

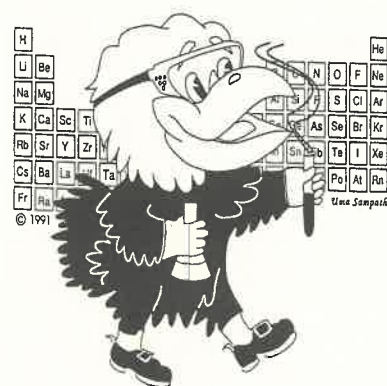
Jayhawk Chemist

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

October 1999, Issue No. 33

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Chemical society names president!

Daryle Busch, KU's Roy A. Roberts professor of chemistry, was named president of the American Chemical Society in November 1998. The American Chemical Society has more than 155,000 members, including professors and chemists employed in the United States and abroad. Attending the reception from KU: Provost David Shulenberger, Dean Sally Frost Mason, **Kristin Bowman-James**, chair, **Ted Kuwana**, **George Wilson** and **Joe Heppert**.

Busch said that the society acted as a center for the intellectual activity of chemists and produced the most respected chemistry journals in the world. "I consider it to be a great honor," Busch said. "I hope I can bring some new ideas to the organization."

Busch was nominated for president by the American Chemical Society council last March and was one of four candidates who was selected to be on the ballot. All of the society's members have the opportunity to vote in the election.

Seven former alumni and/or members of the faculty of the Department of Chemistry have been elected to the presidency of this esteemed organization: E. Bartow, E. C. Franklin (B.A. 1888; M.S. 1892), C. A. Kraus (B.A. 1898), J. H. Long (B.S. 1877, first student to graduate from the department), L. V. Redman, and E. R. Weidlein (B.A. 1909; M.S. 1910) and current past president, Paul H. L. Walter (Ph.D. 1960).

Chemistry in the 21st Century: The new millennium celebration!

*March 26-30, 2000
San Francisco, California*

Dr. **Daryle Busch**, President ACS 2000, will host three unique celebration programs:

- Futuristic division/secretariat technical symposia
- Two plenary sessions focusing on the future of the chemical profession
- Interactive event/exhibit showcasing how chemistry will impact daily lives in 2050

Details on-line: www.acs.org/meetings/

Current Faculty and Research 1999-2000

David R. Benson, Jr., Associate Professor, Ph.D., University of California-Los Angeles. Bio-organic and bioinorganic chemistry: *de novo* protein design, hemoprotein structure and function, peptide conformation.

Andrew S. Borovik, Associate Professor, Ph.D., University of North Carolina—Chapel Hill. Inorganic chemistry: molecular design of inorganic complexes and catalysts, bioinorganic chemistry, supramolecular and polymer chemistry, organic chemistry of peptides.

Kristin Bowman-James, Professor and Chair, Ph.D., Temple. Inorganic chemistry: biomimetic and supramolecular chemistry, design and synthesis of selective receptors for ions (particularly anions) of biological and environmental relevance, synthesis of structural and functional models for metalloproteins, with emphasis on those with multimetallic active sites.

Daryle H. Busch, Roy A. Roberts Distinguished Professor of Chemistry, Ph.D., University of Illinois. Inorganic chemistry: transition metal coordination chemistry; bioinorganic chemistry focused on dioxygen, its reduction products, and their interaction with metal complexes; environmentally benign oxidation catalysis by transition metal compounds, and supramolecular chemistry, especially new materials derived from advanced molecular topologies.

Robert G. Carlson, Professor, Ph.D., MIT. Organic chemistry: organic synthesis, natural products, highly strained ring systems, photochemistry and bioanalytical chemistry.

Shih-I Chu, Watkins Distinguished Professor and Director of the Kansas Center for Advanced Scientific Computing, Ph.D., Harvard. Physical chemistry: quantum chemistry, reaction dynamics, multiphoton and nonlinear optical processes in intense laser fields, nonlinear dynamics and chaos, many-body resonances, density functional theory, atomic and molecular astrophysics.

Robert C. Dunn, Associate Professor, Ph.D., University of California-San Diego. Analytical chemistry: optical spectroscopy/microscopy, fiber optics, optical sensors, single molecule spectroscopy, model membranes, ion channels.

Richard S. Givens, Professor and Assistant Provost, Ph.D., University of Wisconsin-Madison. Organic chemistry: mechanistic organic photochemistry, applications of photochemistry--photoremovable protecting groups, "caged compounds," and photostitches.

Paul R. Hanson, Assistant Professor, Ph.D., University of Minnesota. Organic chemistry: organic synthesis, synthetic methods development to novel phosphorus and sulfur motifs, transition metal catalyzed reactions, synthesis of biologically significant molecules and biopolymers.

Joseph A. Heppert, Associate Professor and Associate Chair of the Undergraduate Program, Ph.D., University of Wisconsin-Madison. Inorganic chemistry: catalysis, metathesis, polymers, stereospecific reactions, hydrogen bonding, liquid crystals, inorganic/organic hybrid materials. Science Education: effect of inquiry in science laboratory instruction, effect of research on effectiveness of K-12 science instruction, attrition at the university/community college transition.

Peter M. Hierl, Professor, Rice University. Physical chemistry: rates and mechanisms of gas-phase ion-molecule reactions, molecular beams, mass spectrometry, ion-molecule reactions.

Carey K. Johnson, Associate Professor, Ph.D., Iowa State University. Physical chemistry: time-resolved and single-molecule laser spectroscopy, chemical and biophysical dynamics probed by ultrafast time-resolved laser spectroscopy, reorientational dynamics in solution.

Krzysztof Kuczera, Associate Professor, Ph.D., Polish Academy of Science, Warsaw. Physical and theoretical chemistry: molecular dynamics simulations, statistical mechanics and quantum chemistry of biological molecules.

Theodore Kuwana, Regents Distinguished Professor and Director of K*STAR / NSF EPSCoR, Ph.D., University of Kansas. Analytical chemistry: studies of ultra-high surface area carbon microfibers, multi-enzyme biosensors, and design of flow injection systems and supporting instrumentation.

Brian B. Laird, Associate Professor, Ph.D., University of California-Berkeley. Physical chemistry: phase transitions, interfaces, amorphous systems, general liquid state theory in homogeneous fluids, algorithms for molecular simulation.

John A. Landgrebe, Professor and Associate Chair of the Graduate Program, Ph.D., University of Illinois. Organic chemistry: reaction mechanisms and synthetic potential of new reactions involving reactive intermediates in solution.

Cynthia K. Larive, Associate Professor, Ph.D., University of California-Riverside. Analytical chemistry: bioanalytical and environmental applications of LC/NMR, the use of NMR diffusion measurements to measure chemical equilibria and to characterize polydisperse samples, functional group characterization, metal complexation and aggregation properties of humic substances.

Craig E. Lunte, Professor, Ph.D., Purdue. Analytical chemistry: monitoring living systems, micro-separation techniques, electrochemistry, electrochemical detection for liquid chromatography and capillary electrophoresis, drug transport, pharmacokinetics, anticancer drugs.

Janet Bond Robinson, Assistant Professor, Ph.D., University of Iowa. Science Education, emphasis chemistry: professional development of graduate teaching assistants, effective learning environments for chemistry students and assessment of and practice in authentic problem solving.

K. Barbara Schowen, Professor and Director of the University Honors Program, Ph.D., MIT. Organic chemistry: bio-organic reaction mechanisms, enzymic and proton-transfer catalysis, solvent effects, solvent isotope effects.

Richard L. Schowen, Summerfield Professor of Chemistry and Biochemistry, Ph.D. MIT. Organic chemistry: reaction mechanisms, bio-organic chemistry, catalysis, isotope effects.

George S. Wilson, Higuchi Distinguished Professor of Chemistry and Pharmaceutical Chemistry, Ph.D., University of Illinois. Analytical chemistry: structural effects on cytochrome electron transfer, redox biochemistry, implantable biosensors, flow injection immunochemistry.

Notes from the Chair

Greetings from the Department of Chemistry.

As you can see from the contents of this newsletter, it has been a very busy year for us as well as for our alums. First of all congratulations to our colleague and friend Daryle H. Busch, now President-Elect and shortly to become President of the American Chemical Society! This is a well-deserved honor.

We are also especially pleased that several of our faculty members have also been taking leadership roles in promoting educational and curricular reform. As you will find on p. 4, Joe Heppert has obtained \$2.4 million from NSF in a collaborative effort encompassing northeastern Kansas called the *Kansas Collaborative for Excellence in Teacher Preparation*. This initiative also reaches beyond chemistry, involving science and math with a goal of improving teacher preparation. Joe Heppert also successfully spearheaded an effort to obtain funds from the William and Flora Hewlett Foundation to develop problem-based inquiry learning in the chemistry laboratories (p. 5). While Joe has headed both of these efforts, these initiatives are truly team efforts and a number of faculty both at KU and other institutions put in considerable time and effort, and their enthusiasm and participation are greatly appreciated. As seen on p. 4 and 5, other faculty are also heavily involved in educational initiatives, including Ted Kuwana, with NSF funding for his analytical workshops, Bob Dunn with an Instructional Laboratory Improvement grant for an atomic force microscope, George Wilson's new LC/MS system obtained from a grant from Hewlett Packard and Ken Ratzlaff's Dreyfus Award for exploring a multimedia/web-based approach for teaching electronics.

With the addition of Janet Robinson (p. 5) to the faculty, the Department is also embarking in a new direction with an emphasis area of science education. This, in my estimation, is an exciting new initiative with many possibilities for the future expansion of the Department. Janet has already garnered grant support for her work. She is co-investigator on the *Kansas Collaborative for Teacher Preparation* and has recently received word that her own NSF proposal, *Teaching Fellows Program* (with Joe Heppert as co-investigator) was funded (p.7).

