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Insights

Fall 1995

College of Science

Alumni Newsletter

Vol. 4 Issue 1

MacMahon's Musings



Dean James A. MacMahon

For a change, I am writing this note to you from my office rather than on an airplane. The last few weeks have been quite hectic around the College. At least one of our activities should cause many of you to say, "It's about time."

We recently made a presentation to the State Building Board asking them to recommend to the Legislature and the Governor that we raze Widtsoe Hall and replace it with a safe, modern chemistry facility that will allow us to deliver an ever better education to our students in chemistry and biochemistry. It may surprise you, as it did me, that nearly 70% of the students at USU have a class in that building some time during their four years on campus. I am sure that regardless when you graduated, the building was probably in poor condition when you had classes there.

The current project would cost about \$24 million. This is a hefty sum, but not especially expensive given the nationwide costs of building safe facilities for chemistry education. We received planning money two years ago and thought that we were on our way; however, we received no funds last year. This year, we need the money to do the blueprints, about \$1.2 million, with the hope that construction and the final funding will come in another year. If you have the attention of any legislators or members of the governor's staff, put in a good word for us.

On another front, our student population leveled off this year. The on-campus population is 15,044, up only 30 students over last year. Interestingly, a new tuition scheme has encouraged students to take more courses/quarter. The result is that, despite a modest head count increase, we

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Attention Disorder and Immune Deficiency: What's the Connection?

Attention Deficit Hyperactivity Disorder (ADHD) has undergone extensive scrutiny at USU in the past three years. Doctors characterize ADHD as affecting 1 in 20 children (in the U.S.) who often pay little or no attention, and display hyperactive and impulsive behavior, in class or at home, without understanding the consequences of their actions.

Children with ADHD sometimes go undetected, especially girls. The developmental disorder shows up before the age of seven in both boys and girls, but in very different ways. Historically, ADHD-like symptoms were considered the consequences of brain damage; however, the later discovery of children with the symptoms and without brain damage led doctors and researchers to drop the former term originally coined for ADHD, Minimal Brain Dysfunction or MBD. Recently, researchers at USU began to close in on the causes of ADHD. They may soon pinpoint exactly how to make life much easier for the many afflicted children who often carry this disorder throughout adulthood.



ADHD children look just like anybody else. Here, Russel and Anthony Jones, two boys with ADHD, play on the Edith Bowen School playground.

Drs. Reed Warren and Dennis O'Dell, Department of Biology, have written a grant proposal for extended funding on ADHD research. Dr. Warren specializes in immunology and deals mainly with the biological aspects of the study, while Dr. O'Dell, a physician, works directly with children with ADHD.

USU researchers discovered that children with ADHD have extremely low C4B plasma concentrations, an abnormality which possibly stems from the inheritance of a C4B null allele. The C4B gene codes for one of

ADHD

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Nabil N. Youssef—C.Y. Woodworth Award

It is not uncommon for Utah State University professors to receive top research honors in their fields. This summer was no different as the Entomological Society of America presented the C.Y. Woodworth Award for the Pacific branch to Dr. Nabil N. Youssef of the Department of Biology.

"It's a big honor to be counted among the distinguished research entomologists in the western United States," Youssef said.

Youssef received a BS degree in entomology from Ain-Shams University, Cairo. He later received MS and PhD degrees from USU in zoology. He was a research assistant at the University of Massachusetts and has served on the USU faculty since 1968.

His more than ten-year commitment to the study of chalkbrood disease in the alfalfa leafcutting bee gained him the award in July. This disease creates a serious problem for alfalfa seed growers because leafcutting bees are the cornerstone of alfalfa pollination in the northwestern United States and Canada.

Youssef said when he got involved in the research in 1979, he did not anticipate the project lasting over three or four years. Chalkbrood, a fungal disease, was new to Youssef at the time. He said he had experience with viral and protozoan diseases, but not with fungi. "As with any disease, we found that the fungus is mightier than the researcher," he said.

Solving the mystery of chalkbrood has taken a lot of time and money, and will require more of the same in order to answer all the questions, Youssef said. His research team, which currently includes his associate, Joyce Knoblett, and graduate and undergraduate students, is taking three approaches in studying chalkbrood. They are examining the genetic make up of the fungi, how it reproduces, and what strains of bacteria kill these fungi.

Along with his continued interest in chalkbrood, Youssef is also working with Professor Raymond Campan of the Paul Sabatier University in Toulouse, France, on a book about insect vision. They hope to publish it within three years.

ADHD

the complement proteins for C4 that is critical in immune defense against infection. C4A is also critical, but its plasma concentration levels in ADHD children remain normal. Scientists must confirm their initial findings with more testing. So far, USU researchers have obtained very impressive results with their 30 ADHD patients.

An ADHD child looks like any "normal" child. Often outsiders attribute these children's behavior to overabundant energy. But, behaviorally, biologically, and possibly genetically, they are different.

ADHD children often have other disorders, such as learning disabilities, conduct disorder, anxiety disorder, motor problems, depression, or Tourette's Syndrome. Hence, the discovery of the roots of ADHD could lead to interesting advancements in treating several other disorders.

Improved treatment techniques could prove extremely beneficial. Ritalin, a drug quite often taken by children and adults with ADHD, helps many but not all affected people. It sometimes has reverse effects on children approaching or experiencing puberty. The discovery of a more universal treatment would not only benefit those affected by ADHD, but also their families, teachers, and the members of the

communities in which they live.

ADHD kids "are not bad kids," says Dr. Warren. They cannot control most of their behavior. Their ignorance of consequences often causes them to grow up having problems with delinquency, school, drugs and alcohol, work, and family and peer relationships. These problems frequently continue into adulthood. Not all people with ADHD suffer all of the above consequences, but many do.

On the brighter side, there are many positive aspects of ADHD. People with ADHD often have endless stores of energy. They are spontaneous, creative, and can lead very successful lives. Dr. O'Dell points out that many artistic and creative geniuses of times past and present may have had ADHD.

Obviously, since 1 in 20 children in the U.S. have ADHD, most of us probably know at least one child with the disorder. With the aid of additional funding, Drs. Warren and O'Dell, and many other scientists at USU involved in this project, hope to develop a novel way to treat ADHD, based on these new findings.

