis
 Wilbur W. Deatley
 Gregory D. Deboer
 Anita and Gregg Declue
 David and Miriam Delap
 Scott and Jodie Delay
 Frank and Virginia Deleo
 *Robin and John Denick
 Sandra P. Dennehy
 Harry and Jenette Denson
 Jennifer and Alton Devoe
 Todd A. Devries
 Marja and P. Dickard
 Robert and Lynne Dillon
 Roselyn Diloreto
 Cynthia A. DiMarco
 Danielle Dire
 Eric J. Dirkes
 Mary Kay Dissel
 Dana P. Dixon
 *David E. Dobb
 Margaret D. Dodds
 Matthew J. Domek
 Robert and Wanda Domrose
 Jessica Doney
 Arnold and Terri Dood
 Sara J. Dougherty
 Morgan and Catherine Douglas
 John and Vera Doull
 Dow Chemical Company
 Martha A. Dow
 *Darrell and Natalie Downs
 Carrie L. Doyle
 Anne E. Draper
 Patrick and Page Dringman
 Thomas and Ruth Drummond
 Sandra I. Dunkel
 Roy and Marilyn Dunn
 *Lawrence and Mary Durland
 Lizabeth E. Dybdal
 Drew and Sharyn Dye
 Josh Earhart
 Robert and Cathy Eastwood
 Michael and Kathleen Eaton
 Cindelyn Eberts
 Heather A. Edens
 Jacey J. Edwards
 John and Toby Edwards
 Maurice and Donna Edwards
 Joseph and Mike Egan
 Jeffery and Gayle Eidson
 Robin J. Elbardawl
 Joan M. Eliel
 Penny J. Eller
 Katherine Ellsworth
 Mildred and Richard Elick
 Andrew and Diane Elting
 Sandra J. Emrick

Mark A. Engen
 Gary A. Enneberg
 Ensorfrio Company
 Glenn and Janet Erickson
 Jeffery and Jennifer Erickson
 Kazuyo and Paul Erickson
 Richard T. Erickson
 Daniel and Janey Eudaily
 *Exxon Mobil Retiree Matching Gift Program
 Facilities Contracting Incorporated
 Thomas and Ana Faragher
 Mark and Lisa Ferestad
 Michael J. Ferris
 Jed Fife
 *William G. Fillion
 Richard J. Fink
 John and Linda Firebaugh
 First Interstate Bank
 Michael and Virginia Fischer
 John W. Fisher, Jr. and Helen Strickland
 Walter and Rochelle Fleming
 Ken and Nancy Flikkema
 *Jolene V. Forbes
 Barry and Margaret Fox
 Sherrod and Janet France
 Perry G. Francis
 Michael and Angela Frandsen
 Holly J. Franz
 Richard and Sally Fredericks
 Edmund and Tracy Freeman
 *Eugene and Paula Freeman
 *Leslie and Susan Freeman
 Richard and Virginia Frey
 Steven and Jennifer Frey
 Frank and Jo-El Freyer
 *Joseph N. Fritz
 Lester and Helen Fryslie
 *Patricia A. Gallaher
 Gallatin Tops
 Craig and Janet Gardiner
 William Gardner and Anne Tews
 Ryan A. Garrity
 *General Motors Corporation
 Rita Gergen
 Kobi L. Gibbs
 James and Danielle Gilbert
 Timothy I. Gilchrist
 Thomas J. Gill
 Phyllis and Steven Gilreath
 Marshall and Elaine Gingery
 Patrick A. Glancy
 Gary L. Glasby
 GlaxoSmithKline Foundation
 Timothy A. Gleason
 *Pati M. Glee
 Cristopher and Diana Goldy
 *Donna and Gordon Gollehon
 Edie and Jonathon Gonitzke
 Thomas and Elizabeth Goodrich
 James W. Gordon
 Mark W. Gorges
 Victor and Margaret Gorshe
 Kate J. Graham
 Heidi M. Graham-Godwin
 *Allen and Kim Grammens
 Marilyn and Richard Granell
 Colin J. Gransbery
 James and Karen Gransbery
 *Darren and Michelle Gray
 *Steven and Julie Gregoryk
 Ellis and Mary Greiner
 Phillip and Barbara Griffin
 Earl and Dorothy Griffith
 Logan and Nikkei Grimesey
 *Terry and Lorrie Grotbo
 Andrea D. Grover
 Stephen D. Gullings
 Donald R. Gunderson
 *Melanie Gustafson-Ropski
 Gary E. Guthrie
 Cecil P. Haight
 Judith A. Halm
 Teresa M. Halvorson