Other exciting news is the additional new instrumentation, which has been obtained or is in the process of being obtained. These include a 600 MHz NMR spectrometer and two new mass spectrometers, an LC mass spectrometer and a MaldiToF spectrometer. Dave VanderVelde and Todd Williams, directors of the NMR and Mass Spectrometry Laboratories, have provided extremely important support for a number of us in the chemical sciences. As a result the faculty voted last spring to give both Courtesy Appointments in the department. The acquisition of the instrumentation would not have been possible without the crucial support of the administration including the Dean and Associate Dean of the College of Liberal Arts and Sciences, Sally Frost Mason and Rob Weaver, the Vice Chancellor for the KU Center for Research, Bob Barnhill, and the Provost, David Shulenburg. The department gratefully acknowledges this support.

There is lots more in the body of the newsletter, including some interesting articles on our new historically registered Bailey Hall and on an early woman pioneer faculty member, Elvira Weeks. This article was written by Carol Bray, who relentlessly sought information in every nook and cranny available. At one point e-mails were flowing back and forth to Israel.

In closing I would like to thank Carol Bray, who virtually single handedly organized and wrote this Newsletter, who kept after the faculty for information (a thankless job), who spent considerable time and effort cutting out appropriate news articles about alums to include in the *Alumni News* section, and who has again done an excellent job of catching just about every interesting piece of news which occurred during this last year in the Department. Please read on, and I wish all of our alums and friends a successful start on the new millenium.

Kristin Bowman-James, Chair

Observe, participate, collaborate

Our first steps to introduce inquiry-based learning and team effort are underway. Teaching science the way it is conducted.

\$2.4 million NSF grant awarded to partnership led by KU

A collaboration of the education community in northeastern Kansas, led by the University of Kansas, received a National Science Foundation grant for \$2.4 million to improve science and mathematics teacher preparation in Kansas.

The funds will offer the best strategy for meeting the needs of high-school students considering teaching, pre-service teacher education students and early-career teachers.

The partnership is titled the Kansas Collaborative for Excellence in Teacher Preparation and is led by KU and Kansas State University, in collaboration with Johnson County Community College, Kansas City Kansas Community College, Cloud County Community College, Highland Community College and 10 school districts.

"The specific aim of the grant is to support collaboration between KU and the other institutions in a mathematics and science education academy that will deliver a well-articulated teacher preparation program," said KU's **Joe Heppert**, associate professor of chemistry.

Included is development of strategies for recruiting and retaining minorities and disadvantaged students for science programs and following through with what is learned in class by mentoring K-12 teachers during the initial years of their professional careers.

According to Heppert, this three-year program is aligned with the national mathematics and science education standards and will promote a statewide strategy to reform mathematics and science teacher preparation.

"KU has individuals experienced in the implementation and evaluation of science curricula, an extensive record of developing education-related research experiences and substantial expertise in the use of Internet technology for professional development," Heppert said. "And Kansas State has been recognized by the NSF for leadership in the integration of research and teaching."

"The 10 regional school districts and four two-year colleges also bring a range of experience in education reform to the partnership," Heppert said.

The school districts participating in the partnership include Geary County, Manhattan-Ogden, Topeka, Lawrence, Shawnee Mission, Turner, Olathe, Wamego, Blue Valley and Kansas City, Kansas.

At Kansas State, contact Dean Zollman, physics (785) 532-1619; John Staver, education at (785) 532-5918; or Gail Shroyer, education, at (785) 532-5550.

For more information on the collaboration at KU, contact Joe Heppert, Chemistry (785) 864-4150; James D. Ellis, Education (785) 864-9847; or A. Susan Gay, Education (785) 864-9676.—*University Relations*

In the NSF report, *Shaping the Future* (1996), the NSF expressed concerns about America's science competency, noting that current education did not fully address our country's need for a technically skilled work force. It called for nationwide action by the higher education community to strengthen undergraduate education.

The Chemistry Department is in the process of developing a curriculum that focuses attention on solving a problem, while teaching students the skills they need to function as professionals upon graduation. We are attempting not only to link chemical concepts, but also decision making, creative thinking and problem solving at all levels.

Project 1: Junior-senior level analytical chemistry initiative going strong

Before embarking on a substantially revised analytical chemistry curriculum, the analytical division devoted about five years to acquiring state of the art equipment through industrial, University and NSF (ILI) support. The result is the 2,500 square foot, recently remodeled Instructional Instrumentation Laboratory with nearly \$900,000 of new scientific equipment, which is designated for undergraduate instructional use. The facility is available 50-60 hours per week and at any given time one can find undergraduates, graduate students in chemistry or graduate students from other departments such as medicinal chemistry or chemical engineering in the lab at the same time. They talk to each other, they interact and they learn.

Recent funding success

- A national initiative lead by **Ted Kuwana**, principal investigator, on a joint NSF Division of Undergraduate Education and Division of Chemistry grant that supported two workshops addressing education and training of the Analytical Sciences workforce. A full report edited by Kuwana of the outcome of these workshops can be viewed from a link entitled *Curricular Developments in the Analytical Sciences* at <http://www.chem.ukans.edu>. Funding for this grant was recently continued.

- A NSF Instructional Laboratory Improvement (ILI) grant headed by **Robert Dunn** entitled *Prob-*

Chemistry professor Joseph Heppert receives grant to develop learning labs

The William and Flora Hewlett Foundation has awarded Department of Chemistry Professor **Joseph Heppert** a \$150,000 two-year grant to develop problem-based inquiry learning laboratories.

The grant will be matched by \$140,000 provided by the University of Kansas Provost's Office.

"This project is a comprehensive redesign of laboratory experiments used in introductory undergraduate chemistry courses," said Joe Heppert. "We want to present students with an opportunity to apply the scientific method from the earliest stages of their university careers."

According to Heppert, the grant will help:

- Support development of effective learning environments to support inquiry in the general chemistry laboratory
- Design professional development for graduate teaching assistants so that they can facilitate student interest, learning and teamwork in the laboratory
- Develop strong, integrated knowledge base in chemistry for laboratory projects
- Engender positive attitudes toward the value of science and mathematics
- Integrate appropriate applications of technology into introductory chemistry laboratories
- Foster critical thinking and decision-making skills.

"We want to foster student understanding of the nature of scientific inquiry," Heppert said. "They can learn this from their own experiences from designing experiments, finding appropriate reference materials, using instruments to make precise measurements and using software for data management."

"They will also learn to understand the value of collaborating effectively with their peers."

A discussion of the principles of the laboratory reform program and working drafts of revised laboratories can be accessed through the project web site at <http://linus.chem.ukans.edu/>. —*University Relations*

lem-oriented surface analysis in the junior/senior laboratories, which provided \$35,150 to purchase and install an atomic force microscope (AFM) instrument for use in new analytical laboratory experiments.

- Funding of **George Wilson's** equipment proposal to Hewlett Packard, which resulted in a new LC/MS System valued at \$188,000 for the Instructional Instrumentation Laboratory in support of the revised CHEM 636 *Instrumental Methods Laboratory*. This was the third major equipment acquisition funded by Hewlett Packard.

- A Dreyfus Award of \$43,496 to **Ken Ratzlaff**, director of the Instrumentation Design Laboratory, for a proposal entitled *Multimedia/web-based Approach to Teaching Instrumentation Electronics for Scientists, Phase I*. See details in a related story, *A new approach to teaching electronics for scientists*, on p. 8.

Future activity

Pending is another **George Wilson** NSF CCLI—A&I proposal entitled *Introduction to Analytical Measurement Science* (Request: \$98,000). This proposal focuses specifically on junior/senior CHEM 517 *Introduction to Analytical Chemistry Laboratory* reform.

Meanwhile, revisions to CHEM 636 *Instrumental Methods of Analysis* course first introduced into the classroom in Spring 1997 continue to be fine-tuned. Look for an article about this new course format in the October 1 issue of the journal *Analytical Chemistry*.

Project 2: General chemistry initiative gains momentum

Renovation of the general chemistry and organic chemistry labs funded under the state's "Crumbling Classroom" plan was completed this summer and our general chemistry curriculum reform initiative is moving forward.

With **Joe Heppert** at the lead, one goal of this initiative is to introduce inquiry-based learning at the freshman level, in order to prepare students to apply chemical problem-solving at the more advanced level. An important innovation will be a formal seminar course for teaching assistants, which is designed to make them aware of learning processes. It will also encourage a more orderly approach to learning.

Welcome Janet Bond Robinson

This fall, the Chemistry Department welcomed our newest faculty member, **Janet Bond Robinson**, as an assistant professor.

Janet has been a postdoctoral associate at KU for the past year. She received a fellowship from Tufts University's Wright Center for Innovation in Science Education in 1994-95. In 1996, she received a grant from the H. Dudley Wright Foundation to form a Midwest Frontiers in Science Education Conference and was named in Who's Who in American Education.

Janet received a doctoral degree from the University of Iowa in 1998, specializing in science educa-

tion; her master's from the University of Texas, Austin; and her bachelor's from Texas Lutheran College, Sequin.

Janet's research has three primary thrusts (1) expanding the paradigm of graduate education (2) improving the learning environment to include more students who truly understand important chemical concepts and principles and (3) honing testing strategies to promote critical thinking and genuine problem solving.

Recent funding success

- Two-year \$150,000 Hewlett Foundation award to introduce problem based inquiry based learning laboratories in *CHEM 188 Foundations of Chemistry II*. This grant was matched by funds from the Provost's Office. See the related press release entitled *Chemistry professor Joseph Heppert receives grant to develop learning labs*, page 5.

