



Insights

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2000

Utah State University

College of Science

Alumni Newsletter

Fall 2000 / Vol. 9 Issue 1

From the Dean's Office

It's my pleasure, as interim dean of the College of Science, to introduce this issue of *Insights*. As I write this article, we are about a week away from the start of fall semester and the pace is quickening here on campus as faculty and staff prepare for the arrival of our students.



Associate Dean
Don Fiesinger

I have just read through the drafts of the various articles being presented in this issue, and even though I've been a USU faculty member for many years, I'm reminded once again that we have an outstanding group of faculty and students in the College of Science. There is an impressive array of accomplishments represented by our various award recipients, both faculty and students, from this past spring. And it is very apparent that the College continues to grow and improve with the addition of each new faculty member.

The reader will also find that the day-to-day interactions between faculty and students in the areas of teaching, advising, and research are very extensive and mutually rewarding. The opportunities to enhance these relationships will continue this year: the new Widtsoe Chemistry Building is in full operation, the construction of the Eccles Science Learning Center is progressing rapidly, and we have new leadership in three of our six departments.

One of the rewards of being a faculty member is to see that our graduates are

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Widtsoe Chemistry Building Dedication and Eccles Science Learning Center Groundbreaking

On 25 April 2000, Utah State University officials honored the university's past and moved toward its future during ceremonies to dedicate the newly completed \$28 million John A. Widtsoe Chemistry Building and break ground for the Eccles Science Learning Center.



Dean James MacMahon congratulates Chemistry and Biochemistry Head Vernon Parker. In background on right is the new Widtsoe Chemistry Building and on left is the old Widtsoe Hall being demolished to make space for the Eccles Science Learning Center.

The Widtsoe dedication ceremony began with a welcome from USU President George Emert, followed by remarks from Utah Governor Michael Leavitt, design architect Jack Yardley (HKS, Inc.), project manager Anthony Wegener (Architectural Design West), and general contractor Michael Spindler (Spindler Construction). The Willow Valley String Quartet (comprised of USU music students) provided a musical interlude, after which came remarks from Department of Chemistry and Biochemistry Head Vernon Parker and College of Science Dean James MacMahon (now Vice President for University Advancement). Ed Yeates, science specialist at KSL Television, gave the dedicatory speech. As officials took the podium to dedicate the new John A. Widtsoe Chemistry Building, audience members watched as old Widtsoe Hall was being demolished in the background, just east of the new building.

Old Widtsoe Hall was constructed in 1914 - 1915 and was named in honor of chemist John A. Widtsoe, who was then president of Utah Agricultural College (later USU). Dr. Widtsoe, a Norwegian, immigrated to Logan with his widowed mother in 1882 at age 10. He received a BS degree from Harvard University and was a traveling fellow of Harvard University Graduate School from 1889 to 1900 as he obtained a doctoral degree at the University of Göttingen (Germany) and studied in Zurich, Switzerland. Dr. Widtsoe was a professor of chemistry at Utah Agricultural College, director of the Utah Agricultural Experiment Station, and president of the university between 1907 and 1916. He became president of the University of Utah in 1916 and later became a general authority of the Church of Jesus Christ of Latter-day Saints.

Governor Leavitt told the dedication ceremony audience, which included several Widtsoe descendants, that Dr. Widtsoe was a visionary leader and dedicating the new

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WIDTSOE DEDICATION...

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John A. Widtsoe Chemistry Building.



Governor Michael Leavitt addresses the Widtsoe dedication audience. Seated from left to right: Ed Yeates (KSL Television), Jack Yardley (HKS, Inc.), Dr. Vernon Parker (head of Department of Chemistry and Biochemistry), and Anthony Wegener (Design West).



Dean MacMahon, Glen Thornley (Department of Chemistry and Biochemistry), Governor Leavitt, and USU President George Emert in the chemical stores area of the building.



John A. Widtsoe descendants at the dedication ceremony.



James Young (Department of Chemistry and Biochemistry) demonstrates glassblowing to Governor Leavitt and Representative Loraine Pace on a tour of the new building.

building was "an especially appropriate spring activity as it marks a wonderful renewal."

"Our chemistry program has always been strong at USU, but imagine the discoveries that can take place—the changes brought to our lives—because students at Utah State University have the advantages of this first-rate facility," stated President Emert. "This building doesn't just impact chemistry students. With a variety of course requirements and cross-discipline uses, nearly half of our 20,000 students will use this facility as they take chemistry courses."

The state-of-the-art John A. Widtsoe Chemistry Building provides much-needed space and a safe working environment for students and faculty. The facilities of old Widtsoe Hall were inadequate for modern laboratory instruction and research; both fire and ventilation safety were serious concerns, and additional space was needed for increasing enrollment in chemistry lab courses.

New Widtsoe houses 20 research labs for use in biochemistry, synthetic chemistry, and analytical chemistry; 6 teaching labs (including one computer lab); 1 seminar room; 1 teaching room;

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pursuing meaningful careers and that they continue to be successful and adapt to the rapidly changing world around them. We appreciate your contributions and responses to this newsletter informing us of your activities, and we encourage you to maintain contact with the College of Science and especially with your respective major departments. We would also like to receive any suggestions for changes or improvements to this newsletter.

By the time we put *Insights* together again in the spring, we should be able to report on the search for a new dean for the College of Science. At the same time, there will be numerous other changes here at USU, including a new president, a new provost, and a new vice president for research. Although we all get a little anxious over such major changes at the university, our mission in the College of Science remains firm: to provide the best possible education for our students and to provide the best possible environment for training and research. You, our alumni, are a vital link in making this happen: your continued support of the College of Science and your major department is greatly appreciated.

Sincerely,

1 library; 15 faculty offices; 8 graduate student offices; 9 chemical storage rooms; 1 glassblowing room; 1 instrument repair room; and 1 large lecture hall, with a total of 84,554 gross square feet. The building contains 59,670 square feet of sheetrock, 2,821 linear feet of acid resistant countertops, 98 fume hoods, 38 emergency eye wash/showers, 103 large sinks, 106 cup sinks, and 3 elevators. More than 1.7 million pounds of structural steel and one-half million pounds of reinforcing steel went into the building, as did 20 truckloads of Arkansas brick.

As calculated by Glen Thornley (administrative assistant, Department of Chemistry and Biochemistry), the building cost \$221 per square foot, with a significant portion of the cost coming from the extensive mechanical systems needed to purify water, safely ventilate and control temperature in the building, and provide some 800,000 watts of emergency power generating capacity. The building has two separate water systems, one for labs and one for culinary use. No air is recycled in the building; however, an energy recovery system is used to recover heat or cold from the air.

"The new Widtsoe laboratories are state-of-the-art and will continue to serve the department and the university for many years," stated Department Head Parker. "The very attractive atmosphere created by this project can be expected to play a major role in continuing to attract highly qualified faculty and high-quality students."

"We now have one of the finest chemistry teaching and research facilities in the country," stated a justifiably proud Dean MacMahon.

But construction has not stopped. Following dedication of the John A. Widtsoe Chemistry Building, ground was broken for the \$6 million Eccles Science Learning Center which is being built on the site of the old Widtsoe Hall and will adjoin the new Widtsoe Chemistry Building via a three-story atrium. Speakers at the ceremony included President Emert, Clark P. Giles (George S. and Delores Doré Eccles Foundation), architect Jack Yardley, and Dean MacMahon. The Center is scheduled for completion next summer.



Dean MacMahon breaks ground for the Eccles Science Learning Center. From left to right, Jon Rosdahl (Novell, Inc.), Stephan E. Denkers (Willard L. Eccles Charitable Foundation), Stephen G. Denkers (Willard L. Eccles Charitable Foundation), USU President George Emert, Dean Jim MacMahon, Clark Giles, (George S. & Delores Doré Eccles Foundation).

The Eccles Science Learning Center will be the most functional and modern facility of its kind in the nation, providing a superior science learning experience to all USU students. It will house a large (500 seat) media-enhanced auditorium with a computer port at every chair, an electronic chalkboard, a demonstration bench fitted with a separate air handling system, blast protection, and cameras to project work done on the bench to each student. Slides projected on the electronic blackboard will be downloadable via the individual computer ports, and two-way electronic interrogation will be possible between the instructor and each student. Satellite linkage will allow worldwide information sharing.

In addition, the Center will house two flexible classrooms each accommodating 80-100 students, a computer lab, a student advising center, the administrative offices of the College of Science, and student study areas. The computer facilities will provide for the learning and testing required in the university's innovative computer literacy program which is a graduation requirement for all USU students.

Not a state-supported project, the Eccles Science Learning Center is being constructed and equipped entirely through private contributions, including a generous gift of \$3 million from the George S. and Delores Doré Eccles Foundation.

(Excerpts taken from news releases by Lynnette Harris, USU Media Relations and Marketing.)

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Look for us at our new Web address!
www.science.usu.edu

Dean MacMahon Advances to VP Position

College of Science **Dean James MacMahon** became USU's new Vice President for University Advancement in March. Dr. MacMahon had served as interim vice president since August 1999 and was offered the position by USU President George H. Emert following an unsuccessful national search.



Vice President
James MacMahon

"It is not always true that the grass is greener on the other side of the hill," said President Emert. "It took a national search to realize that we didn't need to look far to find the right person for the position. In the capacity as acting vice president, Jim has performed in an excellent manner. He has served USU well for 28 years and is well acquainted with USU students, alumni, and friends. I am pleased he is willing to take on this important responsibility."

Dr. MacMahon had been dean of the USU College of Science since 1989. He joined the Department of Biology in 1971 and was department head from 1985 to 1989. He received a BS degree in zoology from Michigan State University in 1960 and a PhD degree in biology from the University of Notre Dame in 1964. He was on the biology faculty at the University of Dayton from 1963 to 1971.

The USU College of Science developed in several significant ways under Dean MacMahon's leadership. An excellent teacher himself (he was named College of Science Professor of the Year in 1980), he placed a strong emphasis on undergraduate programs and teaching and demonstrated it by continuing to teach courses during his tenure as dean. He was a strong advocate of involving undergraduates in faculty research; currently one in five College of Science undergraduates is involved in faculty research. As part of assessment, Dean MacMahon conducted "exit interviews" with graduating seniors each year to get their opinions on the college and university. This emphasis on quality undergraduate teaching and research was particularly difficult to achieve because it occurred during a time of rapidly increasing student enrollment—during the 1990s the number of undergraduates majoring in one of the departments of the college and the number of science BS/BA degrees awarded both increased 72 percent.

Dean MacMahon managed to develop a sense of cohesiveness in the college among faculty and staff from six departments with disparate interests. He did this in several ways, including the college newsletter (*Science Scene*), the College of Science Awards Program in the spring, the College of Science Graduation Open House, College Coffee Breaks every fall and spring, and the College Christmas Party at his home. He met with the six department heads and two associate deans over lunch every other week. He maintained a personal relationship with each faculty member via a lunch meeting once per year (in groups of about 15)

and a meeting in each faculty member's office once every two years.

"When I think of the attributes of an effective administrator, the characteristics of awareness, openness, fairness, and firmness come to mind. I believe that Dean MacMahon exhibits all of these qualities to a high degree which places him in the category of a first-rate administrator," states Dr. John Raitt, head of the Department of Physics.

Research in the College of Science flourished while Dr. MacMahon was dean. Contracts and grants awarded to college personnel increased from \$5,650,000 in 1989 - 1990 to \$7,114,000 in 1999 - 2000. He encouraged departments to hire faculty who were at the top of their fields and would augment existing research strengths in each department, and he worked to encourage and support the research efforts of all faculty.

While dean, Dr. MacMahon maintained an active, nationally recognized research program in the field of ecology and served as advisor to several MS and PhD students. His term as president of the Ecological Society of America in 1997 - 1998 is evidence of his

"It is not always true that the grass is greener on the other side of the hill. It took a national search to realize that we didn't need to look far to find the right person for the job."

—USU President George H. Emert

stature in ecology, as is the overview article on the ecological recovery of Mount St. Helens published recently in the prestigious journal *Science* by Dr. MacMahon and Jerry Franklin (University of Washington). In 1997 he was elected a member of the National Research Council (NRC) and in 1998 he was elected a Fellow of the American Association for the Advancement of Science, in recognition of his efforts to apply ecological theory to real-life situations and his contributions to science education. He is president of the Board of Directors of the Environmental Science and Research Foundation and serves on the Board on Environmental Studies and Toxicology of the NRC. He received the Distinguished Service Award from the Utah Academy of Art, Science, and Letters in 1994.

As dean, Dr. MacMahon was highly effective in the area of development. He was instrumental in securing both public and private funding for the newly completed Widtsoe Chemistry Building and the Eccles Science Learning Center currently under construction. He built and maintained productive relationships with key philanthropic individuals and organizations and as a result was influential in acquiring significant private support for various

programs, personnel, and scholarships of the college. For example, under Dean MacMahon's leadership, more than \$1.4 million was given by the Willard L. Eccles Charitable Foundation to the College of Science for research, fellowships, and facilities. He initiated *Insights* as a means to inform alumni and friends of current events, projects, and changes in the college and to give them an opportunity to support the college.

"Since his administrative career began fifteen years ago, Dean/Vice President MacMahon has been in the top echelon of research, teaching, and management," asserts Dr. Kandy D. Baumgardner, Associate Dean of the College of Science.

Associate Dean Don Fiesinger is currently serving as interim dean of the college. A national search has begun for a new dean, and it is anticipated that the position will be filled within six months to one year.

As Dr. MacMahon moves into his new position as USU Vice President for University Advancement, the College of Science wishes him well and much success. However, we will miss those wonderful Christmas parties!

