
Chemistry Alumni News

A publication for alumni and friends, established 1966
University of Kansas
Department of Chemistry

July 1998, Issue No. 32

Highlights.....

<i>Nelson praised.....</i>	<i>3</i>
<i>Busch runs for ACS.....</i>	<i>3</i>
<i>New networks.....</i>	<i>4</i>
<i>Two dedications.....</i>	<i>6</i>
<i>Two retire.....</i>	<i>12</i>
<i>New memorial garden.....</i>	<i>15</i>
<i>Curriculum changes.....</i>	<i>18</i>
<i>Centennial preparation... </i>	<i>19</i>
<i>Walter visits.....</i>	<i>22</i>
<i>Four promoted.....</i>	<i>23</i>
<i>Department briefs.....</i>	<i>23</i>
<i>Alumni news.....</i>	<i>25</i>

Dr. Ivory Nelson (Ph.D. 1963) receives Distinguished Service Citation Award



Chemistry alum Ivory Nelson and his wife Patricia dropped in at the Department during their recent visit to campus for the Distinguished Service Citation awards ceremony. From left to right: Marlin Harmony, Ivory Nelson, Jack Landgrebe and Patricia Nelson.



Notes from the Department Chair....

Greetings to all of our friends and colleagues!

It is always a pleasure to write this introduction to our yearly newsletter, because it reminds me of all of the great times we have had during the last year as well as the accomplishments of our very active faculty and alums. This year is no different.

As you can see from the next page, Daryle Busch is at it again. This Fall he will be on the ballot for the Presidency of the American Chemical Society. I highly endorse his candidacy and hope that you will seriously consider casting your vote for him.

Another noted accomplishment is the awarding of the Distinguished Service Citation to Dr. Ivory Nelson, a former student of Rey Iwamoto's. Dr. Nelson has distinguished himself in many ways, including being the current president of Central Washington University in Ellensburg, Washington.

A major highlight this last year was the completion and dedication of the newly named Budig Hall. For those of you who have fond memories of the old Hoch Auditorium, do not be saddened by the name change. In fact the old name of Hoch still applies, but not just to one but to all three "auditoria" within Budig Hall. In addition, the capacious one thousand seat auditorium has now been dedicated in honor of our beloved Clark Bricker.

The faculty teaching in the new high tech auditoria faced the Fall semester with great trepidation. Gone are the days of going to class armed with some notes and a piece of chalk. Now there are technicians, cameras viewing the stage from every which angle along with computers to run them, and microphones for acoustical purposes. Even the routine operation is so complicated that the faculty using the facility have to attend training sessions before they are left loose to lecture.

On a bittersweet note, we are now minus four of our faculty members. Two, Albert Burgstahler and Marlin Harmony, decided to retire. While we will miss them dearly, we are excited for their plans of travel and other post-retirement activities. Bob Bowman has left for Colgate University, a highly regarded undergraduate institution in Hamilton, New York, to explore what it is like to teach at a private college. Tom Engler is on a leave of absence to explore life in industry at Eli Lilly and Company in Indianapolis. Again we will miss each of them and wish them well in future endeavors.

The rest of the news you can read on the following pages. Don't forget, if you are in Boston at the ACS meeting, please stop by on Monday, August 24, between 6:00 and 7:30 P.M. for our alumni hour mixer.

With best wishes from us to you for a successful coming year.

Kristin Bowman-James
Professor and Chair

Daryle, Daryle, he's our man!



Busch for ACS President!

Daryle H. Busch, University of Kansas Roy A. Roberts distinguished professor of chemistry is a candidate for President of the ACS. Learn more about Daryle and his Platform at <http://www.Chem.UKans.edu/chem/DBUSCH/BuschACS/INDEX.HTML>

Look for us at the Boston ACS meeting!

Attend our Symposium! *Rediscovering Research: The Impact of Research on Undergraduates*. The session will be on Sunday, August 23. (More information below.)

See you at the Social Hour! We've reserved space for KU Chemistry at the ACS Alumni Hour, 6:00-7:30 p.m., Monday, August 24. Stop by and visit with faculty, friends and alums!

Rediscovering Research: The Impact of Research on Undergraduates. Cindy Larive and Kelsey Cook (University of Tennessee) have organized this symposium for the Boston ACS meeting. The session will be on Sunday, August 23, and will focus on the benefits and means of doing research primarily in non-Ph.D.-granting college and university chemistry departments. The symposium will be held in the Hynes Convention Center. Ted Kuwana (KU) and Janet Osteryoung (NSF) will give keynote lectures, along with presentations by alumni of the NSF Macro-ROA research opportunity award programs in Chemical Analysis at Kansas and Tennessee. A panel chaired by Henry Blount (NSF) and including representatives from industry, academia, and funding agencies will discuss opportunities, motivations, hurdles, and creative solu-

tions to research and logistics problems in the undergraduate environment. Finally, an evening poster session by students active in undergraduate research will illustrate the specific types of research that can be accomplished.

Chemistry alum receives top honors

The University and the KU Alumni Association conferred Distinguished Service Citations on four people who have made significant contributions to humanity. Recipients were NASA astronaut Steven A. Hawley, Houston; Francis H. Heller, professor emeritus of law and political science, Lawrence; **Ivory V. Nelson, president of Central Washington University, Ellensburg**; and Rosalie Erwin Wahl, retired chief justice of the Minnesota Supreme Court, Lake Elmo, Minnesota.

Nelson (Ph.D., 1963) was the first African-American to earn a doctorate in analytical chemistry from KU, working under the direction of Reynold T. Iwamoto. He came to KU from Grambling State University in Louisiana. After leaving KU, he taught at Southern University, Baton Rouge, Louisiana, and then spent 15 years teaching and serving in administrative posts at Prairie View A&M University, Prairie View, Texas.

Dr. Nelson began at Prairie View in 1968 as a chemistry professor and assistant dean of academic affairs. He served in administrative positions for 11 years before becoming executive assistant to the chancellor for Texas A&M Systems, of which Prairie View is a member.

Since 1992, Nelson has been president of Central Washington University in Ellensburg and has served on the Washington State Commission on Student Learning. In 1996, he was featured among the 100 scholars chronicled in the Distinguished African-American Scientists of the 20th Century.

Following are the names of other Chemistry alums who are Distinguished Service Citation recipients.

- | | |
|------|--|
| 1941 | Elmer V. McCollum and Edward R. Weidlein |
| 1947 | Robert D. Coghill |
| 1948 | Wendell M. Latimer |
| 1958 | D. Ruth Thompson |
| 1959 | Clifford W. Seibel |
| 1962 | Alvin McCoy |
| 1963 | Ray Q. Brewster |
| 1964 | Frank E. Jirik |
| 1972 | George H. Cady |
| 1974 | Robert H. Malott |
| 1981 | John L. Margrave |
| 1982 | Takeru Higuchi |

Network to strengthen research in six states

A partnership of universities and research facilities in six Midwestern states has received more than \$2.5 million to develop a "virtual" scientific computer network to strengthen scientific research in the region.

KU is one of the universities involved, and Jerry Niebaum, KU director of information technology services, is the principal investigator for the project.

The National Science Foundation has awarded a two-year grant of \$1,479,980 to the six states, called the Great Plains Network, to be matched with \$1,277,118 from the states—North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Arkansas.

The proposal was initiated and funded by the NSF EPSCoR program—Experimental Program to Stimulate Competitive Research—in Kansas and by the EPSCoR programs in the other five states.

The Great Plains Network aims at bridging the "virtual distance between our respective states," Niebaum said. The program seeks to develop a north-south communications corridor for scientific collaboration.

"Historically, these states have been disadvantaged by being physically separated from major research concentrations on the East and West coasts," said Ted Kuwana, regents distinguished professor of chemistry at KU and project director for the Kansas Science and Technology Advanced Research program, or K*STAR.

K*STAR is funded by EPSCoR with matching state funds through the Kansas Technology Enterprise Corporation.

"It is absolutely critical to the future competitiveness of the six states that they participate in national networking initiatives and continue to develop network capacity," Kuwana said.

A regional center operated by the Kansas Association for Networked Supercomputing Applications at KU will serve as the focal point for the Great Plains region and will provide training in the network programs.

The network is expected to meet the needs of scientists while facing the challenges of national communications and computing initiatives by: (1) Increasing network capacity among states, (2) Providing high-capacity access to the national computer grid and

thereby to national supercomputing facilities, and (3) Maximizing use of the telecommunications network and supercomputing resources through training, consultation and software services.

"Because the Great Plains states have small populations and large land areas, the major telecommunications companies are not competing vigorously to bring advanced services to the region," Niebaum said. "By aggregating their purchasing power, the alliance states can develop a high-capacity, interstate backbone network for the entire region.

Without the network, each state would have to purchase access to the national grid at a cost of as much as \$500,000 per state per year, or more than \$3 million for the region. Shared access is expected to reduce the yearly costs to \$500,000 for the entire area.

The network in Kansas is funded by the NSF with state matching funds

provided by the Kansas Technology Enterprise Corporation and by the Kansas Research Education Network. More information is available at the World Wide Web site <http://www.greatplains.net/>—*This article appeared in the OREAD, November 7, 1997, Volume 22, Number 6.*

Doing science is a better way of learning science

Check out this website!
The Kansas Collaborative Research Network — <http://kancrn.org>

The University of Kansas and the Kansas City Kansas Public Schools have received a \$4.1 million Technology Innovation Challenge Grant for the Kansas Collaborative Research Network, KanCRN. U.S. Secretary of Education Richard W. Riley announced the award which was one of 19 new grants out of a field of 675 proposals. The Challenge grants are awarded to projects that demonstrate how today's advanced technologies can bring schools and communities fully into the information age.

The KanCRN community is working together to create and implement an instructional model for science education to demonstrate that doing science is a better way of learning science. The results of ongoing investigations add significantly to our understanding of the natural world. Currently research ranges from tro-

pospheric ozone, sulphur dioxide, and carbon dioxide and the possible use of bioindicators in monitoring atmospheric levels to stream monitoring and biodiversity studies. Educationally, the project addresses the national and state science and math standards by modeling the research process.

The University of Kansas will assist the project by establishing network service for extending sustainable project management, and by providing training, research, curriculum resource and assessment materials to teachers and students in KanCRN schools. The project is coordinated through the website which includes coordination of a community-based mentors program.

The proposal was developed by two University of Kansas graduate students, Steven Case and Gary Andersen, who serve as project directors. Steve Case serves as project director for the University of Kansas. Gary Andersen serves as the project director for the Kansas City Kansas Public Schools. In addition, they are working as project directors for an NSF funded project, Over the Top with TEaMS, with the Kansas City Kansas School District. TEaMS is a long-range project to significantly increase minority enrollment and success rates in courses comprising the science, mathematics, and engineering technology pipeline.

You can contact Steve Case at University of Kansas, 2021 Dole Center, Lawrence, KS 66045, TEL: (785) 864-4471, FAX: (785) 864-0704 or EMAIL: scase@busboy.sped.ukans.edu

Discovery: Seeing a chain wreck

The amino acid asparagine and certain polymers don't get along very well. While this sort of chemical family feud may seem of interest only to scientists, it can actually cause protein-based medicines to lose their efficacy. In some cases, it may even be fatal.

A team of KU scientists recently received a \$190,000 National Institutes of Health grant to examine how the polymers present in drug packaging affect asparagine, a hot-spot in peptide chains and proteins.

When asparagine is degraded by plastic materials, the entire protein can take on different biological properties, which can cause the drug to become ineffective and, in some cases, toxic, says Richard Schowen, Summerfield distinguished professor of

chemistry and the principal investigator on the grant.

The project draws on research by Ronald Borchardt, Summerfield distinguished professor of pharmaceutical chemistry. Borchardt, says Schowen, is the world's leading expert on protein degradation.

The scientists want to create a detailed chemical picture that could actually predict the effect of a given protein with certain polymers.

"At present there is no general set of concepts that relates polymeric materials to their probable effect on the stability of the protein," Schowen says. "We would like to develop a set of generalizations that could serve as guidelines." —*This article appeared in Kansas Alumni, No. 6, 1997.*

Chemistry carnival geared for all ages

What do lasers, slime pits, cornstarch and hard water have in common? You'd have to have visited the 1997 Carnival of Chemistry to find out.

The carnival, sponsored the American Chemical Society and KU, took place Sunday, November 1, in Malott Hall.

Recently the carnival received an ACS Phoenix Award for the best open house of 1996. "We are very honored to have received this award twice in three years," said Martha Dolan Morton, a research associate with KU's

Nuclear Magnetic Resonance Laboratory. "This year, the carnival was even bigger and better."

The carnival, geared for elementary-school children with a focus on fourth- and fifth-graders, had plenty to do for all, including 1- and 2-year olds.

"The slime pit, where you can make your own slime, is always a favorite," Morton said. "And this year we had two rooms and hopefully no line."