- Instructional Technology Equipment Award

(College of Liberal Arts and Sciences matching funds) provided \$107,000 for workstations, servers, and networking hardware. This equipment serves as a platform for data collection and manipulation in a series of new fully network-integrated inquiry laboratories for *CHEM 188 Foundations of Chemistry II*.

Future activity

- Pending is another NSF CCLI proposal entitled *Clarifying Concepts of Concentration, Equilibrium and Reaction Rate in Introductory Chemistry Using Visible Spectroscopy* (Request: \$62,581). The objective is to outfit three chemistry labs with workstations containing Ocean Optics CCD spectrometers which will be employed in a series of new fully network-integrated inquiry experiments.

- Approval of CHEM 816: *Practicum in the Teaching of Chemistry*, a formal course for graduate teaching assistant training.

New KU equipment has many potential benefits

Kansans who drink water, grow older or use prescription drugs may benefit from nearly \$2 million the University of Kansas is spending on nuclear magnetic resonance spectroscopy and mass spectrometry equipment.

KU scientists will use the equipment to track groundwater contamination, study aging, and aid in drug design, among other projects. For instance, **Cynthia Larive**, associate professor of chemistry, will be using a new 600 megahertz NMR machine to track growth-enhancing chemicals and antibiotics used in corporate hog and chicken farms that end up in groundwater.

Eventually, the chemicals and antibiotics and the by-products of their breakdown may contaminate groundwater. "Nobody knows what their fate is in the environment," Larive said, "Nobody knows what their concentrations are or whether their presence may contribute to antibiotic resistance in bacteria."

The new NMR, with accessories, will cost about \$950,000. Another \$200,000—\$250,000 in the form of a grant just received from the National Science Foundation and \$50,000 from KU—will help modernize a 500 megahertz NMR already at KU.

KU is also buying two new mass spectrometers for a total of about \$700,000. "Getting this equipment," Larive said, "means KU has achieved the state of the art in our ability to identify and characterize molecules. We'll be competitive with universities in California and on the East Coast."

NMR is used in many kinds of studies besides those related to environmental protection. "For one, it's useful to drug designers," said **Dave Vander Velde**, director of the KU NMR laboratory.

"Many drugs have to interact with a specific protein involved in a disease state," he said, "and NMR helps drug designers understand the precise nature of that contact."

Larive is involved in a project related to Alzheimer's disease. She's working with the small proteins called peptides that form plaques found in the brains of people with the disease. "Many KU researchers are performing basic scientific studies that rely on NMR and mass spectrometry equipment," said **Todd Williams**, director of the KU Mass Spectrometry Laboratory.

Williams said that some groups use the equipment to investigate the influence of rogue oxygen atoms called free radicals—already implicated in disease—acting upon aging. "Mass spectrometry has been used to show that oxygen-compromised protein builds up with age," he said.

"NMR and mass spectrometry imaging techniques are complementary," said Vander Velde. NMR can reveal with precision the location of atoms in molecules. The problem is that NMR requires the scientist to have a fairly sizeable sample to analyze. Mass spectrometry basically works by weighing molecules. The technique can indicate the atoms present in a molecule. It can also hint at where they are but not reveal their precise arrangement. "But mass spectrometry works well when you have only an extremely tiny quantity of material," Vander Velde said.

"The equipment enhancement will aid science faculty recruitment and retention," Vander Velde said. Besides NSF and KU, K*STAR EPSCoR is a contributor to the equipment initiatives.—*University Relations*.

- Discussion of a chemical education degree emphasis for graduate students.

Project 3: Statewide reform beginning

A second goal of this reform is to promote a statewide strategy to reform mathematics and science teacher preparation. See the related press releases entitled *\$2.4 million NSF grant awarded to partnership led by KU*, page 4 and *\$1.1 million NSF grant awarded to teaching fellows program* on this page.

New project director onboard

Connie Haack joined us this September as the new project director for the *Kansas Collaborative for Effective Teacher Preparation* (KANCEPT), an NSF funded project to promote recruitment, education and retention of new elementary and secondary sciences teachers. She will be working with faculty and staff at KU and KSU, as well as area community colleges and public schools.

Connie is finishing her doctorate at the University of Oklahoma, specializing in science education. Her master's degree is from the University of Tulsa and her bachelor's from Fort Hays State. She has experience teaching high school and middle school, and has also taught physics at the junior college level.

Connie taught a science methods course for elementary education majors at the University of Oklahoma and supervised student teachers in secondary science classrooms.

Future activity

- Heppert and Robinson will present a workshop entitled *Inquiry in the Preparation of Future K-12 Science Educators* at the Sigma Xi Forum *Reshaping Undergraduate Science and Engineering Education: Tools for Better Learning*, November 4-5, in Minneapolis, Minnesota.

Other undergraduate program changes

This year two changes to the B.S. degree program were approved by the faculty (1) the addition of a required Biochemistry course and (2) the addition of an Advanced Inorganic Laboratory, which is currently being developed. To accommodate these changes there was a reduction in the foreign language requirement.

The Department also will offer a chemistry minor beginning in the Fall 2000. The minor requires a total of 18 credit hours of chemistry courses. Twelve hours must be upper-division, including two upper divi-

\$1.1 million NSF grant awarded to teaching fellows project

Janet Robinson and **Joe Heppert** are co-principal investigators on a collaboration grant with the Kansas City Kansas public school district (KCKPS) and KU that has recently been awarded a National Science Foundation grant for \$1.1 million. The goal is to improve science and mathematics education for students in the district, many of whom are under-represented in careers in science and math.

This project also benefits teachers who are newly assigned to teach the physical sciences or those assigned to teach a content area outside of their background due to a teacher shortage.

Under this new Teaching Fellows Program, a cohort of 6-10 graduate physics, chemistry, engineering, mathematics and biology students and four advanced undergraduate students will be providing support for middle and high school science teachers.

The teaching fellows will work directly with teachers in class and in in-service workshops to provide content support, technology expertise and hands-on practice with inquiry-based life and physical science curricular units.

As part of their training, each fellow will attend workshops covering the contexts of urban school environment and students. Teaching strategies to match subject matter goals and support inquiry are further workshop topics. Each fellow will work closely with a master teacher and the KCKPS math and science specialist and project directors.

KU's teaching fellows graduating with B.S. and Ph.D. degrees will have excellent initial training in modern science pedagogy, secondary teaching and multicultural education.

sion-laboratory courses.

KCCTC comes home!

After a 10 year absence, the Kansas College Chemistry Teachers Conference (KCCTC) meeting was held at the University and hosted by the Chemistry Department on March 25-27, during Spring break.

Approximately 40 Chemistry faculty from the community colleges, four-year colleges and universities in the state met to discuss chemistry techniques, innovations, problems and experiments. Keynote presentations were made by Arlene Russell of UCLA on aspects of the Molecular Science Project at UCLA, including *Calibrated Peer Review* and Stephen Thompson of Colorado State on *Integrating Theory and Practice in Teaching and Articulation Between Community Colleges and Four-Year Colleges*. A number of presentations were made by attendees.

A banquet was held on Friday evening with a program which included Dr. **Richard Schowen** on *How*

A new approach to the teaching of electronics for scientists

The Chemistry Department at KU has a long history of teaching electronics in a course appropriate for practicing scientists. However, courses in this subject need continual development to fit current electronic and real-time computer technologies. In the latest update, a new "distance education" approach is under development with support from the Dreyfus Foundation.

The KU *Electronics for Scientists* history goes back to the 60s when, under the leadership of Professor Paul Gilles, the "Tri-Level Network" sought to bring together real-time data acquisition and state-of-the-art computing. While the networking component may have been ahead of its time, the data acquisition and control aspects successfully worked their way into several labs in a time when laboratory computing was a great challenge. In the mid-1970s, a course in *Electronics for Scientists*, Chemistry 711, became a part of the curriculum, introducing scientists to usable electronic techniques and computer control.

Computers became increasingly important, and the course needed continual updating to accommodate progress in both computers and electronics. By the mid-80s, the course was built around PCs, but by the mid-90s, dramatic changes were required. Unfortunately, the test equipment was out-of-date, and there were severe pressures on lab space.

The course now in development exploits the capabilities of new PC technology in three ways to solve the equipment problem and create an easily updated course. First, the computers of today are sufficiently fast and powerful that they can provide the basis of real test equipment. Second, the new Universal Serial Bus (USB) provides fast input/output without the need for internal adapter boards, making the equipment portable. Finally, the Internet allows the content and software to be served and updated on demand.

An electronics experiment module is under development which will plug into the USB port of any PC. This module contains the front-ends for the voltmeter, the oscilloscope, the arbitrary waveform generator and other test equipment. This combination will transform the computer into an entire electronics lab.

The Internet connection will deliver both the software for operation of the test equipment and course content.

The development of the experiment module is well underway in the Instrumentation Design Lab, and work will begin soon on content delivery. Soon, any room with a computer will be a potential electronics lab, fully-equipped for the teaching of electronics and laboratory computing for scientists. — Ken Ratzlaff

to *Breed Scientists in Captivity* and a musical program which featured Al Lata and friends.

The KCCTC was inaugurated in 1973 by the late J. K. Lee, associate chairman of the department, to establish communication between the chemistry faculties of the community colleges of the state and KU. It has been held a number of times at KU, the last time being in 1989. Over the years it has been hosted by twelve different institutions around the state.—Al Lata

The Bailey Hall claim to fame is the stuff of Helium and History

The revelers lit a hay bale on fire and swung it over the natural gas roaring out of the new well they had dug.

