

# Insights

College of Science Alumni Newsletter

Winter 1992  
Vol. 1 Issue 1

## MacMahon's Musings

Welcome back to the College of Science! After a long void, we are reinstituting our Alumni Newsletter. For older graduates, you will remember that our former dean, Karen Morse, started a newsletter. Karen was quickly promoted to the position of provost and the dean's position remained vacant for awhile. Later, I was named dean and decided that we would think about how to best communicate with our former students. This is the beginning of that effort.

Significantly, we determined that our newsletter would be designed, written and produced by students. Fortunately our College of Humanities, Arts and Social Sciences has a plethora of talent and they have assumed the onerous task of producing INSIGHTS.

Our goal in producing this document is threefold. First, we want to keep you apprised of the phenomenal activity in the College of Science and its constituent departments, as well as in the University. Secondly, we want to bring you news of other alumni and their families. To facilitate this activity there is a request for personal information included with this issue. We urge you to complete this form and return it to us. Finally, we want to keep you abreast of activities and events that are designed for our alumni. You are very important to our future. Your advice, comments, and support, in a variety of ways, are major components in shaping our programs. We want you to be in contact with us by letter, phone, and, best of all,

**MUSINGS** continued on page three.



Dean James A.  
MacMahon

## Eccles Fellowships Benefit College and Humanity

Thanks to a generous donation from the Willard L. Eccles Foundation, graduate students across the nation have yet another reason to look toward Utah State University. The Eccles Foundation, which has always been very supportive of research activities in the College of Science, has recently made available a series of fellowships worth \$15,000 a year, guaranteed for a three-year period. Graduate students in any department of the College may apply for the Fellowship.

According to Jim MacMahon, Dean of the College of Science, the Fellowship serves two important functions. First, it will ensure the College quality graduate students. Second, because of its national distribution and exposure, the Fellowship will act as a "catalyst" to draw other excellent students to USU.

MacMahon added that the Fellowship will "prompt qualified individuals to apply [for the Fellowship] and then we'll find other sources of funding for them. The magnitude of the Fellowship makes it one of the better ones offered in the country." As a result, potential graduate students will know that the College of Science is serious about graduate education.

Although the selection criteria for the award are essentially academic, particular interest is given to students with research contributions that will benefit human beings. Mike Wright, Professor of Chemistry and Biochemistry, explained that because the Eccles Foundation has a

strong interest in research directly affecting people, "graduate students with the potential of doing excellent research

more oriented toward human applications" are given specific consideration.

During the selection process for the Fellowship, each department in the College submits

what it considers to be its top one or two applicants. A committee from within the College then prioritizes these applications and selects the recipient of the award. Doug Goodwin was awarded the first three-year Fellowship.

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*"The magnitude of the Fellowship makes it one of the better ones offered in the country."*

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## Inside Insights

ALUMNET.....	5, 8
Anderson Awarded.....	4
CASS Research.....	2
Computer Science Grants.....	3
Eccles Fellowships.....	1
Friends Pay Tribute.....	6, 7
G.A.S. Program.....	4
MacMahon's Musings.....	1
Orner Named Director.....	2
Rock & Fossil Open House.....	3
Science Year.....	5

# Orner Expands Horizons in Science

Victoria Orner loves going to work each morning. As advisor for undeclared students and those in the Liberal Arts and Sciences Program, Orner now adds Director of Minority and Special Programs to her responsibilities. This is a new position in the College of Science for which Orner and Dean MacMahon are busily preparing a structure.

One of Orner's early responsibilities has been coordinating the Expanding Your Horizons Conference, which was held in November. The program is designed to help young women in junior high and high school explore their options in the science and math fields. Orner is excited about the opportunities the Conference gives to those who may not be well acquainted with these disciplines. As Minority and Special Programs Director, Orner is also actively involved in the recruitment and retention of females and minorities in the College.

While Orner has always wanted to work in a service-oriented field, she admits that discovering which field took a little soul searching.

Originally from Maryland, she earned her B.A. in Mathematics at Johns Hopkins University. And, while completing her undergraduate work, she served in the



*Director of Minority and Special Programs  
Victoria C. Orner*

United States Air Force and was commissioned a second lieutenant.

Coming from a medically-oriented family, Orner always wanted to become a doctor; however, after "taking the blinders off" and examining her real goals, she realized she was entering the wrong field and opted for a service position in academia.