Annual Fund Campaign

Private gifts from individuals, foundations, corporations, and others play a key role in the continuing growth and improvement of the college. The nucleus of those private gifts is the College of Science Annual Fund Campaign. We use both direct mail and phonathon appeals throughout the year to encourage gifts from you—our alumni, friends, faculty, and staff.

Each fall, the dean writes to everyone affiliated with the College of Science to ask for a contribution. Your contributions typically come to the college as unrestricted support for those areas of greatest need, in support of general or named scholarships, or in support of specific programs, projects, or departments.

If you do not respond to the dean's appeal by 1 January, we attempt to reach you in late February/early March and seek your support through the College of Science Phonathon. Our student callers are unable to speak with each of you, but those we reach and who send in a gift account for nearly two-thirds of all donors to the college.

As we begin our annual efforts to seek your support for the College of Science, we hope that you will consider whether you can help us build a better college, both for our current students and for future generations of science students.

In this issue of Insights, you will find a postage-paid reply envelope to use for your contribution or to request additional information on the College's Annual Fund Campaign.

*You may also contact
Interim Dean Don Fiesinger at (435) 797-2478
or scldo@cc.usu.edu.*

College of Science Mission and Goals

MISSION

The College of Science embraces the university's mission of teaching, research, extension, and service in the fields of science. The College also accepts the mission of fostering the intellectual, personal, and cultural development of students as it relates to science.

In the area of teaching, the mission is to incorporate the habits of scientific inquiry into the critical thinking skills of all students in an effort to produce scientifically literate citizens, to provide students entering various professions with the necessary scientific foundation for the pursuit of these professions, and to produce broadly trained scholars of science with excellent contemporary knowledge.

In the area of research, the mission is to discover new scientific knowledge and to convey that knowledge so that it can benefit all of humankind.

In the area of extension and service, the mission is to provide an appropriate level of instruction beyond the university and to deliver scientific knowledge through traditional methods such as extension services, consulting, and collaboration, and through non-traditional methods as appropriate.

GOALS

1. Increase the quality of teaching at all levels throughout the College by various means, including the increased use of technology.
2. Develop high-quality courses and other modes of learning to enhance University Studies (general education).
3. Maintain and improve the quality of undergraduate and graduate degree programs.
4. Cooperate with departments in developing and maintaining a limited number of research emphases where excellence will be achieved and enhanced.
5. Continue to promote opportunities for undergraduate research.
6. Increase the number of minorities and women in science at all levels of the College.
7. Improve the collegiality and interaction among College faculty.
8. Increase the financial support for students, faculty, and departments.

Telly Award to Dr. Cangelosi

As part of the 21st annual Telly Awards, **Dr. James (Jim) Cangelosi**, Department of Mathematics and Statistics and Department of Secondary Education, won a Telly in the "non-broadcast category in education" for his instructional video "Leading Students to Use Their Mathematical Skills to Describe Biological Phenomena. Episode 1: Questioning Strategies for Student Discovery." The Telly Awards showcases and recognizes outstanding non-network and cable commercials and film and video productions, and is a well-known highly respected national competition.

Dr. Cangelosi produced the video as part of a \$300,000 Fund to Increase Post Secondary Education (FIPSE) grant from the US Department of Education to develop laboratory exercises that integrate mathematical concepts into biology. Investigators on the BioMathLab project are biologists Dr. James Haefner, Ms. Alice Lindahl, and Dr. Richard Mueller and mathematicians Drs. Joseph Koebbe, James Powell, and Jim Cangelosi. "We created this program because we were dissatisfied with the ability of students to use quantitative methods. Students were not getting a high-quality education because they did not have practice using math skills," says Dr. Haefner. (More information on the BioMathLab project can be obtained at biomath.biology.usu.edu).

In his role as evaluator of the bio-math exercises, Dr. Cangelosi found that how well students learned from the instructional materials depended as much on how the instructor interacted with students as on the quality of instructional materials. So, with \$9,000 of grant money, he produced a video for lab instructors and teachers to demonstrate how to interact with students, raise questions, respond to questions, and conduct discussions that lead students to discover relationships for themselves and apply mathematical concepts to better understand biological phenomena.

One reason for the relatively cheap price tag for the video (estimates ranged as high as \$35,000) was the extremely reasonable production rates from USU Multimedia and Distance Learning Services (MDLS). Stuart W. Parkinson of MDLS served as producer/director of the video. Recognizing the high quality of the production, it was MDLS that nominated the video for a Telly.



Dr. Cangelosi with Telly Award

Another reason for the low cost of the video was the use of cheap labor, i.e., several members of Dr. Cangelosi's immediate family. His wife, Barbara, was the (unpaid) narrator; daughters Amanda, Amy, and Alli were among the student actors; and son Casey wrote and performed the music played at the beginning and end of the video (with the assistance of Dr. Dennis Griffin, Department of Music). Dr. Cangelosi

himself was executive producer of the video, creating all the scenes and writing all the dialogue.

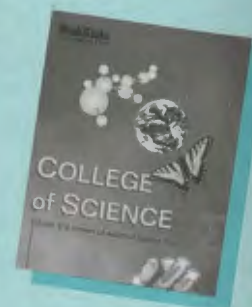
Dr. Cangelosi has received positive feedback on the video from several sources. Recently, he and Dr. Haefner showed the video to a group of university scientists at a FIPSE director's meeting, and almost two-thirds of the educators in the audience requested a copy to use in training their teaching assistants. High school biology and mathematics teachers also have requested copies.

The video is part of the training of all teaching assistants in the USU Department of Biology. "Jim's video is an important teaching tool for us not only because it distinguishes 'interactive teaching' from the usual 'talking head' approaches, but it also sends the message to our graduate teaching assistants that we care about high-quality teaching," says Dr. Haefner. "To effectively teach quantitative material to biology students is difficult and requires tremendous amounts of time and energy. Jim's video helps us establish the high level of our expectations of the lab instructors in introductory biology."

Dr. Cangelosi is hoping the message that *how* you teach is just as important as *what* you teach will influence not only university teaching assistants and high school teachers but also his university professor colleagues.

College of Science Image Brochure

The College of Science has published an image brochure to give prospective students and their parents information on pursuing a degree in the College of Science at USU. If you are a parent of a student or know someone who might be interested in majoring in science at USU, we would like to send you our brochure. You can request one via telephone at (435) 797-2478, fax at (435) 797-3378, or email at scido@cc.usu.edu. You may also view the image brochure at the student information site of the College of Science Web page, www.science.usu.edu.



Shimadzu-USU Analytical Sciences Laboratory

The Department of Chemistry and Biochemistry has partnered with Shimadzu Scientific Instruments, Inc. to establish the Shimadzu-USU Analytical Sciences Laboratory. The laboratory, located in the new Widtsoe Chemistry Building, became fully operational this past summer.

The Shimadzu-USU Analytical Sciences Laboratory:

- (1) provides undergraduate and graduate students an opportunity to work with modern analytical instrumentation,
- (2) provides a mechanism for joint USU-Shimadzu research and development projects on existing and new technologies,
- (3) provides summer research opportunities for undergraduate students in the areas of methods development and product testing and evaluation, and
- (4) allows Shimadzu to showcase modern instrumentation to prospective customers within the Utah region.

Shimadzu Scientific Instruments, Inc. is the American subsidiary of Shimadzu Corporation, headquartered in Kyoto, Japan. Shimadzu is a \$2 billion multinational corporation with three major divisions: medical diagnostics, aerospace/industrial, and analytical instruments. The analytical instruments division is one of the world's three largest manufacturers of analytical instrumentation and environmental monitoring equipment.

The idea for this joint laboratory was developed about two years ago by Dr. Greg Swain (Michigan State University, formerly USU Department of Chemistry and Biochemistry). He put forward the idea to Dr. Teruhisa Ueda, manager in the high pressure liquid chromatography (HPLC) division of Shimadzu Corporation. Dr. Ueda and his colleagues were receptive to the concept and convinced their colleagues at Shimadzu Scientific Instruments, Inc. in the US (Shingo Takimoto, president, and Chris Gaylor, vice president of sales) of the worth of the endeavor. A successful site visit to USU last spring was attended by several Shimadzu representatives, including Dr. Masayuki Nishimura (senior application specialist), Larry Evanicky (sales specialist), Steven Wishnies (senior marketing specialist), and Don Thompson (western regional manager). In addition to USU faculty, other College of Science personnel taking part in the site visit were Dean Jim MacMahon, Chemistry and Biochemistry Department Head Vernon Parker, and Development Director Jerome Davies.

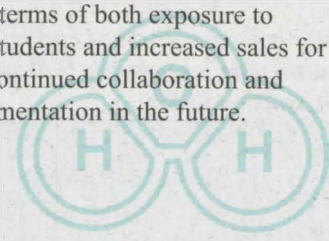
The initial focus of the laboratory is on separation science—a task performed by virtually every chemist in industry. However, because of the expense and rapid evolution of the technology, universities often find it extremely difficult to maintain state-of-the-art equipment in teaching laboratories. Thus, students are often insufficiently prepared to perform chemical separations.



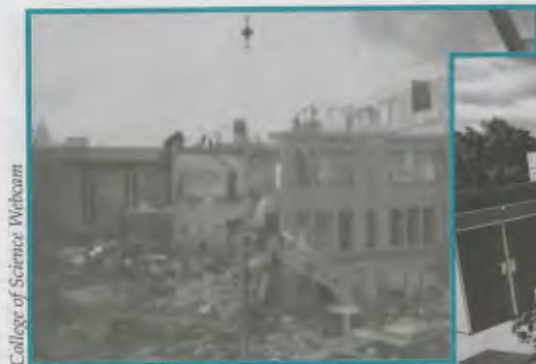
Various analytical instruments in the Shimadzu-USU Analytical Sciences Lab.

The Shimadzu-USU laboratory is managed by Dr. Robert Brown (Department of Chemistry and Biochemistry) and equipped with a gradient HPLC system with multiple detectors, an autosampler, and an enhanced data station; a gas chromatograph-mass spectrometer with an enhanced data station; two compact ultraviolet/visible spectrophotometers; and a fast scanning ultraviolet/visible/near infrared spectrophotometer. The enhanced data stations allow for remote operation of the instruments and remote data acquisition and processing. The instrumentation also contains the latest in instrument validation software to verify optimum instrument performance according to predefined specifications.

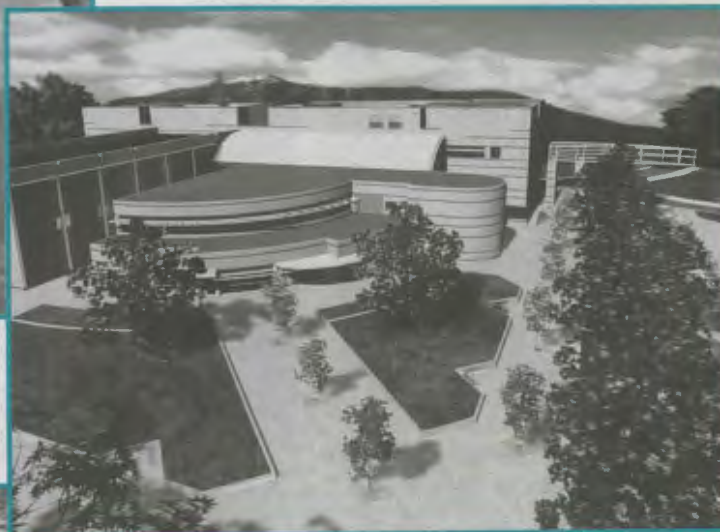
"The Shimadzu-USU laboratory has already had a major impact on our analytical characterization capabilities in the first few months of operation," states Dr. Brown. The USU Department of Chemistry and Biochemistry and Shimadzu Scientific Instruments, Inc. are expecting continued success for the Shimadzu-USU Analytical Sciences Laboratory in terms of both exposure to modern instrumentation for USU students and increased sales for Shimadzu. Both sides anticipate continued collaboration and expansion into new types of instrumentation in the future.



Eccles Science Learning Center Update



The old Widtsoe Hall being demolished (2 May 2000).



Computer rendering of the Eccles Science Learning Center (foreground) and the new Widtsoe Chemistry Building (background) adjoining the existing Maeser Laboratory (left), as seen from the Taggart Student Center patio.



Computer rendering of the entire Widtsoe/Eccles Science Learning Center/Maeser complex in relation to USU campus.



Early stages of Eccles Science Learning Center construction (26 September 2000).

Old Widtsoe Hall has been demolished, and on that site the Eccles Science Learning Center is taking shape. Work is progressing well, with a summer 2001 projected completion date.

Visit the Eccles Science Learning Center site at the College of Science Web page, www.science.usu.edu, to see real-time photos of the construction taken by the College of Science Webcam, a movie of old Widtsoe Hall demolition, and a movie of all demolition and construction to date.

Visiting Professors

Dr. Kelly Black, University of New Hampshire, will spend his sabbatical year at the USU Department of Mathematics and Statistics. "My present work is in scientific computing, mostly computational fluid dynamics, and I hope to begin some work in mathematical biology while at USU," states Dr. Black. He will do teaching in the department in exchange for partial sabbatical support.

Dr. Wopke van der Werf from Wageningen Agricultural University in the Netherlands collaborated this past summer

with Dr. Ted Evans (Department of Biology) and Dr. Jim Powell (Department of Mathematics and Statistics) on a project measuring and modeling the dispersal and pest suppressive impact of lady beetles in Utah alfalfa fields. Dr. van der Werf is an agroecologist and was at USU on a grant from the Technology Foundation of the Netherlands. He conducted similar research at USU during the summer of 1999 as an Organization for Economic Cooperation and Development Fellow.