Gary and Teresa Hamburg
 *Doris and Edward Hames
 Aaron L. Hamilton
 Jane M. Hamilton
 Joseph Hamlin
 Kenneth L. Hamlin
 Loris and Louise Hamlin
 James and Mary Jo Hamling
 Rodd A. Hamman and Robin A. Wolff
 Bruce and Beth Hammell
 Fay Hansen
 *James and Sharon Hansen
 Mayme A. Hansen
 Michael and Krystal Hansen
 Mark and Kathleen Hanson
 Marvin L. Hanson
 Thomas and Peggy Hanson
 Janet and Douglas Hardy
 John and Lorraine Hargrove
 Stephen S. Harlan
 Carol A. Harrison
 Jennifer L. Harrison
 Marie A. Harrison
 Harry D. Harsha
 Ray and Sandra Hartman
 Mark and Ava Harwood
 Michael L. Haupt
 Daniel B. Hawkins
 Kevin A. Hayes
 Robert C. Hazelton
 George G. Hazen
 *HB Fuller Company
 Brian and Gail Heath
 Bruce and Joyie Heath
 Bruce and Gloria Heath
 Jan L. Heath
 Lloyd G. Heavner
 Daniel and Jenny Heckathorn
 Karen and Steven Hedden
 Donald and Ardythe Hedges
 *Marlene J. Hedrick
 Linda L. Heidema
 *William F. Heinecke
 Lisa and Richard Held
 Barbara J. Henderson
 Gordon and Janet Hennessee
 Mark D. Henry
 Laura K. Henthorne
 James F. Hereford
 Cicki A. Herren
 Aemi F. Herrera
 Cecil and Bettye Higgins
 Bernard D. Hildebrand
 Corey and Heidi Hill
 Maurice Hilleman
 Jeffrey M. Hindaoin
 William and Carol Hodgson
 *John C. Hoff
 *Donald and Ann Hoffmann
 Jefferson and Marita Holder
 Don and Gayle Holland
 A. Ramona Holt
 *Laura L. Holte
 Tom Hom
 Charles and Vicki Hone
 *Jeffrey and Dianna Hooker
 Erin M. Hoover
 George M. Hoppenbeck
 *Thomas and Laurie Hornung
 Eugene and Patricia Horton
 Laura and Timothy Horton
 Harold and Leona Hougardy
 Clifford and Evelyn Houk
 Tammy L. Howland
 Bruce R. Howard
 Kary D. Howard
 Raymond H. Howard
 Christine and Rod Howell
 Hong Huang
 Michael S. Hudson
 Donald and Leslie Huffman
 Charles and Patricia Hughes
 Gary and Lorie Hughes