MUSINGS

have a full-time student equivalent increase of 397 on campus. As you might guess, the faculty members are dealing with this in their usual excellent manner as they find better and better ways to deliver science to large classes of science majors and non-majors alike. You would be proud of them and would like the changes. If you ever get to campus, stop by the College Office and we will see that you get the opportunity to visit one of these classes and experience the changes for yourself.

I hope as the winter holidays approach that each of you and all of your family members are doing well. If you are ever in Logan, stop in. I would love to see old friends and meet those of you I missed when you were here.



Mary V. Kolesar: *Getting Back to the Basics*

Outside Mary Veronica Kolesar's office a comic strip is taped to the wall that reads, "Teaching is hard work. Why do you do it if it is so hard? Well, every once in a while somebody learns something." Kolesar, a lecturer in the Computer Science Department, feels the same way. "I want to be able to turn students on to learning, to spark their desire to learn more. You see that spark on their faces and they begin to ask for more."

Kolesar has a feel for what her students physics (1964) from Emmanuel College, Bos-physics majors in a graduating class of 355 at received her master's degree in applied statis-tudent, Kolesar began teaching for the Depart-Science. When the discipline split into two miss statistics," she said, "but I enjoy computer

Recently, Kolesar was featured in the Na-Foundation *For the Future Turning Points*. The Faculty Enhancement (UFE) workshop she at-of Computer Science." She found the workshop her classroom. "My experiences in the class-sessions with students convinced me that...many students had weak problem-solving and communication skills and were not truly involved in their own educations," she said.

Kolesar worked with Dr. Vicki Allan, a professor in the Computer Science Department, to win an NSF grant to develop a course addressing these problems. Elementary Computer Science Algorithm and Problem Solving (CS 160) uses a "recreational approach...designed to minimize the frustrations encountered in a typical first course that covers programming." Allan and Kolesar have received mixed responses to the course. At the time students are taking the class, many do not understand its relevance; however, of the people who went on from 160 to 170 (Computer Science I), over 50 percent received an A, whereas the average grade in 170 was about a C+.

Mary V, as she is known, enjoys the research she has been involved in while developing this course and said, "The research was so much fun, I could almost think about going for my PhD in education—but, that would take time away from teaching."

The research was so much fun, I could almost think about going for my PhD in education—but, that would take time away from teaching.

need. She graduated with a BA degree in ton, Massachusetts. She was one of two this small Catholic women's college. She tics from USU. In 1977, as a graduate ment of Applied Statistics and Computer departments, Computer Science hired her. "I science a lot."

tional Science Foundation publication, article was the result of an Undergraduate tended in 1989 entitled "Modern Foundations would address some problems she noticed in room, in the computer lab, and in private and communication skills and were not truly

New Faculty—Welcome

Kandy D. Baumgardner



Kandy D. Baumgardner joined Utah State University Biology Department as assistant dean and professor of biology in August 1995. She received a BS degree from Bradley University in Peoria, Illinois, and a PhD degree from Utah State University in 1973 in genetics. Although she could not recall ever having taken a genetics class in high school, her university genetics course confirmed that it was her niche.

After completing a PhD degree, Baumgardner went back to her home state to work at Eastern Illinois University as a professor of zoology, and most recently served as chair of the Department of Zoology.

Baumgardner is the assistant dean for undergraduate affairs for the College of Science, which involves advising and certifying students for graduation, coordinating assessment activities, participating in the on-going deliberations concerning general education, and performing various administrative functions in the Dean's Office. If that is not enough, she will also be teaching!

Baumgardner has co-written three college textbooks with Gerald Elseth of Bradley University (PhD USU, 1966). One of their books, *Principles of Modern Genetics* (West, 1995), is being used in Biology 319 (genetics) this year.

"The plan is to continue with the book," she said. Baumgardner hopes that the text will do well enough to require a second edition. She said she has already started making changes in anticipation of that event.

Although she does not enjoy skiing or cold weather, she said she is happy to be back at USU. "I like it here, and it's a good opportunity," she said. "Sometimes you can get too comfortable where you are, so it's good to have a change and not get stagnant."

FACULTY

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The Green Beam

Our newer alumni, reminiscing about Aggie ice cream, the brightly lit "A" atop Old Main, and NASA Space Shuttle experiments, might add "the green beam" to their nostalgia. The green laser beam, which scientists have been shooting into Cache Valley's night sky since January 1993, is the most visible feature of a Rayleigh-scatter lidar. "Lidar," is analogous to "radar," standing for light detection and ranging, and is used in this experiment to determine atmospheric temperature profiles.

The collaborative project involves researchers Vincent Wickwar from USU's Center for Atmospheric and Space Sciences; Thomas Wilkerson, USU and University of Maryland; John Meriwether, Clemson University; and David Rees, USU and University College London. Each contributed significantly to the facility. The National Science Foundation has funded much of its operation and upgrades that are currently underway.

On clear nights, the laser beam is operated from the Science and Engineering Research Building on the USU campus. Although it looks like a continuous beam to the naked eye, it actually pulses 30 times per second. A small portion of the beam scatters off the nitrogen and oxygen molecules in the atmosphere, giving rise to the light that people see. This process is called Rayleigh scattering, the same process that makes the sky appear blue and the sun or moon appear orange on the horizon. The backscattered light is collected in an astronomical telescope that focuses the light into three extremely sensitive photon detectors. The signals are proportional to the molecular density and are sampled every 250 nanoseconds or 37.5 meters in altitude. The change in molecular density at different altitudes enables the researchers and their students to determine temperature profiles.

The team is particularly interested in measuring temperatures between 30 to 105 kilometers, an altitude range where practically no other technique works well. "Lidar turns out to be the only technique that can repetitively sense what's happening between 30 to 80 kilometers," Wickwar said.

There are three main reasons Wickwar and his colleagues have an interest in this region of the atmosphere: for pure science, for answers about the greenhouse effect and global change, and for students to have an opportunity to work with high-tech equipment.