Scholarships Remain High Priority

Recent issues of this newsletter have included articles about scholarships in the College of Science, their importance, and the need for increased scholarship opportunities. The following three privately funded scholarships have been donated since the last issue of *Insights*. For the academic year 2000 - 2001, these new scholarships will provide support to ten different College of Science students. The scholarships are:

The **Novell Computer Science Scholarships** were established by the Utah company synonymous with networking software technology. These annually funded scholarships will provide full tuition and fees (\$2,500) for four outstanding undergraduate students in the Department of Computer Science. (*The Novell Computer Science Scholars this year are Jennifer Jolly, Uyen Chen, Benjamin Banham, and Linda DuHadway.*)

The **USU Emeriti Scholarship Endowment**, contributed through the generosity of university emeriti, provides two scholarships annually that are rotated through two of USU's eight academic colleges every four years. One of the 2000 - 2001 scholarship awards will benefit a selected student from the College of Science. (*The College of Science Emeriti Scholar for this year is physics major Lara Anderson.*)

With one year of tuition and fees (academic year 2000 - 2001) amounting to approximately \$2,500, the scholarship needs of our students have never been greater.

The **College of Science Dean's Scholarships** were established to benefit five outstanding undergraduate students selected from among the six academic departments within the college. The funds used to award these scholarships were given anonymously and are sufficient to provide \$2,800 in tuition, fees, and book support per recipient for the 2000 - 2001 academic year. (*The inaugural Dean's Scholars are Trent Corpron, Biology; Heidi Fabrizius, Chemistry and Biochemistry; Taylor Jensen, Biology; Jamie Jorgensen, Physics; and Emily Thompson, Mathematics Education.*)

With one year of tuition and fees (academic year 2000 - 2001) amounting to approximately \$2,500, the scholarship needs of our students have never been greater. In short, more qualified students are seeking scholarship assistance than there are scholarships to award. Given the learning benefits of maximizing research time in labs and conducting fieldwork, our students have difficulty finding jobs that allow them the time to participate fully in this kind of science education. As a result, College of Science students benefit greatly from gifts designated for scholarship support. The vast majority of our existing scholarship funds have been contributed by alumni from this college, a point which illustrates nicely the special role that alumni can play in the education of our students, both today and in the future.

Listed below are all additional scholarships available from the college in general and its six departments. For additional information, see Fall 1998 - Spring 2000 *Insights* (available at www.science.usu.edu) or contact Interim Dean Don Fiesinger at (435) 797-2478 or scido@cc.usu.edu.

College of Science General Scholarships

James E. Brown Endowed Scholarship
Theodore M. Burton Endowed Scholarship
Oscar Wood Cooley Endowed Scholarship
College of Science Endowed Scholarships
Willard L. Eccles Foundation Graduate Fellowships
Dr. Joseph E. Greaves Endowed Scholarship
Lawrence H. Piette Endowed Graduate Student Scholarship
Questar Scholarship
Seely-Hinckley Scholarships
Charles J. Sorenson Endowed Scholarship
Claude E. ZoBell Endowed Scholarship

Department of Biology

Department of Biology Scholarships
Thomas L. Bahler Endowed Scholarships
Christenson Memorial Scholarship Endowment for Undergraduate Studies
Eldon J. Gardner Endowed Undergraduate Research Awards in Genetics
Datus M. Hammond Memorial Scholarship Endowment
Richard J. and Marion A. Shaw Endowed Scholarship
John R. Simmons Endowed Scholarship

Department of Computer Science

Computer Science Department Scholarship
Wendell L. Pope Endowed Scholarship
Idaho National Engineering and Environmental Laboratory (INEEL) Scholarships
First Security Foundation Scholarships

Department of Chemistry and Biochemistry

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Russel & Julie McKenna	Gilbert	AZ	Ryan E. Rich	Houston	TX						
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Lynn Niles Mecham	Garland	UT	Daniel S. Ricks	Lagan	UT						
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From Chemist to Artist: Emeritus Professor Richard Olsen

Since retirement, **Dr. Richard K. Olsen**, emeritus professor in the Department of Chemistry and Biochemistry, has been developing his latent artistic talents and moving from the realm of organic chemistry into that of fine art.

Dr. Olsen earned a BS degree from Brigham Young University and MS and PhD degrees from the University of Illinois. He joined the USU Department of Chemistry and Biochemistry in 1967 as an organic chemistry professor and served as acting department head during 1988 - 1989 and associate department head during 1990 - 1996. Dr. Olsen retired in 1997 but continued to teach for two more years. He was active in research and graduate student training throughout his career with funding from the National Institutes of Health to investigate synthesis of peptide antibiotics, synthesis and chemistry of alpha-amino acids, and alpha-amino acids as chiroins.

In the mid-1990s Dr. Olsen began to collect fine art. Realizing that he did not know much about the process of painting, he began to read about painting methods. Subsequently, he started to draw and paint for himself, initially working in pastels, then with acrylics and watercolors, and later in oils. He had a very successful showing of 36 of his paintings at Fuhrman's Framing and Fine Art in Logan, Utah, in the summer of 1999.

A rotating collection of Dr. Olsen's paintings will be exhibited in the library of the new Widtsoe Chemistry Building. "We in the Department are very fortunate to be able to view his ever expanding and changing collection," says Dr. Ann Aust. "We cannot thank him enough for his generosity and continued interest in our department." On 20 April 2000, a reception to highlight Dr. Olsen's work was held in the Widtsoe library and was attended by many friends and colleagues.

Dr. Olsen was especially pleased with the parting gift given by the College of Science to Dean James MacMahon, who is an avid trout fisherman. The gift was a painting by Dr. Olsen of a rainbow trout, which now hangs proudly in Vice President MacMahon's office in Old Main.

"Art of all types can function to lift and inspire the human spirit," states Dr. Olsen. "I experience fine art in this way and find transcendent beauty and a powerful statement of the human condition in artistic work. The relationships of light, color, and form are most fascinating and of seemingly endless expression. I do not believe I have yet formulated an artistic goal that focuses my work, but I do know that painting that which you understand and appreciate results in what seems to be a natural expression of your art. Thus, I have been drawn to paint mountain landscapes, trout fishing scenes, and portrayals of musicians, since I have always loved the Western mountains, fished for trout on lovely rivers, and enjoyed beautiful music. People also are a natural focus as an expression of our common humanity, and paintings that deal with life or the beauty of the human form can say much to us."



Dr. Olsen with one of his paintings on display in the Widtsoe Chemistry Building.

The College of Science thanks Dr. Olsen for his service and wishes him much success in his new career as an artist.

SCHOLARSHIPS...

Continued from page 9

Department of Geology

John M. Branch Memorial Scholarship Endowment
Clyde T. Hardy Scholarship Endowment
David Rider Scholarship Endowment
Thomas A. Riemondy Scholarship Endowment
J. Stewart Williams Graduate Fellowship Endowment

Department of Mathematics and Statistics

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Sharon Lee Gardner Ellis Memorial Scholarship Endowment
Neville C. and Annie P. Hunsaker Scholarship Endowment
Department of Mathematics and Statistics Scholarship Endowment

Department of Physics

Gene Adams Scholarship Endowment
Get Away Special (GAS) Scholarship Fund
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Year 2000 College of Science Awards

College of Science Researcher of the Year



Charles G. Torre

Dr. Charles G. Torre, Department of Physics, is College of Science Researcher of the Year. He obtained a BS degree in physics, cum laude, from Duke University in 1980 and a PhD degree in gravitational physics from the University of North Carolina in 1985.

Dr. Torre describes his research as "focused primarily upon gravitation and relativistic field theory. This means that I typically work on the interface of pure mathematics and physics. My work

contributes to our understanding of the fundamental structure of the laws of physics that govern our universe.

"In particular, my work is connected with the behavior of nature at very large distance scales and at very short distance scales. For example, at larger distances my research is relevant to the large-scale structure of the universe, cosmological models, etc. At very short distances my research is relevant to understanding the quantum mechanical behavior of the gravitational field, shedding light on such issues as what happens at the 'center' of a black hole and what happened at the 'big bang.' One of the real pleasures of the work I do is that I must be conversant with a wide variety of fundamental physical principles, not just a few relatively esoteric subjects." Other satisfactions of research include using his creativity and ingenuity (for example, inventing a new methodology) and "the feeling of discovery when you actually uncover something that maybe no one has seen before and that might be useful for other people to know about."

"[The] Department has been fortunate to have someone of the caliber of Dr. Torre as a faculty member," states Dr. John Raitt, head of the Department of Physics. "He works in the intellectually challenging area of fundamental theoretical physics and is now recognized as an authority on general relativity and quantum gravity. He gets invitations to give plenary talks at international meetings, is one of the few researchers in this area outside of the major research institutes to have federal funding, and his publications in the most esteemed journals are influential in his field."

Letters in support of Dr. Torre's nomination as College of Science Researcher of the Year were written by two of the most prestigious senior members of the general relativity community in the world. Dr. Abhay Ashtekar, Eberly Professor of Physics at Pennsylvania State University, relates, "Dr. Torre's work is characterized by care, high precision, and mathematical rigor. Therefore, his results are 'solid' and will remain as significant contributions to the field for a long time." Dr. Karel V. Kuchař, professor of physics at University of Utah, states, "I feel that you are lucky having at your faculty a

person who is one of the top researchers in mathematical general relativity and quantum gravity in this country and indeed in the world."

Dr. Torre helped create the Formal Geometry and Mathematical Physics Group at USU, consisting of himself, Drs. Ian Anderson and Mark Fels (Department of Mathematics and Statistics), and their students. This group, taking advantage of research strengths in both departments, has produced several publications, a weekly seminar, and an annual conference, and has included a number of graduate and undergraduate research students. Dr. Anderson says, "Over and over again Charlie discovers important issues for us mathematicians to sort out. As we all know, the hardest part in research is knowing what are the right questions to ask and here Charlie is an absolutely marvelous collaborator and colleague.... We are extraordinarily lucky to have a theoretical physicist of his caliber at USU...."

Currently funded by the Gravitational Physics Program of the National Science Foundation (NSF), Dr. Torre has received extensions of his grant, *Topics in Classical and Quantum Relativity*, to run through the year 2003. These extensions "clearly show that he has crossed the threshold which only a few very best people reach in this highly competitive field," asserts Dr. Kuchař.

In addition to being an exceptional researcher, Dr. Torre is one of the most highly rated teachers of upper division and graduate courses in his department. He feels strongly that "a good researcher has to teach and a good teacher has to do research. It is a joy to try and show people what's so exciting about the field. I don't think you can be a really good teacher unless you have some of that joy that comes from wallowing in the trenches trying to develop an actual subject yourself."

When asked how he became interested in the field of physics, Dr. Torre recalls, "My grandfather (known for his troublesome sense of humor) gave me a book as a gift when I was about nine years old. Nothing particularly unusual in that—we got books as gifts all the time. I loved that guy very much, so I carried that book around everywhere I went. I also drove myself absolutely crazy trying to understand it. I vowed that someday I would truly be able to read the thing. Only much later did I realize that he had given me a college physics text. Who can truly discern one's own motivations? I don't know what led me to commit to physics. But I can trace my interest in the subject back to that *\$+^@)%# book."

Dr. Torre and his wife, Lisa, have three children, two border collies, and a flock of sheep. His hobby (possibly obsession) is training the dogs to herd sheep; however, he stresses that he is still very much a novice trainer. The Torre family recently moved to a larger place in Providence, Utah, ostensibly to improve their housing; however, Dr. Torre admits that the real reason for the move was to have enough land to pasture the sheep.

College of Science Teacher of the Year



E. Robert Heal

"Teaching is what gets me excited," declares College of Science Teacher of the Year, **Dr. E. Robert (Bob) Heal**, Department of Mathematics and Statistics. During his nearly 30 years of service at Utah State University, Dr. Heal has taught a variety of mathematics and statistics courses at both undergraduate and graduate levels, advised and mentored numerous students, and been a leader in the development and integration of technology into mathematics education.

Dr. Heal came to Utah State University after receiving BS and PhD degrees in mathematics from the University of Utah in 1965 and 1971, respectively. He served as Associate Department Head of the Department of Mathematics and Statistics during 1986 - 1993 and as Interim Department Head during 1998 - 1999.

"Mathematics is not a spectator sport," states Dr. Heal. "In each class period, it is essential that my students become actively engaged with the mathematical ideas. I have always tried to give my students a sense of discovering mathematical concepts for themselves, providing for them a degree of ownership of the material. I try to connect the mathematical topics for each class period to relevant experience and previous course work, and to also provide a glimpse of possible mathematical paths for the future. I have learned a great deal about mathematics instruction and my students have been my teachers."

Dr. Heal's teaching and mentoring efforts are widely appreciated by his students and colleagues. A number of graduating seniors in the College of Science have named Dr. Heal as the person who had the greatest positive influence on their education at USU. He was College of Science Advisor of the Year in 1995 and Department of Mathematics and Statistics Teacher of the Year in 1993. Dr. Heal was chosen by two valedictorians as their faculty escort at graduation, and he has been honored as a Top Prof by the USU Mortar Board Honor Society. A former student comments, "I am grateful that I had the opportunity to learn from his expertise and talent in the classroom. I hope that I can emulate these professional qualities when I enter the classroom myself."

In addition to his on-campus teaching, Dr. Heal has created mathematics courses for gifted high school students (and their teachers) and has offered a variety of Extension courses throughout the state. Recently, he has been teaching in-service courses for teachers in Utah (via satellite) and North Carolina (via the Web). He has led statewide efforts to improve the quality of preparation of elementary and secondary teachers.