Other demonstrations and hands-on events included face painting, a mystery room and an elemental cookie walk—like a cake walk, but the children walked on placards labeled with the names of chemical elements. There were also two "magic" shows.

Included in the carnival for the first time was the "Fall Leaves and Christmas Trees" demonstration, where children could watch markers spread into their component colors.

Other shows included: "Lasers and Light"—see light with prisms and lasers; "All Washed Up"—Mix ions



Summerfield Distinguished Professor Richard Schowen was master of ceremonies for the Harmony/Burgstahler retirement reception hosted by the Department. See his written comments in an article on p. 12.

in water to affect the amount of suds that soap will produce; and "Food Chemistry"—Test the properties of cornstarch and water.—*This article appeared in the Lawrence Journal-World, October 30, 1997.*

Budig Hall dedicated October 31

A KU landmark devastated by fire then renovated to become one of the most technologically advanced classrooms in the nation, was dedicated as Budig Hall at 2:30 p.m., Friday, October 31.

The building has been a campus landmark since it opened in 1927. When a lightning-sparked fire gutted it June 15, 1991, many thought the historic structure, then called Hoch Auditorium, would be lost.

Two appropriations from the Kansas Legislature and six years were needed to complete the \$23 million renovation. In 1994, the Kansas Board of Regents authorized renaming the renovated building in recognition of Gene A. Budig, KU's 14th chancellor.

Budig left KU in August 1994 to become the seventh president of the American League of professional baseball clubs. He had served 13 years as KU's chancellor.

"Being associated with the University of Kansas in perpetuity is the highest of honors," Budig said, "and I am profoundly grateful for my time on Mount Oread."

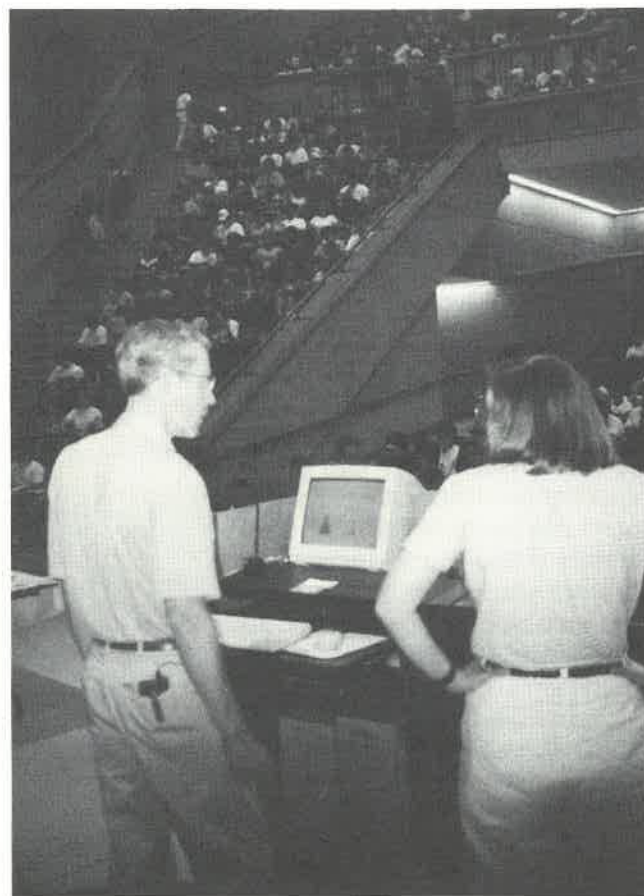
Chancellor Robert Hemenway welcomed all of the guests to the dedication ceremony in 120 Budig Hall. "Budig Hall combines two of the best aspects of KU's plan for the future—the preservation of this historic landmark and the creation of a learning environment which provides the latest in multimedia technology," Hemenway said.

"It is fitting that the building is dedicated to Gene Budig. He worked tirelessly to find the funds for the renovation, and it is also a mark of respect for his 13 years of service to the university."

The program included remarks from Budig; Kansas Governor Bill Graves; Judge Cordell D. Meeks, Jr., chair of the board of directors of the KU Alumni Association; and Stanley F. Lombardo, professor of classics. The program opened with a commemorative video *From Ashes to Renewal: The Story of Hoch Auditorium and Budig Hall*. The program also included a demonstration by Grover W. Everett, Jr., Chancellors Club teaching professor of chemistry, to show the multimedia capabilities of the hall.

More than 850 attended the dedication. Among the guests were former chancellors, presidents of other universities, legislators, and other state officials and members of the Kansas Board of Regents.

Inside Budig Hall are three high-tech classrooms and a central control room. Two of the lecture halls can hold 500 students, while the third auditorium



View from the media center in Bricker Auditorium, which seats 1,000, as Grover Everett and assistant Kathy Prater prepare for the start of class.

can seat 1,000. All three rooms have the same multimedia capabilities, including three rear-projector screens along the wall, each measuring 10 by 14 feet.

Budig Hall also has a \$700,000 computer lab with 125 workstations for students. Two underground floors will be equipped for library holdings, accessible from nearby Anschutz Science Library. Architects for the renovation were Glenn Livingood Penzler Architects, Lawrence.

A gift from the KU graduating class of 1997 provided a bronze university seal installed in front of Budig Hall to honor the former chancellor.—*This article appeared in the OREAD, October 24, 1997, Volume 22, Number 5.*

Budig lecture hall named after Clark Bricker

A state-of-the-art lecture hall in newly rebuilt Budig Hall was named after a longtime KU chemistry professor.

A plaque and brief testimonial were placed next to the central lecture hall in Budig Hall to honor Clark

Eugene Bricker, KU chemistry professor from 1963 until his retirement in 1983. Bricker died June 14, 1994.

The dedication ceremony was held at 10:00 a.m. Saturday, November 8, 1997, in 120 Budig Hall. The event was open to the public.

"Clark Bricker was probably the most famous teacher of general chemistry at this institution," said Ralph Adams, professor emeritus of chemistry.

"He was a tough apple with his students, never giving an inch on the science he was teaching. But his students loved him. Bricker was an exceptional instructor, and his students knew it."

While earning his doctorate at Princeton University, Princeton, New Jersey, Bricker worked for two years with the Manhattan Project, which produced the first atomic bombs, before he received his Ph.D. in 1944. He earned an undergraduate degree in 1939 from Gettysburg College, Gettysburg, Pennsylvania, and a master of science degree in 1940 from Haverford College, Haverford, Pennsylvania.

In 1946 he was appointed an assistant professor of chemistry at Johns Hopkins University in Baltimore. Bricker returned to Princeton in 1948 as an assistant professor of chemistry, was named an associate professor in 1951 and became a full professor in 1960.

In 1961, he was named dean of the college and professor of chemistry at the College of Wooster, Wooster, Ohio.

Bricker was named professor of chemistry and director of freshman chemistry at KU in June 1963. He received the HOPE Award—Honor to Outstanding Progressive Educator—from the senior class four times, in 1966, 1969, 1979, 1983.

Other awards and honors bestowed on Bricker include the Standard Oil Foundation Award for excellence in teaching in 1967, the College Chemistry Teachers Award in 1968 and 1975 Visiting Scientist Teaching Award from the Western Connecticut Section of the American Chemistry Society.

In 1980, Bricker became the first recipient of the Ray Nichols Outstanding Teaching Award, given by the Alpha Xi Chapter of Sigma Chi, and was honored by his alma mater, Gettysburg College, as its first Musselman science lecturer. In 1982 he received the first KU Endowment Association teaching professorship.—*This article appeared in the OREAD, October 24,*

1997, Volume 22, Number 5.

Chemistry professor burning for reaction

Explosions that burn at 3,000 degrees Celsius and igniting gases are just ordinary events in Grover Everett's class.

Everett, 56, has been teaching at the University of Kansas for 31 years. A professor of chemistry, he has been lighting things on fire here for almost that



Students view of the multimedia screens from the balcony seats of the new Bricker Auditorium in Budig Hall.

long.

Everett said that as a young chemist, he would often try to emulate Clark Bricker, who was a professor of chemistry at the University. "I would watch him do his demonstrations and then I would try to do them on my own," said Everett. "But usually the first time I would try it they wouldn't work, and I would have to ask Bricker to explain them to me."

Blowing things up is not new to Everett. Now, however, he isn't catching as many things on fire.

"My father was a chemistry professor, and I would often play at my dad's lab," he said. "I loved that with chemistry you could do things and get immediate colorful results. I remember that I set the house on fire trying to grow sugar crystals. I also set the grass outside of my high school on fire, and they had to evacuate the school. I was doing something in chemistry class, and I was holding it outside the window at the time."

Luckily, since he has been at the University of Kansas, there have not been any major fires in his classes.

"I once did an experiment with gaseous chlorine and wasn't able to shut it off because the nozzle was corroded," he said. "Since chlorine is a poisonous gas, we had to leave. I don't do that one anymore."

That was not even his largest or most dangerous experiment at the University.

"The largest experiment I've done was for the Budig Hall dedication where I blew up a large balloon with a pumpkin painted on it," he said. "But the most dangerous was a thermite reaction which throws sparks and reaches 3000 degrees Celsius. It's very hot and melts iron."

He does not catch things on fire at home anymore, either. "In recent years, he hasn't done that sort of thing," said Carolyn Everett, his wife. "But he does have a creative approach to solving problems and was always very creative with our children."

But in the classroom, anything still goes. "He's adventuresome," said Leigh March, Lawrence junior. "He's a great chemistry professor. He puts a lot into it, and he tries to make chemistry interesting. His experiments add a lot to the class."

Everett originally had set his sights for the stars. "I wanted to be an astronomer," he said. "When I was in the third grade, I used to go around to the other classes and give lectures on astronomy. But I ended up in chemistry, my son became the astronomer."

Just as his son has followed his ambition in astronomy, Everett has followed his father's ambition in chemistry and athletics.

His father held a world record in track and indoor hurdles. Everett also runs, but he said he had not inherited his father's speed.

Everett had an athletic scholarship to the University of North Carolina for track and cross country. He still runs more than 10,000 kilometers per year. He rides bicycles and swims. He competes in orienteering, in which participants use a compass and map to find objects in the woods.

Last year, he won the Lone Star triathlon in his age group. "There's not very much competition when you get to by my age," he said.

Even with this much going on in his life, Everett's philosophy is simple. "Choose what you want to do carefully and do your very best at the things you choose," he said.—*This article appeared in the University Daily Kansas, November 12, 1997.*

Editor's Note: This past year has been a significant one for Grover and his wife Carolyn. Their daughter, Susan, was married in October (on a mountain top in Utah); their son, Mark, completed his Ph.D. in astronomy in December; and Grover decided that he will retire from KU as of May 1999. Carolyn and Grover hope to enter the Peace Corps after Grover's retire-

ment.

Scientists from across Kansas meet in Topeka

The 1998 Statewide EPSCoR Conference held February 19 featured an aggressive agenda that was informative, insightful and inclusive of the wide range of competitive research projects and partnerships underway in Kansas.

Program headliners included Dr. Richard Anderson, Head, National Science Foundation EPSCoR Office, Dr. Steve Nelson, Program Director for the American Association for the Advancement of Science (AAAS), Dr. Charles Bender, Director of the Supercomputer Center at Ohio State University, and Dr. Al Teich, Director, Science and Policy Programs for the AAAS. Principal investigators for key Kansas NSF-EPSCoR projects were on hand as well to review the progress of projects such as the Six Great Plains EPSCoR States' Telecommunications Initiative, and the Earth Systems Science Initiatives.

Dr. Anderson reported on EPSCoR's commitment to creating new and expanding existing R&D partnerships. "We believe that such partnerships will lead to advanced academic research quality and opportunity, increase competitiveness for federal, state and private sector R&D funding, and ultimately expand career opportunities for all Kansans," he said.

He reminded attendees that Kansas' past EPSCoR achievements are impressive, but it's a continual process of improving linkages between academic researchers and the private sector. To achieve this goal requires personal and professional commitments such as a recognition by Kansas' leadership that the state's universities and their science and engineering faculty and students are valuable resources, with the capability to impact the state's economic development in the 21st Century similar to the way that its agricultural and natural resources did in the 20th Century.

To achieve 21st Century economy, based on science and technology, Kansas must not lose sight of



*Ted Kuwana is Regents Distinguished Professor and Director of K*STAR/NSF EPSCoR*

the educational aspects of the social sciences, the humanities and the arts that are important to the development of a great state as well.

"It is imperative that we all realize that while the strong academic R&D enterprise can be a valuable resource in the State's economic development, it cannot and should not be viewed as its primary instrument," Dr. Anderson said.

"Kansas and the other EPSCoR states represent a powerful force for significant change. EPSCoR has the potential to shape the future role that Kansas' universities and industries will play within the nation's ever increasing technological society. It provides an opportunity because Kansas is deciding what Kansas wants to be and what's best for Kansas. NSF is just trying to help you achieve your objectives," he added.