Soon, the USU lidar will be able to accomplish these goals better than ever. The team will be adding a new laser to the system that will scatter light off either sodium or potassium atoms of disintegrated meteorites by another process called resonance scattering. Despite their small densities, they scatter considerable light. The new laser will offer improved precision in measuring the atmosphere between 80 to 105 kilometers, an area that the current lidar does not chart as effectively. For sodium observations, this second beam will be yellow, but not as bright as the green beam; for potassium it will be a barely visible deep red. Wickwar also hopes to have a much larger and steerable telescope system in place within the next year. The researchers plan to add four 50-inch telescopes to the lidar, making the photon collection area 30 times larger. Eventually, the team wants to add the capability to detect atmospheric winds.

"We're going to be one of the four big lidar observatories in the world," Wickwar said. Currently, there are about ten Rayleigh-scatter systems throughout the world. Other locations include France, Puerto Rico, Great Britain, Boston, Japan, Norway, and Canada. Only two besides USU are located at universities, and only three besides USU will have large telescopes combined with both a resonance-scatter and Rayleigh-scatter capability. "This really will be a world-class facility," Wickwar said.



The green beam pierces the Cache Valley sky.

"Research is a Private Thing Until You Share it"

Jeannine Chan—Eccles Fellowship Recipient

The Willard L. Eccles Foundation Science Fellowship was created in 1992 to attract the finest academic minds with outstanding research potential to graduate studies in the College of Science at Utah State University. The Fellowship annually awards \$15,000 a year for three years to an entering graduate student in Biology, Chemistry and Biochemistry, Computer Science, Geology, Mathematics and Statistics, or Physics. The Student is expected to focus his/her talent and time on graduate level research that will benefit humankind.

The 1995 Eccles Fellowship Recipient is 28-year old Jeannine Chan, who originally came to Utah from Torrance, California. After earning a Bachelor of Science in chemistry

and a Bachelor of Fine Arts in ballet at the University of Utah in 1991, she applied last spring for the Eccles Fellowship to pursue graduate studies in science at Utah State.

Jeannine's sense of commitment to academics and research makes her an ideal recipient of this award. Her long-term goal, to teach at a four-year college, shows her love of and dedication to education. "Research is a private thing until you share it," portrays her philosophy on research. Jeannine feels that scientists may find the solutions, but until these solutions are shared with the world they are of little consequence.

ECCLES

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The Church of Jesus Christ of Latter-day Saints Foundation Honors One of Our Own...Theodore Moyle Burton

A love of and dedication to teaching characterized the life of Theodore M. Burton, a man devoted to education and to his religion. Surprising to many who knew him as a chemistry professor was that he penned the words to Utah State's Alma Mater Hymn.

*Across the quad at eventide the shadows softly fall,
The tower of Old Main appears and peace rests over all.
The lighted "A" upon the hill stands out against the blue;
Oh, Alma Mater, Utah State, my heart sings out to you.
And through the years as time rolls on and student friendships grow,
We'll ne'er forget the joys we had, those days we used to know,
Thy mem'ries ever will be new, thy friends be ever true.
Oh, Alma Mater, Utah State, my heart sings out to you.*



Theodore Moyle Burton

Dr. Burton joined the faculty of Utah State in 1943, staying until called as a General Authority for The Church of Jesus Christ of Latter-day Saints in October of 1960. During his time as a member of the Chemistry Department, he taught organic chemistry, was chairman of the Utah section of the American Chemical Society, and was president of the Utah State University Chapter of the American Association of University Professors. Always interested in his heritage, he also was president of the Old Juniper Chapter of the Sons of Utah Pioneers.

Professor Melvin Cannon, his colleague in the Chemistry Department, recalls that Dr. Burton expected great things from his students and often was very demanding. "Students who became well known in their fields would later thank Dr. Burton for making them work," said Professor Cannon. "He carried on a research program at USU under difficult circumstances, when teaching loads were very heavy. Colleagues and students could always find him working late in the laboratory."

Upon his return from a European Mission presidency, Elder Burton stressed the importance of LDS Church members becoming educated in foreign languages. "We must all become more language minded...so that we can communicate one with another in a better way." He was made a member of the First Quorum of the Seventy in 1976, giving him supervisory responsibility for the West Coast Missions.

It is fitting that the LDS Church honor Theodore Burton for his teaching, creativity, and service.

ECCLES

Prior to coming to Utah State this fall, Jeannine worked in an environmental analysis laboratory for four years. Currently, she is rotating at USU science labs in an attempt to increase her understanding of biochemistry and better focus her research. She is still struggling with the decision of what area to focus her research—she has so many interests. Her most recent work has involved trying to understand the enzyme nitrogenase. After two weeks at USU, Jeannine said she felt "a little overwhelmed." So far she has enjoyed Utah State, although she says that school life has proven very different from the analytical work she did in industry. Out of the laboratory her interests include ballet, modern dance, hiking, and camping.

To Jeannine, education is questioning—thinking globally about how to better the world. "...Education is a powerful tool for change," she believes. Right now she leans toward an environmental application of her scientific research, feeling that this field offers many possibilities for the future.

Though soft-spoken, Jeannine will influence many of her students some day. She can eventually use her own research to provide class demonstrations to students eager to learn the applications of their hard work. For the next three years, Jeannine's research program, compliments of the Eccles Foundation and the College of Science at USU, may become a basically private experience among Jeannine and her fellow scientists. Thanks to Jeannine's motivation and goals, her research will later be widely shared.

Jeannine's receipt of the Eccles Fellowship seems well deserved. She heartily thanks the Eccles Foundation and greatly appreciates the support of her "significant other."



Jeannine Chan sometimes aids in lab experiments, but she spends most of her time observing and reading.

College of Science...



Butch Brodie shelters Dean MacMahon (left) from unexpected rain.

**It ain't
gonna rain
no more no
more???**



(From left to right) Beverly Ridenhour, Department of Mathematics and Statistics principal lecturer; Scott Woodhouse, science senator, Andrea Woodhouse; Kimberleigh Hadfield, teacher assistant in the Mathematics and Statistics Department (and Kimberleigh's parents), have a casual chat at the graduation open house.



Come rain or shine, students still enjoy the graduation open house.