Since 1991, Dr. Heal has been deeply involved in the development and integration of technology into the mathematics learning process. He says, "It is my strong belief that technology can help

students learn mathematical concepts in ways that have never been possible before." With Dr. Jim Dorward (Department of Elementary Education) and funding from the Utah Educational Technology Initiative, he created the Math Technology Classroom to teach pre-service teachers. This classroom has 30 student stations and an instructor station and is networked so that each student has access to software that increases understanding of geometry, problem solving, and algebra. With Dr. Larry Cannon (Department of Mathematics and Statistics) and funding from the Utah Higher Education Technology Initiative, he developed an interactive pre-calculus project for use in the state system.

Last year, Dr. Heal, along with Drs. Cannon and Dorward, Dr. Leo Edwards (Fayetteville State University), and Dr. Richard Wellman (Westminster College), received a \$1,200,000 NSF grant to build a National Library of Virtual Manipulatives—a library of uniquely interactive, Web-based virtual manipulatives or concept tutorials, mostly in the form of Java applets, for mathematics instruction (kindergarten-8th grade emphasis). Dr. Heal invites readers to visit the NSF project Web site at www.matti.usu.edu. These interactive applets will also be used as E-examples to illustrate ways to incorporate technological resources into the mathematics classroom in the Web version of the year 2000 *Principles and Standards for School Mathematics* (from the National Council of Teachers of Mathematics).

Student letters in support of Dr. Heal include many references to his advising and mentoring. For example, one student comments, "Dr. Heal was kind enough to take me under his wing [when I was in high school] and get me jump-started and pointed in the right direction. I feel this early encouragement was an important key and motivation in my educational experience at USU." Regarding his ability to encourage students to obtain degrees and follow careers in mathematics, Dr. Heal laughs and says, "I lure them. I sell math to them. I recognize their talent, and they generally reveal their interest to me. I think students need this. I think that instructors who are teaching in their subject areas need to talk about how it relates to employment, educational opportunities, and personal development when it is appropriate."

"If I had the opportunity to live these years over again, I would choose the same path (along with timely investments in Microsoft and Amazon.com)," states Dr. Heal. "I place great value on the opportunity to teach, advise, and mentor students. I also value tremendously the chance to learn new mathematics and to create computer technology that will have significant impact on student understanding of mathematics."

Dr. Heal lives in North Logan, Utah, with his wife, Christi, who works as a nurse at Logan Regional Hospital. They are the parents of two sons and two daughters.

AWARDS...

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College of Science Advisor of the Year



David B. Drown

The College of Science Advisor of the Year is **Dr. David B. Drown**, Department of Biology. Dr. Drown's success as an advisor can be judged in several ways—in the successful academic careers of his advisees, in their professional achievements, and in their high regard and affection for him. During his 21 years of service at USU, he advised thousands of students in his positions as director of the public health program and director of undergraduate studies. He retired 31 August 2000.

Dr. Drown received a BS degree in liberal arts (biology/geology) from the University of Wisconsin-Superior in 1967, an MS degree in biological sciences from Michigan Technological University in 1969, and MPH and PhD degrees in environmental health from the University of Minnesota in 1970 and 1973, respectively.

He came to USU in 1979 after working in industry for six years. His goal had always been to teach public health/industrial hygiene at the university level; however, he felt that "it was necessary to learn what I was going to teach before I taught. I wanted that hands-on experience, which has been extremely valuable over the years." His early experiences working in industry and his later consulting work allowed him to relate classes and laboratories to real-world situations and also gave him industry contacts that kept him current in the field and provided internships and permanent employment for his students. He became a diplomat of the American Academy of Industrial Hygiene in 1980.

According to Dr. Drown, the most important characteristic of a good advisor "is to be able to talk to students straight across and not down." A good advisor learns the names of his advisees and follows them while they are in the program and afterward, becomes a friend to his students ("but not a friend when it comes to grading"), has an open door policy, and is a mentor, giving both good advice and good practice to follow.

Dr. Drown particularly enjoyed the "people part" of his job, i.e., the associations he had with students and colleagues over the years. He works to maintain those associations; he has followed the careers of the majority of his public health advisees, knowing today the whereabouts of about 75 percent of graduates over the past 20 years. He functions as a "clearing house" for an industrial hygiene job network for former graduates, with those looking for jobs or having jobs to offer getting in touch with him.

Dr. Drown's success as an advisor is probably best demonstrated by the following remarks from former students. "He is the best advisor on campus." "I'm fortunate to have been exposed to his knowledge, influence, encouragement, and integrity." "I trust and value his opinion and knowledge and will continue to seek his counsel in the future."

Dr. Drown's colleagues are also highly supportive of his selection as Advisor of the Year. Dr. Richard Mueller (Department of Biology) says, "[Dave] has worked tirelessly on behalf of our students. It is relatively easy to explain requirements to students and help them make timely progress but Dave does more than that. He gives them career guidance to make sure they are in a major that is well suited to their interests and abilities. He spends many hours placing them in Co-op employment and assists them in their search for permanent employment. He honestly cares about their plans and success beyond the few years of direct guidance he can offer them in school.... Dave has been and continues to be a model of what a caring and knowledgeable advisor should be."

In addition to the thousands of students he has trained and advised, Dr. Drown leaves as a legacy a nationally recognized public health/industrial hygiene program that he almost single-handedly built from the ground up. This program is one of only five undergraduate industrial hygiene programs in the country accredited by the Accrediting Board for Engineering and Technology.

Dr. Drown was recently elected a Fellow of the American Industrial Hygiene Association, an honor given to a select few members. Previous awards include College of Science Advisor of the Year in 1992, Top Prof (USU Mortar Board Honor Society) in both 1992 and 1993, and Phi Kappa Phi National Honor Society honoree in 1993. He received a Meritorious Achievement Award from the Utah section of the American Industrial Hygiene Association in 1994.

Now that he is retired from USU, Dr. Drown plans to travel and hike with his wife, Sue. He will continue to keep up with public health/industrial hygiene graduates on an informal basis and do consulting work in industrial hygiene. He will also make good use of the marvelous gift presented to him by his students at his retirement reception—a pontoon boat for fly fishing. Dr. Drown says of the gift, "It was a tremendous personal reward. These penniless students came up with this wonderful gift. I have developed friendships with some of these students that will go on forever."

College of Science PhD Student Researcher of the Year



Sedonia D. Sipes

Sedonia D. Sipes, Department of Biology, is the PhD Student Researcher of the Year in the College of Science and also Graduate Student Researcher of the Year for the entire university. Sedonia obtained a BS degree in biology from West Texas State University in 1989 and an MS degree in biology from USU in 1995. She is just completing a PhD degree in biology from USU, after which she will conduct postdoctoral research in insect systematics at Cornell University.

"My interest in biological systematics can be traced to an early fascination with 'kinds of things,'" says Sedonia. "When I was young, I collected seashells, fossils, and houseplants, and kept them organized and labeled. As I began studying science in college... I became interested in other topics, and systematics and taxonomy actually seemed to be trivial issues.... I was apparently not alone in this erroneous thinking.... There is a long-standing bias in science against studies that are descriptive and historical in nature, including taxonomy, systematics, and evolution. Yet these topics impinge on every aspect of biology, from gene regulation to ecosystem function.... As my own research interests expanded into population ecology and evolution, I...realized how progress in these fields is limited by our understanding of the phylogenetic relationships among living things.

"With very recent technological improvements in molecular biology, including sophisticated software, powerful computers, and improved molecular techniques such as automated DNA sequencing, reliable phylogenies ('trees' estimating relationships among organisms) have become more and more feasible to produce. Estimates of phylogenies provide evolutionary biologists with new insights into how adaptive characteristics, behaviors, and ecological relationships have evolved. For these reasons, I chose a dissertation project that integrated ecology, evolution, and systematics.

"I studied the evolution of host-switching in a genus of native bees that are pollen specialists. Unlike honeybees, which will collect pollen from whatever plants are available, specialist bees will collect pollen only from a few closely related plant hosts. The genus of bees I studied, *Diadasia*, contains species that specialize on several different native plants.... [The] interesting question to me was *why* different species of *Diadasia* specialize on different plant hosts. What evolutionary forces may have caused the ancestors of extant species to switch hosts? I used DNA sequence data to estimate the relationships among *Diadasia* species in order to gain insight into these questions. I found that host switching has probably been rare in the evolutionary history of *Diadasia*. For example, I found that all the species using cactus pollen are more closely related to each other than to species using other host plants.

Thus, the switch to cactus as a host has probably only happened once. My research will provide answers to some evolutionary questions, but will also raise many additional questions that I will address in the future."

Dr. Paul Wolf (Department of Biology) was Sedonia's PhD thesis advisor. "Sedonia is the best student I have encountered in the last seven years," he relates, "and if a better one comes along it will probably be because they were influenced in some way by Sedonia. I am not looking forward to losing her from my lab but I am looking forward, with pride, to seeing her building her own research and teaching programs."

Dr. Edmund D. Brodie, Jr. (department head) rates Sedonia as "the most outstanding research student in the Department of Biology. In the last five years, she has published seven peer-reviewed papers. She has an additional paper submitted [that has now been accepted] and four in preparation. These have mainly been in top journals for her field. In addition, she has published four nonreviewed papers and written four governmental reports. She has received six competitive grants in support of her research, including a prestigious NSF dissertation improvement award."

Sedonia participated in a variety of other research projects also, working with both plant and animal systems and using both field and laboratory methods. As a teaching assistant, she taught a variety of classes. As research assistant for Dr. Wolf, she taught laboratory procedures and mentored numerous undergraduate and graduate students. During Dr. Wolf's sabbatical last year, Sedonia supervised the department's DNA analysis facility.

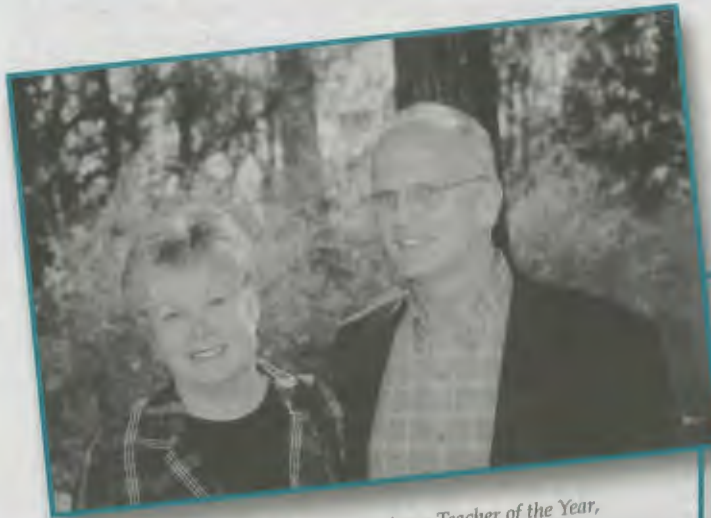
She served on the departmental Graduate Programs Committee, on two departmental faculty search committees, as president of the Biology Graduate Student Association, as student representative on a committee to improve the training of biology teaching assistants, and as a manuscript reviewer for the *International Journal of Plant Sciences*. She also participated in a seminar to teach the scientific method at a local middle school and the Expanding Your Horizons program for young girls.

In addition, Sedonia served as president of a middle eastern dance club. She also enjoys playing the fiddle and sewing. She is married to Mark Sipes.

Sedonia expresses her gratitude to Dr. Wolf and Dr. Vince Tepedino (Bee Biology and Systematics Lab, and Department of Biology), her MS thesis advisor and PhD committee member.

AWARDS...
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College of Science



Dr. Robert Heal, College of Science Teacher of the Year, and wife, Christi.

Linda DuHadway (left), Theodore M. Burton Endowed Scholarship recipient; Dean MacMahon; and Amy Burton Moore (right), granddaughter of Theodore Burton.



Julie Conlin, honors graduate, and Dean MacMahon.



Lynsi Lund (Mountain Crest High School), pianist.



Dean MacMahon and Dr. Peter Kolesar, Department of Geology, 25 years of service.

Awards Program



Graduates and their families, faculty, staff, and guests enjoy the Graduation Open House.



Graduation Open House

AWARDS...

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College of Science MS Student Researcher of the Year



Xiaoxin (Mike) Chen

The MS Graduate Student Researcher of the Year is **Xiaoxin (Mike) Chen**, who recently graduated with a master's degree in computer science. Originally from Shanghai, China, Mike earned a BS degree in computer science in 1997 from Shanghai Jiao Tong University.

Mike's thesis project involved distributed Java. According to his advisor, Dr. Vicki Allan (Department of Computer Science), "Current distributed shared memory systems suffer from portability problems

which hinder popularity.... [Mike] proposes a distributed shared memory system as a distributed implementation of the Java Virtual Machine (JVM). The proposed system is unique in that it provides a user-friendly, flexible programming model based on pure Java. It is an object-based memory system which maintains the synchronization scope as the whole address space, like page-based systems. *MultiJav* demonstrates that it is possible to design an efficient, portable, distributed shared memory system for running parallel and distributed applications written in a standard language.

"Mike acquired a version of the JVM for Sun stations and has written thousands of lines of code to implement his distributed system.... Because of his talent for implementation and his love of theory, he makes phenomenal progress.... Mike is a most amazing student.... Over the past fourteen years that I have been advising master's students, I have had no better student than Mike."

Dr. Dan Watson (Department of Computer Science) was a member of Mike's thesis advisory committee and taught Mike in two classes. Dr. Watson states, "If I were to rank Xiaoxin with all of the other students that I have worked with, I would place him in the top 1% without reservation.... [He is] something that I rarely find in my classes: a true scholar."