Orner says, "I love working with the students, particularly the undeclared." She tries to get students to prepare themselves

and conquer their obstacles, so that when opportunity knocks they are ready. One thing she emphasizes to her students is "You are the minority you choose to be."

Working with people and drawing out their individual talents is what Orner feels she does best--and it is what she wants to continue doing. "I can see myself down the road, working for a large non-profit organization, getting the community involved and pulling out people's full potential," she says.

As an avid traveler, Orner has lived in many parts of the country. She settled in Utah when her husband, Brad, was assigned to Hill Air Force Base as an electrical engineer.

Orner has spent most of her life on the East coast, and said she is pleasantly surprised by all the West has to offer. Since arriving here in 1990, she has learned how to ski and has enjoyed visiting the national parks. She is also impressed by the people and their willingness to help. She says, "I have a wonderful group of colleagues, we're like family!"

Orner and her husband currently live in Brigham City where she is involved in many church and community activities.

## CASS Offers Unique Research Experiences to Faculty and Students

The Center for Atmospheric & Space Sciences (CASS) offers unique research opportunities to USU students, faculty and scientists around the world.

Grants from NASA, the United States Air Force and Navy, the National Science Foundation, and private industry provide funding for CASS.

Extramural grants allow the Center to pay operating costs, fund projects, purchase research enhancing equipment, such as computers, and hire graduate and undergraduate students.

"Graduate students who work on the projects usually are able to pay for school and any extra costs because they are included in the grant proposals," said Schunk.

Scientists from other countries--such as Belgium, Brazil, Canada, England, France, Germany, and Japan--also benefit from CASS programs. "We work with scientists from around the world and often times publish with them," said Schunk. "There are advantages to both sides because many countries don't invest as much into researching the upper atmosphere; however, by working with us they have the opportunity to work on research. In return, we are able to learn from their efforts."

CASS students and scientists are using a variety of techniques to study the upper atmosphere: Bela Fejer is using large radar systems located in Peru and Puerto Rico; optical observatories located near Bear Lake are being used by Vincent Wickwar and Kay Baker; and John Raitt is contributing to an ongoing rocket program.

In addition, a theory group is using CASS computers to model the earth's upper atmosphere and Kent Miller is studying the atmosphere of Venus.

Continued interest in space programs has caused the Center to "grow exponentially." According to Schunk, the State originally decided USU would study the upper atmosphere. In 1959, USU opened the Electro-Dynamics Laboratory. Ten years later, EDL became the Center of Research in Aeronomy, which evolved into the Center for Atmospheric & Space Sciences.

Although the name has changed, the Center continues to support itself, while providing excellent research facilities and opportunities to faculty and students.

## Geology Department Hosts Rock and Fossil Open House

Families, school classes, scout groups, and people of all ages crowded the Department of Geology on November 14 to see (among other things) "original rock videos" shown during Rock & Fossil Day.

The Geology Building--formerly the Plant Industry Building on the northeast corner of Old Main quad--housed exhibits of contour maps, geologic maps, stereographic aerial photos, and a "See and Touch" display of large rocks, minerals, and fossils.

In one area, faculty and students attempted to identify rocks and fossils brought by the public to the open house. A demonstration of various rocks under a petrographic microscope was also given. The "original rock videos"--on geologic time, volcanoes, and dinosaurs--were one of the most popular events.

Public response to Rock & Fossil Day exceeded expectations and many of the 300-plus participants requested a repeat performance. Don Fiesinger, Head of the Geology Department, said "With this type of turnout, it is likely to become an annual event."

Fiesinger also said the new Geology Building provides adequate room for a number of permanent geologic display cases in various parts of the building.

Many display cases, mounted maps, and photographs line the hallways and others are located in Rooms 203 and 205. The Department of Geology welcomes alumni and other visitors during their regular office hours of 8 a.m. to 5 p.m.



*Faculty and students identify rocks and fossils brought by the public to Rock & Fossil Day.*

## Grants Upgrade Computer Science Department Labs

The Computer Science Department has finally "worked the bugs out" since moving to the fourth floor of newly remodeled Old Main. They were originally located in the University Reserve Building, where they were troubled by bugs flying in from open windows and into the computers. "We are very happy with our new location," said Department Head Don Cooley.

The Department is changing in other ways as well. Over the last three years, the Department has received \$300,000 in grants to purchase and develop new computer labs.

In 1990, Dr. Cooley received an Instructional Laboratory Initiative (ILI) grant from the National Science Foundation (NSF). The funding amounted to \$122,000, with the NSF providing \$60,000, the University contributing \$30,000, and student fees making up the rest.