DONOR RECOGNITION

Jean L. Hughes
 Jeffrey and Cheryl Hunt
 Susan K. Hunter
 Robin L. Hurd
 *David and Elsie Hurst
 Robert and Elaine Hurst
 IBM
 *Mary C. Imhoff
 Glenn R. Ingram
 Bonnie R. Iverson
 Wayne D. Iwen
 Kris A. Jabs
 Dennis and Elizabeth Jackson
 Gordon M. Jackson
 Julie A. Jackson
 Larry and Patricia Jackson
 Tamra L. Jackson
 Michele J. Janota
 Michael and Amy Jaraczkeski
 Paul and Suzanna Jefferis
 Edwin and Kari Jenkins
 Elizabeth C. Jenkins
 James and Debra Jensen
 Lois Jeske
 Frederick and Kristen Jessett
 Carl and Victoria Johnson
 Coburn R. Johnson
 Corey and Monica Johnson
 Dorothy R. Johnson
 Harold F. Johnson
 Hilary M. Johnson
 Howard E. Johnson
 Joseph K. Johnson
 Melissa Johnson
 *Hugh and Mary Johnston
 Robert and Arlene Jonas
 Jack D. Jones
 William and Elizabeth Jones
 *Ronald and Geraldine Jovanovich
 Lynn and Elizabeth Kaeding
 Gerald and Connie Kaiser
 *James and Marilyn Kane
 Stephen and Diane Kane
 John P. Kanouff
 Jason A. Karp
 Gregory and Wendy Kastelitz
 Wayne F. Kasworm
 Henry and Marilyn Kathrein
 Martha H. Kauffman
 Dale M. Kellogg
 Michael and Caroline Kelly
 David and Karen Kelsey
 Karen and Bryan Kelsey
 *William and Doris Kelso
 Donald and Lois Kenczka
 Darrin and Leann Kenelty
 David and Heidi Kennedy
 Ann E. Kenny
 Scott D. Kerr
 David and Janice Kessner
 Kenneth S. Keyes
 Kristina S. Kezar
 Amy L. Kieke
 Jean and Alan Kiesel
 Mary K. Kimmet
 Tanna M. Kincaid
 Constance R. King
 Kurt E. King
 Dawn K. Kingmenzner
 *Jerry L. Kinkade
 Teresa M. Kinley
 Daniel R. Kinshella
 William R. Kirchhoff
 Robert and Elizabeth Kissell
 Robert L. Klatt
 Gail D. Klofstad
 Joseph J. Kmetz
 Amy S. Knisely
 Joseph and Laura Kolwyck
 Thomas J. Komberec
 Jefferson Kommers
 Nicola M. Kouttab
 Kimberly A. Kradolfer

Volker Krasemann
 Rita M. Kraus
 James and Marilyn Krause
 Bradley D. Kremensek
 Lori G. Kronebusch
 Peter and Patricia Kuntz
 Laurell L. Kunzie
 Herbert C. Kussman
 Janice K. Lacey
 *Robert and Grace Lacy
 Bruce and Cindy Lamb
 Michael F. Lamb
 Danny and Sophia Lambros
 Vida Landa
 George and Kelly Landle
 Kevin and Sandra Lane
 Robert and Valencia Lane
 Esther Lanford
 Kathleen and John Langenheim
 Langhorne Associates
 *John and Mary Langhorne
 Loren P. Lannan
 Scott and Lisa Lannen
 John and Jody Larned
 Elizabeth and John Larsen
 *Leif J. Larson
 Chester and Frankey Latcham
 Patricia J. Lauer
 Cory and Carrie Lawrence
 Morgan and Mindy Leach
 Peter D. Leary
 Lane and Katherine Ledbetter
 Carl J. Legleiter
 Carl H. Lehfeldt
 Diana J. Lehfeldt
 *David C. Lehwalder
 *Margaret and Tony Lekse
 *Russel and Susan Leland
 Terry L. Lemley
 John and Kaye Lemon
 Andrew D. Leonard
 Scott and Teresa LeProwse
 Michael D. Leslie
 Julie A. Lethert
 James and Ruth Ley
 Karen and Calvin Lien
 Satinee S. Lightbourne
 George A. Liknes
 Robert J. Lippencott
 James H. Livers
 Barbara and Stephen Loewen
 Susan K. Logsdon
 Ivan and Connie Lorentzen
 Tim A. Lorenz
 John and Sara Loss
 Allan and Nancy Lovaas
 William M. Lowney
 Arthur W. Luedeke Jr.
 Susan M. Lueneburg
 Bruce A. Lund
 Shannon and G. Thomas Lund
 *Sue Ellen Luptovic
 *Dennis J. Lutz
 Shelly and Charles Lynch
 *Jean B. MacInnes
 Richard and Barbara Mackie
 Janice K. MacPherson
 Andrew C. MacRae
 John and Kimberly Madsen
 Jacqueline H. Magnant
 *Susan L. Main
 *Brenda and Jerry Majdic
 John W. Majerus
 Jeffrey and Janey Maki
 Jerry A. Malmo
 Webb Mandeville
 *Kirk P. Manfredi
 Douglas D. Mann
 Betty A. Manning
 Lee and James Manning
 Kiyoe L. Mapps
 Marathon Oil Foundation
 *William A. Marchese