It was the first natural gas well near the town of Dexter and a large crowd had gathered to see it fired. The stream of natural gas was to explode straight up into the air and light up the southeastern Kansas sky like a comet, or so they thought.



Instead, it snuffed out the hay bale cold and with it the town's hopes for a prosperous future. It was 1903 and natural gas hunters were perplexed. They turned to the University of Kansas, which had just built a state-of-the-art chemistry building and had acquired the only equipment west of the Mississippi River that could solve the mystery.

It also was where Professor Hamilton P. Cady, a Kansas native and KU graduate, was doing research on the composition of natural gas. His work had revealed that such rare gases as neon and argon were contained in natural gas.

But what happened when Cady was given a sample of "Dexter gas" made world chemistry history and put KU's Bailey Hall on

the map, at least as far as the American Chemical Society is concerned.

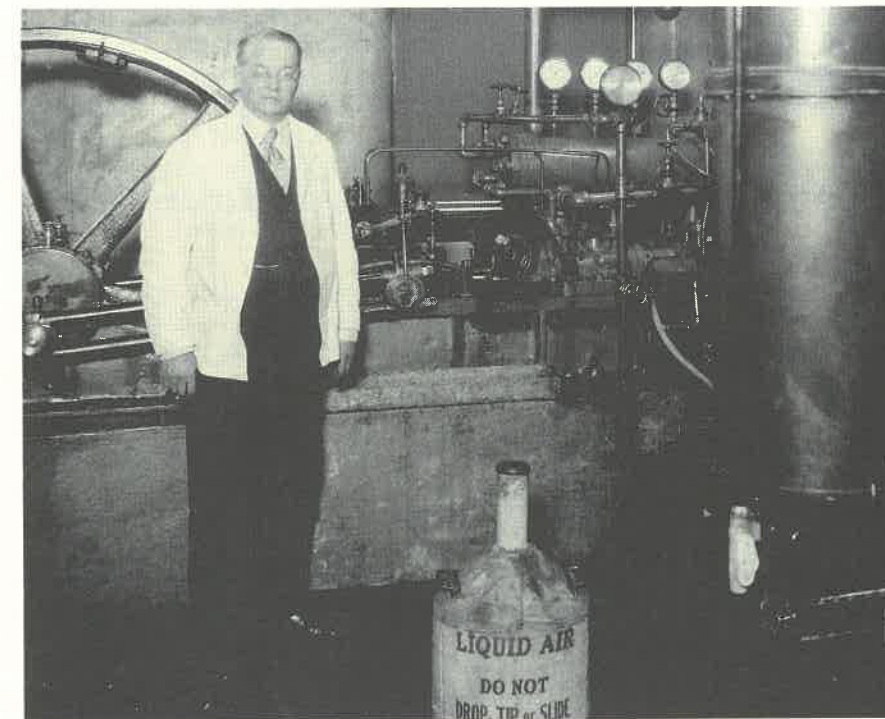
The society has designated Bailey Hall as a national historic chemical landmark due to what occurred on December 7, 1905, in its gas analysis lab.

On that day, Cady and student David E.

McFarland discovered the first evidence of helium in natural gas. The sample brought from Dexter was nearly 2 percent helium, an element previously only detected on the sun and found once in a trace amount in a piece of cleveite, a mineral rock.

"It assures the fact that helium is no longer a rare element but a very common element," Cady wrote, "existing in goodly quantities for the uses that are yet to be found for it."

Uses were found. A plant near Dexter supplied the U. S. Navy with helium for the blimps that were used

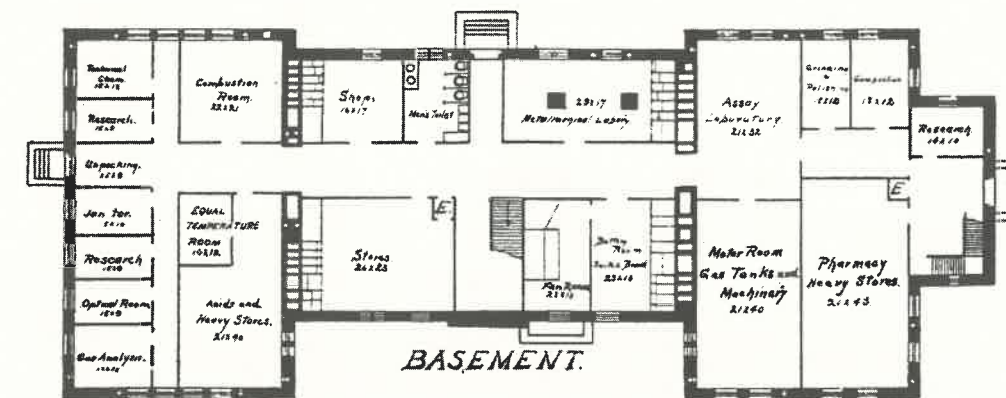


Hamilton P. Cady in his Bailey Hall Laboratory

The lab used by Cady is no longer there as Bailey Hall has been remodeled. The space is now an office used by George J. Crawford, associate professor of teaching and leadership.—This article appeared in the *OREAD*, Vol. 23, No. 8, December 11, 1998, and was written by Todd Cohen.

So how did Cady do it?

So next to hydrogen, helium is the second most abundant element in the universe. On earth, it is primarily found within natural gas. While natural gas is the result of decaying organic materials, helium comes from decaying radioactive minerals deep within the earth.

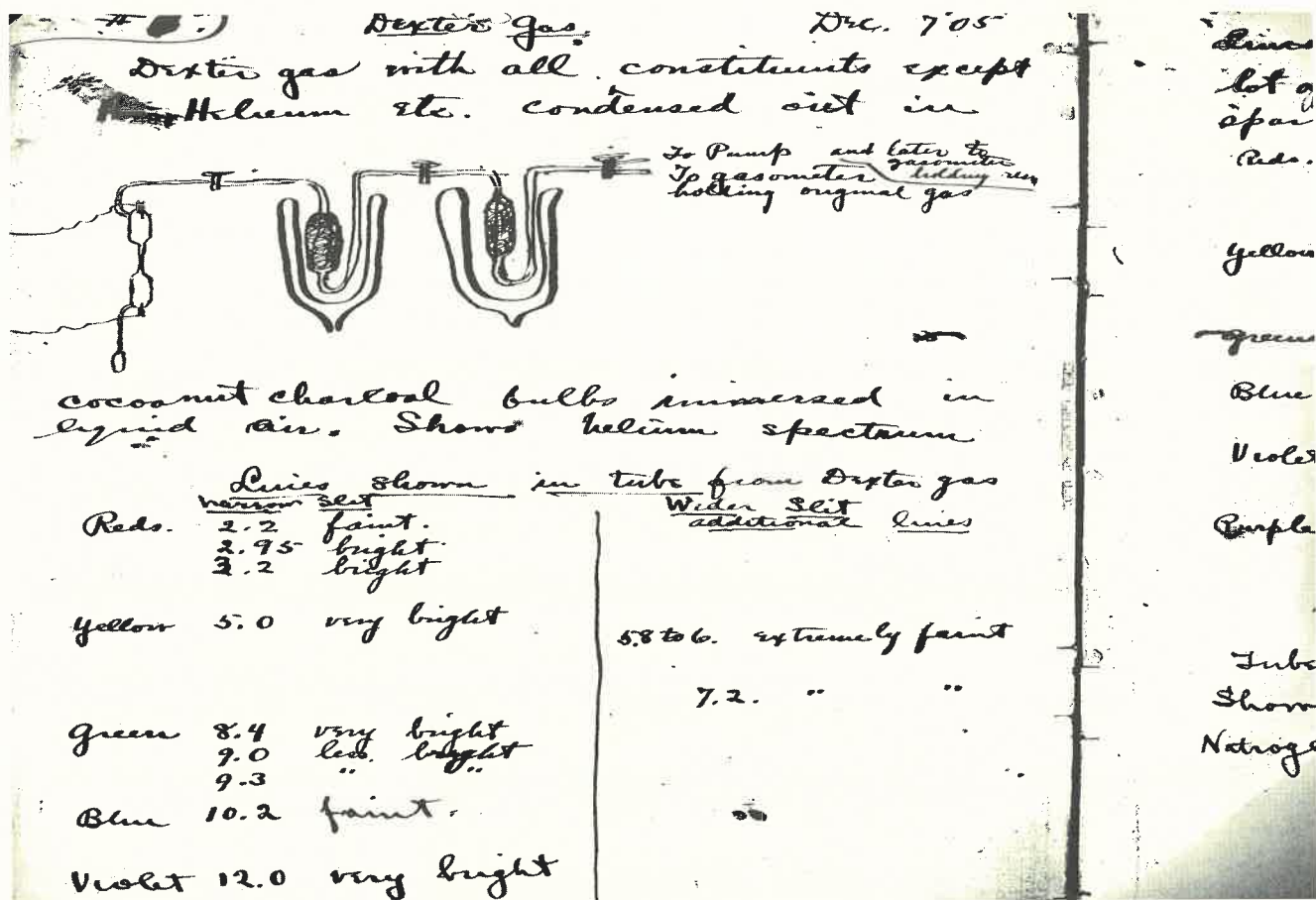


Floor plan of the basement of Bailey Hall
Cady's Gas Analyzer Laboratory was the bottom left hand corner

to detect German submarines during World War II. Helium became essential to the operation of nuclear reactors and ballistic missiles. It provides an inert atmosphere for chemical laboratories, welding and undersea diving. And it is vital for the magnetic resonance imaging (MRI) done in hospitals.