Kansas is making progress; Kansas has moved from \$4.8 million in EPSCoR funding in 1992 to \$16.7 million in 1998, but it's still far below the U.S. average of \$60 million.

"I encourage you to ask the questions: What do you stand for, what are you good at, what will people pay you for? Then, work more, think bigger, schmooze more, do more of whatever you're doing to get up there to that national average. And, NSF will be happy to help you," he concluded.

First multidisciplinary undergraduate research symposium

Forty-seven undergraduate students presented the results of their research at the first multidisciplinary Undergraduate Research Symposium held on Saturday, February 21, at the Kansas Union. Barbara Schowen, honors program director and professor of chemistry, developed the idea for the symposium, and a committee of six students helped her plan the event.

This was the first time that so many undergraduates reported on such a variety of topics at any one time at KU. Most of the research was done here on campus, although several projects were carried out by students during summer internships at other institutions or at research facilities at other sites. Most of the work presented was conducted by students who were recipients of a KU Undergraduate Research Award (UGRA) during spring or summer 1997.

Five chemistry undergraduate researchers participated in the symposium.

Sabine Amslinger, advisor Richard S. Givens. Synthesis and photochemistry of p-Hydroxyphenacyl esters which act as biochemically relevant phototriggers.

Kyle R. Brown, advisor Gunda Georg (courtesy professor of chemistry). Progress toward the synthesis of Tyloindicine G.

Gregory A. Cooksey, advisor Robert C. Dunn. Probing biological processes at the submicron level.

Jaclyn Ganacias, advisor Craig E. Lunte. Delivery and recovery rate study of the local anesthetic bupivacaine, using microdialysis sampling techniques.

Melissa A. Robinson, (1) advisor Albert W. Burgstahler. Fluoride content of some California wines and raisins and (2) advisor Susan M. Lunte (courtesy professor of chemistry). Capillary electrophoresis separation of ibuprofen enantiomers for the in vivo study of chiral selectivity in rat tissues by microdialysis sampling.

Heppert receives Keeler intra-university professorship

Joseph A. Heppert, associate professor of chemistry, has been awarded one semester free of departmental responsibilities to pursue professional development.

"This is one of our major faculty-development



Joe Heppert (left) with Jack Landgrebe (center) and Al Lata (right) enjoying this year's Honors Reception.

programs," said Sandra W. Gautt, assistant provost. "The purpose of the award is to aid mid-career faculty members in pursuing areas of academic interest or team-teaching opportunities in other disciplines."

Heppert plans to use his intra-university professorship to collaborate with KU faculty members in the Department of Teaching and Leadership in developing projects to reform science education.

"Our initial collaborations in science-education reform have been received favorably," Heppert wrote in his application for the professorship. "The award will help provide the time to develop national, competitive interdisciplinary projects in science-education reform."

Heppert plans to collaborate with William S. LaShier, Jr., professor of teaching and leadership, and James D. Ellis, associate professor of teaching and leadership. The collaborations are aimed at reforming introductory college chemistry and science curricula at KU and developing a comprehensive reform of the curriculum for the preparation of secondary science teachers in Kansas.

Heppert received a bachelor's degree from San Jose State University, California, and a doctorate from the University of Wisconsin, Madison.

Undergraduate program review results

Our thanks to those who took the time to respond to our Undergraduate Alumni Survey last fall. If you are interested in the results, here's a brief summary.

As part of the University's ongoing program review, we surveyed chemistry undergraduates who received degrees between 1990 and 1997. Of the 249 surveys mailed, 108 (43 percent) were returned.

The distribution of respondents by degree was 68 percent B.A. and 32 percent B.S.. The male to female ratio was approximately the same. Fifty alums (46 percent) reported conducting research as undergraduates in the Department. Eighty-five percent felt their degree was above average in quality and that they had been well-prepared for their current jobs or continuing education activities.

Approximately 80 percent of respondents are employed in or continuing their education in chemistry or chemistry-related fields. The largest percentage—35 percent—are employed in industry, with 18 percent each for both academia and medicine and 6 percent reporting that they are employed by the government. The balance reported being unemployed. Most salaries were reported in the \$30,000-\$50,000 range and the majority of respondents are now living in major metropolitan areas.

Many alums have completed advanced degrees since leaving KU. Four reported that they had

earned doctorate degrees and 16 had earned medical degrees. In addition, 47 alums reported that they were currently working on advanced degrees— Law (1), D.D.S. (2), M.D. (19), Ph.D. (15), M.S. (8). Two respondents did not specify degree type.

We appreciate your many positive comments about your undergraduate experience, as well as your suggestions for enhancing our courses. Many of your suggestions will be put to good use when Joe Heppert, who was awarded a William and Flora Hewlett Foundation grant this spring, begins redesigning the laboratory experience for undergraduates. (See related stories on p. 9 and p. 18.)

Chemists conduct painstaking study

Researchers in the Chemistry Department are discovering ways to generate pain.

"New types of painkillers could result from an understanding of how pain is triggered in the body," said Andreas Jung, a post-doctoral researcher from Germany.

Research students are working alongside Gyorgy Orosz, a visiting Fulbright fellow from Budapest, Hungary, to better understand how pain is received by the brain.

"The University's GRF program provided start-up financial support for the project, and the researchers are writing proposals for continuation funds," said Rich Givens, professor of chemistry.

The basis of the research is to mask a chemical called bradykinin, a body chemical that triggers the pain response, Jung said.

"We are interested in how bradykinin does this particular process," Givens said.

To understand how bradykinin triggers pain, researchers are using compounds called phototriggers.

These compounds are made up of two parts. One part consists of a biological substrate, and the other part of the compound is a photoactive attachment, Givens said.

"When light is absorbed by the molecule it falls apart into two parts," Givens said. "The attachment falls off and the biological substrate is active to do its thing."

"When the substrate is active, it carries the pain impulse to the brain and acts like a pain generator," Givens said.

Although the research is being conducted by the chemistry department, biologists will benefit from the research.

"This would give people studying biochemistry a tool of studying processes right down to the molecular level," Givens said. — *This article appeared in the University Daily Kansan, June 24, 1998.*

Named lectures

Frank Burnett Dains Memorial Lecture: Philip E. Eaton, University of Chicago, *The impossible just takes a little longer.*

The Arthur William Davidson Lecture: Bruce J. Berne, Columbia University, *Polarizable force fields for water and aqueous solutions.*

The Henry Werner Lecture: R. Mark Wightman, University of North Carolina—Chapel Hill, *Monitoring neurotransmitters in real-time.*

Chemists react well to lab work

Thirteen chemistry students from across the country are making the University of Kansas their home for the summer.

The students are participants in the Research Experience for Undergraduates (REU) program, which is funded by the National Science Foundation.

For 10 weeks, students learn how to integrate themselves into the culture of a lab and how to solve problems as a team, said Barbara Schowen, professor of chemistry.

"It's been a great experience so far. I'm learning a lot of research techniques," said Aaron Wroblecki, Oglesby, Illinois, junior from Luther College.

An oral report detailing the progress, problems and results of each group is presented halfway through the summer. During the final week of the program, the students display posters illustrating the conclusion of their research, Schowen said.

In addition to lab experience, students receive grants from the program that pay expenses.

"Generally the grant pays \$2,800 in cash for the summer," Schowen said. "This time the students also get room and board."

Participants are living in Gertrude Sellards Pearson Hall.

The National Science Foundation also pays for the participants to enroll in one credit hour each, and the Foundation pays up to \$300 for travel expenses, Schowen said.

Universities throughout the country serve as host sites for the program. The University has been a

host site for 10 years.

Students who wish to participate in the program can apply at several host sites.

The host schools have the final say in student acceptance. Many students who applied to study at the University during the summer were turned away.

"We got about 100 applicants from this program, and we chose 13," Schowen said.

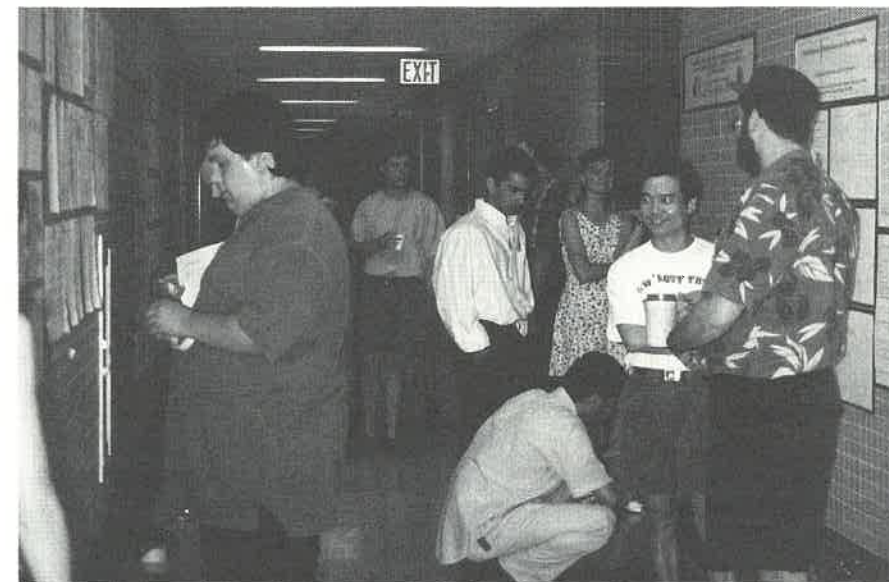
Those who were accepted by the University each said they had a different reason for coming here.

Wroblecki said that coming to the University connected him to his own college. "The guy I'm working with, Paul Hanson, is a Luther grad," he said.

But Laura Hamilton, Liberty, Missouri, junior from William Jewell College said that coming to the University had been a good experience for a different reason.

"I realized I can be successful in the lab and on a big campus," Hamilton said, "I have enjoyed the independence."

Students who want to be considered for the program must complete an application and write a short



Summer REU students improve their communication skills throughout the summer by making presentations in their research groups and preparing poster sessions like the one shown above.

essay stating why they should be chosen. Applicants also need to submit transcripts and two letters of recommendation, Schowen said.

The applications then go before a committee of five faculty members. This committee ranks the students in order of preference.

"We are looking for students with a 'B' average in science courses," Schowen said. "We like them to have the equivalent of three years of chemistry behind

them.

The National Science Foundation also wants host schools to include students from smaller schools and other various groups, Schowen said.

"We hope it's a nice mix of men and women," Schowen said. "We try to get the under-represented as well." — *This article appeared in The University Daily Kansan, July 8, 1998.*

Editors note: This year's NSF REU group came to KU from colleges and universities in Kansas, Ohio, Illinois, Wisconsin (2), Missouri (4), Arkansas, Louisiana, Iowa and Michigan. In addition, 15 of our own undergraduate students received support for summer research through funds provided by KU's Lila and Madison Self Fellowship Program (2), MERCK Undergraduate Summer Fellowships (3), the Undergraduate Research Award (URA) competition sponsored by KU's Honors Program (3), the Chemistry Department Endowment Fund, and individual faculty research grants.

Burgstahler and Harmony: a Pair of Aces

On June 9, 1998, a large group of well-wishers gathered in the Adams Alumni Center to celebrate the very thoroughly earned transition to emeritus status of Professor Albert William Burgstahler and Professor Marlin Dale Harmony. Included among the happy eaters, drinkers, talkers, and listeners were the Chemistry Department faculty and staff, current and emeritus, other University colleagues and co-workers, friends, relatives, and former students from near and far. Accompanied by their wives Patricia Burgstahler and Nancy Harmony, Albert and Marlin basked in the sunny expressions of gratitude and admiration provided by generations of colleagues and students. The two colleagues between them account for



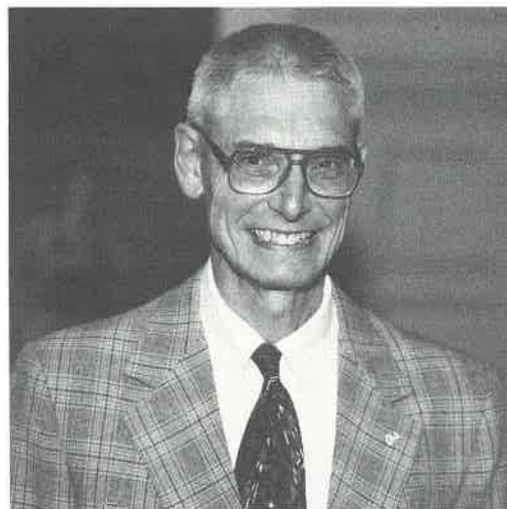
Summer REU participants spend time with science librarian Connie Powell learning chemistry bibliography skills.

more than a Biblical span of service: 76 years of unflagging contribution to their students, the Department, the University, the scientific community, their profession, and the society at large. Albert and Marlin have left behind highly individual and very valuable records of achievement at KU.