Graduation Open House



Ann Aust (2nd from left) poses with her graduate students: Chien-Chang Chan (Ann's left) doing postdoctoral studies in chemistry at NIH in Washington, D.C.; Jeanne Hardy, now working on her PhD in biochemistry at Berkeley; and Shauna Eborn (far right), pursuing her MS and preparing to attend medical school.



Serving refreshments are College of Science office personnel, Nettie Linton (left) and Karen Bindrup.

NEW FACULTY

Daniel K. Nakano

Daniel K. Nakano, a native of Seattle, recently joined the Department of Mathematics and Statistics as an assistant professor. He and his wife RuthElizabeth Conine lived in Chicago before moving to Logan. Dr. Nakano taught at Northwestern University from 1991-1994, where he held a National Science Foundation postdoctoral fellowship. He received a BA degree in mathematics from the University of California at Berkeley in 1986. In 1990, he received a PhD from Yale University under the direction of Dr. George Seligman.

His primary research is in the area of representation theory or "jazzed up linear algebra" as he calls it. His specific focus is representation theory in algebraic groups and Lie algebras. The National Science Foundation is sponsoring a grant for him to study this subject. He has already written more than a dozen articles on this subject and has refereed on several occasions. This quarter he is teaching courses in Lie algebras/representation theory, and abstract algebra.

What attracted him to math, he said, "is that there is a certain amount of beauty going on. To have things work out in a certain way—it is just incredible." Dr. Nakano wants his students to see the beauty and rigor of mathematics. "If I can get that across, that would be the best thing," he said. "They may not remember what a derivative is in calculus, but if they acquire the ability to reason logically and gain that skill, that is a part of teaching." Although he enjoys teaching a lot, Dr. Nakano feels his strengths lie in the research field.

Dr. Nakano said he would like to clear up what he feels are two misconceptions about professors. The first misconception is that often students and people outside the university put professors on a pedestal. "But professors are people too," he said. "They have emotions. There is a lot of talent involved in teaching, but professors are not so high on a pedestal that they are unreachable as people." The second misconception, he feels, is that some people think professors are lazy and waste people's money. He stated that, "the people I see both teaching and doing research really work hard for their increase. A contract does not call for all the sacrifices that actually go into teaching. Most people do not get to see the whole picture."

Dr. Nakano is a big Mariners fan (faithful all the way). He and his wife enjoy hiking and playing golf. They attend St. John's Episcopal Church. He said they have lived in all four time zones. We hope he enjoys his stay in the mountain time zone; we appreciate Dr. Nakano's dedication and hard work.

Peter C. Ruben

What do we have in common with sea slugs and squids? According to Peter C. Ruben, a new associate professor in the Department of Biology, there are a few similarities. He said, "The way their nerve cells work and the way our nerve cells work are almost the same. The advantage that we have over sea slugs, squids and even more basic life forms is that we have more—not much difference, just more."

Dr. Ruben, his wife Karen Palmer and three-year-old son, Cassidy, came to Logan from Honolulu, Hawaii, where they spent the last ten years. He worked at the University of Hawaii in Manoa, first, as a postdoctoral fellow, and then as an assistant and associate research professor. He received a BA (1975) in Biological Science and his master's degree specializing in neurobiology (1977), both from George Washington University. He received a PhD from the University of Calgary and a postdoctoral fellowship at Stanford University's Hopkins Marine Station in Pacific Grove, California.

Dr. Ruben began his education in psychology, and realized only certain questions were answerable by taking such a global perspective. So, he narrowed his focus and started to look at sea slugs. Why slugs? Because they have large enough nerve cells to study. "Much of what we know comes from weird creatures like slugs and squids," said Dr. Ruben. He is involved with similar research here at USU working on proteins from rats and humans. By looking at the questions on a finer scale, his aim is to lay a basic framework for answering the more global questions. He said, "I'm still interested in big questions that pertain to a number of diseases and processes of learning, all the way up to human behavior of communication and cognition. These questions are answerable, but not until the basic groundwork is laid."

Dave Featherstone and Janet Richmond came with him from Hawaii to work in his lab. Dave is a graduate student and Janet is a postdoctoral fellow. They came this summer to an empty, bare room. Dr. Ruben said things have gone amazingly well since then. The people at USU just make things happen, he claimed. "We have done so well . . . that we have sent off our first abstracts for work done entirely here."

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William J. Popendorf

William J. Popendorf received a BS degree in mechanical engineering from the University of California at Berkeley in the early 1960s. After serving as an Air Force pilot during Vietnam, Popendorf returned to his alma mater where he received a master's degree in engineering directed toward air pollution from combustion sources, and later, a PhD degree in environmental health sciences.

Popendorf said he enjoyed engineering, but felt he could contribute more in a different field. "I was looking for a way to contribute to society," he said. Industrial health was the answer he found.

Since then, Popendorf has been a key player in research that led to laws creating safer working environments. For example, his doctoral studies in California in the 1970s uncovered the nature and cause of acute health hazards to fruit harvesters of organophosphate pesticide residues used on crops, such as citrus, grapes, and peaches. About half of his more than 50 publications describe the pesticide decay pattern, residue exposure mechanisms, and regulatory and policy implications of these residues. California state government used his research in implementing laws to protect the fruit harvesters from being poisoned. His work was also used by the Environmental Protection Agency. "I'm not out to make stricter rules just for the sake of being stricter, but to make them more effective," he said.

He left California in 1983 and, after spending several years in Iowa at the Institute of Agricultural Medicine, he moved to Utah last summer to become a professor of industrial hygiene at Utah State University. He and his wife Joyce and their two children Kristoffer and Kimberly are excited to be in the Rocky Mountains. They plan to enjoy mountain recreational activities including downhill and cross-country skiing, and fly-fishing.

Popendorf said he is anxious to continue his research in industrial hygiene. One concern is current practices for evaluating organic solvents found in paint, ink, and cleaning supplies. The current approach of industrial hygienists is to measure the exposure of the solvent. "My interest is to develop a predictive model that could be used both by professionals and those people who are working with the solvent," he said. "This method would be less costly and less time-consuming."

Research is not the only reason he is happy to be at USU. "The other interest I have is in teaching—transferring knowledge into other people," he said. He feels the transfer of knowledge is of utmost importance. It is a challenge to put old heads on young bodies.