Thanks to research done by Grover W. Everett, Jr., professor emeritus of chemistry, the site of the discovery will now be marked. The American Chemical Society will provide KU with a 24-inch-by-16-inch bronze plaque.

Cady's lab book, containing his notes and sketches of the vacuum line used in discovering the helium, will likely be displayed. The chemistry department also has a sealed glass bulb believed to have once contained a sample of helium found in the Dexter gas.



Section of Cady's laboratory notebook

The type of gas can be identified by exciting it with a spark, then viewing it through a spectroscope and measuring the wavelengths of the light emitted. Each kind of gas can be identified by its distinct pattern of wavelengths. It was through this method that astronomers first detected a then-unknown kind of gas on the sun in 1868. Hamilton Cady used the same method to identify helium in the Dexter gas sample in 1905. He extracted the helium from the natural gas by using an air compressor and liquefier that KU had acquired in 1903. The machine, the only one west of the Mississippi River then, was key to Cady's discovery.

Air, when placed under heavy pressure and cooled, will condense and become a supercool liquid, around minus 300 degrees Fahrenheit. Cady used liquid air to cool a piece of charcoal. The charcoal absorbed all other components in the natural gas except for helium, which has the lowest boiling point of any known substance at -452 degrees Fahrenheit. While the other gases condensed or froze, the helium remained a gas. It could then be separated and analyzed.

"Cady's lab notebook details his historic work," said Grover W. Everett, Jr., professor emeritus of chemistry. "Cady had the peculiar habit of using used lab notebooks. So the front part of the book was very often

used by someone else," Everett said. "Cady would start from the back and work forward."—*This article appeared in the OREAD, Vol. 23, No. 8, December 11, 1998, by Todd Cohen.*

Named lectures

The Arthur William Davidson Lecture. Paul Barbara, Richard J. V. Johnson Welch professor of chemistry, University of Texas—Austin, *Single-Molecule Spectroscopy of Conjugated Polymers.*

Fiftieth Annual Frank Burnett Dains Memorial Lecture. Clayton H. Heathcock, University of California—Berkeley, *Toward an Efficient Total Synthesis of Spongistatin 1 (Altohyrin A); A Marine Polyketide with Unprecedented Cytotoxicity.*

Eleventh Ray W. Brewster Memorial Lecture. Joan Selverstone Valentine, University of California—Los Angeles, *Copper, Superoxide Dismutase, and ALS (Lou Gehrig's Disease).*

Thirty-fourth annual Henry Werner Lecture. James W. Jorgenson, Francis P. Venable professor of chemistry, University of North Carolina—Chapel Hill, *Exploring the Limits of Resolution in Liquid Chromatography and Capillary Electrophoresis.*

Our first woman of chemistry, Mary Elvira Weeks: A history of our historian

The discovery of the more than 100 chemical elements evokes images of scientists engaged, through the ages, in a complex dance of detection. One legacy of their efforts is a tangle of historic tales—human tales of breakthroughs and defeats—scattered around the globe in ancient chemical journals, time-worn correspondence and old discarded textbooks.

Following this complex trail first began as a hobby sparked while she was visiting Thurnau's class in Faust here at KU. The work required extensive correspondence, tedious reading, and painstaking compilation of information. Eventually the hobby became one of the most read chemistry books in the world and certainly one of the most read publications by a KU faculty member entitled *Discovery of the Elements*. It was said to be the first connected narrative of how scientists unraveled the mysteries of matter. The author was Mary Elvira Weeks our first female chemistry Ph.D. and our first female faculty member.



Chemistry Staff, March 1944
Front row only: Brewster, WEEKS, Dains, Taft, Davidson, Stratton

Miss Weeks' book was first published in serial form by the *Journal of Chemical Education*. Because of the heavy demand for reprints, the articles were published in book form in 1933. The book was eventually published in a number of other languages, with Miss Weeks, who could read German, French, Italian, Spanish, Swedish, Russian and Japanese, among others, involved in translation. By 1968, the seventh edition of the book—which

chronicled the discovery of 94 elements between 1524 and 1964—had been published.—cbray@ukans.edu

The full article was too long for publication in this newsletter. You can find it on our web at:

<http://www.chem.ukans.edu>

Just select the "Press Releases" link on the "Table of Contents."

It's a great story!



Easter Exhibit 1943
Round Corner Drugstore window, 8th & Massachusetts Streets

Fun an integral part of the chemistry carnival

Children had a chance to get their hands dirty and learn a little about chemistry at the fifth annual carnival.

It was goeey, it was messy and it was all science.

The fifth annual Carnival of Chemistry on Sunday (November 1) in Malott Hall on the Kansas University campus entertained and informed hundreds of children. Children and parents walked through more than 20 displays and hands-on experiments, designed to be fun and informative.

In the Magic Color Change Marker Chromatography room, Brandon Mailed, 9, carefully read the provided instructions.

He watched the marker's ink change color in a solution—and then tried one out himself. He sketched a "secret message" on paper with the reacting marker, then colored over it with a black marker to show an orange profile of a Jayhawk.

That was fun, he said, but the best part of the carnival was making slime, "with a little help."

"We took solution and put in another solution and it got goeey," he said, showing off his ball of green gunk. He colored the slime with markers. His

KU chapter of the American Chemical Society receives national award

The KU chapter of the American Chemical Society (ACS) received the society's 1998 Phoenix Award for Best Chemical Demonstration Show. The show was part of KU's fifth annual Carnival of Chemistry last fall, which celebrated National Chemistry Week.

The KU ACS chapter and the local chapter of Alpha Chi Sigma, the national chemistry fraternity, put on the show to help communicate the value of chemistry to local K-12 schools. The theme was "The Wizard of Oz."

Paul Hanson, assistant professor of chemistry, accepted the award for the chapter at the fall ACS national meeting in New Orleans. **Daryle H. Busch**, KU's Roy A. Roberts distinguished professor of chemistry and ACS president-elect, presented the award.

The KU chapter was once again one of five finalists for a Phoenix Award for the carnival in the category Best Chemistry Week Open House. Twice before the section won this award—1994 and 1996. More than 100 students from KU and area high schools donate their time to organize and present the event for 1,000 guests. Eight corporations and six university organization provide financial support.—

University Relations

sister, Brittany, 6, showed off her pink goo with sparkles.

It was the first year the two had come to the carnival, their mother, Michelle, said.

"We'll be back next year," she said.

Farther down the hall, children dug their hand down in Oobleck—two parts cornstarch, one part water. They pounded on it and grabbed handfuls, watching it turn solid and crumble and then ooze away as a liquid.

"I've made this at home before," Alyssa Lorenz, 10, said. "It's funky."

She dug her hand in to show how the white liquid stuff reacted. It wasn't her first time at the carnival. She's come for several years, hitting her favorite displays—like the Oobleck and the slime.

"It's just fun," she said.

This year, the theme of the carnival was "The World of Color" and changing color. In one room, children worked on chemistry posters with color-changing markers, while in another they made weather flowers, which changed from blue to pink with humidity.

The carnival had 21 displays, shows, and experiments. A few, like Oobleck, had little to do with color, but were always big hits.

"We repeat the favorites," Kathy Heppert, the carnival's activity coordinator, said.

She said 100 volunteers, chemists, professors, graduate students and undergraduates helped plan and put on the event.

The experiments and activities are geared for



We get by with a little help from our friends.... Thanks for your support!

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Dr. Richard H.S. Wang
Duane E. Weisshaar
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Rosamond L. Wilen
Dr. Keith Wilner
Dr. Robert C. Williams
Dr. Arthur W. Williamson
Dr. Wayne C. Wolsey and Dr. Mary L. Morris Wolsey

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elementary students, but were fun for adults, too.

"We always sort of have an element where the parents can learn right along with the kids," Heppert said. "Everything that we do here is something that the kids could do in their own kitchen, which is a challenge."— *This article appeared in the Lawrence Journal-World, November 2, 1998.*

Undergraduates present research during symposium

Topics ranging from the effect of light on architecture to the smallest particles in the universe were discussed at KU's Second Annual Undergraduate Research Symposium in the Kansas Union.

Original musical works and sculptures were also presented during the day-long event.

Barbara Schowen, director of the university honors program is one of the developers of the symposium. "It was really exciting last year and I think everyone who attended had a really good time," she said.

The symposium began last year as a forum for undergraduate research. Schowen said that about 50 people presented their findings last year and that more than 60 presented their research this year.

Many of the participants in the program also were winners of undergraduate research awards, which help finance student's travel and other expenses while doing research.

The day's events were capped off by a dinner banquet.

Richard Schowen, professor of chemistry, gave a speech entitled "How to Breed Scientists in Captivity." Dr. Schowen said that the speech focused on maintaining intellectual freedom in the controlled world of the professional scientist.

"Modern science is so expensive and requires so many resources that it can really only be done in an institutional setting," he said.

Undergraduate symposium participants conducting research in the Chemistry Department and their research topics were:

Chad W. Belton (biochemistry) and **Thomas A. Klein** (chemistry), Synthesis of amino acid based components for the rapid assembly of complex phosphorus and sulfonamide compounds. **Paul R. Hanson**, advisor.

Kristopher R. Carlson (chemistry), Synthetic routes to novel organophosphorous compounds. **Paul R. Hanson**, advisor.

Gregory A. Cooksey (electrical engineering), Toward the simultaneous collection of topographic, fluorescence, and current measurements on living nerve cells. **Robert C. Dunn**, advisor.

Christine A. Dillon (chemistry), Aptamers as potential bioanalytical recognition elements. **George S.**

Wilson, advisor.