Albert W. Burgstahler

Albert Burgstahler enjoys an enviable reputation as one of the world's most incisive thinkers and most highly skilled experimentalists in natural-products and synthetic organic chemistry. Graduating *magna cum laude* from the University of Notre Dame in 1949, Albert passed rapidly through the Harvard graduate program (M.S., 1950, Ph.D., 1953) under the guidance of Gilbert Stock. Albert's work on the formation of the steroid skeleton formed one of the bases of the *Stork-Eschenmoser hypothesis* (1955), which held that in living systems the multicyclic steroid nucleus arises through a controlled cascade of ring-closure reactions. This view has by now been resoundingly confirmed by decades of investigation.

After a period at Harvard, Albert assumed an Eli Lilly National Research Council fellowship



Emeritus Professor Albert W. Burgstahler, retiring after 41 years of service.

with Derek Barton (later Sir Derek and a Nobel Laureate) at Birkbeck College in London. He then came home to the USA and an NIH fellowship with Eugene van Tamelen at Wisconsin before joining KU in 1957. By 1965, he had reached the rank of Professor, having been honored as a Sloan Fellow in 1961-64. In the same year of his promotion, Albert received the Notre Dame Centennial of Science Award.

Albert's scholarship is unique in its breadth. His devotion to his scholarly interests has an intimidating intensity. During the major part of his scientific career, he produced a steady average of around three publications every year in the world's leading chemical journals, and he led the way in several lines of natural-products synthesis and synthetic methods development. He was a leader in emphasizing the role of ancillary structure in the optical activity of chiral polyenes, dispelling the illusion that the intrinsic helicity of the pi-electron clouds was the only determining factor.

But unlike the greatest number of chemists, Albert not only conducted investigations in other fields, both scientific and non-scientific, but he also put the results in print, so far having produced over 15 publications in fields ranging from toxicology through planetary science to ancient history. He has strong concerns about the societal and ethical dimensions of all kinds of scholarship and publication. Most recently he has developed a new interest in history of English literature, which he approaches with his characteristic thoroughness, critical analysis and enthusiasm. He presented a brief and fascinating talk on this subject at the gathering on June 9. All who know Albert are confident he will be further heard from on this and many other subjects.

Marlin D. Harmony

Marlin Harmony has provided chemistry with some of the most accurate information it possesses about the structures and dynamical features of small molecules, including measurements critical for quantum chemistry and for the understanding of unstable chemical species. Marlin was born in Nebraska, received his early education in Kansas City, Missouri, and then came to KU for a B.S. in Chemical Engineering (1958, with highest distinction). As a graduate student in chemistry at the University of California—Berkeley,

he held IBM and NSF fellowships as he completed the Ph.D. in just three years.

At Harvard as an NSF postdoctoral fellow with E.B. Wilson, Marlin finished his education in molecular spectroscopy in 1961-62. He launched his career of distinguished publication with two single-authored papers on the structure and thermodynamics of the highly unstable nitrogen difluoride radical.

Marlin returned to KU as an assistant professor in 1962 and became a full professor in 1971. This period witnessed a stream of important publications, nearly all in the *Journal of Chemical Physics*, the premier journal of the field. In 1971, Marlin spent a sabbatical leave at Cambridge University in England, associated with A.D. Buckingham. While there, Marlin

wrote a very influential review on quantum-mechanical tunneling in chemistry, published in the inaugural volume (1972) of *Chemical Society Reviews*.

In addition to his many research articles, Marlin regularly contributed reviews and assembled compilations of important data for the use of his colleagues. His excellent textbook, *Introduction to Molecular Energies and Spectra* (Holt, Rinehart & Winston, 1972) has been widely used and appreciated, not least by many of us at KU.

The 1980's were hard times for American science in general and American chemistry in particular, and it

was in this difficult period that Marlin consented to guide the Chemistry Department as its chair. His period in office, 1980-1988, counts as one in which the department not only survived the hard times but in fact made vital decisions of long-term significance. These choices launched the department along the pathway of the quite spectacular achievement it is currently enjoying. As chair, Marlin exhibited a striking mastery of the art of inspiring his colleagues to new and often demanding efforts while maintaining an atmosphere of collegiality, general respect, and open and democratic decision making.

Marlin is a chemist's chemist: he is "expert in all the arts" that a chemical scientist must command for achievement at the truly fundamental level. His grasp of the physical basis of chemistry, of quantum and statistical mechanics, thermodynamics, kinetics, and spectroscopy is seamless. His practical purchase on experimental design and instrumentation is sure and ab-



Emeritus Professor Marlin D. Harmony, retiring after 35 years of service.

solite. He is a perfect scientific colleague, generous with his time, helpful in every way, and a clear explainer.

Marlin too took the podium on June 9 for a brief presentation in which he recalled the personalities he

students or small numbers of students, where many over the years have characterized Albert's instruction as the best of their lives. A number of students who experienced Albert's direct teaching of how to think about and how to do organic chemistry have gone on to the most distinguished careers of any of our graduates.

Marlin has been a lecturer without equal or parallel. His capacity to render lucid, memorable, and usable the vital but subtle principles taught in physical chemistry has made him the favorite teacher of classroom after classroom of chemists and non-chemists alike. Those of us who have taught with him remember the pleasure of listening to what is sometimes considered an arid and arcane subject come alive through his patient, good-humored, articulate exposition.

Summing Up

The Chemistry Department is now well into an era of change, with nearly every year bringing retirements

of older colleagues and additions of younger colleagues. Albert Burgstahler and Marlin Harmony show us the best this process has to offer: they are making way for new colleagues while they themselves are at the height of their powers. They are leaving examples of major

had dealt with as a scientist, teacher, colleague, and administrator. In complete consistency with his past record and his well-known personality, he chose to "accentuate the positive, eliminate the negative," and leave every listener warmly pleased.

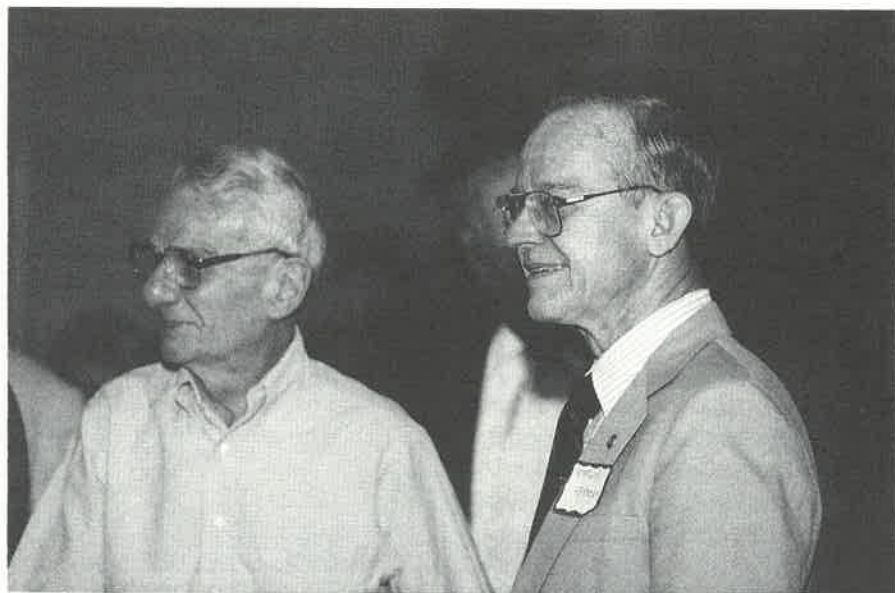
Two Masters of Teaching

Both Albert and Marlin have been among the finest teachers at KU, and their different styles illustrate the truism that there is no single recipe for achievement in teaching, any more than there is for achievement in research or service. Both have taught every level, from the general chemistry courses for freshman to the special-topics courses for advanced graduate students and postdocs. But each has had a specialty in which their individual gifts made for outstanding success.

Albert has shone in the laboratory encounter with single



Left to right: Dr. Helen Gilles, Emeritus Professor Paul Gilles and Marlin Harmony's wife Nancy enjoy the retirement reception hosted by the Department. Nancy Harmony is retiring this year after 29 years as a program assistant with the Higuchi Biosciences Center.



Emeritus Professor Jake Kleinberg and Marlin Harmony enjoying the retirement reception speakers.



Emeritus Professor Ralph "Buzz" Adams stopped in to enjoy the retirement festivities.

accomplishment for others to follow. They will both remain honored members of the Departmental community in the years to come.— Richard Schowen.

Malott to get place in the sun

The courtyard between Budig, Malott and Wescoe halls looks like a disaster area.

Orange fencing surrounds the site. The stairway between Budig and Malott now is little more than a pile of rubble with metal protruding in all directions. Bobcat loaders sit on a swath of exposed earth.

But it will not look this way for long. By Fall 1998, students and faculty will find the area redeveloped as the Malott Plaza and Memorial Garden.

The project is a memorial to Eleanor Malott, the wife of former University of Kansas Chancellor Deane W. Malott.

Eleanor Malott was involved in many of the campus landscaping projects that took place while her husband was chancellor from 1939 to 1951, said Greg Wade, Design and Construction Management landscape architect.

"She was a big part of the initial planting of the crabapple trees that we have on campus, which are spectacular in the spring," Wade said.

Malott encouraged the class of 1945 to use its class gift for purchasing and planting the 1,200 trees.

According to *Our Amazing Chancellors*, a collection of essays on University history, Malott personally watered the trees to make sure they grew.

In *The University of Kansas: A History*, Clifford S. Griffin wrote that Malott and her allies were responsible for making the campus truly lovely. Griffin also wrote that Malott was responsible for getting Lawrence citizens to donate plantings to the University.

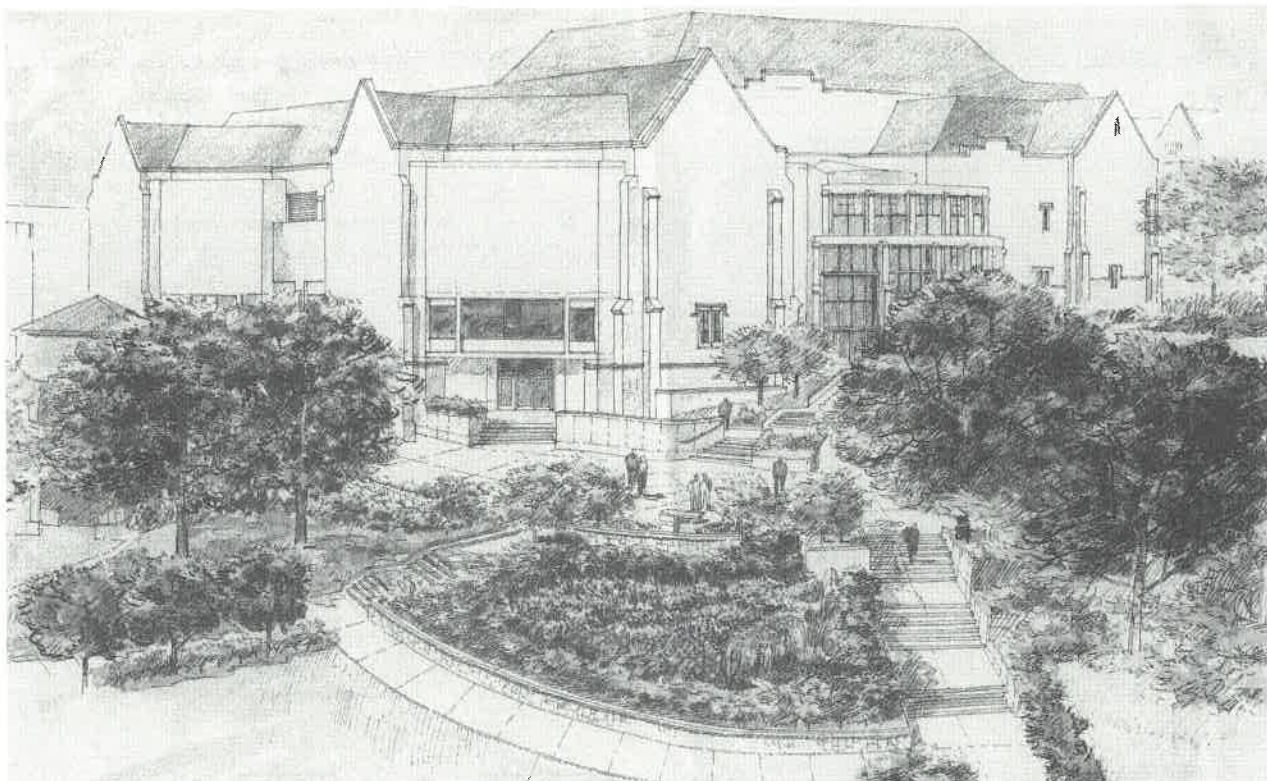
In 1984, the KU Alumni Association awarded Malott the Ellsworth Medallion for her contributions to



Emeritus Professor Earl Huyser shared some memories of the "good ol' days" at the retirement reception.

the University.