Joseph and Kathryn Marci
 Jeffrey D. Mark
 Alycia and Brooks Marlenee
 Denise E. Maroney
 Blair L. Martenson
 *Lois M. Martin
 Neil S. Martin
 Peter R. Martin
 Steve and Mary Jean Martin
 Richard and Karen Martoglio
 Ronald M. Matelich
 Jackie P. Mathews
 Edmund J. Mathison
 Wiley E. Mayne
 *Gary and Melissa Maxfield
 *Jill and Tibor Mazar
 *Teri and Jeffrey Mazer
 John and Erlene Mazuranich
 Timmie Sue McArthur
 *Katharine McConnell
 Mary and Michael McCormick
 Julie R. McCrea
 Ronald L. McDonald
 James and Bethany McDonnell
 Daniel T. McDonough
 Randall and Annette McDowell
 Eric and Sandra McGehee
 James and Marilyn McGinnis
 Timothy and Virginia McHugh
 Sean J. McIlwain
 *Jim and Marilyn McMillan
 Debra McMullen
 JoLouise and Jerry McNally
 Donald P. McNamara
 *Peter and Patricia McNamee
 Donald E. McRoberts
 Mark A. Mehring
 William and Donna Meisburger
 Jonathan A. Mellon
 Gregory A. Mendell
 *Elizabeth and Raymond Mentzer
 *Merck Company
 Therese L. Michalson
 Gary and Sandra Mihelish
 David and Brenda Mikelson
 Michael and Carleen Milburn
 Benjamin and Irene Miles
 *Camille Miller
 John and Debra Miller
 *Kirk and Donna Miller
 Marguerite Miller
 Mark and Anne Miller
 Penelope and Brent Miller
 Ron R. Miller
 Barbara A. Miner
 Pranab K. Mishra
 Kirk and Elizabeth Mitchell
 *Rex and Eliza Moats
 *Christopher and Daphne Moffett
 James A. Montana
 William and Lou Ann Montgomery
 David J. Moody
 Jesse and Kami Moore
 Kathryn and Jack Moore
 Lillian H. Moore
 Jerold R. Morgan
 Richard and Sandra Morrison
 Anika R. Morton
 Moulton Bellingham Longo & Mather
 Mt. Tabor Dental LLC
 John and Louise Mudie
 George D. Mueller
 Penny M. O'Connor and Pedro L. Muino
 John and Jo Ann Muller
 Jeri and Edward Mulrow
 Gordon B. Mundt
 *Paul and JoAnn Muneta
 James D. Murdoch
 Nickolas C. Murnion
 Kelly and Mary Murphy
 Michael T. Murphy
 *Susan A. Murphy
 K. Lynn Myers