During 1998 and 1999, Mike held summer internships with Hewlett-Packard (HP) Company. He worked in the Performance Delivery Lab on a software migration project concerned with computer architecture, operating system design, and compiler optimizations, and in the Application Delivery Lab on application performance monitoring tools for the Aries project. Elizabeth Sanville from HP writes, "During his internship, Xiaoxin was tasked with designing and implementing a threads test suite for our emulation system.... [He] did an outstanding job.... Xiaoxin's test suites not only uncovered defects in the PA HP-UX implementation, but aided in the verification of the threads emulation system.... [His] test suites were invaluable in meeting our milestones and will have lasting value to the project."

Other major projects in which Mike was involved while at USU include design and implementation of an experiment thread based distributed operating system on virtual MIPS machines, a network meeting application ("FreeTalk") in Java, and a C to Java translator for the Boeing Company. He has two journal publications and another two submitted. In 1998, he won third prize in the JavaQuest Programming Contest of the Association of Computing Machines.

Currently, Mike is employed by the HP eServices Developers Lab where he is working on a "very cool" project. Mike says, "What we are doing now is we are making a virtual machine. A virtual machine is a software that simulates a hardware prototype. The software is traditionally used to measure the performance of the applications that will later run on the hardware. Our project is even one step ahead. The virtual machine we designed will run on the new hardware to emulate the application on the old HP Unix servers and workstations with no performance loss. The platforms are completely different. Normally doing this is very slow, and not all programs can run correctly. However, our project ensures that all programs on the platform can directly run on the new hardware with no loss in speed."

Mike's hobbies include classical and modern music, chess, bridge, modern art, and sports, particularly soccer, tennis, and basketball.

Mike expresses his thanks to Dr. Vicki Allan. "She not only helped me with the research and told me how to do things technically in computer science, she was also a supervisor for life. She helped me make a lot of decisions." In addition, he thanks his friends at USU for their support.

College of Science Graduate Student Teacher of the Year



Scott B. Smith

Scott B. Smith, Department of Mathematics and Statistics, is the Graduate Student Teacher of the Year. Scott plans to graduate during the 2000 - 2001 school year with a PhD degree in mathematics.

Scott's effectiveness as a teacher is characterized by one of his introductory calculus students: "I believe that Scott is the best teaching assistant that I have encountered in my three years in college.

Despite my lack of enthusiasm for the subject and my reluctance to attend calculus at seven-thirty in the morning, I was very impressed with how much I had learned and enjoyed Scott's class last semester.... He not only worked very hard at teaching us, but I think he had a natural gift for creating an environment that induced learning and a greater respect for mathematics." Another student affirms, "I can honestly say that

Scott taught in a manner that one could not *not* understand calculus.... [He is] the best math teacher I have ever had."

Dr. Joe Koebe, graduate director of the Department of Mathematics and Statistics, states, "After reading through Scott's evaluations for the past semester I was impressed with the number of students who made specific comments about the effectiveness of the instruction in the course.... He is clearly doing a great job for us and will be an excellent teacher when he leaves USU."

In his teaching statement, Scott discusses the habits and characteristics that contribute to successful teaching. These include presenting clear and easily understood explanations, being well-prepared, being punctual, grading tests and assignments as soon as possible, encouraging students, setting high standards, treating students fairly, making clear what is expected of students, having a sense of humor, being enthusiastic, and soliciting input from students.

Scott came to USU after earning a BS degree in mathematics from Weber State University and an MS degree from the University of Utah. He is currently writing a dissertation on variational methods in partial differential equations (Dr. Renate Schaaf, thesis advisor). After graduation, he hopes to continue to teach and do research on mathematics at the university level.

Scott has several USU alumni in his immediate family, including his father, Brian Smith (BS 1967, entomology; PhD 1972, toxicology); mother, Joy Rice Smith (attended); paternal grandfather, Orlando Smith (BS 1939, general agriculture); paternal grandmother, Aleetha Reeder Smith (MS 1972, elementary education); maternal grandfather, Clifford F. Rice (BS 1949, industrial technology); and his maternal grandmother, Joyce Green Rice (attended). Scott's sister, Krista Preheim, is presently working on a PhD degree in sociology at USU.

Scott would like to thank his wife, Ha Chau (a human resource management major), and his parents for their support.

College of Science Valedictorian



Tasha VonNiederhausern

Our valedictorian is **Tasha VonNiederhausern**, a premedical student who graduated this spring with a major in biology and minor in chemistry. Tasha, 22 years old, is from Malabar, Florida. She chose Dr. John Stark (Department of Biology) as her escort at the College of Science graduation ceremony.

While at USU, Tasha received numerous academic awards and several scholarships, including four USU Presidential Non-Resident Scholarships, four Robert C. Byrd Honors Scholarships, three General Henry H. Arnold Education Awards, and a Space Coast Credit Union Scholarship.

Tasha was employed as a laboratory assistant in biology teaching laboratories and later volunteered as a teaching assistant (TA) intern. Alice Lindahl (lecturer, Department of Biology) supervised Tasha in both positions. Ms. Lindahl states, "She is great [as a TA intern]..., as she has a lot of confidence in her knowledge of biology and she carefully prepares each week.... Tasha has a bright future in whatever field she commits herself to. Her maturity, commitment to her career, and her accomplishment as one of our top students will serve her well in her profession."

While employed as a laboratory assistant in the USU Biomedical Immunology Lab, Tasha helped conduct research on immunological and genetic differences between autistic patients and normal subjects. Her supervisor, Alma Maciulis, states, "Tasha was an exceptional person to work with. She was given a protocol, shown a technique once, and produced final written results without any further supervision. Always willing to help (with a smile), Tasha was an asset in our immunology laboratory."

Transitions

Promotion and/or Tenure

Department of Chemistry and Biochemistry

Alvan C. Hengge, tenure and promotion to associate professor

Department of Mathematics and Statistics

E. Robert Heal, promotion to professor

Dariusz Wilczynski, tenure and promotion to associate professor

Eric Rowley, promotion to senior lecturer

Department of Physics

Lie Zhu, promotion to research associate professor

Retirement

Department of Physics

William Pendleton

AWARDS...

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AWARDS...

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Tasha was a member of Alpha Epsilon Delta premedical club, volunteered at the radiology department and outpatient clinic of Logan Regional Hospital, served as a Red Cross volunteer, and served as a Boy Scouts of America cub camp volunteer (where she ensured that scouts participated in activities "with minimal damage to property and each other"). Her hobbies include hiking, running, playing racquetball, playing piano, reading, and writing poetry.

Ultimately, Tasha hopes to attend medical school and become a pediatrician. However, because she was recently married (to Kyle Merrill, BS 2000, mechanical engineering), her immediate goal is to join her husband in attending graduate school at Purdue University.

Tasha has several USU connections in her family. Her father, Rudolf N. VonNiederhausern, earned a BS degree in electrical engineering in 1978; her sister Sonia V. Holmquist attended for two years; her sister Corinna is currently a bioveterinary science major; her uncle Gordon VonNiederhausern received BS and ME degrees in electrical engineering in 1994 and 1997, respectively; and her uncle Hugh VonNiederhausern received BS degrees in geology and physics in 1994 and 1997, respectively.

Tasha expresses thanks to her family (especially her uncle Bruce VonNiederhausern) and the faculty and staff at USU, particularly biologists Alice Lindahl, John Stark, and LeGrande Ellis, and the faculty and staff of the Department of Physics and the Center for Atmospheric and Space Sciences.

College of Science Scholar of the Year



Tyler L. Christensen

Our Scholar of the Year is **Tyler L. Christensen**, a biology major and chemistry minor, who graduated this spring. "I have devoted my time at Utah State University to acquiring knowledge. I enjoy the learning process and I have committed myself to becoming an outstanding scholar," says Tyler. Evidence of his academic success is his regular presence on the Dean's List and receipt of several scholarships, including the Utah State Sophomore Tuition Waiver Scholarship, the Seely-Hinckley

Scholarship, the Thomas L. Böhler Scholarship for two consecutive years, and the Oscar Wood Cooley Scholarship.

Tyler worked for two years in the laboratory of Dr. Daryll DeWald (Department of Biology) on projects investigating phospholipid signaling and protein trafficking in yeast cells. According to Dr. DeWald, "This is a nationally funded (American Cancer Society grant) scientific project and his results will likely be part of a

refereed journal publication with him as a coauthor. In fact, he wrote a proposal and obtained partial funding for his project through the office of the Vice President for Research here at Utah State University (the Undergraduate Research and Creative Opportunities program)." Tyler's research project was on suppression of mutant phenotype in YES95 in *Saccharomyces cerevisiae*. "Tyler is a remarkable young man whose character, commitment, and intellect make him a standout," states Dr. DeWald. "He is an outstanding young scholar whose character and achievement are a wonderful reflection on Utah State University."

A certified nurse's assistant, Tyler has worked in geriatric care. He has volunteered extensively in the community—as a tutor in inner city elementary schools, an activities coordinator in a nursing home, a supervisor in a children's nursery, and a worker in the Logan Regional Hospital emergency room. He served a two-year ecclesiastical mission for the Church of Jesus Christ of Latter-day Saints. In his spare time, he enjoys spending time with family, hiking, cross-country skiing, mountain biking, camping, reading, and cross-stitching.

Joining Tyler in graduating from USU this spring were his wife, Angie (secondary education), brother Timothy (civil engineering), and brother Brady (business). His mother, Vivian Spackman Christensen, obtained a BS in home economics education in 1973, and his sister Jenifer Christensen took courses at USU for her nursing degree.

Tyler is beginning medical school this fall at the University of Utah. In regard to Tyler's decision to attend medical school, Dr. DeWald states, "If he chose to pursue a career in science, I would be delighted to have him join my lab as a graduate student. However, he has decided to enter the field of medicine because he feels that he can more directly help people. Science's loss is medicine's gain."

Tyler attributes much of his success to the support of those around him. He expresses gratitude to his wife, family, friends, and professors, particularly Dr. DeWald.



Ask the Scientist

*Inquiries about the World,
Answered by College of Science Faculty*

What is the best science Web site?
Dave Hoyt, BS 1979, Public Health.

Because the "best" science Web site can be a very subjective issue, we asked several College of Science personnel to give us their opinions

regarding educational, fun, and/or interesting Web sites in their field or science in general.

General Science

John Hanks (computer specialist, Department of Biology) suggests the Web site of *Popular Science* magazine, www.popsoci.com. *Popular Science* publishes and provides links to an annual 50 Best of the Web list. He also recommends the Web site of *Discover* magazine, www.discover.com, which publishes and provides links to Picks of the Web.

Dr. David Peak (Department of Physics) rates the Web site of the Exploratorium in San Francisco, www.exploratorium.edu/, as one of the best general science sites.

Dr. Robert Heal (Department of Mathematics and Statistics, College of Science Teacher of the Year, see article on p. 15) says, "For current issues in science, NASA (the National Aeronautics and Space Administration), www.nasa.gov, is hard to beat."

Biology

Dr. William Brindley (Department of Biology) uses Evolution on the Web, www.jbpub.com/evolution/, in his courses. Using its links and exercises "you can run past more than 150 decent sites and take your pick. The best of all is MendelWeb, www.netspace.org/MendelWeb."

Chemistry and Biochemistry

Dr. Stephen Bialkowski (Department of Chemistry and Biochemistry) refers readers to the Research Tools and Links site on the Chemistry and Biochemistry server, www.chem.usu.edu/chemtools.html. This site has links to online research tools in thermodynamics, spectroscopy, safety, mathematics, and biochemistry; other chemistry and biochemistry sites, and various government sites. "My personal favorite is the Umea University site at www.anachem.umu.se/jumpstation.htm."

Computer Science

Mike Chen (College of Science MS Researcher of the Year, see article on p. 20) suggests four "interesting and informative" computer science Web sites. The home page of the World Wide Web consortium, www.w3.org, contains the complete and official documents on standard Web page scripts and provides detailed instructions on Web page implementation. The Linux home page, www.linux.org, includes numerous applications for Linux in addition to various versions of Linux itself. Although membership is required to view various publications on the Web site of the Association of Computing Machinery, www.acm.org, "one can still find lots of interesting and insightful information." The Web site of the Institute of Electrical and Electronics Engineers Computer Society, www.computer.org,

"provides a wide range of information—from the history and evolution of computer science to pioneering research topics in the field to the cutting-edge technologies being developed."

Sabra Dinerstein (Outstanding Student in the Department of Computer Science, see article on p. 28) likes two additional computer science sites—www.opengl.org "contains good information and examples on graphics programming" and www.codeguru.com "contains a lot of code examples for Windows programming. You can find just about anything on this site."

Geology

Dr. Peter Kolesar (Department of Geology) recommends volcano.und.nodak.edu/ as an excellent site on volcanos; www.earthwaves.org/ as having good links to many different earth science topics; www.ucmp.berkeley.edu/ as a good site for fossils, especially dinosaurs; and both www.uh.edu/~jbutler/anon/gpvirtual.html and cc.usu.edu/~sharohl/geology.html as good sites for virtual geology field trips. The USU Web site, cc.usu.edu/~sharohl, also has links to fun and educational geology sites and to government agencies and universities.

Dr. Bradley Ritts (Department of Geology) also suggests the Web site of the American Geological Institute, www.agiweb.org.