Malott died in January 1994. A combination of gifts from private donors, including the Malotts' son Robert (B.A., 1948), as well as money from the University went to the construction of the plaza and garden, said John Scarffe, KU Endowment Association director of communications.



A recent sketch of Malott Plaza and Memorial Garden, which is currently under construction.

The Eleanor S. Malott Memorial Garden fund was established by friends and family of Deane W. Malott after his death in 1996, Scarffe said. The fund will pay for ongoing maintenance costs of the garden, he said.

The walkways around the south side of Budig hall and Anschutz Science Library were designed for eventual integration with the plaza, Wade said.— *This article appeared in the University Daily Kansan, April 6, 1998.*

World's greatest college cheer

The University Science Club officially adopted the famous "Rock Chalk" chant in 1886. A chemistry professor, E.H.S. Bailey, and some of his associates were returning from a conference by train to Lawrence. As they traveled, they talked of the need for a good, rousing yell. The click-clack of the train wheels passing over the rail joints suggested a rhythm, and the cadence to them.

At first their version was "Rah, Rah, Jayhawk, KU" repeated three times. Later, in place of the rahs, an English professor suggested "Rock Chalk" a transposition of chalk rock, the name for the limestone outcropping found on Mount Oread, site of the Lawrence campus.

The cheer became known worldwide. Teddy Roosevelt pronounced it the greatest college chant he'd ever heard. It was used by Kansas troops fighting in the Philippines in 1899, in the Boxer Rebellion in China, and World War II. At the Olympic games in 1920, the King of Belgium asked for a typical American college yell. The assembled athletes agreed on KU's Rock Chalk and rendered it for His Majesty.

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Gifts 1997-98

Every gift is making a difference! To our graduates and friends who made contributions this year, thank you for showing your support for the Chemistry Department and the quality of the educational experience we continue to provide. The Department particularly benefits from employees of corporations with matching gift programs. The following pages recognize those who have given to the Department from June 1, 1997 through May 30, 1998.

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Redesign of the undergraduate chemistry laboratory curriculum.....the adventure begins

Thanks to strong support from Provost Shulenberger, Associate Provost Kathleen McClusky-Fawcett and Professor Phil McKnight, chemistry associate professor and project principal investigator Joe Heppert was awarded a 2-year, \$150,000 grant to redesign our undergraduate laboratory curriculum. The grant was funded through the William and Flora Hewlett Foundation's Improvement of General Education at Research Universities Program and will be matched with \$150,000 by the University of Kansas. The project will be the first step in a revolutionary change in the undergraduate laboratory experience for both science and non-science majors at KU.

The objectives of the project are to:

- (1) design laboratory experiences that require students to develop experimental protocols, critically assess data, and solve problems

- (2) require students to work together in teams
- (3) make frequent connections to other disciplines, including biology, ecology, medicine and education

- (4) incorporate technology effectively in pre-lab preparation and on the presentation of lab reports, and in archiving, retrieval and analysis of data

- (5) redesign the role of discussion sections in both the laboratory and lecture environments

Chemistry co-investigators on the project include Cindy Larive, Bob Carlson, Brian Laird, Alfred Lata and Ken Ratzlaff. To ensure excellence in both scientific content and course format, our group is teamed with professors Jim Ellis and Phil McKnight from the School of Education, who will establish the educational context of the laboratories and assess the outcomes.

Heppert's Keeler intra-university professorship will provide him with a sabbatical semester to focus on development and coordination of this exciting project. (See related story on p. 9.)

Centennial preparations are underway

Committees are now forming to prepare for the centennial anniversary of Bailey Hall in the year 2000. Bailey Hall was first occupied by the Chemistry Department in 1900. One group will be assembling an application to the American Chemical Society requesting that Bailey Hall be designated a National Historic Chemical Landmark.

The Chemical Landmark designation would commemorate Kansan Hamilton P. Cady's detection of large amounts of the rare gas helium in natural gas—in addition to other rare gases, namely argon, neon, and coronium—in his Bailey Hall laboratory in 1907. During the First World War for the nominal fee of \$1 per year, Cady investigated the occurrence, isolation and properties of helium for the United States Bureau of Mines, which was interested in helium as a means of floating dirigibles. Still later his work became the foundation of the largest helium-producing plant in the world, in Liberal Kansas. (*The University of Kansas: A History*, p. 316 and 382)

Grover Everett would like to hear from alums who recall chemistry experiences in Bailey Hall and/or are interested in participation in the celebration. Contact:

Grover Everett
TEL: (785) 864-3089
Email: geverett@caco3.chem.ukans.edu
Mail: Chemistry Department, University of Kansas, 2010 Malott Hall, Lawrence, KS 66045

Curriculum reform in analytical sciences

The NSF Undergraduate Education and Chemistry Divisions funded two workshops to address the education and training of students who enter the workforce in areas impacted by the "analytical sciences." The analytical sciences provide information on the chemical composition and structure of materials that is important not only in chemistry, but also to a broad range of disciplines such as materials science, the earth sciences, biology and biotechnology, and forensic science.

About 50 participants examined the analytical chemistry courses, laboratories, and curriculum as well as those of the disciplines requiring knowledge and experience in the analytical sciences. These participants represented a range of undergraduate institutions, graduate schools, industry, and regulatory agencies. The first workshop held in Leesburg, Virginia, defined problems and issues, the second workshop held in conjunction with the March 1997 Pittsburgh Conference in Atlanta made recommendations to address these issues and also suggested ways for implementing these recommendations.

The results of the workshop have been published in a 56 page report, *Curricular Developments in the Analytical Sciences*, edited by Ted Kuwana, the workshop coordinator and KU chemistry distinguished professor. The report includes an overview of current undergraduate education in the analytical sciences focusing on analytical chemistry. Disconnects between academic training and industry expectations for graduates are discussed. The report advocates strongly the use of problem-based learning to develop problem-solving skills required by the analytical sciences. One appendix includes examples of best practices from a variety of institutions. Another appendix containing comments from participants adds to the depth of the report.

The report can be viewed online at: http://www.chem.ukans.edu/analyt_curricular_dev

Copies of the report can be obtained from:

Dr. Ted Kuwana
Chemistry Department
University of Kansas
2010 Malott Hall
Lawrence, KS 66045
TEL:(785) 864-3015
Email: tkuwana@caco3.chem.ukans.edu.

43rd Chemistry Honors Reception Honors to 1997-98 Students

These awards are made possible through donations to the KU Endowment Association/Chemistry Department Funds. (See the complete list of our funds on p. 31.) To our graduates and friends who made contributions this year, thank you for showing your support for the Department and the University of Kansas and the quality of the educational experience we continue to provide. Every gift is making a difference!

Undergraduate Student Awards

The W. Mack Barlow Book Awards
General Chemistry

*Amy M. Hubert, James R. Patterson, Marilena G. Neocleous,
Amanda C. Schurle, Michelle L. Sippel*

Organic Chemistry
Two semester course
Analytical Chemistry
Physical Chemistry

*Samuel S. Bailey, Lee R. Schnee, Wen Hao Chan
Ware H. Flora*

Snyder Award
Owen W. Maloney Scholarship
Fassnacht Scholarship
Clark E. Bricker Scholarship
Jacob Kleinberg Award
American Institute of Chemists Award
Alpha Chi Sigma Award

*Charles R. Green, Jagan Reddy Muppidi, Catherine L. Cronin
Catherine L. Cronin*

Chemistry
Chemical Engineering
Leonard V. Sorg Scholarship

*Chad A. Gustin, Ryan Gwaltney, Annalee J. O'Connor
Alix M. Botts
Kristopher R. Carlson, Prasad Jayaraman
Anthony P. Kalifah
William L. Freund*

*Jack R. Lake
Page B. Surbaugh
Benjamin L. Wittredge*

Graduate Student Awards

H.P. Cady Award
Outstanding First-Year Teaching Assistant
Ray Q. Brewster Award
Paul and Helen Gilles Award in Physical Chemistry
Higuchi Doctoral Progress Award
J.K. Lee Award
Phillips Summer Research Fellowship
Ernest and Marvel Griswold Award
Reynold T. Iwamoto Award

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Dahui Liu, Jutta Wanner
Ann M. Dixon
Xi Chu, Benjamin J. Cutak
Timothy J. Hubin, Michelle L. Kennedy
Tiffany S. Derrick*

Graduate Degrees Granted June 1, 1997—June 30, 1998

Doctorate

Kandiah Anandarajah (honors)

Mentor: R. Schowen

Dissertation: Enzymic strategies for catalysis and thermal adaptations. Anand is a Cooperative Institute for Research in the Environmental Sciences (CIRES) Fellow at the University of Colorado, working with Shelley Copley.

Scott Bembenek (honors)

Mentor: B. Laird

Dissertation: Localization in glasses and supercooled liquids. Scott is an NRC postdoc at the Army Research Labs, Aberdeen, Maryland.

Tonya Dombrowski (honors)

Mentor: G. Wilson

Dissertation: The identification and isolation of organic contaminants in ground water at Rocky Mountain Arsenal: A systematic analytical approach. Tonya is a scientist with the state of Idaho, Department of Environment.

Dawn Drass (honors)

Mentor: G. Wilson

Dissertation: Site specific oxidation of peptides and proteins by metal-catalyzed oxidation reactions. Dawn is working at Monsanto, Inc., St. Louis, Missouri.

Yolanda Fintschenko

Mentor: G. Wilson

Dissertation: A problem driven approach to the miniaturization and automation of enzyme-based assays and an investigation of dissipation of cyanazine and bromide. Yolanda is a postdoc at U. Twente, Enschede, Netherlands.

Rajesh Iyengar

Mentor: T. Engler

Dissertation: Lewis acid-promoted cycloadditions of substituted 1,4-benzoquinones with alkenyl systems: New developments and insights. Rajesh is a postdoc with Jeff Aube in KU's Medicinal Chemistry Department.

Sung-Kwon Jung

Mentor: G. Wilson

Dissertation: Development of high performance microbiosensors based on oxidases in in-vivo monitoring. Sung-Kwon is a postdoc at the University of Florida—Gainesville.

Erica Larson

Mentor: C. Johnson

Dissertation: Solvent and temperature-dependent ultrafast photophysics of all-trans retinal. Erica is a postdoc at Los Alamos National Laboratory in New Mexico.

John O'Brien

Mentor: D. Busch

Dissertation: Synthesis and characterization of new family and lacunar dioxygen carriers: A modular approach to ligand synthesis. John is an assistant professor at Truman University, Kirksville, Missouri.

Katherine Prater

Mentor: R. Bowman

Dissertation: Ultrafast spectroscopic investigations of intramolecular energy transfer. Kathy is an assistant professor at Texas Wesleyan, Fort Worth, Texas.

Steve Pauls

Mentor: C. Johnson

Dissertation: Time-resolved fluorescence studies of reorientational dynamics and exciplex formation investigated by one- and two-photon excitation. Steve is teaching at Centre College of Kentucky in Danville, Kentucky.

Rebecca Roesner

Mentor: D. Busch

Dissertation: Cobalt(II) dioxygen carriers derived from novel pentadentate Schiff base chelates: Synthesis, characterization and their copper(II) analogs. Becky is an assistant professor at Illinois Wesleyan in Bloomington.

Yan Wang

Mentor: K. Kuczera

Dissertation: Computational approach to the influence of the disulfide bond on peptide properties. Yan is a graduate student in computer science at KU.

David J. Weiss

Mentor: T. Kuwana

Dissertation: Strategies for immobilizing catechols onto carbon electrodes for NADH catalysis. David is a postdoc in Craig Lunte's group.

Master's

Paige Arnold

Mentor: D. Benson

Thesis: Peptide conformational control via metal-ligand bond formation in pre-assembled and self-assembling hemoprotein mimics. Paige is an instructor at the All Saints Episcopal School, Tyler, Texas.

Sajeevi Gunasekera

Mentor: S. Lunte

Thesis: Peroxynitrite induced oxidative modifications of the glutamate binding protein (GBP). Sajeevi is a scientist at AMGEN, Inc., Thousand Oaks, California.

Gabrielle Ivanescu

Mentor: C. Lunte

Thesis: Capillary electrophoresis with electrochemical detection of the analysis of glutathione in biological samples. Gabby is a scientist at Oread Laboratories, Lawrence, Kansas.

Dana Luterman (honors)

Mentor: T. Engler

Thesis: Lewis acid-promoted reactions of dibenzoyl 1,4-benzoquinone diimines with propenylbenzenes: A new reaction pathway. Dana is a research associate at Glaxo Wellcome, Research Triangle Park, North Carolina.