Ware H. Flora (chemistry), Development of fiber optic chemical sensor for near-field scanning optical microscopy. **Robert C. Dunn**, advisor.

Stephen Hilton (exchange student from Leicester, England), Ring closing metathesis reactions en route to complex sulfonamides. **Paul R. Hanson**, advisor.

Tony Khalifah (chemistry), Drug-resistant mutants of topoisomerase II have decreased ATPase activity. **Tao-Shih Hsieh**, Biochemistry, Department Duke University Medical Center, advisor.

Faculty Briefs

Fourth annual congressional visits day

Over 250 science and business leaders participated in Congressional Visits Day on 22 April 1999. This event was remarkable for bringing together a wide range of scientific disciplines and a host of technical industries to convey to Members of Congress the core message that "federal support for research and development is essential."

The full day of visits underscored the vital connections between federally funded science and technology, and partnerships between government, universities and industries.

More than 50 percent of all industrial innovation and growth in the United States since World War II can be attributed to advances pioneered through scientific research, with publicly funded science the vital foundation of society's scientific and technological progress. Achievements from federally funded science and technology include global environmental monitoring, lasers, liquid crystal displays and the Internet.

Kansas representatives in attendance were KU chemistry professors **Kristin Bowman-James** and **Daryle Busch**. Kristin attended as a member of the Governing Board of the Council of Chemical Research (CCR) and Daryle as the President-elect of the American Chemical Society.

Adams honored

On the occasion of his 75th birthday, the editorial board and publisher of the journal *Electroanalysis* dedicated an issue to **Ralph N. Adams**, KU professor emeritus of chemistry. The issue is comprised entirely of invited contributions from former students, associates and friends, in honor of his outstanding contributions to the field of electroanalysis (see *Electroanalysis* 1999, 11, No. 5).

Buzz was again honored by a plenary symposium at the 8th International Conference on *in vivo*



Everett retirement celebration

On the weekend of May 28-29, eight of **Grover Everett's** former graduate students returned for a reunion and celebration of Grover's retirement. The alums came from as far west as Los Angeles, and as far east as Rochester, New York, as far north as Ann Arbor, Michigan, and as far south as Houston. As graduate students, they spanned the years 1965 through 1984. The affair was planned and organized by Ann Cartwright. Attendees were Carol Powers (Ph.D., 1969), Sonja Davison (M.S. 1970), Ann Cartwright (Ph.D., 1972), Dick King (Ph.D., 1972), Dick Horn (Ph.D., 1973), Jean Lee (Ph.D., 1981), Dorothy Hanna (Ph.D., 1983), and J. J. Shaw (Ph.D., 1984). Others who could not attend wrote letters of congratulations to Grover.

The group toured the chemistry building and KU campus, then took Grover and Carolyn to dinner at Pachamamas on Friday night. Dinner was followed by a late evening of shared photographs and memories at the Everett's home. Grover showed a home-movie created by members of his research group in the early 1970s and brought out gifts presented to him by the group at several annual departmental Christmas parties. Those who were able to stay through Saturday took an extended tour of Lawrence and were hosted by Carol and Larry Powers for lunch at the Paradise Cafe.

Several of the returning alums commented on how blue the sky is in Kansas and how Malott Hall still has the same smell! Major changes they discovered on the KU campus include the pharmacy addition to Malott Hall, Anschutz Science Library and Budig Hall. Most had not seen Lawrence's twin river bridges, new city hall, and Clinton Parkway, dam and lake.

A good time was had by all, new acquaintances were made, e-mail addresses were exchanged and many invitations to visit one another were made.

Photo caption

Returning graduate students with their mentor (left to right): Dick King, J. J. Shaw, Sonja Davidson, Ann Cartwright, Jean Lee, Dick Horn, Dorothy Hanna, and Grover Everett.

Methods, *Monitoring Molecules in Neuroscience*. "Festschrift in Honor of Dr. Ralph Adams" was presented by his former students. The conference was held June 19-23, 1999, in Stony Brook, New York.

A lecture named in his honor is being planned in Prague in 2000.

Promotions

Congratulations to **Robert C. Dunn** and **David R. Benson**. The two were approved for promotion to Associate Professor beginning with the 1999-2000 academic year. **David VanderVelde**, director of the NMR Laboratory was promoted to Senior Scientist and Research Professor.

Symposium highlights KU organic chemist

Paul R. Hanson was one of ten young organic chemists highlighted for their research in synthetic organic chemistry in a special symposium at this year's ACS Meeting in New Orleans. See *The Future of Synthetic Organic Chemistry* in the September 13, 1999, issue of *C&EN*.

Courtesy appointments

The Chemistry Department welcomed two new courtesy professors this year—**Todd Williams**, director of KU's Mass Spectrometry Laboratory and **David VanderVelde**, director of KU's NMR Laboratory.

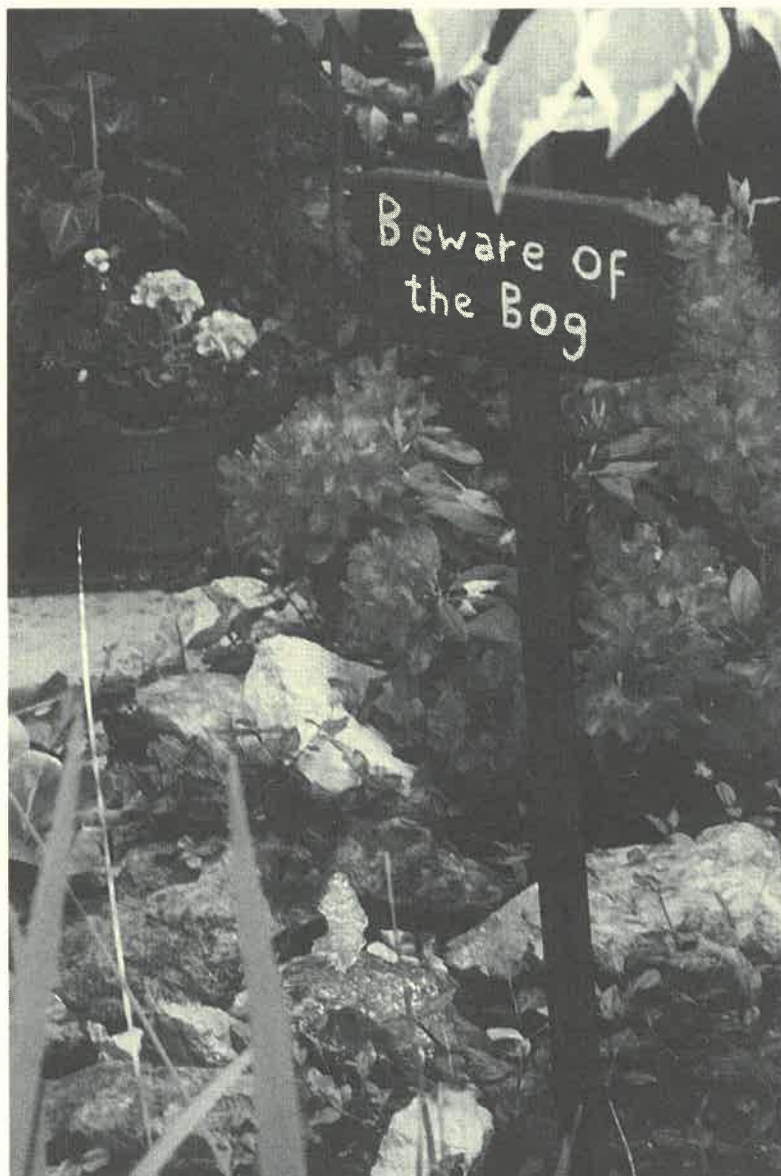
Teaching excellence honored

Last May, the Center for Teaching Excellence asked outstanding graduate students in each department campus-wide to name one teacher who best exemplified outstanding teaching. Chemistry associate professor **Joseph A. Heppert** was one of the 58 faculty members so honored for his excellence in the classroom. The honorees were recognized at the second annual Teacher Appreciation Banquet held in the Kansas Union Ballroom. About 200 people attended.

From chemist to bog gardener?

To the casual observer, gardens may seem to be a place of beauty merely created by planting a handful of flowers and adding a few trees. Garden enthusiasts, though, tend to appreciate the hard work and planning that go into gardening. For it is the combination of flowers and trees around the contours of the land and the creative shape of the flower beds that give gardens their lasting beauty.

Jack Landgrebe meticulously approaches his gardening endeavors to bring out the best in his garden. He has monitored the sun's path across the garden space and studied the microclimates to place plants in areas most conducive to their survival. "I actually got a pad and paper," he explains. "I would come out here on the weekends about every two hours and make a map of where the sun was."