Mathematics and Statistics

Dr. Robert Heal offers several Web sites for mathematics and mathematics education. The "best" mathematics site is The Math Forum at www.mathforum.com. It features an Internet mathematics library, Ask Dr. Math, discussion groups, newsletter, problems of the week, and Web units and lessons for teachers. The MarcoPolo site, www.wcom.com/marcopolo/, provides no-cost, standards-based Internet content for the kindergarten-grade 12 teachers and classrooms. Online resources include materials to help with daily classroom planning, brief and extended lesson plans, links to related high-quality sites, and powerful search engines. "Most of the math activities for this site were developed by our USU team." The Chance Web site, www.dartmouth.edu/~chance/, helps students become more informed, critical readers of current news stories that use probability and statistics. Of course, Dr. Heal recommends the Web site of his National Science Foundation project, www.matti.usu.edu, with its interactive virtual manipulatives and concept tutorials, mostly in the form of Java applets, for mathematics instruction (see article on p. 15). He thinks the best Web site for professional mathematicians is www.maa.org, the Web site of the Mathematical Association of America.

Dr. James Cangelosi (Department of Mathematics and Statistics) also recommends for mathematics education—www.nctm.org, the Web site of the National Council of Teachers of Mathematics.

Physics

One of **Dr. David Peak's** favorite sites is www.soda.co.uk/soda/constructor/index.htm, "a site that allows you to design your own 'walking' robotic beast." He also likes "Fiziks Fizzle" at library.advanced.org/tq-admin/month.cgi, which has a lot of physics material at various levels. The *Quantum Magazine* site, www.nsta.org/quantum/, has good articles.

*If you have a question for Ask the Scientist,
please fill in the appropriate line on the ALUMNET form
(located on the back cover of this issue),
or email us at scido@cc.usu.edu.*

Welcome to New Department Heads and New Faculty Members



Steven I. Scheiner

The College of Science is pleased to welcome three new department heads and three new faculty members this fall.

Dr. Steven I. Scheiner is the new head of the **Department of Chemistry and Biochemistry**, succeeding Dr. Vernon Parker. Prior to coming to USU, Dr. Scheiner was at Southern Illinois University. He earned a BS degree in chemistry from the City College of New York in 1972, an AM degree in chemistry from Harvard University in 1974, and a

PhD degree in chemical physics from Harvard University in 1976. He was a Weizmann Postdoctoral Fellow at Ohio State University during 1976 - 1978.

Dr. Scheiner's research interests include quantum chemistry, proton transfers, and hydrogen bonding. Current research projects are on proton transfers, theoretical studies of hydrogen bonding, excited state proton transfer, unconventional hydrogen bonds, and tunable optical polymer systems. He has more than 185 scientific publications and has attended several Gordon Conferences, including serving as chair of the 1994 Gordon Conference on Protons and Membrane Reactions.

At present, he has a \$488,000 grant from the National Institutes of Health (General Medical Sciences) to use quantum chemical methods to understand very weak interactions between molecules, in particular hydrogen bonds. He is also the "token theoretician" on a \$238,000 multi-university grant from the Multidisciplinary University Research Initiative of the Army Research Office to develop new materials with particular photo properties.

"My first goal as department head is to understand how everything works," says Dr. Scheiner. "Integral to that is understanding the budget. Another strong goal that I have is to begin to raise private funds for the department. The faculty are very good at grantsmanship; almost everyone has external funds. But at the same time, for the department to operate efficiently and optimally, there is a strong need to get an infusion of funds from donors, corporations, etc. There is a lot of money out there which could fill some big needs. One of those is recruitment of graduate students. One of the things to help attract excellent graduate students is to have some significant fellowships, and that's a target that I have too." Other departmental needs that Dr. Scheiner would like to address include hiring a lab manager for instructional labs and a technician to maintain the nuclear magnetic resonance (NMR) and other expensive, sophisticated electronic machines.

"It's wonderful" is Dr. Scheiner's evaluation of the new Widtsoe Chemistry Building. He particularly likes its spaciousness, well-designed labs, and good temperature control. In regard to USU, he

says, "I like this university's dedication and commitment to research and broadening knowledge. I like that they don't think of research as separate from teaching. The area is a nice area to attract students and visiting faculty. And, the university has an atmosphere that is very conducive to research and interaction among students and faculty."

Dr. Scheiner and his wife, Lois, live in Nibley. Lois works in mental health and special education of deaf individuals. Although he does not have much spare time, Dr. Scheiner combines commuting with fun by riding a bike back and forth to work.



John W. Shervais

Dr. John W. Shervais succeeds Associate Dean Don Fiesinger as head of the **Department of Geology**. Dr. Shervais comes to USU from the University of South Carolina. He received a BS degree in 1971 from San Jose State University and a PhD degree in 1979 from the University of California at Santa Barbara. During 1979 - 1980, he was a NATO Post-Doctoral Fellow at Eidgenössische Technische Hochschule (the German-Swiss Polytechnic Institute) in Zurich, Switzerland.

In his research, Dr. Shervais investigates igneous petrology, particularly the physical and chemical processes that lead to the creation and modification of magma, its eruption on the surface, and its depth of intrusion, and how these factors are related to the different tectonic settings in which magma is formed. His primary research tools are major and trace element geochemistry and mineral chemistry. Current research projects are on mantle plumes and continental volcanism in the Snake River Plain, ophiolites and oceanic crust in the California coast range, island arcs and accreted terranes in the southern Appalachians and Pakistan, metasomatism and magma evolution in the Earth's upper mantle, and petrogenesis of the lunar highland crust.

"One thing I like about the department is that it seems to have a good emphasis on teaching and pride in teaching at the undergraduate and graduate levels," says Dr. Shervais. "Teaching is a strong point here." Examining and updating the curriculum are among the challenges he sees for the department.

If you are aware of anyone who is not receiving Insights and would like to do so, please contact us at Insights, Office of the Dean, College of Science, Utah State University, 4400 Old Main Hill, Logan UT 84322-4400; email us at scido@cc.usu.edu; or fax us at (435) 797-3378.

"I want to look at what we need to do to get the department to grow," he states. "We need to get more students and student credit hours. In addition, we are a research institution and one of the things we are expected to do in addition to teaching is to carry out research, preferably funded research. One area that needs to be addressed is to boost the external funding for the department. We need to look at getting more people in both hard and soft money research positions."

Dr. Shervais says he enjoys working at USU, with its nice people, relaxed atmosphere, and great location. His wife, Marie, is a technical writer. They and their daughter, Katherine, live in Logan. Dr. Shervais also has a son who lives in California.

In his spare time, Dr. Shervais likes to hike, mountain climb, bike, canoe, and camp. A member of the American Alpine Club, he says that climbing was "a big reason" to move back west.



Russell C. Thompson

Dr. Russell C. Thompson has been appointed head of the **Department of Mathematics and Statistics**, succeeding Dr. David Sattinger. At USU since 1978, Dr. Thompson is a full professor. He obtained both BA and PhD degrees in mathematics from the University of Utah in 1968 and 1973, respectively.

As a new department head, Dr. Thompson states that his first goal is "to gain an understanding for the job and get a better idea of how things work in the

department." In addition, he says, "There are a lot of interesting things that are going on. Our faculty has gotten better over the years and our research programs keep getting stronger and stronger." Dr. Thompson sees "a lot of opportunities" for the department. "There are very many good ideas that are coming from faculty members, and I would like to be helpful there—I think that is going to be one of my main goals."

Among the challenges facing the department is the huge number of students taught every semester. "We are expecting a total enrollment of more than 4,000 students in our mathematics and statistics classes this fall. Most of the burden of dealing with the large number of classes falls on the shoulders of assistant department head, Dan Coster, and just managing this many courses is quite a challenge," states Dr. Thompson.

In addition to his administrative duties, Dr. Thompson is working on a textbook on differential equations with Dr. Klaus Schmitt at the University of Utah.

Dr. Thompson's wife, Janet, is a registered nurse working at Logan Regional Hospital on the surgical floor. They live in Logan and have five children.




Eric D. Held

Dr. Eric D. Held is a new faculty member in the **Department of Physics**. He obtained a BS degree in engineering physics and BA degrees in mathematics and German from South Dakota State University in 1994, and MS and PhD degrees in nuclear engineering and engineering physics from the University of Wisconsin-Madison in 1997 and 1999, respectively. This past academic year, he conducted research at Los Alamos National Lab as a Fusion Energy Postdoctoral Fellow.

Dr. Held states, "My general research goal at USU will be to work with Dr. Farrell Edwards [Department of Physics and Center for Atmospheric and Space Sciences] to further develop a productive research program in the areas of magnetic fusion and plasma astrophysics. Assisting in the development of magnetic fusion as an environmentally sound and economically viable energy source is one the primary goals of my research. The specific area in which I work is referred to as closure theory which seeks to incorporate electron and ion particle effects into fluid models of fusion-grade

NEW FACULTY...

Continued on page 26



Utah State University

COLLEGE OF SCIENCE

Department

Alumni & Friends

Current

Undergraduate

Graduate

Academic

Research

Student

Faculty

Administrative

Financial

Information

The College of Science Web page has a new look, new and updated information, and a new address—www.science.usu.edu. Visit the Alumni & Friends site to read past issues of *Insights* (Volumes 6 - 8), discover how you can help the College, and view a listing of donors. At the Eccles Science Learning Center site, read all about the Learning Center, view real-time photos of its construction from the College of Science Webcam, see movies of old Widtsoe Hall demolition and Learning Center construction, and examine computer renderings of the interior and exterior. Lots of information of interest to alumni and friends is available on our Web page—please visit!

www.science.usu.edu

NEW FACULTY...

Continued from page 25

plasmas. While at USU, I also plan to apply these theories to problems involving astrophysical plasmas which comprise approximately 99% of the matter in the universe.

"My wife, Nicole, is a terrific mother and aerobics instructor. Our children are Greta (age 5), Ericson (age 3) and Gavin (age 1). They are very active, much like I was as a child. I enjoy playing the piano and guitar in my spare time. I also enjoy running, lifting weights, playing tennis and hockey, and spending time with my family."



Timothy A. Gilbertson

Dr. Timothy A. Gilbertson joins the **Department of Biology** as an associate professor. Dr. Gilbertson received a BA degree in biology and psychology from the University of California at San Diego in 1981 and MA and PhD degrees in zoology-neurobiology from the University of California at Davis in 1988 and 1991, respectively. Since 1993 he has been at Louisiana State University, most recently as associate professor and chief of the Pennington Biomedical Research Center and adjunct associate professor in the Department of Biological Sciences.

"My research focuses on the basic neurobiological mechanisms of nutrient recognition by the taste system," says Dr. Gilbertson. "In particular we are interested in identifying the taste transduction (signaling) pathways and determining how these pathways respond to changes in an organism's nutritional status. We also explore the mechanisms that other organs (pancreas, intestine, liver) use to recognize the presence of essential nutrients. Our work has practical applications in the design of taste substitutes and food additives and in the treatment of eating disorders.

"At Utah State, I will continue this work and focus, in part, on following up our recent findings in which we identified the first gustatory mechanism for the detection of fat. We found that rats prone to dietary obesity are much less responsive to the taste cues in fat than those rats that are resistant to obesity. This link between peripheral sensitivity to taste stimuli and ingestive behavior has been largely unexplored and remains a central focus in the laboratory. Other funded projects in the laboratory deal with the mechanisms and control of salt and water taste, the specificity of taste receptors in the oral cavity, and the identification of pathways activated during taste-guided behaviors. Our ultimate goal is to understand the role of the taste system in the control of ingestive behavior." Currently, Dr. Gilbertson has research grants totaling more than \$1 million from the National Institutes of Health and Novartis Pharmaceutical Corporation.

Dr. Gilbertson's wife, Donna, will be an instructor in the USU Department of Psychology. She will receive a PhD degree from Louisiana State University this fall. Her area of specialization is

school psychology, particularly design and implementation of interventions to promote academic and behavioral progress in at-risk children.

"Like many people, Donna and I were drawn to the Logan area because not only did it provide us with a wonderful academic environment, but also because it afforded us the opportunity to pursue a number of outdoor activities in our spare time," relates Dr. Gilbertson. "We are both avid hikers and skiers (snow and water) and enjoy biking, rollerblading, recreational volleyball, and virtually anything that gets us in the outdoors. I also enjoy working around the house and am one of the most enthusiastic (obsessed?) supporters of the Denver Broncos you will find."



Piotr S. Kokoszka

Dr. Piotr S. Kokoszka comes to the **Department of Mathematics and Statistics** as an assistant professor. He obtained MA and PhD degrees from the Technical University of Wroclaw (Poland) in 1988 and 1990, respectively, and a PhD degree from Boston University in 1993. Since 1996, he was at the University of Liverpool (UK).

"My research focuses on statistical and probabilistic analysis of time series," says Dr. Kokoszka. "In elementary statistics, it is typically assumed that a data set under study is generated by repeated independent observations or measurements of some quantity. A time series is a sequence of observations that are ordered in time (e.g., maximal daily temperatures in Logan) and exhibit some dependence (e.g., if the maximum temperature today is 101°F, it is more likely that the maximum temperature tomorrow will be above 95°F than below 60°F—tomorrow's temperature depends on today's temperature). My research is primarily concerned with analysis of stochastic processes that are used to model financial data, e.g., daily foreign currency exchange rates and data that exhibit very strong temporal dependence, so-called long memory or long-range dependence. Such strongly dependent data sets are common, for example, in geophysical sciences and information networks. At USU, I intend to continue and expand my research in these areas.