Mark Schieferecke

Mentor: C. Lunte

Thesis: The development of a capillary electrophoresis-mass spectrometry interface. Application for the analysis of a local anaesthetic and its metabolites.

Cynthia Scheibe (honors)

Mentor: T. Engler

Thesis: Lewis acid-promoted reactions of (E)-propenylbenzenes with 4-N-phenylsulfonyl-3-1, 4-benzoquinone monoimine: Discovery of unique tandem addition products. Cynthia entered medical school at the Kansas University Medical Center, Kansas City, Kansas.

Vrushali Tembe (honors)

Mentor: G. Wilson

Thesis: Determination of cerebral basal glucose concentration in extracellular space of freely moving rats using microdialysis. Vrushali and her husband headed to California, where she is looking for a job.

Other Awards

Danette Hansen	AAPS/APQ Graduate Symposium Award & AAPS Midwest Regional Meeting Poster Award
Sarah Vickery	Madison and Lila Self Fellow
Christin Sjomeling	Madison and Lila Self Fellow
Shawn Mansfield	Procter and Gamble Bioanalytical Fellow
Anne Dixon	American Chemical Society Division of Analytical Chemistry Summer Fellow
Sandra R. Barnes	National Institutes of Health Pre-doctoral Fellow
Kandiah Anandarajah	Cooperative Institute for Research in Environmental Sciences (CIRES) Fellow
Gregory A. Cooksey and Jack A. Lake	Merck Summer Undergraduate Fellow
Tonya Dombrowski	Argersinger Prize for Outstanding Doctoral Dissertation
Thomas Klein and John Nguyen	Undergraduate Research Award
Catherine Cronin	J. Michael Young Undergraduate Research Award

Paul Walter returns for Honors Reception

Connecticut native and distinguished KU Chemistry alum Dr. Paul Walter returned as guest speaker for the Department's 43rd Honors Reception. Dr. Walter is currently president of the American Chemical Society. He has retired to Savannah, Georgia, after 29 years of teaching including ten as Chemistry Department Head at Skidmore College in Saratoga Springs, New York.

Dr. Walter's address was entitled, *The Tax on Ability is also Progressive*. In his address, he noted that this group of graduates had demonstrated chemical and intellectual talent but that good work in the lab isn't enough. They will be expected to also contribute a lot back to society.



Paul Walter (center) visiting with Paul Hanson (left) and Albert Burgstahler (right) at the Honors Reception, where Dr. Walter was the guest speaker.

The Class of 1998

This year the Chemistry Department graduated fifteen undergraduate students—12 received bachelor of arts degrees and three received bachelor of science degrees, with several receiving recognition for their academic accomplishments. Two students graduated with highest distinction and one graduated with distinction. The group included a National Merit Scholar, an Elizabeth Watkins-Berger Scholar and an Endowment Merit Scholar.

Department briefs

CONGRATULATIONS to our four new Associate Professors!!! Andrew Borovik, Krzysztof Kuczera, Brian Laird, and Cynthia Larive. They were approved for promotion beginning with the 1998-99 academic year.



A toast to the new associates! From left: Andy Borovik, Brian Laird, Sue Lunte (Pharmaceutical chemistry and chemistry courtesy professor), Alice Bean (Physics, also just promoted) Krzysztof Kuczera, and Cindy Larive. Albert Burgstahler looks on.

Paul R. Hanson, chemistry assistant professor, is a NIH FIRST Award recipient. Paul's interests lie in the development of new methodologies to synthesis, with applications to total synthesis, asymmetric synthesis of alpha-amino phosphonic acids and other biologically significant targets, as well as novel sigmatropic rearrangements.

Cynthia Larive is the recipient of an \$8,000 unrestricted grant from the 1998-99 DuPont Education Aid program, as part of a \$54,000 grant to the University of Kansas to strengthen relationships between the University and DuPont.

Analytical Division faculty members Robert Dunn (PI), George Wilson, Craig Lunte and Cynthia Larive were awarded a \$35,000 NSF Instrumentation and Laboratory Improvement grant entitled *Problem-Oriented Surface Analysis in the Junior-Senior Laboratories*. This award not only results in an upgrade of our under-

graduate laboratory curriculum, but it also expands the Department's new Instructional Instrumentation Laboratory (IIL) by adding a Digital Instrument *NanoScope E* scanning probe microscope system. Biological sciences and physics will also benefit from access to the new equipment.

Craig Lunte will be taking a spring semester sabbatical leave next year at Dublin City University, Ireland. Craig will research and develop materials for a problem-based learning approach to the teaching of undergraduate analytical chemistry.

The Chemistry Department welcomed two new chemistry courtesy professors this year—Jeff Aube and Gunda Georg.

Jeffrey Aube attended the University of Miami, where he did undergraduate research with Professor Robert Gawley. Jeff received his doctorate in chemistry in 1984 from Duke University, working with Professor Steven Baldwin, and was an NIH postdoctoral fellow at Yale University with Professor Samuel Danishefsky. In 1986, he moved to the University of Kansas, where he is now a professor in the Department of Medicinal Chemistry. Jeff's research interests encompass a selection of topics from organic chemistry, ranging from new synthetic methodology and total synthesis, to studies of peptidomimetics and biological transport mechanisms. Jeff received a Kemper



This is the final summer for crumbling classroom repairs. The third floor CHEM 517 Analytical Chemistry laboratory is one of several being remodeled this year. Behind the small windows in the rear wall is the Department's new Instructional Instrumentation Laboratory.

Award this year for excellence in teaching and advising in the health sciences.

Gunda Georg attended Phillipps Universitat Marburg, Germany, where she received her doctorate in 1980. She is a professor of medicinal chemistry and director the Higuchi Biosciences Center's new Drug Discovery Program (DDP). The major focus of DDP is combinatorial chemistry, which allows the rapid synthesis of large numbers of compounds with diverse structural features. (*HBC News, September 1997*)

Professor Georg and her group are involved in the design, semisynthesis, total synthesis and biological evaluation of natural products. Current therapeutic areas include cancer, AIDS, and Alzheimer's disease. Gunda received the Higuchi Olin K. Petefish Award for research achievement in basic sciences this year.

Jeff and Gunda join two pharmaceutical chemistry professors and chemistry courtesy professors **Sue Lunte** and **John Stobaugh** in enhancing the interdisciplinary research opportunities for students in our programs.

Three chemistry graduate students studied abroad during the 1997-98 academic year.

Greg Harms, a graduate student in Carey Johnson's research group studied at ETH in Zurich, Switzerland, on Fulbright and KU Graduate Direct Exchange Scholarships.

Tina Huang, a graduate student in Ted Kuwana's research group, studied in Potsdam, Germany, on a German Academic Exchange Service Scholarship (DAAD).

Krista Shipley, a May 1997 graduate with a degree in chemistry and mathematics is now a master's student in mathematics. Krista studied at the University of Bonn, Germany, on a Fulbright scholarship.

Dave Vander Velde, director of the KU's NMR Laboratory, has had a very active collaboration with a group of researchers in the Department of Pharmaceutical Science and Technology at the University of Turin (Italy). The collaboration has resulted in three papers in scientific journals and two poster presentations at conferences. This collaboration was sparked when Vander Velde met Professor Giovanni Appendino from Turin at the "ICNS Symposium on Taxoids" in Paris in 1995.

Aside from two times when the two have met at conferences, once in Paris and once this past summer in the U.S., this collaboration has been carried out almost entirely by email. After first attending a conference in Paris on antitumor compounds, Vander Velde visited Turin in January to give a lecture. He hopes to host a visit by Appendino at KU in the next year or so.—*This article appeared in Horizons: News and Information on International Activities at KU, Vol. 12 No. 1, October 1997.*

Last fall a call for technology upgrade proposals by the Provost's Office attracted 40 proposals requesting more than \$3 million! The proposals were prioritized and in the end the \$340,000 generated from a .5 percent increase in tuition this year was distributed to a select group of KU schools and departments. The Chemistry Department received an award totalling \$28,000. The funds were used to purchase HPLC (high performance liquid chromatography) equipment for the undergraduate organic labs in order to provide our students experience using a modern and versatile tool for separating and identifying the components of complex mixtures. The technique of HPLC finds application in such diverse areas as industrial quality control, pharmaceutical research, clinical laboratories, and criminology. Exposure to modern instrumentation is an essential part of the undergraduate laboratory experience.

The Undergraduate Natural Science Laboratory Building continues to occupy the time and energy of many individuals on the campus. A Fund Raising Committee started meeting this summer and the projected timetable to obtain planning money for the final architectural drawings is 2001. Chancellor Hemenway has indicated that he considers this project to be a high priority on the capital improvement agenda of the University.

In 1997, **Krzysztof Kuczera** received a Quest for the Best Award in an annual faculty competition. Kuczera's goal was to create a web-based molecular modeling class for chemistry and biochemistry. You can view his finished project at <http://129.237.102.14/~kuczera/Public/web/html/molmod.html>.

For the second year, KU's prize patrol paid surprise visits to classrooms to present faculty members with W.T. Kemper Fellowships for Teaching Excellence.

This year 16 faculty members received awards. The effort is part of a five-year project to recognize outstanding teachers and advisers at KU. Each of the honored teachers received \$5,000.

Barbara Schowen, professor of chemistry and director of the KU Honors Program, received a Kemper Award for teaching and advising at the freshman-sophomore level.

"This is just one way in which KU is recognizing and rewarding excellence in teaching and student advising," KU Chancellor Robert Hemenway said. "These Kemper awardees exemplify what it takes to be a great research university dedicated to student learning.—*Excerpts from OREAD, Volume 22, Number 1, August 29, 1997.*

Alumni News

Phillip Athey (Ph.D., 1990) visited the Department this spring. He is continuing his research at Dow Chemical Co.

Dieter Bergner (Postdoc) has retired from Hoechst, a company that has removed itself from chlorine production. Although he had initially dreaded the change, he now has more time to spend at his favorite pastime, golf, at a new course nearby. He continues with his scientific work, being asked now and then to give advice in some patent matter or to deliver a paper on his particular subject. As his wife Helga had done a year earlier, he visited his daughter in Dallas who has changed her employment there from Hoechst to its American partner Celanese. Born in Lawrence she is engaged to a young American.

Alan L. Braun (B.A., 1973) just became chairman of internal medicine for the Jefferson City Medical Group—a 60-doctor multi-specialty clinic in Jefferson City, Missouri. Alan and his wife Penny just had their sixth child Jared in October.

Michelle Vaughn Buchannan (B.S., 1973) is a group leader in the chemical and analytical sciences division of Lockheed Martin Energy Research in Oak Ridge, Tennessee. She lives in Knoxville.

Ann Cartwright (Ph.D., 1972) won the 1998 Chemical Manufacturers Association (CMA) National Catalyst Award for teachers in two-year colleges. The Catalyst Awards program began in 1957. Five hundred thirty educators to date have been presented with the award. Winners are nominated by people in their communities who recognize their excellence and dedication to teaching as well as their ability to motivate students and improve the quality of education at the national and regional level. (*C&EN, June 22, 1998*)

E. David Cater (Ph.D., 1960) has retired from University of Iowa. Subsequently he has been revising a Study Guide to accompany a freshman college text, and he has served as a consultant on several science exam panels at ACT. Jean and he divide their living between Iowa City and Lake Ada in Minnesota, she producing art and he sailboarding and building and fixing the latter. They visited Lawrence recently on a trip to see relatives in Texas.

Horng-yih Chen (Ph.D., 1969) has retired from Dupont as a chemist. Currently he is an indoor golf pro.

Benjamin P. Chu (former faculty) continues at Stony Brook where as distinguished professor of chemistry and materials science engineering he car-

ries on a very active research program with support from six government agencies. He travels extensively and has lectured in Taipei, Hong Kong, Beijing, Tokyo, Shanghai, Korea and Mainz.

Bruce Conrad (Postdoc, 1972) is vice-president - health science advisor at International Nickel near Toronto. He recently was awarded the Canadian Metallurgical Society Silver Medal, and he was appointed as a fellow of the Canadian Institute of Mining. Formerly he was a senior research chemist, section head of electrochemistry, section head of hydrometallurgy,

CyDex among fastest growing technology companies in area

The Kansas Technology Enterprise Corporation and Deloitte and Touche, Kansas City, Missouri, named CyDex, Inc., Overland Park Kansas, to the honor roll of fastest growing technology companies in the state of Kansas. Since August, 1996, CyDex has tripled in size. The final rankings are based on the percentage of corporate revenue growth over the five year period between 1992 and 1996.