His teaching interest is industrial hygiene and public health in the occupational setting. The major topics cover the anticipation, recognition, evaluation, and control of health hazards potentially caused by organic vapors, hazardous particulate aerosols, dermally toxic chemicals, or physical agents in the occupational environment.



Outstanding Students

Motivated Minds

The College of Science recently added a new category to *INSIGHTS*. The three students profiled here reflect the well-rounded academic and personal lifestyle that we encourage in our College.

Adam Stevenson—Department of Biology



Adam Stevenson, a 23-year-old North Ogden, Utah, native, will graduate in June of 1996 with a BS in biology and microbiology, and minors in math and chemistry. Adam currently maintains a 3.92 GPA and plans to attend medical school next year to become either a pediatrician or geneticist.

Genae, Adam's wife, is also a student at USU studying communications. Adam has enjoyed working on the alternative cinema staff. He holds the position of historian for Motorboard, and is an avid member of Alpha Epsilon Delta (an honor society for premedical students). Adam also works with one of his biology professors on research involving biological control. He received a Howard Hughes Research Grant to study genetics.

Though highly motivated, Adam describes himself as introspective and quiet. He enjoys watching people, learning, and attending school. Adam said he was surprised and very grateful for his selection as an outstanding student.

In his "spare" time, Adam plays golf and racquetball.

OUTSTANDING

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Science Soars with Your Help...

Thank you to the following foundations, corporations, and individuals who have made substantial gifts to the College of Science.

Mr. George E. (Ned) Bohart—to establish an endowment for the insect collection.

The Church of Jesus Christ of Latter-day Saints Foundation—the establishment of the Theodore M. Burton Scholarship Fund in the College of Science at Utah State University (see story on page 5).

The Katherine W. Dumke & Ezekiel R. Dumke Jr. Foundation—donation for the campaign to perpetuate the Insect Collection.

The Willard L. Eccles Foundation Graduate Fellowship—awards in science (see story on pages 4 and 5).

The Wendell L. Pope Scholarship Endowment Fund in the Department of Computer Science.

Dr. Ezekiel R. & Edna Wattis Dumke Foundation challenge grant for a new science observatory.

Questar Corporation Educational Foundation Scholarships—funds to be concentrated on geology, geophysics, mathematics and other physical sciences.

Thank you to all our alumni and friends whose contributions arrive on daily basis to support the current needs of science, which include undergraduate scholarships, the insect collection, and a variety of special projects. Your investment is greatly appreciated. A complete listing of alumni and friends who have given to the College of Science within the last year will be available in *INSIGHTS* fall 1996 issue.

Calls to You...

Recently, many of you have heard from our students during our first College of Science phonathon. Phonathons have been very successful here at USU over the last few years. They allow us to tell you about upcoming activities and current campaigns, and make personal contact with alumni. Thank you for your participation. We appreciate receiving your gifts.

What is a Planned Gift?

(Gifts of cash, marketable securities, real estate, and other assets)

And would you want to know more?

One area often overlooked in financial planning is tax-exempt planned gifts. Planned gifts provide individuals with "tax credit" opportunities. You can contribute to your favorite charity while still building on your income and investments. Many planned giving vehicles accrue retirement savings and provide for children and grandchildren's college education. Programs such as Charitable Remainder Trusts often produce returns on incomes that are higher than other investment savings programs. The Development Office at Utah State University will be happy to schedule a free consulting session for you with our tax attorney to review your estate goals. Contact Katherine Angelos in the College of Science at (801)797-3510 or Rebecca Dukes at (801) 797-1326 for more information.

OUTSTANDING

Lam Thanadabout—*Department of Chemistry and Biochemistry*



Lam Thanadabout, a 21-year-old who grew up in Cache Valley, will graduate this spring with a major in chemistry, and may have minors in biology and math. Lam maintains a 3.93 GPA, belongs to the Science Council and the Golden Key National Honor Society, and has held positions in the Beta Theta Pi fraternity.

His love of children points Lam in the direction of pediatric neurosurgery, but marriage and children of his own will have to wait until after medical school, and possibly the Peace Corps.

Lam works 20 hours per week for Silicon Products. When he has time, he enjoys mountain biking, hiking, skiing, basketball, soccer, softball, and weightlifting. Obviously, he places as high a priority on personal fitness as on academics.

A highly motivated individual, Lam describes himself as dedicated, goal-oriented, and empathetic. He would especially like to thank his mother and late father for his success.

Ted Meek—Department of Computer Science



From the small town of Coalville, Utah, 20-year-old Ted Meek has already accomplished big success. Ted pursues majors in electrical engineering and computer science, and minors in math and aerospace studies and still finds time to share life with his wife Jessica. So far, he has a 3.96 GPA, but there is a long road to travel before he graduates spring quarter 1998.

Ted received a full scholarship from the United States Air Force, and he truly enjoys his involvement with the armed forces. He is the current Arnold Air Society Commander. His college activities include softball, flag football, and several service projects—March of Dimes, blood drives, color guards—the list goes on and on. Ted also works 24 hours per week at ProForm.

Ted's future goals include becoming a commissioned Air Force officer, and possibly going into Spacecom (a prestigious military organization which tracks satellites and missiles in space), piloting jets, or working as an engineer. Right now, Ted enjoys rollerblading, skiing, snowboarding, and reassembling computers.

Ted says he can either be quiet or loud, depending on who he is with. He describes himself as goal-oriented and motivated. Ted expresses thanks to his wife, his parents, the Air Force, and especially God for helping him to succeed in his endeavors.

Alumni Highlights

M. William Lensch



As a biology student at USU, William Lensch (BS Biology, 1991) took classes in molecular biology and genetics. He studied other subjects, too, taking courses in everything from chemistry to languages. Lensch, however, not only learned from his classes at USU, he also learned from laboratory work he did for professors on weekends, between classes, after hours, and during the summer.

"I got my start with lab work in Dr. Joseph Li's lab," says Lensch. "At first, I just washed dishes, but my responsibilities grew." The lab work with Dr. Li was just the start of a long, fruitful relationship Lensch has had with laboratory work.