"I am married to Gudrun, who is now a master's student at USU in an interdisciplinary program in mathematics and computer science. We got married in Salt Lake City in 1995 when I was a postdoc in the Mathematics Department at the University of Utah and she was completing her degree in economics. During our four-year stay in Liverpool, England, Gudrun gained experience in software development for relational databases working first as an analyst/programmer for Fraser Williams Ltd. (a company developing logistics software for sea ports) and then as a senior analyst/programmer for the University of Liverpool. Gudrun and I enjoy outdoor activities and sports. We particularly like tennis, swimming, cycling, and hiking."

Outstanding Students Recognized by College

The students profiled here reflect the high academic standards and love of science that we encourage in the USU College of Science. Each was chosen by his or her department for outstanding achievement during the 2000 - 2001 academic year.

Department of Biology



Jevin D. West

The Department of Biology selected as its outstanding student **Jevin D. West**, who is 22 years old and from Ammon, Idaho. Jevin graduated in May, magna cum laude, with a BS degree, majoring in biology (premedical program) and minoring in chemistry. He began graduate school here this fall.

As an undergraduate, Jevin was the recipient of a Presidential Scholarship, a Columbia/Health Care Administration Health Care Foundation Scholarship,

a USU athletic scholarship for tennis, a KPVI (television) Leadership Scholarship, and a National Exchange Club Youth of the Year Scholarship. Among his awards were Dean's List, University Honor Roll, Scholar Athlete, Biology Department Academic Achievement Award, Outstanding Pre-professional Student of the Year Award in the College of Engineering (his freshman year), and All American Collegiate Scholar nominee. He was a member of Phi Kappa Phi academic honor society and Alpha Epsilon Delta premedical honor society.

Jevin conducted research and did computer programming for two years in the laboratory of Dr. Keith Mott (Department of Biology). He received an Undergraduate Research and Creative Opportunities grant to conduct research on stomatal patchiness, i.e., variation within a leaf in the behavior of the stomata (epidermal pores that regulate gas exchange). Jevin, with the aid of Dr. Mott and Dr. David Peak (Department of Physics), investigated whether the patterns of stomatal patchiness seen with humidity perturbations were similar to those of the Belousov-Zhabotinsky (BZ) reaction, a type of reaction-diffusion model seen in chaotic systems. He used a gas exchange system to measure stomatal responses quantitatively and a video capture apparatus to measure stomatal conductance qualitatively via chlorophyll fluorescence. He wrote a computer program that took the difference between the consecutive images of the original captured video images and then colorized the intensities (red and blue representing opening and closing stomata, respectively), and then he produced movies showing patterns of stomatal conductance at different humidity levels. Because this "false coloring" method is a new technique, Jevin and Dr. Mott plan to publish the method in an online journal.

Unlike the BZ reaction, the leaf system did not produce any predictable patterns after humidity perturbations of the leaf at multiples of its natural frequency. "The results do not prove that

the leaf system is not a reaction-diffusion system," says Jevin. "Rather, they suggest that the leaf system is more complex. A next step to this problem could be to build models that incorporate the non-homogeneous background of the leaf system and then to look for similarities in patterns of the model to the patterns seen in stomatal patchiness."

Jevin is currently working to create a method to measure the volume of guard cells (the two cells that change shape to open and close the stomatal pore) using three-dimensional images taken by a confocal microscope.

"The main reason that Jevin is such an excellent student is his enthusiasm, interest, and ability to work independently," says Dr. Mott. "Sure, he learns quickly, but lots of students learn quickly. It is really rare to find a student whose attitude is 'I'll figure out how to do it by myself.' That attitude is particularly important for a graduate student." Dr. Mott will serve as Jevin's graduate advisor.

OUTSTANDING STUDENTS...
Continued on page 28

USU Calendar of Events 2000 - 2001

Fall Semester Final Examinations	11 - 15 December
Spring Semester Begins	8 January
College of Science Phonathan	20 February - 3 March
Founders Day on Campus	8 March
Founders Day in Salt Lake	6 March
Senior Send-Off	25 April
Spring Semester Final Examinations	30 April - 4 May
University Hooding Ceremony	4 May
College of Science Graduation Open House	4 May
University Graduation	5 May
College of Science Graduation	5 May

OUTSTANDING STUDENTS...

Continued from page 27

In addition to his biological research, Jevin participated in a number of other activities. He played on the USU varsity tennis team, was a Student Athlete Mentor and a member of the Student Athlete Advisory Committee, volunteered in the Partner Pals program and in the radiology department of Logan Regional Hospital, and participated in several intramural sports. Among his hobbies are snow skiing, water skiing, camping, golf, traveling, music, and reading.

Jevin's plans for the future are uncertain. He originally planned to go to medical school after college, but he got sidetracked by the fun and excitement of research. "I am going to pursue research for a bit longer and see if that's where I want to go. My best experience at USU was in this lab. It has really enhanced my college experience and I wish all undergraduate science students could have that opportunity." Jevin thanks Dr. Mott for his help, advice, and encouragement.

Department of Chemistry and Biochemistry



Jeremy Haymore

The outstanding student from the Department of Chemistry and Biochemistry is **Jeremy Haymore**, a 23-year-old senior in the BS-Life Science degree program. Jeremy graduated from high school in South Jordan, Utah, and currently claims Peoa, Utah, as home. He was the recipient of a Garth L. Lee Scholarship, a Continuing Sophomore Scholarship, a tuition waiver, and an American Chemical Society Analytical Chemistry Award.

"Jeremy is a very fine student who has been active in organizing the undergraduate students in Chemistry and Biochemistry," states Jeremy's advisor, Dr. John L. Hubbard (Department of Chemistry and Biochemistry). "He has taken the initiative to help start and lead the Chemistry Club. This past year he helped organize a field trip for 20 students and faculty to visit the solid-rocket motor facility at Thiokol. In addition, Jeremy has been very active in research with a group at the USDA Agricultural Research Service. His work in establishing methods of near-infrared instrumentation for the analysis of plant material has been very productive."

Conducting research with USDA plant geneticists Drs. Douglas Johnson, Kevin Jensen, and Kay Asay, Jeremy analyzes livestock forage grasses collected throughout Utah and the western US for several chemical variables, including intake, digestibility, and crude protein. He also scans the samples with near-infrared spectroscopy (NIRS). Then, he correlates NIRS results with analytical chemistry results and develops equations for predicting chemical variables in samples analyzed by NIRS alone. Use of NIRS and the prediction equations allows the scientists to analyze their thousands of grass

samples much more quickly than if they had to run the slow, tedious analytical chemistry tests on each sample. Jeremy also has worked as a departmental teaching assistant for three semesters, teaching general chemistry and organic chemistry laboratories.

In addition to his academic activities, Jeremy has participated in numerous service activities. He volunteers every summer at a camp for children with asthma. He helped repair furniture and toys for donation to people in need; he volunteered in an adult literacy program, at a senior citizen's center, and at the Logan Regional Hospital surgical unit; and he worked with the American Red Cross during the 1997 Ohio River floods. During his two-year church mission, Jeremy volunteered at a Shriners children's hospital where he worked and played with children who had severe disabilities and diseases. As a result of this experience, he began to consider medicine as a profession. "That really changed my view on medicine and what I wanted to do with my life," says Jeremy. He will be applying this fall to attend medical school.

Jeremy's wife, Kristina, is a senior agriculture education major who works as a staff assistant in the Department of Chemistry and Biochemistry. Jeremy enjoys outdoor activities, including camping, fishing, water skiing, and sports.

Jeremy is thankful for the support and encouragement of his wife and parents. "To be where I am today would not have been possible without them," he states. In addition, he names three chemistry professors "who have really made a difference." They are advisor Dr. John Hubbard, physical chemistry professor Dr. Alex Boldyrev, and physical chemistry laboratory professor Dr. William Moore.

Department of Computer Science



Sabra A. Dinerstein

Sabra A. Dinerstein is the outstanding student from the Department of Computer Science. A self-described "computer geek," Sabra graduated magna cum laude with a BS degree in December 1999 and is pursuing an MS degree. She is from Hyde Park, Utah. As an undergraduate, Sabra was the recipient of the Computer Science Power Internship and Scholarship (1997 - 1999). She was a regular on the Dean's List, a member of Phi Kappa Phi national honor society, and the top computer science graduate of 1999 - 2000.

During the summer of 1998, Sabra served an internship at Idaho National Engineering and Environmental Laboratory/Lockheed Martin where she worked on a seismic monitoring project. As part of that project, she built a database system, meant to run on a Sun

machine, to store and analyze information about seismic stations. During the summer of 1999, she had an internship at Hewlett Packard/Agilent Technologies where her project included writing an ActiveX wrapper for an existing DLL (dynamic linked library) of functions, which would be used to remotely control an optical spectrum analyzer. She also worked as a lab instructor and grader for three years in the Department of Computer Science, where she taught BASIC and C++ to beginning students.

As part of her computer science classes, Sabra worked on several projects, including developing a two-dimensional graphics rendering engine and designing and building multiple graphical user interface items (e.g., screen saver, photo album, file shredder). She was part of a six-member team that designed and implemented a Web-based project management tool. Also, she developed a distributed parcel tracking system and designed and documented a Web-based system using UML (unified model language).

"During her time in the Computer Science Department, Sabra distinguished herself in all aspects of her program," states Department Head Don Cooley. "She not only maintained an outstanding academic record, but she was one of the best lab instructors the department has had. She possessed that special ability to answer students' questions so that they truly understood.

No matter what her work load, she always seemed happy and had a smile for everyone."

It is difficult to spend much time in the USU Department of Computer Science without running into Sabra or another member of her family—her father, Nelson, is an associate professor; her mother, Kendra (MS 1990), is a lecturer; her brother Jonathan (BS 1999) is working on an MS degree; and her brother Jared is an undergraduate contemplating computer science as a major. Her brother Joshua received BS and MS degrees in computer science in 1993 and 1997, respectively; her sister Karyn received a BS degree in civil and environmental engineering in 1997; and her sister Kristin took classes at USU toward a nursing degree.

Sabra hopes eventually to obtain a PhD degree and teach at the college level. "I feel strongly though," she says, "that in my field, in particular, professors need to have real-world experience and to have worked in the industry." She has worked since graduation as a software engineer at Sorenson Media, Inc. in Logan. She plans to continue working while she obtains an MS degree and for at least some time afterward.

When not working on the computer, Sabra enjoys reading and spending time with her family.

Science on Display

Robert Hoffmann's ('50) childhood passions accompanied him to the Smithsonian

Reprinted from the Summer 2000 Utah State University Magazine (www.usu.edu/alumni/alummagazine/magazine), with permission of the magazine and author Sally Graves Jackson. Dr. Hoffmann graduated from USU in 1950 with a BS degree in zoology.

On a busy afternoon at the Smithsonian Institution's National Museum of Natural History, a child stares in awe at the skeleton of an 87-foot long *Diplodocus*. She is tiny compared to the long-extinct dinosaur; to study its length she looks up and turns her head from east to west. The animal's shape and size recall the brontosaurus that Fred Flintstone used to dismount so gleefully at quitting time, and its hind feet would leave tracks like wash tubs. After the girl's father reads aloud from the museum's interpretive text, she asks, "How did it get so big?" and then, "How did they find it? Does it live here now?"

It is a moment that an experienced museum administrator like **Robert S. Hoffmann** '50 would appreciate, both for the girl's wide-eyed curiosity and for her perception that the exhibit is somehow alive, present. All museums, whether they house dinosaurs or spaceships or fine art, strive to give visitors not only facts but also new, interesting stories to think about after they leave. A good exhibit can thus become relevant, adding to a visitor's understanding of the world.

In childhood, Hoffmann's passion for animals was nurtured regularly by zoos and natural history museums. That passion became a career which has included five decades of zoological research, teaching, and leadership at two major universities and administrative posts at the Smithsonian Institution. "It's uncommon to shift from an established academic career to museum work, but Robert Hoffmann did just that, with great distinction," says Jim MacMahon, USU's vice president for university advancement. "He's a world-recognized expert on mammals, but he has also been an accomplished leader at the Smithsonian." In 1988, Hoffmann received an honorary doctorate in zoology from USU.

"I knew in grade school that I wanted to be a biologist," Hoffmann said recently in his modest office on an upper floor of the museum. Friendly and welcoming, he speaks of his career with quiet humor and confidence. "When I was a boy, I'd ride my bicycle from our house in a Chicago suburb to a nearby forest preserve to look for whatever I could find," he recalls. "My parents encouraged me; they tolerated all sorts of reptiles and amphibians in the house, and they gave me plenty of independence." With a friend, the young Hoffmann often traveled by streetcar to Chicago's venerable Field Museum, where they were befriended by a curator and discovered the museum's vast collection of specimens. Hoffman also asked for a job at the Brookfield Zoo and was promptly assigned to peanut



Dr. Robert Hoffmann at the Smithsonian

sales. "Selling peanuts was okay," he says smiling, "because I met all the zoo keepers and asked them questions." It is characteristic of Hoffmann to mention anyone—parents, teachers, curators, keepers—whose encouragement has mattered.

When his family moved to New Jersey, Hoffmann found a nearby lake and seashore to explore, and he often went by train to visit New York City's American Museum of Natural History. After high school, he decided to study wildlife biology at the University of Montana. "I went there partly for the adventure and partly because it cost only \$25 per quarter," he recalls. "It was a wonderful place, but then Montana raised tuition to \$100." Hoffmann's parents had just moved to Midvale, Utah, so he transferred to USU. He remembers many of his professors, but he particularly mentions his first house mate. "He introduced me to his cousin," he explains, smiling again. "This cousin later became my wife."

After finishing his zoology degree at USU in 1950, he went to graduate school at the University of California in Berkeley. It was a busy time — "We were married in 1952, had our first child in '53, and I finished my PhD in '55"—though perhaps no busier than the years since.