The money went to good use, establishing a software engineering laboratory. The lab is complete with 12 Hewlett Packard workstations and a file server. In addition, the lab houses a Cadre Teamwork software engineering package.

"The lab allowed us to restructure the software engineering class, allowing the students to work in teams and develop software with thousands of lines of codes," said Cooley.

Professors Stephen Allan and Scott Cannon also received an ILI grant from the NSF. With additional funding the grant totaled \$56,000. The result was the development of a Parallel Processing laboratory, which gives students experience in parallel programming. The lab is now running with five PC's, 30 transputers, three printers and associated software.

The addition of the parallel processing lab enabled the Department to offer a new class. Computer Science 505 was developed to further students' experience with parallel processing. Professor Stephen Allan said, "It is nice for the students to have a real system they can program on."

Another grant was awarded to Professor Nicholas Flann. The NSF awarded Flann \$56,818 for the development of a Machine Intelligence Lab. The University and the College of Science matched the funds and the lab should be fully functional by the beginning of winter quarter 1993.

Flann is especially pleased because the lab will allow undergraduate students to complete more sophisticated projects. In addition to computers, Flann says, the Department will be getting a lot of "toys"--a voice capturing system, a small robot, and a speech analyzer.

"This equipment is becoming more and more common, and the lab will mean a major difference for the Department," said Flann, who adds that it will also better prepare students for jobs in industry.

### MUSINGS

in person. Stop in to see us when you happen to be in the area and also plan to visit us during graduation.

One of my goals is to try to meet more of you. To this end I will be contacting some of you as I travel on business and I will also be making special visits in association with alumni activities. The first of these events is being planned now.

Tentatively, we will visit southern California between April 25-30, 1993. Circle those dates on your calendar. We will contact you with details.

I hope as you read this issue of **INSIGHTS** you will be as proud as I am of what is going on in the College. I look forward to seeing or hearing from each of you, or at least communicating with you twice a year through this forum.

# Anderson Awarded for Achievements

Utah State University selected Dr. Ian Anderson, Professor of Mathematics, as the 1992 recipient of the D. Wynne Thorne Award. This award is given annually for outstanding achievement in research.

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*"USU math students are able to compete with other students on a national level."*

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Anderson has been examining geometric methods in differential equations for over ten years. He said his research involves applying new techniques to old problems. "You have old problems that can't be solved. Then you apply a new theory to the problems and they are solvable."

In 1982, Anderson went to Minnesota to research his topic. While there, he had the opportunity to meet prominent mathematician, Peter Olver, with whom he collaborated on a paper. Additionally,

he was able to work with experts from all over the world, including Russia, Japan, and Germany. This experience helped contribute to the success of his research.

His research has also enabled him to participate in conferences around the world. In November, Anderson traveled to the University of Montreal, where he lectured on "Noether's Theorem: Results Old and New." He will present further results of his research in June at a conference in Holland.

Anderson is pleased with both the success of his research and the success of the Mathematics and Statistics Department. He is proud to note that "USU math students are able to compete with other students on a national level."

In fact, two undergraduate math students received nationally-recognized fellowships last year. Craig Jenson was given the Hertz Foundation Fellowship and is now attending the University of Wisconsin in Madison. A National Science Foundation four-year scholarship was awarded to David Harldson, who is



*Professor Ian Anderson*

currently attending the California Institute of Technology.

Anderson believes that the Mathematics and Statistics Department's numerous achievements and renowned reputation serve to attract students in both graduate and undergraduate programs.

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*From drawing board to outer space . . .*

## G.A.S. Program Fuels Studies in Microgravity

Ten years ago, USU made history when it sent a small payload into space aboard the space shuttle. Experiments designed by USU students were placed aboard a small "garbage can-type" container and stored in the shuttle's cargo bay. The canister holds six "spacepaks" which house individual, self-activating experiments. All NASA needs to do is flip a switch.

USU was the first to research through the "Get Away Special" Program, or GAS, initiated by NASA in the mid 1970's. The Program allows individuals or groups to purchase space on the shuttle at a special rate.

Mr. Gilbert Moore purchased the first canister made available by NASA and then donated it to USU. All of the canisters are privately funded and so far USU has flown four of them into space, with nine more to go.

Today, 22 students from departments including Biology, Electrical Engineering, and Aerospace are busy developing and preparing experiments for the next flight. Experiments are as diverse as the students participating and range from straight physics experiments to the life sciences.