Lensch's lab career—and his progress toward his life goals—blossomed when he began working in the laboratory of Dr. Dennis Welker. Initially, he washed dishes in Dr. Welker's lab too, but soon worked up to performing his own projects, including DNA analysis. More importantly, however, Dr. Welker put Lensch on a successful career path that, after numerous published papers and reports, and research specialist positions in distinguished laboratories, has led to Lensch's current position as a PhD student in the Molecular and Medial Genetics Department at Oregon Health Sciences University, Portland, Oregon.

"Dr. Welker recommended that I take the course I have taken, and I owe him for it," says Lensch. With Dr. Welker's guidance, Lensch was able to focus himself and get the experience necessary to be successful in his chosen area of specialization, molecular-based genetic study.

After graduation from USU, Lensch's experience began with a two-year stint as a laboratory manager at the University of Utah School of Medicine's Division of Medical Genetics, under the guidance of Dr. Phillip Chance. The primary focus of his work at this time was locating unknown human genes and research of the human genetic disorder Charcot-Marie-Tooth Disease (CMT). He was soon promoted to laboratory specialist. He also began co-writing reports and abstracts with Dr. Chance that were published in numerous journals.

In 1993, Dr. Chance moved his laboratory to the Division of Neurology Research at the Children's Hospital of Philadelphia, part of the University of Pennsylvania School of Medicine's Department of Neurology, and Dr. Chance took William Lensch with him. While at the University of Pennsylvania, Lensch continued to locate genes, but his responsibilities expanded to include study of other forms of neuromuscular disease other than CMT. He also continued to co-author reports and abstracts with Dr. Chance and was advanced to research specialist and chief technician.

Now he is applying that lab experience to his PhD studies at the Oregon Health Sciences University. He is excited about his studies and goal to conduct research at the molecular level to understand the underlying mechanisms in human hereditary disease and, in specific, devise potential avenues of genetic therapy.

"This is a really interesting field, and there are opportunities to do some good for people," says Lensch. "That might sound Pollyannaish but I would really like to be able to help individuals affected with genetic diseases."

HIGHLIGHTS
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LaRue West Miller and Robert Miller

When LaRue West Miller (BS Mathematics, 1958) and Robert Miller (BS Electrical Engineering, 1957; MS Industrial Education, 1966) married in December 1958, they were in the middle of their undergraduate schooling at USU. She was a junior in mathematics, and he was a senior in electrical engineering. It was the start of a relationship that took them to many schools, states, and professional career positions, and gave them four children.

Only seven weeks after her graduation in 1958, LaRue delivered their first son, Nathan. The family moved to Tempe, where Bob worked as an electronic engineer for Motorola and LaRue completed an MA degree in mathematics and gave birth to their second son Alan. In 1962, they moved to Flagstaff, Arizona, where they both taught at Northern Arizona University (LaRue, part-time). By 1964, however, they were back in Logan, where Bob finished an MS in industrial education and LaRue divided her time between her part-time mathematics teaching and the "mommy track," which, by now included a third son David.

In 1965, the moving continued. They went to Juneau, Alaska, where Bob was the state supervisor of Trade, Industry, and Fisheries Education. LaRue was a part-time assistant professor of mathematics at Juneau-Douglas Community College and became the mother of daughter Tracy; then three years later, they returned to Flagstaff and teaching.

Bob, however, felt he needed to acquire an EdD to continue teaching, so he applied for and won an Education Profession Development Act (EPDA) fellowship to the University of Minnesota. While in Minnesota, LaRue taught at Normandale State Junior College and assisted in editing an award-winning yearbook for the National Council of Teachers in Mathematics. In 1972, after Bob completed an EdD, they settled into jobs in Arizona.



By 1979, Bob switched to the Phoenix office of Northern Arizona University to support LaRue in achieving a long-time career goal of entering the computer industry. She began working for Honeywell as a software test engineer, and, as Honeywell Information Systems changed names to Honeywell-Bull, then to Bull Worldwide Information Systems, she moved through beginning testing, to

project leadership, project engineering, and release management. "After 16 years, I'm back in software testing as a consulting engineer," says LaRue of her work. "And the tasks are consistently challenging and interesting."

In 1989, Bob retired from teaching and in 1990 he ran for public office as Arizona's state superintendent of public instruction. He won the primary, but unfortunately, lost in the general election. Since then, he has been involved in his own company, 3Media, which develops interactive CD-ROM titles for public schools.

"I really enjoy what I'm doing now," says Bob. "It's an exciting field. We work with digital images, video, sound, and text in both the Mac and PC environments, and the technology in multimedia is expanding rapidly."

Their children have also pursued interesting careers. The sons all took after their father and studied engineering, Nathan and Alan in electronic engineering at Motorola and David in mechanical engineering at Computervision. Tracy, however, plotted a course completely separate from engineering. "She wanted to do something that her brothers couldn't do," says LaRue. "So, after two years of study in mainland China, she now is financing her PhD in east Asian art and architecture history by being a teaching assistant in basic Chinese at the University of Pennsylvania."

RUBEN

Peter begins teaching advanced classes in neurophysiology winter quarter and comparative physiology spring quarter. He will also develop neuroscience courses to add to the curriculum. He said he teaches because he likes it. "There is nothing like seeing that light bulb go off over a [student's] head when all of a sudden they get something. It is sort of like a gift, and the gift works both ways. You are giving them information that they do not have, and they are giving you the beauty of watching someone undergo revelation—that is an incredible gift."

Dr. Ruben's goal as professor is to "unmask the beauty and simplicity of science," which unfortunately he thinks are hidden from many people. He has discovered the inherent beauty in science and wants the opportunity to reveal that to students. "If I can give that enthusiasm and interest to just one student, then I will feel like I was successful."

Because of his love of life and science, he hopes to help other people understand that science isn't all that complicated. "There is no mystery, and if there seems to be a mystery, it just takes keeping at it until you can reveal the hidden beauty that makes things work," he said. He hopes to reveal this beauty to his students at USU through his teaching and to many more people through his research.

A man of many talents, Dr. Ruben enjoys playing the cello and conga drums, swimming, rock climbing, skiing, and surfing (something he picked up in Hawaii to fill the niche left by rock climbing).