*Karen M. Myers
 Sherrol R. Myers
 Margaret Naphine
 Richard and Chantelle Nash
 Lowell and Yvonne Nelson
 Norman T. Nelson
 Roy and Becky Nelson
 Jerry L. Ness
 Francine Nettesheim
 Bradly P. Nicholson
 *Dalene C. Nickelson
 Sheila Nielsen-Preiss
 Stephen C. Nold
 Monty Nolder
 Rick D. Northrup
 *H. LeRoy and Linda Nyquist
 Thomas E. Oakberg
 Margaret A. Oakland
 Barbara M. O'Brien
 Gary and Diana Ochsner
 Michael P. O'Connell
 Brian G. Olsen
 Barry L. Olson
 Robert E. Olson
 Sally Olson-Edge and William Edge
 Kevin and Leslie O'Neill
 *Judith and Terry Onslow
 Sara W. Orchard
 E. Patricia Orlich
 Maureen C. O'Rourke
 Steven and Paula Ottenbreit
 Mark and Sheryl Oursland
 Ben and Victoria Owens
 *Janice M. Ozimek
 Marc and Tamera Paffhausen
 George and Patricia Palagi
 Howard and Sherrill Pallotta
 Wayne and Sally Park
 Judy M. Parke
 Susan A. Parke
 David and Kristie Parker
 Phillip K. Parker
 Darrin and Andrea Parmenter
 Carol A. Partlow
 Roger F. Pearson
 Stanley V. Peck
 Randy and Lisa Pedersen
 Kathryn L. Pedula
 John W. Pellegrini
 Russell and Mary Penkal
 Donald D. Pepion
 *Amy Perdaems-Martadam and Steven J. Martadam
 *Stephen F. Personius
 William Peters
 *James and Gladys Peterson
 *Raymond M. Peterson
 Charles W. Pfleger
 Ly-Minh Pham
 Gary R. Phillippe
 James and Nancy Phillips
 Natalie F. Phillips
 Frank and Donna Pickett
 Seth and Clara Pincus
 Melodie L. Pike
 Kate K. Piper
 Barbara A. Pitman
 Sandy and Adele Pittendigh
 R. Russell and Susan Plath
 Irvin and Maureen Plitzuweit
 Barry D. Pollington
 Mary and David Posey
 *J. Michael and Annette Poston
 Potlatch Corporation
 Dane and Kathryn Poulsen
 Lee Powelson
 Lisa K. Powers
 Matthew E. Poynter
 William and Lucille Prenevoast
 *David Quammen
 *Christopher and Vranca Quinn
 Ronald and Jane Rada
 *Cynthia Rakowski
 Charity M. Ramsey

Benjamin and Rhonda Rangel
 Merle and Susan Raph
 Jodi and Ray Rasker
 Joshua A. Rassi
 Patrick L. Redmond
 *Marjorie and Doug Reed
 Norman and Sharon Reed
 Diana K. Refsland
 Margaret Regan
 Thomas M. Regan
 *Albert and Jo Ann Reinauer
 Tanya I. Reinhardt
 Robert and Diane Reklis
 Andrew and Ann Remely
 Leon W. Reynolds
 Rina and David Reynolds
 Helen and Richard Richter
 Susan Ricketts
 Susan and Robert Riehl
 Bruce and Peggie Riley
 JoAnn Asleson Riley and Bruce Riley
 Kyle L. Riley
 James and Sydney Rimpau
 Ken and Kathy Roady
 Jennifer L. Robb
 John and Patricia Robbins
 Robert and Kathryn Robbins
 Brian and Louisa Roberts
 Michael J. Roberts
 Carley C. Robertson
 Lois M. Roby
 Allen W. Rodgers
 *D. Frederick and Jenny Roehm
 Richard and Carol Roehm
 Michael L. Rohrenbach
 Bruce and Mikel Ross
 Donald R. Ross
 *Janet L. Rossmiller
 Hope and Gary Roszell
 Robert and Mary Rothweiler
 Paul and Lisa Rubright
 *Donna S. Rudiger
 Stephen and Janlee Ruff
 Kay E. Ruh
 *Clarence and Patricia Ryan
 Jennifer M. Ryan
 Walter A. Ryder
 Carolyn J. Ryffel
 Peter and Marcia Sadowski
 Hugh and Mary Safford
 *Phyllis S. Salesky
 Robert and Patricia Salisbury
 *Sally and Carlos Sanchez
 Kenneth A. Sandbeck
 *Robert and Patricia Sandbo
 Kent and Cheryl Sandefer
 Steven K. Sando
 Sandy Land Incorporated
 Karen P. Sass
 Thomas and Jackie Sather
 Matthew J. Scanlon
 Harold H. Schatz
 William and Melanie Schell
 *John and Esther Schillinger
 Christopher and Ann Schiltz
 *Thomas G. Schmalz
 Roland and Leslie Schmidt
 Ben and Susan Schmitt
 Jennifer Scholes
 Karen and Dennis Schreffler
 James and Jorja Schreiber
 Richard Schroeckenstein
 Philip K. Schrupf
 Larry and JoAnne Schrupp
 *William E. Schulz
 Martin and Lisa Schuma
 Eugene P. Schumacher
 Lynne T. Schumacher
 Timothy R. Schwartz
 Wilbert O. Schwenk
 *Anita Schwenneker
 Jess and Cynthia Schwidde
 Geoffrey Scott