CyDex was founded in 1993 to exploit a patented cyclodextrin drug delivery technology developed by the Higuchi Biosciences Center's Center for Drug Delivery and Research at the University of Kansas. Chemistry alums **Diane Thompson (M.S. 1977, Ph.D., 1982)** serves as vice president for research and development and **Sumitra M. Ghate (B.A., 1995)** who has returned to Kansas from Indiana where she was employed by Eli Lilly after her graduation is research and development associate.—*Excerpts from HBC News, September 1997.*

and director of process research. In his present position he considers several complex occupational health issues, including protecting employees, protecting the general population, and preserving the environment. He was elected chairman of the NiPERA, which is a global organization doing health research on nickel, was selected to lead a new metallurgical society section having to do with management issues, and was elected chair of a new research consortium aimed at reducing diesel exhaust and oil mist exposure of underground miners. He continues to travel extensively as he interacts with governments worldwide to create rational approaches to global regulations on chemical safety. His wife Audrey is an ordained minister and serves as the priest at a church in Stoney Creek, Ontario.

Glendon Cox (B.A., 1977) lives in Leawood and is a professor of radiology at the KU Medical Cen-

ter.

Bodo Diehn (Ph.D., 1964) has a web site <http://home.att.net/~bododiehn>.

Irwin B. Douglas (Ph.D., 1932) is retired from the University of Maine and living in Williston, Vermont.

James C. Edwards (B.S., 1957) is retired from Monsanto Co. and living in Houston, Texas.

J.G. Edwards (Postdoc, 1967) has recently served as chairman of the Gordon Research Conference on High Temperature Chemistry. He has been chairman of the department of chemistry at the University of Toledo on two occasions. Jim spent his sabbatical year at the Atomic Energy Authority in Julich, Germany. His son has recently moved to Kansas City, thus allowing Jim to visit in Lawrence. Jim was selected as an outstanding graduate of the Kingfisher, Oklahoma, high school, joining a banker and minister in that group.

Harry A. Eick (Postdoc, 1958) looks forward to retiring after serving as interim chairman at Michigan State and teaching freshman chemistry. He and his wife Sally have children from Virginia to San Diego, and they are looking forward to visiting. They enjoy their cottage near Traverse City, Michigan.

John Michael Ferguson (B.S., 1987) Upon graduation from KU, John pursued a graduate degree in organic chemistry at Iowa State. After 1-year appointments at Moorhead State University (MN) and at North Dakota State University, he has joined the faculty of the University of Central Oklahoma in Edmond, Oklahoma, as an assistant professor. John and his wife Kelly are expecting their second child in November. Their daughter Abby will be 6 in September.

H.F. (Fritz) Franzen (Ph.D., 1962) is going into phased (pun intended), partial retirement at Iowa State and Ames Laboratory. He continues research and teaching. His wife Susan has just published her book on Junction City, Kansas; she reports that while she has been working on this book Fritz has published three books. They enjoy sailing on Lake Superior sometimes with children and grandchildren, sometimes with friends. Last year they sailed the Trans Superior, a four-day trip. This year they plan to sail all the way through the great lakes, taking different crews for different legs in their new boat. Dave Cater will be part of one crew. Fritz has taught for six weeks in Zurich and has participated in two conferences, one in Chile and another in Korea.

Richard Fuchs (Ph.D., 1953) retired in 1990 as Professor of chemistry, after 27 years at the University of Houston (following 8 years at the University of Texas, Austin). His last research publication (#80) in the fields of solute-solvent interactions and organic thermochemistry, appeared in 1993, in *J. Chem. Soc. Perkin Trans.* He continues to live in Houston.

Robert Gibbs (B.A., 1994) is beginning his fourth year of medical school at the University of Kansas Wichita campus. He was married June 27, 1997,

to Vicki Rawdon, also a fourth year medical student.

Galina Goloverda (M.S., 1997) has a one year assistant professor position at Rowan University of New Jersey.

Charles Groginsky (Ph.D., 1970) started in June, 1998, as manager of the R&D lab group at Gambro Health Care in Lakewood, Colorado. Gambro is an international medical device company that develops, manufactures, and sells equipment and systems for blood dialysis, cardiovascular circulation and blood fractionation.

Jan Gulbis (Ph.D., 1977) after working for many years as a chemist, has now finished law school and will begin working in the legal department of Williams, a gas pipeline/energy services/telecommunications corporation in Tulsa.

Peter J. Hampson (Postdoc 1970) experienced what others have--the support of his research in developing sensors for molten systems evaporated. He has nearly finished a curriculum in secondary science teaching and plans to be a high school science teacher. In his practice teaching he has concluded, "It's no less difficult to plan a lesson for low ability 13 year-olds than to give a seminar at the University."

Luedric D. Harman (B.A., 1965) is marketing manager for Sherwood, Davis and Geck in St. Louis, Missouri.

Clement J. Hanson (B.A., 1972) retired from the U.S. Army in September 1997 after 20 years of active duty service. He is now employed by the Columbia Colorado Division as an occupational medicine physician in Denver.

David E. Henton (Ph.D., 1973) was recently promoted to senior scientist in Dow's Central Research Laboratories and has been leading the differentiation program for the PET business. With the formation of the Cargill Dow Polymers joint venture to produce plastics from corn, he has taken on the role as lead scientist for the technology programs.

Janet Hickman (B.S., 1974) works in chlorinated solvents at Dow Chemical in Midland, Michigan, where she lives with her husband Andy and daughters Patty and Kathy.

Rolande Hodel (M.S., 1995) has a new job with Plasmaco, Inc., located north of New York City in New Palz, New York. She is a process engineer working on the development of flat TVs.

Deepani Gunasekera (M.S., 1994) received her doctorate in June from Simon Fraser U. in Barnaby, Canada, under the direction of Andy Bennett. Deepani plans to return to her family in Matara, Sri Lanka, and to her faculty position at the University of Ruhuna.

Jay Janzen (B.S., 1962) was honored with a Technology Innovation Award by the Phillips Petroleum Company for a career of innovation in the physics of carbon black development and in polymer rheology (the science of the deformation and flow of matter). He de-

veloped methods to correlate and understand large quantities of diverse data, especially on plastic resins, which has resulted in better selection of resins for processing into products.

Richard M. Kellogg (Ph.D., 1965) at the University of Groningen in the Netherlands and **Douglas C. Neckers (Ph.D., 1963)** at Bowling Green State University, Bowling Green, Ohio, had their work highlighted in the Science and Technology section of the January, 26, 1998, issue of "Chemical and Engineering News." The article is entitled *Durable Organic Gels*.

Richard King (Ph.D., 1972) has returned to Procter and Gamble (Health Care Division) after a year's assignment in England.

Allen G. Kirk (Ph.D., 1966) a technical consultant for Dupont was honored in June 1997 when he received the prestigious Dupont Marketing Excellence Award, an award created to recognize outstanding contributions to the growth and profitability of a business. Allen and his team were recognized for their efforts in creating a new and substantial business opportunity for Dupont resins as capliner materials for carbonated beverages. He is the technology point person on the team which has concentrated its efforts on building market share in the Latin American region. The development of two proprietary resin blends was key in the success of this new business.

Allen has been with Dupont since graduating from KU. In this 31 year period he has worked on assignments in R&D, technical service, and product development projects in Delaware and Iowa. He and his wife, Myrna, live in the Wilmington, Delaware area.

Coincidentally, Allen works in the same office building in Wilmington with two other KU Chemistry Department Alums—**Frank L. McMillian (Ph.D., 1965)** and **George Hoh (Ph.D., 1961)**.

Kevin Kelly (Ph.D., 1980) is a consulting chemist with ChemPlus in Columbia, Missouri, and is chairman of the Central Missouri Chapter of the Missouri Association for Social Welfare.

Paul E. Krieger (Ph.D., 1974) is a research chemist with Reilly Industries, Inc., in Indianapolis, Indiana.

Richard Lee (Ph.D., 1968) lives in Richland, Washington and continues to work at the Pacific Northwest National Laboratory.

James M. Leitnaker (Ph.D., 1960) having retired from Oak Ridge National Laboratory continues there as a consultant a day or so a week; and he teaches Sunday school, serves on the local school board, and belongs to Rotary. He and his wife Jean have fond memories of Baldwin and Lawrence, and hope to return to Jim's 50th Baker reunion. They enjoy trips to the Caribbean and Mexico, and enjoy grandchildren.

Gordon Lewis (Postdoc 1964) is retiring from Clemson where he has served as chairman of his department in the school of engineering.

Amos Lingard (M.A., 1937, Ph.D., 1940) a professor emeritus at the South Dakota School of Mines and Technology, continues to make his home in Rapid City.

Robert R. Lohse, Jr. (B.A., 1970) is a dentist in Topeka, Kansas.

Dean Luehrs (Ph.D., 1965) retired from teaching at Michigan Tech in September 1997.

Gerald D. Levy (B.A., 1976, M.D., 1980) recently completed his MBA studies from California State University, Long Beach. Dr. Levy is currently practicing rheumatology and internal medicine with Kaiser Permanente in Bellflower, California. He lives with his wife, Joanne and two children in Rossmoor, California.

Fred Littooy (B.A., 1965) is a professor of surgery at the Loyla University Medical Center in Maywood, Illinois. He lives in Chicago.

Lawrence Magee (B.A., 1974) and Laurie have a son, Gabriel Luke, born on October 31 in Lawrence where Larry is a physician at Watkins Student Health Center.

John L. Margrave (Ph.D., 1951) Butcher professor of chemistry at Rice University and his wife Mary Lou have special interests in Kansas. They visited Lawrence recently during Alumni Weekend for the 50th reunion of John's 1948 undergraduate class. He continues his very active research program in diamond-like materials, CFx materials, fluorination of carbon nanotubes and fullerene materials. Recently characterized as indefatigable, he continues his magic shows for children of all ages and sometimes adults, and he serves on several committees of the National Academy of Sciences.

Aileen C. McCarthy (B.A., 1979; M.D., 1983) is the director of Midland Hospice and maintains a private practice in internal medicine in Topeka, Kansas.

William Mertin (Postdoc, 1969) reports that the chemistry in German universities is bad off. At Justus-Liebig-University in Giessen the "environmentalists take their revenge."

Sally Meyer (Ph.D., 1987) is an assistant professor at the Colorado College in Colorado Springs. She is co-chair of the Chemistry Department and chair of the Athletic Board, competing in the Goodland, Kansas Marathon in 1998.

Daniel Miller (B.A., 1990) works as a researcher for the U.S. Geological Survey and Jodi Dlugosh Miller (1992) teaches at Sheridan Middle School in Englewood. They live in Lakewood, Colorado.

Luis A. Morales (Ph.D., 1995) and his wife Robin are enjoying their new home in Los Alamos where Luis works in oxide chemistry at the national laboratory.

Patti Morgan (B.A., 1972) is retired and raises llamas (Rock-n-M) in Arkansas City, Kansas.

Dennis Morrell (B.S., 1969) is research supervisor at Hercules Incorporated in Wilmington, Dela-

ware.

Shahid Murtuza (REU, 1993) completed a B.S. degree at the University of Michigan in Ann Arbor in 1994 and completed a doctorate in June at Pennsylvania State University under the direction of Ayusman Sen.

Donald Nevin (B.A., 1970, M.D., 1972), is president of the medical staff at St. Patrick's Hospital in Missoula, Montana, and Gail Cable Nevin (1972) has a private physical therapy practice. They have two chil-

dren, Emily and Andrew.

Becki Newburn (B.A., 1990) Following graduation from KU, Becki worked as a high school math and chemistry teacher with the Peace Corps in Fiji and as a Worldteach Volunteer in Namibia, Africa. Since completing a M.Ed. in secondary math education in 1997, Becki has been teaching middle school math in Marin Co., California.

Paul C. Nordine (Ph.D., 1970) as president of

Containerless Research, Inc., in Evanston, Illinois, directs research on their Aero-acoustic Levitator (AAL), the structure of liquid oxides, and polarimetric instruments. The "AAL instrument uses aerodynamic and acoustic forces in combination with laser beam heating for containerless processing of ceramic, glass, and superconducting materials. Containerless methods eliminate any contact with a crucible or container, allowing materials to be processed without contamination or nucleation by the container."

The instrument arose from research sponsored by the Small Business Innovative Research project under an NSF program. For the structure of liquid aluminum oxide they have cooperated with scientists at Argonne National Laboratory in using the National Synchrotron Light Source at Brookhaven National Laboratory. The polarimetric instruments are useful in the study of high speed spectral emissivity, optical and thin film measurements on materials. The company has provided some instruments domestically and abroad. In his paper at the Gordon Research Conference on High Temperature Chemistry he stressed the differences in the field between his first presentation at this conference in 1960 and the present.

Matthew P. Paradis (B.S., 1985) is a co-owner of the Reserv Mortgage Corp. in Naperville, Illinois. Ralph married fellow KU alum Suzanne Lisinski (B.S. allied health, 1991), who completed a law

degree from DePaul in 1996. They have two children, Erin 2-1/2 and Katie 6 months.