The Program's main goal is to increase the students' skills and give them experience in every phase of the operation. They both conceive of the experiments and create them; as a group, they brainstorm about potential difficulties. They are also responsible for programming the controller that monitors each experiment.

One experiment currently under way will examine a drop of water while it is suspended in an electromagnetic field. A minicamera is included in the spacepak to record how that drop behaves while in microgravity.

Another experiment, "Project Pachamama," is a biological experiment being designed to study photosynthesis in microgravity.

Three students in the GAS Program recently attended the 1992 Shuttle Small Payloads Symposium in Maryland: coordinator Tumkur Raghuram, and undergraduates Tina Hubble and Marc Lemmon represented USU and spoke on the experiments currently being planned for the next flight in 1993.

## Science Year Focuses on Student Needs

In an innovative measure to improve student involvement with the College of Science, the Science Council proposed Science Year 1992-1993, a focus on student needs and concerns within the College.

Since the majority of students graduating from the College of Science pursue graduate or professional degrees, the Council felt undergraduate students needed assistance in preparing for future programs.

A November workshop planned by the Science Council helped students select graduate schools and prepare applications. Graduate school representatives answered students' questions and assisted students with application strategies and criteria for acceptance.

The Science Council has also planned a Science Career Fair in January that will involve corporations interested in hiring College of Science graduates. Other Science year activities include departmental spotlights, department-oriented activities, and promotional speakers for the College.

The annual Science Week is scheduled for April 26-30. During Science Week, high school students from Utah, Idaho, and Wyoming will attend a Science Fair at USU. Science Week will promote both Utah State University and the programs available to young scientists.

Through Science Year activities, current and prospective students should become better acquainted with the College of Science and more informed about opportunities available to them.

## ALUMNET

The information below was compiled from responses to the 1989 College of Science newsletter. Please complete the ALUMNET form located on the back page and return it to the College of Science.

**Alfred D'Agostino** (Ph.D. 1984, Chemistry) completed a Post Doctoral Fellowship at Lawrence Berkeley Laboratory in 1986. He was then named visiting Assistant Professor at the University of Maine. D'Agostino is currently the Assistant Professor of Chemistry at the University of South Florida in Tampa.

**Blaine Anderson** (BS 1977, Biology) received his M.D. from the University of Utah in 1981. He has since completed a plastic and reconstructive surgery residency and is board certified in general surgery. He has established his own practice in Logan and has plastic surgery privileges at Logan Regional Hospital.

**Darla Graff** (BS 1988, Biochemistry) received a three-year National Defense Science and Engineering Graduate Fellowship to support her doctoral work at the University of North Carolina's Chemistry Department. She also had her three-dimensional artwork accepted into a statewide exhibition in Ogden.

**Jeffery Lamont** (BS 1978, Geology; MS 1985, Hydrology) is currently working for CHAM HILL, one of the five largest engineering design firms in the country. His field includes groundwater investigation and remediation at hazardous waste sites.

**Timothy J. Vogt** (BS 1977, Geology) is currently Project Manager of a study that will assess the structural stability of Mount Rushmore National Memorial. Tim is a Staff Geologist for RE/SPEC, INC., a consulting engineering firm specializing in non-typical problems in the geosciences for government agencies and private enterprise.

**Janet L. de Vries** (MS 1982, Geology) is currently the case manager/job coach for NOWCAP Disability Services. She also served as the Earth Science Bulletin Editor for the Wyoming Geological Association in 1990 and was a member of the Board of Directors for the Wyoming Girl Scout Council.

A N N O U N C I N G

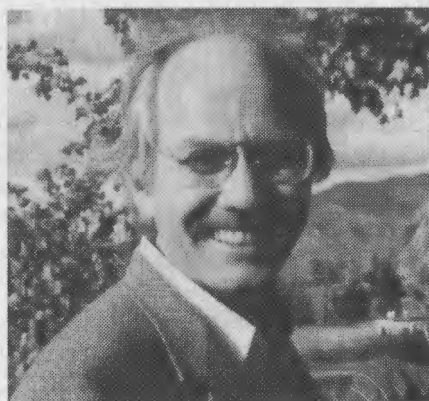
**COLLEGE OF SCIENCE  
COLLEGE OF HASS**

**Alumni Reunion  
in  
Southern California**

Reserve the last week of April for the College of Science  
and College of HASS sponsored alumni reunion.  
Invitations will be sent in February.