*Homer A. & Mildred S. Scott Foundation
 David A. Scrimm
 J. Ronald and Ereign Seacord
 Joshua J. Sears
 Gordon and Joyce Seeman
 James and Jennifer Seines
 Kay K. Sellers
 *Susan and Kenneth Senn
 Scott A. Settle
 Gretchen Shaffer
 Pamela K. Shaw
 Steven E. Shay
 *Shell Oil Company Foundation
 Doris L. Shennum
 David E. Shontz
 Bentley E. Shoup
 *Edward and Constance Shunk
 *Michael and Mary Ann Sierz
 Sanja S. Siewert
 Charles J. Sih
 Robert F. Sikonia
 Ruth E. Silverthorne
 Carolyn A. Sime
 *Del S. Simon
 Christine Simonsen
 Portia and Paul Sipes
 *Linda M. Skaar
 George B. Skaer
 *Larry and Marcelle Skillingberg
 George C. Slanger
 *Howard and Susan Small
 Elizabeth Smith
 Eugene and Phyllis Smith
 Garth R. Smith
 *Mark and Debbie Smith
 Mary and Wes Smith
 Walter H. Smith
 Agata and Daniel Smoots
 Stuart and Connie Snyder
 Shawn and Leah Sorenson
 William and Lisa Speare
 Karen and Thomas Spencer
 Mark and Cindy Spencer
 Ramanujan Srinivasa
 Carole A. Srinivasan
 Theresa and Thomas Stroczyk
 *Judy Ann Staigmilller
 Marla and Richard Stanich
 Craig and Nicolette Stannebein
 Rachel A. Stapleton
 Connie Staudohar
 Michael and Marie Stears
 Ralph W. Steele
 Richard W. Steiner Jr.
 Gary V. Stephenson
 Stanley and Debra Sternberg
 David R. Stevens
 *Otto and Shirley Stevens
 Kelly L. Stevenson
 Leticea Stevenson-Pablo
 George and Donna St. George
 Max and Jaymie Stimac
 William M. Stoddart
 Gary and Natalie Stoner
 *Jonathan P. Storvick
 Paul and Jane Strasser
 Denise M. Struznik
 Thomas and Liz Stuber
 Anita M. Stulc
 Kent D. Sugden
 Lee and Diane Sullivan
 William and Ardis Sutton
 *Joseph R. Svoboda
 John and Debra Swaney
 William J. Swartz
 Frank and Eva Swenson
 Paul C. Swenson
 Craig and Carla Taft
 Santo and Kathleen Tartivita
 Robert and Daphne Tasker
 *Deborah C. Taylor
 Harold S. Taylor
 Robert J. Teeples