Chang Hoon Park (Ph.D., 1982) is a research scientist with Abbott Labs in Abbott Park, Illinois.

Naru Patel (M.S., 1970) has been promoted to regional manager of quality systems and training for ARCO Chemical Company and will be transferred to Houston, Texas, from Lake Charles, Louisiana.

Ernest R. Plante (Ph.D., 1960) Having retired from NIST, known to most scientists as the Bureau of Standards, Ernest has traveled with his wife Marie on several bird watching trips. They were especially thrilled to see two whooping cranes among thousands of sandhill cranes on a visit to the Platte River in Nebraska. On the same trip they visited in Lawrence. They enjoy children and grandchildren both at home and away.

Daniel M. Quinn (Ph.D., 1978) is a professor at the University of Iowa—Iowa City.

Jeffrey C. Randall (B.A., 1985, M.D., 1990) has returned to Lawrence where he practices orthopaedic surgery and sports medicine at the Kansas Center for Athletic Medicine. Jeff and his wife Kelly have three boys, Hogan 6, Preston 4, and Reese 2.

Edwin D. Rathburn (A.B. 1958, M.D., 1962) A publication with Dr. VanderWerf was instrumental in my early promotion (at 56) from assistant to associate professor at Texas Tech Medical School (not everyone enters academe at 51), after 21 years of small-town family practice in western Kansas (Liberal).

In June 1998 **Richard W. Roberts (B.S., 1987)** was notified that he is a Beckman Young Investigator for 1998-2000.

Last fall Rich joined the faculty at Caltech as an assistant professor in the Chemistry Department. He is working on *in vitro* selection of peptides and proteins using RNA-peptide fusions, a technique he developed during his postdoctoral work at Harvard Medical School/Mass General Hospital in the lab of Jack Szostak. Profs. Szostak, Seed and Roberts have also founded a company called "Phylos" to pursue the commercial side of this technology.

Harry E. Robson (Ph.D., 1959) having retired from LSU and from a large energy company now is completing a book "Zeolite Synthesis" to be published in Microporous Materials. He plans to start on the second edition immediately.

Eric Ross (B.S. 1997) has qualified for the Ph.D. program at the University of Arizona, Tucson.

David Schoenfisch (B.A., 1994) graduated in 1996 from the University of Illinois—Urbana-Champaign with a master's in education along with a teaching certificate in science. David is currently in his second year of teaching chemistry and natural science at Adlai E. Stevenson High School in Lincolnshire, Illinois, a suburb of Chicago.

John D. Shoemaker, Jr., (Ph.D., 1966) On September 1, 1996, John transferred from Mobile, Ala-

bama, to the Corporate Research Center of International Paper in Sterling Forest, New York, where he works as a research and development fellow on the dissolving pulp team.

Romi Singh (Ph.D., 1991) continues at MERCK in West Point, Pennsylvania, where he is responsible for preclinical metabolism related issues of an anti-cancer compound, in addition to being quite busy supporting various projects in the discovery and development end of the business. He was recently asked to give a series of lectures in Lehigh University's satellite based educational program.

Karl E. Spear (Ph.D., 1967) hosted the Tenth International Symposium on High Temperature Materials Chemistry which was held at Penn State. His wife Nancy exhibited superlative leadership for the female spouses of attendees. Karl presides as chairman of the IUPAC Commission on High Temperature and Solid State Chemistry which is holding its annual meeting this year in Ljubljana. They both do some art. Two of their three children live and work in State College.

Mark Staples (B.A., 1975, Ph.D., 1979) In July 1997, Mark accepted a new position as director of pharmaceutical science at Praecis Pharmaceuticals, Inc., in Cambridge, Massachusetts. PPI develops new drugs using combinatorial chemistry technology and is a three year old privately held company.

Richard J. Steichen (Ph.D., 1971) was elected vice-president of corporate research for the Goodyear Tire and Rubber Company in May. He lives in Fairlawn, Ohio.

Brian R. Sook (B.A., 1994) is an industrial water specialist with BioLab, a subsidiary of Great Lakes Chemical Corporation, in Decatur, Georgia. Brian is enjoying the variety of his new career, which has included travel to Paris and Bruyere, France. He is planning to pursue a graduate degree at Georgia State University this fall.

Julie Stenken (Ph.D., 1990) is an assistant professor at Rensselaer Polytechnic Institute.

Greg Swain (Ph.D. 1991) received the Society of Electroanalytical Chemists Young Investigators Award in March 1998.

Since 1994, Greg has been on the faculty at Utah State University where his research has centered on the electrochemistry of diamond and other carbon-based electrode materials. Swain received his B.A. in chemistry in 1985 from the University of Texas at Dallas. He completed doctoral work at KU with Ted Kuwana, where he worked on very high surface area carbon fibers for electrode materials. Greg's postdoctoral experiences included work with Bruce Tartarchuk at the Space Power Institute and the Department of Chemical Engineering at Auburn University and a JSPS fellowship to work with Kingo Itaya at Tohoku University in Japan.

Kansas native designed rover's heating system

Plevna (AP)—Most people in this small south-central Kansas town knew **Gary Rinehart's (Ph.D., 1978)** smarts would take him places. But few figured he would play a key role in Earth's advances in outer space.

Rinehart, 52, is responsible for designing plutonium pellets that warm the Sojourner rover as it creeps across Mars' bitterly cold landscape.

"Plutonium 238 puts out a fair amount of heat when it decays, which is why it's so useful for Sojourner," said Rinehart, a research chemist at Los Alamos National Laboratory in Los Alamos, New Mexico. "On Mars, the nighttime temperature gets down to minus 100 degrees Fahrenheit, and it might get up to only 10 degrees during the Martian day.

Sojourner is equipped with three plutonium heater units, each with a tenth of an ounce of plutonium dioxide material welded into special containers.

"The batteries and other electronic packages on Sojourner can only operate in a temperature range of minus 40 degrees to 104 degrees," Rinehart said. "The plutonium stays right at about 95 degrees, and that keeps them warm enough to operate on Mars."

Because of Rinehart's intelligence and eagerness to learn as a child, family members had a hunch he'd move on to bigger things. But his role in the Mars mission had many of them amazed.

"I can remember when he'd get up to milk the cows before going to school at Fairfield High," said his sister, Ann Davidson, a medical technician in Hutchinson. "It's absolutely amazing that he's gone from milking cows to putting machines on Mars. We're really proud of him."

After high school, Rinehart earned a chemistry degree from Sterling College. He later received a doctorate from Kansas University in high-temperature chemistry, the field that led him to Los Alamos.

He eventually was assigned to lead a project to create a lightweight heat source to keep the Sojourner warm on Mars' frigid surface.

"We like to tease him that he got all the brains," Ms. Davidson said. "He came first and he just sucked all the brains right out of our family."

Ms. Davidson said she knew her brother was working on the Mars project, but the scope of his involvement didn't register until a day after the probe touched down on the Red Planet.

"We were all excited about it landing, but it really didn't hit me until the next day," she said. "I thought, 'Oh my gosh, my brother has got something on the surface of Mars!'" —*This article appeared in the Lawrence Journal-World, July 13, 1997.*

Mark D. Timken (B.S., 1979) is an associate chemistry professor at Widener University in Chester, Pennsylvania. Mark and his wife, Hye Kyung, live in Woodbury, New Jersey.

Elizabeth Thomas (Ph.D., 1992) married Trace Stark (1983) on August 8 in St. Louis. Trace teaches elementary school and Beth has accepted a new position with Monsanto's agricultural division.

Duane Weisshaar (M.S., 1975) is an associate professor of chemistry at Augustana College in Sioux Falls, South Dakota.

Paul H. L. Walter (Ph.D., 1960) is president of the American Chemical Society and professor emeritus of Skidmore College, Saratoga Springs, N.Y.

Sven Westman (Postdoc, 1962) is scheduled for retirement from the University of Stockholm, but plans to continue doing language revision of articles from the Chemistry Department, developing IT course materials, setting up and maintaining the undergraduate lab's WWW home page, teaching an occasional course, and of course, singing. He and Britta enjoy their six grandchildren.

Wayne E. White (Ph.D., 1930) is retired and living in Fort Smith, Arkansas.

Quentin D. Wheatley (Ph.D., 1954) has retired from Dupont. He and his wife Audrey live in the Buffalo region. They have connections still in Kansas, although they have not visited recently.

Mark A. Williamson (Ph.D., 1990) at Los Alamos is studying nuclear fuel repossession chemistry for accelerator-driven transmutation of waste, also known as a method of deactivating nuclear waste. He and **John Huang (Ph.D., 1981)**, also at Los Alamos, and a friend at the University of California—Davis received "three years funding from DOE to study actinide-bearing mineral waste forms by solution chemistry. High temperature is alive and well."

Richard L.C. Wu (Ph.D., 1971) and his wife Spring own K Systems Corporation located near Dayton, Ohio. The firm employs several scientists and engineers and engages in research and development largely, though not exclusively, through government contracts. They have traveled to Paris, London, Boston and New Orleans for professional meetings. Their daughter Joyce has graduated from medical school, and she is doing her residency in emergency room medicine. The activities of the company are principally in polycrystalline diamond films and plasma diagnostics. It has several new contracts, "Development of High Power Pulse and Steady State Electronic Power Systems" for five years, "Electronic Power System Applications for Polycrystalline Diamond Files," "Large Area Ion Beam Deposition of Diamond-like Thin Films," and a fundamental study on plasma phenomena. They have applied for several patents. They have designed, developed and constructed a state of the art DOD Capacitor Research Center at Wright-Patterson AFB.

Jin S. Yoo (Ph.D., 1964) lives in Flossmoor, Illinois and is a senior consultant for Samsung Chemical Group, Seoul, Korea.

Patricia Hermann Young (Ph.D., 1975) is self-employed as an anesthesiologist in Leawood, Kansas.

In Memoriam

Robert Coghill (B.A., 1921, M.S., 1922) died November 27 in University Place, Washington. During World War II, as director of the U.S. Department of Agriculture's Peoria, Illinois, laboratory, he headed a team that developed penicillin mass-production techniques in time to supply Allied Forces in the D-Day invasion of France. In 1948, President Harry Truman honored his work with the Presidential Medal of Merit. He later headed research teams that perfected the tetanus vaccine and developed Sucaryl, an early artificial sweetener. He also served as deputy director of cancer chemotherapy at the National Institutes of Health. Surviving are two sons, a daughter, a sister, 10 grandchildren and 11 great-grandchildren.

Ralph K. Birdwhistell (Ph.D., 1953) died October 10, 1997. Ralph retired in 1996 after 30 years of teaching at the University of West Florida in Pensacola.

Frank Donald Popp (Ph.D., 1957) died December 17, 1997, in Gaithersburg, Maryland. He is survived by sons Bruce Popp of Roslindale, Massachusetts, James Popp of Elkhart Lake, Wisconsin, and John Rizzo of Kansas City, Missouri, and three grandchildren. Popp, emeritus professor of organic chemistry, University of Missouri—Kansas City and a member of American Men and Women of Science, was working part-time for the American Chemical Society at the time of his death.

Robert E. Steeper (A.B., 1942) died May 16, 1997, in Poway, California. He retired in 1983 after a 41 year career with Hercules Corporation. Survivors are wife Mary Bea Flint Steeper (A.B., 1943) and daughters Dr. Theresa Steeper, St. Paul, Minnesota, and Dr. Jennifer Steeper, Poway, California.

Deloss E. Winkler (Ph.D., 1941), 84, died of natural causes April 5, 1998, at his Rossmoor, California home. The native of Atchison, Kansas, earned his bachelor's degree from the University of Kansas in 1936, his master's degree in 1939 and his Ph.D. in chemistry in 1941. He was an organic and polymer chemist for 30 years at Shell Development Company in Emeryville and for seven years with Beckman Instruments in Palo Alto where he was chief polymer chemist. He held 38 U.S. patents and had 12 scientific publications. He is survived by his wife of 56 years, Evangeline Clark Winkler of Rossmoor; daughter, Arlene Winkler Pender of Sidney, Michigan; son, Ronald Clark Winkler of Fullerton; a sister; a brother; and five grandsons.

Dear Chemistry Alumnus:

The faculty and I hope that you have enjoyed reading this newsletter. Please take time to send us information about yourself for the next edition.

We would like to know:

Your name
KU degree(s) and year(s) received
Other degree(s), year(s), school(s)
Occupation
Employer
Employer's address
Information about yourself you would like to share

Please send information to Carol Bray, Program Assistant, Chemistry Department, University of Kansas, Lawrence, KS 66045 Email: cbray@ukans.edu

Thank you for your support and have a good year!

The Chemistry Department receives generous assistance from the KU Alumni Association in distributing its newsletters. We believe a strong and informed alumni group can be one of the most important supports of a department and of a university. We urge all our former students and colleagues to join the Alumni Association and assist in its exemplary efforts on behalf of the University.

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