Kevin Bolland



The short time Kevin Bolland (BS Medical Technology, 1986) spent at USU was eventful. He and his wife Jana were married the month before starting classes, transferring to USU from Ricks College in Rexburg, Idaho. Jana worked full time, and they both cleaned an office building in the evening, just to make ends meet. "We were in love and determined to make it on our own," says Bolland.

The year in Logan wasn't all work, however. Besides his studies in medical technology, Kevin played percussion with the USU marching and BKB pep bands. The highlight of that experience was playing at Disneyland with the marching band. Unfortunately, he wasn't able to enjoy Logan for long, as Kevin spent his senior year doing a 12-month internship at the McKay-Dee Hospital in Ogden, Utah.

After completing his BS at USU, Kevin worked five years as a medical technologist. He started out at the Budge Clinic in Logan, Utah, then accepted a position supervising a small hospital laboratory in Preston, Idaho. Two years of being constantly on call persuaded him to try his luck elsewhere, so he relocated to Springfield, Oregon. It was while working with several physicians in the laboratories that Kevin was introduced to his current profession as a physician's

assistant. "I was impressed by the kind of work physician's assistants do," Kevin says. "Here was a profession that would allow me to build on knowledge and skills I already had and become better able to help people with their health care needs."

As he already had a BS, Kevin limited his applications to the few PA programs that offered graduate degrees. He was accepted by the Baylor College Medicine Physician Assistant Program in Houston, Texas. The usual physician's assistant training program consists of 12 months of basic science classes followed by 12 months of core clinical rotations. "Many of the core classes and rotations were taken right along side the medical students," Kevin says. "We were taught to work as part of the health care team."

To help pay for his schooling and support his growing family, Kevin applied for and received a National Health Service Corps scholarship. In return for the financial assistance, he committed to assist the medically underserved for two years. Since graduation in 1993, Bolland has been fulfilling that obligation at a migrant farm worker's clinic near Yakima, Washington. "It's really satisfying work," says Kevin. "The people are grateful, and it's always a good feeling helping someone in need."

On the home front, Kevin and Jana have had one child at each of his career stops: Caleb in Logan, Briana in Preston, AddiLee in Springfield, and Seth in Houston. They have also been active in the LDS church and in various community organizations.

Alumnet Responses

Barry F. Bennett (BS 1980, Biology) received an MD from the University of Utah in 1984. He finished his commitment to the Army one year ago, and has set up a group family practice in Idaho Falls, Idaho. Barry and his wife Christine have four children.

Eric C. Blank (BS 1974, Bacteriology) received an MPH in 1980 and a PhD in 1982 from the University of North Carolina. He has been the director of the Missouri State Public Health Laboratory since 1987. He is also the secretary/treasurer of the Association of State and Territorial Public Health Laboratory Directors.

O. Robert Burgener (BS 1953, Microbiology/Public Health) obtained an MPH from the University of California at Berkeley in 1964 and a PhD in environmental biology from the University of Utah in 1972. He retired in September, after working 41 years in the health field. For 11 years, he worked with the Utah State Health Department. From 1964-1994 he taught at Brigham Young University as a full professor. Also while at BYU, he established and supervised the following programs: Community Health, Environmental Health Science, Industrial Hygiene, and Occupation Safety. He taught Epidemiology, Toxicology, Industrial Hygiene, Community Health, School Health, and supervised the Internship Program. He received the "Outstanding Professor Award" from the Phi Kappa Phi Honor Society.

Janet L. deVries (MS 1982, Geology) received a BS in geology from the University of Akron in 1980, and an MS in education and counseling from the University of Wyoming in 1995. She is now a school-to-work coordinator and adjunct faculty member at Casper College, Casper, Wyoming.

Thayne R. Dutson (BS 1966, Zoology) obtained an MS in 1969 and PhD in 1971 from Michigan State University. He is presently the dean of the College of Agricultural Sciences at Oregon State University and the director of the Oregon Agricultural Experiment Station.

Steven C. Funk (BA 1986, Biology) obtained an MD from the University of Utah in 1990. He also completed his anesthesiology residency at the University of Arizona in 1994.

Bruce W. Garrett (BS 1976, Biology; BS 1982, Psychology) received an AA from Eastern Iowa Community College in 1967, an AS from Weber State University in 1980, and an MBA from Southwestern University in New Orleans in 1993. He is employed in hospital administration and manages the clinical services of a rural community hospital. He supervises approximately 200 people of diverse educational and ethnic backgrounds in an ever changing health care environment. His fiduciary responsibilities are approximately \$18 million dollars of a total operating budget of approximately \$25 million. In his spare time, he does consulting and teaches management and nursing classes at New Mexico State University.

HIGHLIGHTS

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Alamogordo, and precept nurse administrators from hospitals located nationwide. He has a daughter Rebecca (Becky) who attends Skyview High School this year as a sophomore.

Philip J. Hart (BS 1935, Physics) received a PhD from Iowa State University in 1939. He taught in the Physics Department at USU from 1942-1956. From 1956-1977 he performed research at Lockheed Missiles and Space Corporation in Palo Alto, California. He is now retired.

Melvin G. Heaps (PhD 1973, Physics) has accepted a position in the Physics/Mathematics Department at Central Arizona College, which began fall semester 1995. His wife Margo G. Heaps (BA 1971, Communications) is an instructor in communications at Central Arizona and Scottsdale Community Colleges.

Stanley R. Hunt (BS 1949, Mathematics) married Mary Louise Willis in 1949. They had nine children. Mary passed away in January of 1995. After 26 years of service, he retired from Hercules Incorporated in 1985.

M. William Lensch (BS 1991, Biology) since graduating from USU, he has served as chief technician at the Children's Hospital of Philadelphia until this fall. While there, he wrote nine original reports (including papers in *Cell* and *Science* journals), seven abstracts, and now has a patent pending. He also pursued graduate study in neuroscience at the University of Pennsylvania. He has since accepted a fellowship to the Oregon Health Sciences University for PhD study in the Department of Molecular and Medical Genetics.