Tempel Grain Elevators, LLP
 Susan Temple
 Texas Instruments Company
 Malcolm and Carol Theisen
 *David and Kim Thiel
 Gay Thiel
 Michael T. Thiel
 *Lisa R. Thievin
 Susan and Curt Thomas
 Suzanne Thomason
 David M. Thompson
 Helen Thompson
 Janet M. Thompson
 John and Julie Thompson
 Kristy and Chad Thompson
 Michael J. Thompson and Sharon D. Rose
 Henry Lee and Mary Tierney
 Christopher Tiffany
 Sean C. Tippet
 Dale J. Tischmak
 Larry R. Tocci
 *Margaret M. Todd
 Peggy M. Todd
 Tina L. Todd
 *Karna and John Town
 Jill Trimble
 Triplepoint Incorporated
 Dylan C. Tripp
 Eric B. Troedsson
 Stephen and Barbara Tuss
 Randy and Deanna Tymofichuk
 Russell G. Tysdal
 David and Evelyn Ulsh
 Herman E. Utiger
 Debra D. Vahe
 Sarah C. VanArsdale
 Gerard Vandebeg
 Dell G. Van Gilder
 Diane K. VanGorden
 *William H. VanHorn
 Thomas and Joann Vanisko
 *H. Lee and Helen Vannice
 Larry W. Vegge
 Tracy E. Velazquez
 Heidi and Mark Ventling
 Don and Frances Veseth
 Michael and Susan Violet
 Lawrence and Betty Visocan
 Timothy and Christina Visscher
 Gerald and Ardis Voecks
 Curtis R. Vogel
 William and Alice Vogel
 David and June Voldseth
 Helen and John Volk
 Bill and Leslie Vollbracht
 John A. Vollertsen
 Candice and Patrick Wagner
 Michael and Judy Wagner
 Christine M. Walber
 William and Roxi Walker
 Mary H. Walter
 Charles K. Wang
 John and Jonna Ward
 Richard and Shirley Ward
 *William and Kathleen Warden
 Cynthia Anne Ware
 Peter M. Ware
 Judee L. Wargo
 Washington Group Foundation
 George D. Wasser
 *Billie Jean Watkins
 Bruce and Carol Watne
 John M. Watts
 Marlin Weaver
 Susan and George Webber
 Sherman and Mary Weimer
 *Gertrude Weishaar
 Richard and Julie Welding
 Jeffrey and Mary Welker
 Harold and Dolores Wentland
 Amanda V. Werner
 Robert and Sheree West
 Holly and Thomas Westergaard

Jack A. Weyland
 Richard and Amy Wharton
 *Gloria E. Wheeler
 Robert and Marguerite Whitesitt
 Leta and Monte Wicka
 Maureen and Russell Wicks
 Jenny K. Wickum
 Dianna L. Widhalm
 Bruce and Maury Wiegand
 Wallace and DiAnne Wilder
 Nancy and Dennis Williams
 Stephen Williams
 George F. Williss
 Alan R. Willse
 Floyd S. Wilson
 Gareth and Wanda Wilson
 Harold E. Wilson
 Joan E. Wilson
 Ronald L. Wilson
 Burchard J. Windels
 *Robert and Lanette Windemaker
 Loren K. Winks
 Dennis N. Winslow
 Randle L. Winter
 John and Joyce Winters
 Richard and Elsie Wadnik
 Kay A. Wohlhuter
 Michael J. Wolf
 Bradley and Brenda Wolfe
 Robert and Elizabeth Wollitz
 Michael P. Wolter
 Kay D. Woodworth
 Mark and Deanna Worley
 *Timothy J. Worley
 Freeman J. Wright
 Michael S. Wright
 Steven and Diane Wulf
 Glen and Cathy Wyatt
 Wyeth Corporation
 Barbara J. Yeoman
 *John and Muriel Ylvisaker
 Lloyd and Mae Yonce
 *Melinda and Kenneth Young
 Donald and Mary Youngbauer
 M. Laverne Yuhas
 Vivian and Michael Zabrocki
 William and Virginia Zelezny
 James and Carolyn Zimmerman
 *James and Jolette Zumbrennen
 Michael and Tammy Zwale
 Cheryl and Brian Zwang

We apologize for any errors that may have occurred in recognizing our donors. Please contact the L&S development office to report any such errors in order that we may recognize you accurately and appropriately in future publications (406) 994-2092.