*During the last year, the College of Science suffered the tragic loss of three exceptional faculty members. The following tributes--written by friends and colleagues--celebrate the lives and achievements of Gene W. Adams, Thomas F. Emery, and Lawrence H. Piette.*

## Friends Pay Tribute to Three Outstanding Professors



*Dr. Gene W. Adams*

### Dr. Gene W. Adams

I have been asked to write a short memorial for Gene Adams. This will, of necessity, be a rather personalized document. I have known Gene since 1966, a span of more than 25 years. I have had the privilege of knowing him as a student,

employee, co-worker, scientist, and most importantly, friend.

Gene was raised in a professional family in Amarillo, Texas. His father was a veterinarian. As a consequence, Gene knew a great deal about the care of animals, and was not greatly attracted by the life.

Gene's formal education started at Texas A & M, progressed to Dartmouth, and was completed at the University of Colorado, where he earned his Ph.D.

His professional life, almost entirely in the atmospheric sciences, led him to Douglas Aircraft Company after receiving his master's degree, and then to Boulder, Colorado, at the National Bureau of Standards.

Gene was one of the best scientists I have known at relating experimental data with theoretical models. His critical mind

rejected spurious or incomplete results in either area. During his Colorado years, Gene developed ways of deducing usable results from rocket- and ground-based systems which resulted, among other things, in the successful deployment of a ground-based "detector" for solar particle events. During the NASA Apollo Program, the ground-based system was a primary detector for early warning signs of these events.

In the late 70's, after spending some time as a program director at the National Science Foundation, Gene brought his research to Utah State University. At USU he completed development of his "imaging doppler interferometer," a very sensitive method for determining winds from radar signals scattered from the atmosphere. This technique, for which he received a patent, has proven to be one of the most sensitive methods for determining middle atmosphere winds.

Unfortunately, Gene contracted cancer at an early age and succumbed to the effects of that disease at the age of 53. Those who knew him and were aware of his valiant struggles against that disease gained great respect for him during that period. For example, his last work was done within a few days of his death. Gene will be greatly missed by his wife, Lu, his children and stepchildren, and by his many friends. He made his mark in the world and will not soon be forgotten.

Written by Rex McGill, a close friend and colleague of Dr. Adams for many years.

### Dr. Lawrence H. Piette

A friend of mine died last week and I would like to celebrate some of his life with you. You may have met my friend Larry, if you did you will no doubt remember. He had that effect on people. You know what I think that effect was .... his enthusiasm for life, life at "full speed ahead." Well, on with the story.

One of Larry's facets was a scientist. As a native of Chicago, he attended Northwestern University, where he was awarded bachelor and master of science degrees in physical chemistry. He completed his degree program with a Ph.D. in physical chemistry at Stanford University in 1957. Larry was adept at applying spectroscopic techniques to the study of how the structure of biological macromolecules relates to their function.

This fascination led to his first position as a research chemist for Varian Associates, a scientific instrument manufacturing company in Palo Alto, California. There he pioneered many of the first uses of electron spin resonance spectroscopy in the field of biochemistry.

Larry's scientific career has left a legacy of over 140 publications. A sampling of this legacy includes publications relating to: the discovery of free radical intermediates in peroxidase catalyzed reactions; the mechanism of antigen-antibody interactions; the processing of irradiated foods; the mechanism of action of psychotropic drugs used in therapy for mental illness; the study of DNA conformation; the toxicity of metals and oxygen; the causes of reperfusion injury following heart surgery; the mechanisms responsible for

acute toxicity following post-surgical peritoneal infection; and the involvement of free radicals in aging and carcinogenesis. The common thread in this

**PIETTE** *continued on page seven.*



*Dr. Lawrence H. Piette*

## Dr. Thomas F. Emery

Anyone who knew Tom Emery for more than a few hours probably became "infected" with his intense love of life and the pursuit of excellence. Whether it was mountain climbing, playing chess, skiing, computer programming, or playing championship-level tennis, Tom always strove for the summit. Tom Emery was an internationally-recognized biochemist specializing in iron metabolism and recently combined his years of experience in this area into a book, Iron and Your Health: Facts and Fallacies.