44th Chemistry Honors Reception 1998-1999

These awards are made possible through donations to the KU Endowment Association/Chemistry Department Funds. To our graduates and their 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 — *Ashley N. Albright, Beth N. Deterding, Holly L. Hydeman, Ikuko Lindsey, Colin A. Ruff*

Organic Chemistry — (Two-semester) *Amy M. Hubert, Laurell J. Matthews, Michelle L. Sippel, Abby E. Smith*

Analytical Chemistry — *Jaclyn L. Ganacias*

Physical Chemistry — (One-semester) *Ronald C. Chen* (Two-semester) *Lesley L. Liu*

The Owen W. Maloney Scholarship—*Nicole E. Grabow, Michael C. Martin*

The Reynold T. Iwamoto Award—*Meri E. Stoklosa*

The Fassnacht Scholarship—*Kristopher R. Carlson*

The Leonard V. Sorg Scholarship—*Olga Kuchment, Brittany L. Lee, Eric J. Roth, Sarah J. Wales*

The Clark E. Bricker Scholarship—*Karrigan S. Bork, Michael L. Lewis, Michelle L. Sippel, S. Kyle Zimmerman*

The Jacob Kleinberg Award—*Jeffrey A. Woo*

American Institute of Chemists Award—*Ware H. Flora*

Alpha Chi Sigma Award—Chemistry, *Catherine L. Cronin*, Chemical Engineering, *Larrisa J. Lee, Brian D. Milligan*

Graduate Student Awards

The Procter and Gamble Achievement Award—*Ryan M. Krisko*

The H. P. Cady Award—*Jeffrey N. Hemenway, Jeremy T. Koch, Matthew D. McReynolds, Damon M. Osbourn*

The Frank B. Dains Award—*Jeffrey N. Hemenway, Joel D. Moore*

The Ray Q. Brewster Award—*Marc R. Anderson*

The Paul and Helen Gilles Award in Physical Chemistry—*Xi Chu*

The Ernest and Marvel Griswold Award—*Susan L. Mason*

The Higuchi Doctoral Progress Award—*Ann M. Dixon*

The Reynold T. Iwamoto Award—*Karen M. Padden*

The Susan J. Snyder Award—*Tiffany S. Derrick, M. Annie Lee, Susan L. Mason*

The J. K. Lee Award—*Christopher W. Hollars*

Cornelius Armstrong and Martha Kidwell McCollum Summer Research Fellowship—*Jess B. Sturgeon, Stanislav Svojanovsky, Chad E. Talley*

Graduate Degrees Granted

June 30, 1998, May 30, 1999

Doctorate

Sandra R. Barnes

Mentor: G. Wilson

Dissertation: Biocompatibility Studies on a Glucose Biosensor: Investigation of the *In Vivo* Sensitivity Loss Phenomenon. Sandra is a postdoc with John Stobaugh, KU Pharmaceutical Chemistry.

Brian Coleman

Mentor: T. Kuwana

Dissertation: Electrochemical Characterization on Phenazine Ethosulfate Partitioning into Polymer Film Electrodes.

Greg Harms (honors)

Mentor: C. Johnson

Dissertation: Orientational and Rotational Motions of Bacteriorhodopsin and Tyrosyl Peptides and Proteins by Time-Resolved Absorption and Emission Anisotropy and Terrylene Single Molecular. Fluorescence Lifetimes in Solids at Room and Cryogenic Temperatures. Greg returned to ETH in Switzerland to a postdoctoral position with Urs Wild.

Danette K. Hansen

Mentor: S. Lunte

Dissertation: Analytical Methods for the Investigation of the Transport of Synthetic and Natural Glycine Site NMDA Receptor Antagonists Across the Blood-Brain Barrier. Danette is working at Eli Lilly in Indianapolis, Indiana.

Tina Huang

Mentor T. Kuwana

Dissertation: The Development of Microbial and Bioenzyme-based Biosensors for Environmental and Clinical Applications. Tina postdocs with Ted Kuwana.

Timothy Hubin

Mentor: D. Busch

Dissertation: Transition Metal Complexes of Cross-Bridged Tetraazamacrocycles. Tim is a postdoc at CALTECH.

Dimuthu Jayawickrama

Mentor: C. Larive

Dissertation: Examination of Molecular Association Using NMR Spectroscopy. Dimuthu returned to a faculty position in Sri Lanka.

Shawn Mansfield

Mentor: C. Larive

Dissertation: The Analysis of Peptide Aggregation Using Multiple Analytical Methodologies. Shawn is working at Eli Lilly in Indianapolis, Indiana.

Sheila Rogers

Mentor: C. Larive

Dissertation: Development of NMR Methods for Peptide Analysis. Sheila is a postdoc with Russ Middaugh, KU Pharmaceutical Chemistry.

Yuan Song

Mentor: C. Lunte

Dissertation: Calibration of Microdialysis Sampling in Diverse Biological Systems. Song is a postdoc with Elizabeth Topp, KU Pharmaceutical Chemistry.

Xiao Zhou

Mentor: S. Lunte

Dissertation: Determination of Neuro Active Substances in Dopamine-Depleted Rat Brain Following Fixed Ratio Discrimination Training.

Masters

Nalin Hathrushinghe

Mentor: C. Larive

Thesis: Analytical Methods for the Study of Peptide Aggregation. Nalin is looking for work in the U. S.

Deborah A. Pierson

Mentor: P. Hanson

Thesis: Sequential Sigmatropic Rearrangements Towards the Synthesis of the 1,4-Diol Subunit. Deborah is working for du Pont Pharmaceuticals in Wilmington, Delaware.

Other Awards

Departmental Honors—Catherine Cronin, Ware Flora, Anthony Khalifah

Undergraduate Research Awards—Catherine Cronin, Thomas Klein, John Nguyen, Michelle Sippel, Mei Yau

ACS Local Section Outstanding Chemistry Senior—Catherine Cronin

Whitaker Foundation Scholarship—Greg Cooksey

Madison and Lila Self Fellowship—Allyson Tubaugh Charbonnet

1999 MERCK Summer Undergraduate Fellowship—Christine Dillon, Ware Flora, Erika E. Sell

Iota Sigma Pi—Undergraduate initiates: Jessica Barry, Catherine Cronin, Tina Kim, Meri Stoklosa, Jamie Zoloty;

Graduate initiates: Allyson Tubaugh Charbonnet, Michelle Kennedy, Annie Lee, Cora MacBeth, Karen Padden, Jenny

Razak; Postdoctoral initiates: Tina Huang

Sigma Xi Associate Membership—Catherine Cronin, Ware H. Flora, Anthony Khalifah

Phi Beta Kappa—Jaclyn Ganacias, Anthony Khalifah, John Simmons

The Class of 1999

This year the Chemistry Department graduated 33 undergraduate students—22 received bachelor of arts degrees and 11 received bachelor of science degrees, with several receiving recognition for their academic accomplishments. Two students graduated with highest distinction, six with distinction. The group included one Elisabeth M. Watkins Berger Scholar, three Endowment Merit Scholars, two Solon E. Summerfield Scholars, five University Honors Program participants, and one University Scholar.

The entire garden seems perfectly matched to its sun requirements and microclimates and a visit to the back garden cannot be hurried. Guests need a few minutes to take in the spectacular view upon entering. Curved walkways made of smooth stones meander around hundreds of shade loving plants, a bog garden, and end at a small pond. Hanging aquatic planters en-



hance the water garden. The flower beds are bordered by rocks. Benches and garden chairs invite short rests. Flowers growing in several containers throughout the garden bring splashes of color in the cool shade. An arch and a small curved bridge add unique interest to the garden.

A nine by seven foot pond surrounded by rocks occupies the sunniest part of the garden. Jack undertook the task of creating the pond by himself. "I like the idea of doing everything myself," he states. "All 3,000 pounds of stones were carried by a little red wagon into the backyard. I figured I picked each one of those stones up about 6 times before it ended up in its final location." He quickly adds, "I don't even own a wheelbarrow. My favorite gardening tool is that little red wagon."

Though the Landgrebes have lived on Highland Drive for 35 years, Jack seriously took up gardening only four years ago. "It was something that just hit

me as being a challenge, would get me outdoors and it was a lot of fun," he said. "I found it was very rewarding when things went right even though it was a little discouraging when things didn't go right."

Jack readily acknowledges, "I gained a great appreciation for how difficult it is to really maintain a decent garden." The beauty of his garden is a testimony to his tireless effort.

Keeping Occupied

by Albert Burgstahler, professor emeritus

After I retired last year, my life became busier than ever. In August 1998, I presented a paper at the 22nd Conference in International Society of Fluoride Research in Bellingham, Washington. There I was also elected editor of the society's quarterly scientific journal, Fluoride, now in its 32nd year, to succeed the ailing Dr. John Colquhoun of Auckland, New Zealand. Dr. Colquhoun was the former Principal Dental Officer of Auckland who, as a result of a four-month world study tour in 1980 and after further research in New Zealand, switched from being an ardent advocate of water fluoridation to a deeply concerned opponent. In 1992 he became the editor of Fluoride and quickly brought higher quality and prestige to it. Since many of the papers are contributed by authors in countries where English is not the primary language, those editing responsibilities are often very difficult and time-consuming. Early this year Dr. Colquhoun learned that he was terminally ill with inoperable cancer, and he lived only until March 23rd. His last research paper, "Why I Changed my Mind About Water Fluoridation," appeared in the Autumn 1997 issue of Perspectives in Biology and Medicine published by the University of Chicago Press. The task of following in his giant footsteps is very challenging.

As if learning how to edit a journal after retirement were not enough, the Shakespeare authorship research I began about a year and a half ago has turned out, to my surprise and satisfaction, to be exciting and fruitful. In short, I have found a great deal of strong new evidence in support of the now more widely discussed view (see Harper's Magazine, April 1999) that the true author of the "Shakespeare" plays and poems commonly attributed to William Shakespeare of Stratford-on-Avon (1564-1616) was actually a distinguished noble: the poet-dramatist, Edward de Vere, 17th Earl of Oxford (1550-1604). Enough has already been discovered in this research that I am presenting a detailed report, "Explicit Internal Evidence for Shakespeare's Oxford Authorship," at the 11-14 November 1999 conference of the Shakespeare Oxford Society in Newton, Massachusetts.