UNDERGRADUATE DEGREES

Bachelor of Science in Anthropology
Bachelor of Science in Biological Sciences

- Biology Teaching Option
- Ecology and Evolution Option
- Fish and Wildlife Management Option
- Organismal Biology Option

Bachelor of Science in Cell Biology and Neuroscience

- Biomedical Sciences Option (includes Premedicine, Predentistry, Preoptometry)
- Cell Biology & Neuroscience Option

Bachelor of Science in Chemistry

- Biochemistry Option
- Chemistry Professional Option
- Chemistry Teaching Option

Bachelor of Science in Earth Sciences

- Geography Option
- Geohydrology Option
- Geology Option
- Paleontology Option
- Snow Science Option

Bachelor of Science in Economics

Bachelor of Arts in English

- English Teaching Option
- Literature Option

Bachelor of Arts in History

- History Option
- History Teaching Option
- History SETS Option

Bachelor of Science in Mathematics

- Applied Mathematics Option
- Mathematics Option
- Mathematics Teaching Option
- Statistics Option

Bachelor of Science in Microbiology

- Environmental Health Option
- Medical Laboratory Science Option
- Microbiology Option

UNDERGRADUATE DEGREES Continued

Bachelor of Arts in Modern Languages and Literatures

- Commerce Option
- French Option
- French Teaching Option
- German Option
- German Teaching Option
- Spanish Option
- Spanish Teaching Option

Bachelor of Arts in Philosophy

- Philosophy Option
- Philosophy and Religion Option

Bachelor of Science in Physics

- Professional Option
- Physics Teaching Option
- Interdisciplinary Option

Bachelor of Arts in Political Science

Bachelor of Science in Psychology

- Applied Psychology Option
- Psychological Science Option

Bachelor of Science in Sociology

- Justice Studies Option
- Sociology Option

UNDERGRADUATE MINORS

(in addition to most majors)

English: Writing
G.I.S. Earth Sciences
Japan Studies
Museum Studies
Native American Studies
Public Administration
Religious Studies
Water Resources
Women's Studies

GRADUATE DEGREES

Master of Science in Applied Economics
Master of Arts in English
Master of Arts in History
Master of Arts in Native American Studies
Master of Public Administration (M.P.A.)
Master of Science in Applied Psychology
Master of Science in Biochemistry
Master of Science in Biological Sciences
Master of Science in Chemistry
Master of Science in Earth Sciences
Master of Science in Fish and Wildlife Management
Master of Science in Mathematics
Master of Science in Microbiology
Master of Science in Neuroscience
Master of Science in Physics
Master of Science in Statistics

Doctor of Philosophy in Biochemistry
Doctor of Philosophy in Biological Sciences
Doctor of Philosophy in Chemistry
Doctor of Philosophy in Earth Sciences
Doctor of Philosophy in Fish and Wildlife Biology
Doctor of Philosophy in History
Doctor of Philosophy in Mathematics
Doctor of Philosophy in Microbiology
Doctor of Philosophy in Neuroscience
Doctor of Philosophy in Physics
Doctor of Philosophy in Statistics

COLLEGE OF LETTERS & SCIENCE
Montana State University
2-205 Wilson Hall
Bozeman, Montana 59717
406-994-4288
406-994-7580 (fax)
lands@montana.edu
www.montana.edu/lettersandscience



Non-Profit Organization
U.S. Postage PAID
Permit No. 69
Bozeman, MT 59715