While on the faculty of the University of Montana, and later the University of Kansas, Hoffmann's interests broadened to include animals of the Rockies, tundra, the Bering Strait area, China, and Russia. With students and colleagues, he made enormous contributions to the mammal and bird collections at both schools; some 15,000 specimens were added in Montana and thousands more in Kansas. He has studied the natural history of everything

from voles, shrews, and bats to grouse, dipper, and ducks, and he has collected tissue from hundreds of species of mammals. Hoffman and his colleagues in the United States and Russia have used chromosomes and proteins in these samples to define when and where new species evolved from old ones. Such knowledge is increasingly useful as the need to catalog our planet's rapidly declining biodiversity grows ever more urgent.

Thomas Bunch, professor in USU's Animal, Dairy, and Veterinary Department, has worked closely with Hoffmann and colleague Charles Nadler on the cytogenetics of wild sheep. For him, Hoffmann's connections in Russia and China have been invaluable. "He has access to areas that the average person wouldn't see," says Bunch, "and he knows all the places where Asian sheep are found."

"Bob Hoffmann has generated a lifetime of quality research, and he's been a powerful force in the field of mammalogy," says Robert J. Baker, who chairs the Systematic and Evolutionary Biology Department at Texas Tech University. "He's also eminently respected in the former Soviet Union. He started building ties there in the 1960s, when Soviet-U.S. relations were very weak." These ties have benefitted many scientists, including Baker, who studies small mammals in the Ukraine. "Whenever I have a shrew I can't identify, I call Bob. He's incredibly helpful, no matter what I need."

Merlin Tuttle, a former graduate student of Hoffmann's, also recalls such helpfulness. "I was a despicable writer," he says now. "It must have taken tremendous patience to read my dissertation. It came back looking like multiple bottles of red ink had spilled on it, but then he took me through all his comments, and we got it fixed." Tuttle is founder and executive director of Bat Conservation International in Texas.

Hoffmann left Kansas in 1986 when he was asked by the Smithsonian to be director of the natural history museum. Since then he has also served as assistant secretary of research, assistant secretary for science, acting provost, and even a year as acting director of the National Air and Space Museum. Air and Space had

never been run by a mammalogist before; when Hoffmann stepped in, there were rumors that he wanted to install an exhibit on flying squirrels. (Hearing the story for the first time, he laughs. "That's a great idea. I wish I'd thought of it.")

He is now senior scientist at the natural history museum, where a dozen tall bookcases lining his office are crammed with "just a few" of his books, notebooks, journals, and papers. At his desk, Hoffmann unrolls a huge blueprint for the museum's new Hall of Mammals, scheduled to open in the fall of 2003. A series of large, detailed dioramas will show groups of mammals from different

regions of the world, such as grassland and forest. Alongside these will be explanations of mammalian evolution and natural history. As the hall's lead curator, Hoffmann has been involved in all of its phases. "But my main role," he says, "is to provide ideas as to the most interesting stories to tell—how mammals cope with seasonal changes, how they escape from predators, and so on."

On a table just outside Hoffmann's office are trays holding specimens of Chinese shrews. They were collected almost a century ago, and the minute penmanship on their labels is quaintly

old-fashioned. They might seem too old to be useful, but for Hoffmann and his Chinese colleagues, these shrews are current players in a project to list and map all of China's mammals.

When Hoffmann learns that I'll soon be meeting my husband and two sons downstairs, he immediately offers to show them these trays and others from the museum's mammal collection. Soon, he is sharing with them his knowledge and his enthusiasm, weaving the museum visit into their lives so that it becomes a story they can return to often.



Dr. Hoffmann with museum specimen

Awards, Honors, and Publications

Insights welcomes news of alumni awards, honors, and publications. Please mail announcements to Insights, Office of the Dean, College of Science, Utah State University, 4400 Old Main Hill, Logan UT 84322-4400, or use the ALUMNET form on the back cover. Please include book covers if available. Announcements may also be emailed to scido@cc.usu.edu or faxed to (435) 797-3378.

Alumni Awards, Honors, and Publications

James Allen (BS 1965, Premed) received a USU Distinguished Service Award last spring. Dr. Allen has practiced medicine in Vernal, Utah, for 28 years and is chief of staff and chief of surgery at Ashley Valley Medical Center. He has been president of the Uintah Basin Medical Society and a member of the board of the Utah State Medical Association. He is active with the Chamber of Commerce and Rotary Club, runs a farm, was involved in organizing an equine science program at the USU Uintah Basin Continuing Education Center, and helped set up a nursing education program in the community.

Lars P. Hansen (BS 1974, Mathematics), professor of economics at the University of Chicago, was elected a member of the National Academy of Sciences. (See the Spring 2000 issue of *Insights* for an article on Dr. Hansen.)

H. Craig Peterson (BS 1968, Computer Science and Economics) was named interim provost at USU, effective 1 July 2000. Dr. Peterson has been in the provost's office for seven years and is also a professor of economics.

Faculty Awards and Honors

Dr. Anne Anderson, Department of Biology, presented the Last Lecture at the USU Student Showcase 2000 in April. In the Last Lecture, a USU faculty member is invited to speak as though it was the last lecture he or she would ever deliver. Dr. Anderson chose "Research: Crystal Ball Gazing and Detective Skills" as the format from which to describe her nearly three decades of

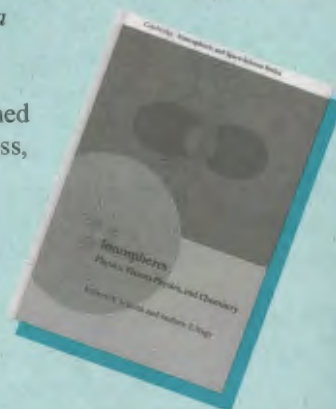
study into plant-microbe interactions. One of 12 student-nominated candidates for the lecture, Dr. Anderson was chosen for her "dedication to [her] students and [her] profession."

Dr. David Drown, Department of Biology, was elected a Fellow of the American Industrial Hygiene Association (AIHA) by the AIHA Board of Directors. Only five percent of the association's more than 13,000 members can qualify for the Fellow Award, which is given to those individuals who have made significant contributions toward protecting health and safety in the workplace and community and advancing the quality of the industrial hygiene profession. (See article on Dr. Drown, College of Science Advisor of the Year, on p. 16).

Dr. Robert Heal, Department of Mathematics and Statistics, was honored at graduation with a Teaching Excellence Award. Dr. Heal was the College of Science Teacher of the Year (see article on p. 15).

Deborah Reece, academic advisor in the Department of Physics, was honored at graduation with a Robins Award for USU Professional Advisor of the Year.

Dr. Robert Schunk, Department of Physics and Center for Atmospheric and Space Sciences, recently published *Ionospheres: Physics, Plasma Physics and Chemistry* (with Andrew Nagy, University of Michigan). The book, published by Cambridge University Press, provides a comprehensive description of the physical, plasma, and chemical processes controlling the behavior of ionospheres. It is intended as a reference for scientists and a textbook for graduate students.



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DEPARTMENT OF BIOLOGY 435-797-2485 www.biology.usu.edu

Biology: BS, BA—Options: Biology, Cellular/Molecular, Ecology/Biodiversity, Environmental MS, PhD

Composite Teaching—Biological Science: BS, BA

Public Health: BS—Options: Public Health Education, Environmental Health, Industrial Hygiene

Ecology: MS, PhD

Toxicology: MS, PhD

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY 435-797-1619 www.chem.usu.edu

Chemistry: BS—Options: Professional Chemistry, Biochemistry, Chemistry Education, Life Science BA, MS, PhD

Biochemistry: MS, PhD

DEPARTMENT OF COMPUTER SCIENCE 435-797-2451 www.cs.usu.edu

Computer Science: BS, BA—Options: Science, Digital Systems, Information Systems MS, PhD

DEPARTMENT OF GEOLOGY 435-797-1273 www.usu.edu/~geoldept

Geology: BS, BA—Options: General Geology, Hydrogeology, Geoarchaeology MS

Composite Teaching—Earth Science: BS, BA

DEPARTMENT OF MATHEMATICS AND STATISTICS 435-797-2809 www.math.usu.edu

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Mathematics Education: BS, MM

Statistics: BS, BA, MS

Dual Majors: BS—Mathematics and Physics, Mathematics and Statistics, Mathematics and Electrical Engineering

Industrial Mathematics: MS

Mathematical Sciences: PhD—Options: Pure, Applied, Statistics, College Teaching, Interdisciplinary

DEPARTMENT OF PHYSICS 435-797-2857 www.physics.usu.edu

Physics: BA, BS—Options: Physics, Professional, Applied MS, PhD

Physics Teaching, Composite Teaching—Physical Science: BS

Physics (Upper Atmospheric Physics): MS

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ALUMNET Responses

1950s

Darrell J. Graff (BS 1958, MS 1960, Zoology) is a professor of physiology at Weber State University in Ogden, Utah. He obtained a PhD degree at the University of California at Los Angeles in 1963 and conducted postdoctoral work at Rice University.

Dr. Graff is a Fellow of both the National Science Foundation and the National Institutes of Health, and he received a gold watch for 35 years of teaching at Weber State. He has consulted for a local laboratory for 25 years and is the author of a book entitled *Intestinal Absorption of Metal Ions*. Dr. Graff and his wife, Joyce, have one son and three daughters. Still a stringed instrument "nut," he toured in Europe the past two summers with a bluegrass band and dance troupe.

Robert B. Gibbons (BS 1959, Premed/Biology) is a clinical professor of medicine at the University of Colorado School of Medicine and a physician at Exemplar Saint Joseph Hospital in Littleton, Colorado. He is a Regent in the American College of Physicians. He obtained an MD degree in 1963 at the University of Utah.

1960s

Howard S. Lewis (BS 1967, Zoology) obtained an MS degree at the University of Wisconsin in 1972. He is senior engineer in coal combustion by-products at Cinergy Corporation and lives in Plainfield, Indiana.

Stanley F. (Fred) Hayes (BS 1968, Bacteriology and Public Health) is an electron microscopist/biological laboratory technician at the National Institute of Allergy and Infectious Diseases of the National Institutes of Health, where he has received multiple merit awards. He conducts biologic research on infectious diseases (vector/pathogen interactions and host/pathogen interactions) and has been associated extensively with structural studies on the Lyme disease agent, a spirochete, and with rickettsial agents transmitted by tick bite. He is author of 72 scientific publications and 2 book chapters. His home is in Hamilton, Montana.

1970s

David (Dave) Hoyt (BS 1979, Public Health) lives in Antioch, California, and manages the northern California territory for insurance sales at Dodson Group. He developed the internship for hospital administration at USU in 1978 - 1979. Thanks, Dave, for your "Ask the Scientist" question (see p. 23).

1990s

F. Bryce Moser (BS 1994, Biology) earned a DO degree this spring from the University of Health Sciences College of Osteopathic Medicine. In June, he began a three-year residency in family practice medicine at Wilson Memorial in Johnson City, New York. Bryce and his wife, Amy (BS 1992, MS 1994, Education), have three children—Elise (age 7), Nathan (3), and Bradley (1). They plan to move back to Utah following the residency.

Brian Johns (BS 1995, Biology) earned an MD degree this spring from the University of Utah. He currently resides in Muncie, Indiana.

Ramie Beck (BS 1998, Mathematics Education) is a mathematics teacher in the Holbrook (Arizona) public schools. Originally from Utah, Ramie enjoys reading, music, outdoor activities, and traveling.

Edward T. Murdock (BA 1998, Biology) obtained an MS degree in 1999 from Barry University (Miami Shores, Florida). He worked in research and development at Basic American Foods. This fall, he began attending the University of Health Sciences College of Osteopathic Medicine.

2000s

Julie Conlin Johnson (BS 2000, Biology) is employed by the Space Dynamics Lab in Logan.

Alumni: In Memoriam

The College of Science extends its deepest sympathy to the families of the following alumni:

Clyde F. Smith — BS 1935, MS 1938, Biology

Eva Pulley Feher — BS 1939, Biology

Clair L. Payne — BS 1946, Biology

Ivan De Var Geary — BS 1950, Biology

Willard Alton Hansen, Jr. — BS 1962, Mathematics

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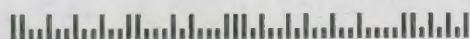
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A L U M N E T

Dear College of Science Alumni and Friends,

We always enjoy hearing from you and hope you will take a moment to complete and mail this alumni information form. Please note the postage-paid format—simply cut off this last page of the newsletter, fold along the lines marked on page 35, tape it shut, and drop it in the mail. You can also email your information to scido@cc.usu.edu or fax it to us at (435)797-3378.

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Other degree(s) _____ Year(s), school(s) _____
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Professional/personal awards _____
Books Published _____
About yourself _____

Question for "Ask the Scientist" _____

Insights, the alumni newsletter of Utah State University College of Science, is published twice a year. Its purpose is to inform alumni and friends of current events, projects, and changes within the College. The newsletter also provides a forum for alumni to follow one another's careers and professional development. This issue of Insights was produced under the direction of Judy Brodie, editor, and Colette Yates, project coordinator and editor. Contributors include Interim Dean Don Fiesinger and former Development Director Jerome Davies. Special thanks to Ann Aust, Beth Blaser, Robert Brown, and Glen Thornley (Chemistry and Biochemistry); John Hanks (Biology); Jane Koerner (USU Magazine); Deneil Tippetts (Alumni Records Management); Gene Underwood; and USU Photo Services for photographs or other services. Special thanks also to Associate Dean Kandy Baumgardner and Linda Keith for editorial assistance.

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