Of all his accomplishments, Tom was most proud of being a molder of minds. Students passing through the first floor of Widstoe Hall could often hear the exuberance and laughter coming from Tom's freshman biochemistry class as it responded to an original Emery demonstration. Who of his students could forget his "Wolfman" rendition during lectures on genetic blood diseases or his mock "murder" as a means of demonstrating the effects of adrenaline in converting glycogen to glucose. Tom always made the facts of science clear and interesting. Most importantly, he taught students to logically use these facts to arrive at conclusions important to their everyday lives.

Tom was proud of his students and most of them would say they were proud to have had him as a teacher. Students entering Tom's office for help would often be treated to an insight of his love of all types of mathematical and chemical puzzles which he would use to help them extract the answers to their questions. On his office wall could be seen the culmination of his fascination of computer-generated graphical representations of Fractal mathematics and photography. Using these models, he would provoke graduate students into recognizing the symmetry of a chemical structure or whole organism.

Tom's teaching excellence was recognized through many awards. Prior to coming to USU, Tom received the faculty Gibbs Award for teaching at Yale University in 1969. During his years at USU he was honored with the Robbins Award for Outstanding Teacher in the College of Science in 1978 and Faculty Honor Lecturer in Science in 1981.

Tom was a member of a panel of scientists on campus engaged in developing a Science, Technology, and Society course for majors in secondary education as well as students in the Liberal Arts and Science Program and was team-teaching the course this quarter. He was especially enthusiastic about this course in his desire to "infect" a new audience with the love of science and its impact on their lives. Undoubtedly, Tom is "infecting" a new group of students as you read this tribute: "Goodbye, dear friend. You will be deeply missed but your spirit will live on at USU."

Written in April, 1992, by Dr. Thomas M. Farley, a close friend and colleague of Dr. Thomas F. Emery for more than 20 years.



*Dr. Thomas F. Emery*

## PIETTE

diverse list of areas is the novel application of electron spin resonance techniques in each of the studies.

One of the measures of research excellence is the ability to attract external grant funding. Larry had the knack and the research ideas to support his proposals. During his career he was the principal investigator on over 17 million dollars worth of grant and contract awards. One of Larry's grants with the National Institutes of Health ran uninterrupted over a period of 23 years, possibly a record for a continuous NIH grant. In 1972 he was awarded a Guggenheim Fellowship spending a year in Paris and Grenoble developing novel biochemical applications of magnetic resonance spectroscopy.

After ten years at Varian Associates, Larry answered the call to academia, not to mention Hawaii, and joined the faculty at the University of Hawaii (UH) as professor of biochemistry and biophysics. He remained in this position for 20 years; however, during this time Larry's career assumed more and more of an administrative flavor. His attitude was that if you want changes in the way things are being run, seek a position where these changes can be facilitated. So Larry held positions as chairman of the Department of Biochemistry and Biophysics at UH, president of the faculty senate, president of the American Association of University Professors and head of UH's faculty union, executive director of the Cancer Research Center of Hawaii, and dean of Graduate Studies here at USU. During all of these administrative

appointments, Larry maintained an active research program and his fascination with the application of electron spin resonance techniques to problems of biochemical interest.

This short synopsis of Larry Piette the scientist leaves much untold. Untold is the story of Larry the big Indian Chief in his sons Indian Guides group in Hawaii; Larry's love of sailing, skiing, and tennis; his initiation of frequent lab parties at Magic Island in Honolulu to watch for the "green flash;" and the loving relationship he had with his wife Mary.

Larry lives on in each of us who new him.

Thanks Larry .... I'm a more complete person for having shared your path for awhile.

ALOHA,  
Tom Grover

# A L U M N E T

Dear College of Science Alumni and Friends,

There have been numerous changes in the College since the last edition of this newsletter was published in 1989. We have a new dean, some new professors, and an influx of many new students. There is one thing that has **not** changed however--our interest in you! Please return the form below and let us know what you are doing. This information not only reacquaints us, but it also gives us an idea of areas of interest for future issues. We look forward to hearing from you soon.

Name \_\_\_\_\_

USU Degree(s) (year) \_\_\_\_\_

Other Degrees (year, school) \_\_\_\_\_

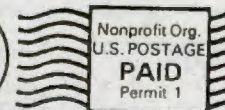
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About Yourself \_\_\_\_\_

INSIGHTS was produced by English Department interns Chalyce Chatterton, Jason Lehman, Sandra Livingston, and Kim Nelson. Special thanks to: Jim MacMahon, Tony Bringhurst, Tom Farley, Tom Grover, and Rex Megill. Project Coordinator: Colette Yates. Intern Coordinator: Sandra Livingston.



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