O. Boyd Mathias (BA 1954, Physics) received an MA in physical sciences teaching from Kansas State University in 1956 and a PhD in general education physical sciences teaching from the University of Missouri in 1962. He retired in 1995, after teaching for 27 years at the University of Pacific.

T. Dale McCormick (BS 1964, Applied Statistics) since graduation spent five years in the United States Air Force. He began work for Delta Air Lines in 1969 and is now a captain, flying B-757 and B-767 jet liners. He and his wife Sally have two daughters, Amy and Kate.

Ellis D. Miner (BS 1961, Physics) obtained a PhD in physics and astronomy from BYU in 1965. He worked for 30 years at CalTech's jet propulsion laboratory. Presently, he is the science manager for NASA's Cassini Mission to Saturn.

Robert L. Moore Jr. (BS 1972, Geology; BS 1973, Business Administration) is a process supervisor at a major gold mine near Salt Lake City, Utah. He is looking forward to tapering off his work around the first part of the century. He spends a lot of time in Mexico.

Don Moreaux (BS 1976, Zoology) received an MSCS in 1990 from the University of Idaho, where he is currently working on a PhD.

John I. Mosher (PhD 1972, Zoology) received an MA from Western State College of Colorado in 1961 and a BA from Hobart College in 1956. He retired in 1992, after 31 years of teaching at the Biology Department at SUNY College at Brockport. Since retiring, he has given stress reduction workshops and staff training in stress reduction at SUNY and other local colleges and businesses. He and his wife Connie have four children. One daughter still lives at home and is attending college. His son is an industrial designer in Massachusetts; the two older daughters are married. They have one grandchild. They enjoy their country home in Albion, New York, and love

the outdoors.

Kathryn Mutz (MS 1979, Biology/Ecology) received a JD this year from the University of Colorado School of Law. After working for 12 years as a biologist in environmental consulting for the State of Utah, she returned to law school and passed the bar exam in July. She is now doing a year-long judicial clerkship for the Colorado Court of Appeals. Afterwards, she plans to practice natural resources/environmental law.

Ronald D. Perkins (BS 1972, Public Health) obtained an MPH from the University of Minnesota in 1979. He is a commissioned officer in the US Public Health Service, recently attaining captain rank. He is the director of the Injury Prevention Program for the Alaska Native Health Service and was named "Safety Professional of the Year" in 1995 by the State of Alaska. He has presented seminars on injury prevention at John Hopkins University in Edmonton, Alberta; the University of Alaska; and the World Injury Control Conference.

George Piranian (BS 1936, Botany; MS 1938, Agriculture) received a PhD in mathematics from Rice University in 1943. Retirement encourages the reading of books and does not end all opportunities for corrupting younger minds. Also, he just bought a new bicycle.

Mike Plummer (MS 1969, Zoology) received a PhD in biology from the University of Kansas in 1976. He has taught Biology at Harding University since 1976, where he holds the Coons Endowed Chair for Biomedical Sciences and conducts an active research program in reptilian ecology. He served as department chairman from 1986-1991 and was recognized as a "Distinguished Teacher" in 1994-95. He is an avid racquetball player and enjoys diverse activities with his wife Sharon, of 29 years, and their two grown children.

Carrie Finchum Quesnell (BS 1990, Mathematics and Statistics) is currently a staff specialist working on strike weapons analysis at the Naval Air Warfare Center in China Lake, California. She and her husband Mike (BS 1990, Electrical Engineering) had a baby boy named Aaron Leo Quesnell on November 1, 1995. They enjoy mountain biking in the desert and hiking in the Sierras.

Byron T. Shaw (BS 1930, Mathematics; Honorary LLD, 1957) received a PhD from Ohio State University in 1940. He was a high school teacher in Idaho for seven years. He also taught and performed research at the University of California and Ohio State University. At the USDA, he was the administrator for the ARS. He retired in 1968.

Mark Shelton (PhD 1989, Biology) received a BS in entomology from the University of Idaho in 1977 and an MS in entomology from Purdue in 1980. He is married and has three children. He loves sports, especially basketball and fishing. He has been a professor of entomology in the Crop Science Department at CalPoly since 1982. His research interests involve applied entomology. His most recent research is on the use of high CO₂ atmospheres for post-harvest disinfection of cut flowers. He teaches IPM and Agriculture.

Russell T. Snow (BS 1979, Biology) received a DO in osteopathic medicine from the University of Health Science College in Kansas City, Missouri in 1983. He completed his otolaryngology/facial plastic surgery residency at Pontiac Osteopathic Hospital in Pontiac, Michigan in 1988. He has had a private practice for 6-1/2 years. He is board certified by the Fellow American Osteopathic College of Otolaryngology, Head

and Neck Surgery, and appointed a member of the Idaho State Board of Medicine in 1995.

Floyd Tarbet (BS 1959, Pre dental Biology) graduated from St. Louis University School of Dentistry in 1961. He married Karen Richardson, a BYU alumnus. They have eight children, two of which are currently attending USU: Karl has a BS in environmental engineering and is currently working on a degree in water resources; Thomas is a computer science major.

Arthur Wallace (BS 1943, Chemistry) received his PhD from Rutgers University in 1949. He retired in 1989, after

spending 40 years as a soil scientist on the faculty of UCLA. He now continues professional work in the soil-plant field as a consultant and researcher with his son. They have a private business in Southern California.

Gina R. Ward (BS 1994, Biological Science) is now a graduate student at the University of Utah in a coordinated master's program in dietetics. She will graduate in the spring of 1996 as a registered dietician. Her emphasis has been in maternal and infant nutrition. Gina received certification as an emergency medical technician from Bridgerland Applied Technology Center, Logan, Utah, in 1994.

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Thank You!

A special thank you to those who assisted with or contributed to *INSIGHTS*.

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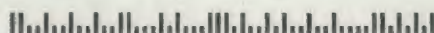
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A L U M N E T

Dear College of Science Alumni and Friends,

Changes in the College of Science are ongoing. We have a new assistant dean for undergraduate affairs, new faculty, and an influx of new students. There is, however, one thing that has not changed—our interest in you! This information not only reacquaints us, but also gives us an idea of areas of interest for future issues. We have changed our response format to include a postage-paid response form for your convenience. We look forward to hearing from you soon.

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