The results have confirmed and greatly expanded a neglected discovery reported over 30 years ago by R. L. Tweedale (1904-1973) that nonrandom

diagonal alignments of the letters v e r e (or five phonetic or spelling equivalents for them) of the de Vere family name occur in the original printings of the poems and plays of Shakespeare. The resulting linear "acrostics," spanning four lines of print, reading up or down, intersect to form identifying sequential block letters E O, E OX, E OF O, E OF OX, or E OF OXFORD, depending on the length of the poem or passage. In this way, beginning when he was still very young, Lord Oxford brilliantly embedded and preserved his name, Edward Oxenford or Earl of Oxford; for posterity in much of what he wrote for publication.

Careful examination of facsimile editions of important Elizabethan poetical miscellanies printed between 1573 and 1603 reveals that well over a hundred high-quality poems of previously uncertain authorship have this identifying characteristic, in contrast to its absence in poems in these collections known to be by other authors. As a result, a large body of Lord Oxford's poetry—noteworthy for its excellence, although published anonymously or under various pen names, including the name "William Shakespeare"—has now been identified. At the same time, in their commendatory tributes to "Shakespeare," literary contemporaries, including Ben Jonson, Leonard Digges, and others, used the same encoding technique of E O, E OX, etc., to indicate their recognition of who "Shakespeare" really was.

Especially noteworthy about these findings is that they directly refute and overcome two major objections that have long stood in the way of accepting Shakespeare's Oxford Authorship, namely: (1) the supposed lack of a substantial body of now-identified high-quality poetry by Lord Oxford; (2) the supposed failure of his literary contemporaries to recognize that "William Shakespeare" was actually a pen name of Lord Oxford.

Somewhat afield from chemistry to be sure, this research has been like exploring a richly-laden gold mine—always something new and exciting to be found in every direction. How could the Elizabethans have been so clever? And why was the true identity of Shakespeare kept hidden, even after Lord Oxford's death? These are questions that have already been explored in part by others, even though such an important "key" to answering them more fully remained undiscovered for over 300 years since its last known use in the year 1640!

Advanced degree recipient survey results

Over the summer the Department asked 135 advanced degree recipients between 1989 and 1999—45 master's and 92 doctorate—to complete a degree satisfaction survey as part of our continuing strategic planning efforts. We are grateful to those who took the time to respond and we appreciate your thoughtful input.

In total 38 alums responded to the survey, which is a 29 percent return. This is a typical response rate for a one-time, direct mail survey with no follow-up reminder.

Questions for the survey were selected from a larger national survey of chemistry Ph.D. recipients recently administered by the American Chemical Society Committee on Professional Training. These questions allowed comparison of Department averages with a national norm.

Questions covered such topics as overall satisfaction with degree, satisfaction with various program components (*i.e.*, presentations, cumulative exams, instrument facilities, library), and satisfaction with interpersonal interactions with mentors and groups, both inside and outside of the Department.

Overall, the national norm was 2.03 on a scale of 1-5, with 1 excellent and 5 poor. Our score was 2.04 which indicates a favorable impression of the program. We scored better than the national average on the questions relating to presentations, teamwork, standards/knowledge imparted by mentor, and library facilities.

We were pleased with the outcome. Some of you will be happy to know that cumulative exams are being given closer scrutiny.

Thanks again for your help!

Alumni News

KU Chemistry Camille and Henry Dreyfus Foundation Teacher-Scholars

This year the Dreyfus Foundation published *A Retrospective of Dreyfus Teacher-Scholars, 1970-1996: Leaders in the Chemical Sciences* and we were pleased to note that four KU Chemistry alums were listed among the distinguished award recipients. Their names and summaries of their achievements are excerpted below.

John S. Swenton, 1971, is an organic chemist who has conducted research in the areas of organic photochemistry, organic electrochemistry, synthetic methods development, and natural product synthesis. His research has largely been directed at understanding the mechanisms of photochemical and electrochemical reactions.

A professor emeritus of chemistry at The Ohio State University, Swenton has been a leader in the synthetic application of electrochemical prepared protected quinine, quinol, quinone imine and quinol imine derivatives in organic synthesis. The most important synthetic accomplishment was the use of quinone monoketals in the synthesis of daunomycinone and related quinone natural products.

Swenton has been an Alfred P. Sloan Research Fellow (1971) and received both the Ashland Oil Company Recognition Award (1976) and the American Chemical Society Akron Section Award (1985).

Born December 8, 1940, in Kansas City, Kansas, Swenton received his B.A. (1962) from the University of Kansas and Ph.D. (1965) from the University of Wisconsin and was a postdoctoral fellow (1966) at Harvard University.

William H. Breckenridge, 1973, is an experimental physical chemist who has pioneered the laser "pump-probe" method of characterizing state-to-state collisional dynamics of energy transfer collisions and chemical reactions of electronically excited atoms in the gas phase. He has also developed "half-collision" methods by which the excited atom is laser-created within a jet-cooled van der Waals complex of the atom and the species of interest.

Breckenridge recently published several articles and reviews on bonding and spin-orbit coupling in atoms-rare gas van der Waals complexes.

A professor of chemistry at the University of Utah, Breckenridge has been the recipient of several teaching awards including the Chemistry Students Advisory Committee Teaching Award (1974, 1984), the Robert W. Parry Teaching Award in Chemistry (1990), the University of Utah Distinguished Teaching Award (1992), the University of Utah Presidential Teaching Scholar Award (1994).

Other honors include a National Science Foundation Faculty Development Award (1977), a Senior Fulbright Fellowship (1984), and a Guggenheim Fellowship (1985).

Born October 14, 1941, in Louisburg, Kansas, Breckenridge received his B.S. (1963) from the University of Kansas and Ph.D. (1968) from Stanford University.

John R. Shapley, 1978, is a synthetic inorganic chemist who has developed pioneering approaches for the synthesis and characterization of organometallic cluster compounds.

Shapley synthesized the first set of cluster compounds that effectively model the chemisorption of methane on a metal surface and successfully applied nuclear magnetic resonance techniques, including the novel use of equilibrium isotope effects, to characterize the solution structures and dynamics of the compounds. His work has stimulated improved understanding of hydrocarbon reactions on metal surfaces.

Shapley is a professor of chemistry at the University of Illinois at Urbana-Champaign, where he has received an Award for Excellence in Teaching from the School of Chemical Sciences (1977). He has also received an Alfred P. Sloan Research Fellowship (1978), the Fresenius Award of Phi Lambda Upsilon (1980) and an Alexander von Humboldt Foundation Research Award (1990).

Born April 15, 1946, in Manhattan, Kansas, Shapley received his B.S. (1967) from the University of Kansas and Ph.D. (1972) from Harvard University and was a postdoctoral fellow (1971-72) at Stanford University.

Gregory A. Voth, 1994, is a theoretical physical chemist who has developed powerful and computationally efficient theoretical methods to study quantum dynamical phenomena in condensed matter systems.

Voth developed novel Feynman path-integral approaches to describe quantum vibrational, effusive, charge transfer, and activated dynamics in liquids and solids, on surfaces and across interfaces and in biomolecules. His work has had a particularly significant impact in the fields of proton and electron transfer kinetics in chemistry.

A professor of chemistry at The University of Utah, Voth has received a Camille and Henry Dreyfus New Faculty Award (1989), a David and Lucille Packard Fellowship for Science and Engineering (1990), an Eli Lilly Foundation Faculty Teaching Fellowship (1990), a National Science Foundation Presidential Young Investigator Award (1991), and an Alfred P. Sloan Research Fellowship (1992).

Born January 22, 1959, in Topeka, Kansas, Voth received his B.S. (1981) from the University of Kansas and Ph.D. (1987) from the California Institute of Technology, and was a postdoctoral fellow (1989) at the University of California, Berkeley.

Rebecca (Becky) Lilleston Aistrup (B.A. 1977) previously worked as director and vice president of marketing for firms in immunodiagnosics, implantable medical devices and biotechnology until 1993 when she founded her own consulting firm. Aistrup Associates works with high-technology companies nationwide to analyze their markets and competition using market research; develop strategic marketing plans; and communicate with their markets with innovative marketing communication materials and programs. The company employs two full-time consultants. She lives in St. Paul, Minnesota with husband Mike and two children.

Norman S. Behn (Ph.D. 1968) became the President of the Society of Plastics Engineers (1998-1999) at the SPE's Annual Technical Conference (ANTEC) held in Atlanta Georgia (see [Plastics Engineering](#), July 1998).

Dieter Bergner (Postdoc) has retired from Hoechst, a company that has removed itself from the chlorine business. He and his wife Helga attended the wedding in Dallas of their daughter Monica, who was born in Lawrence. The husband is an American, Mark Swanson. They say that they will miss her, but they are blessed with another daughter who is in Germany.

Dale L. Boger (B.S. 1975) received the 1999 American Chemistry Society Award for Creative Work in Synthetic Organic Chemistry, sponsored by Aldrich Chemical Co., Inc. His award address was entitled *Natural products and nature's lessons*.

Boger, an organic and medicinal chemist at the Scripps Research Institute in La Jolla, California, modifies the structure of existing drugs and studies how that affects the drug's action.

Boger's work was highlighted in the January 4, 1999, issue of [C&EN](#)

Born to James and **Jane Anderson Bush (B.A. 1987)** daughter, Lauren Elizabeth, June 26, 1998, in Overland Park, where she joins brother, Joseph, 3. Jim is a commercial real estate developer, and Jane teaches science in Olathe.

K. Douglas Carlson (Ph.D. 1960) has retired from Argonne National Laboratory and has moved to Wooster, Ohio. He still maintains contact with ANL. He reports that he walks four to six miles per day.

E. David Cater (Ph.D. 1960) has retired from the University of Iowa. He continues to serve as a consultant on several science exam panels at ACT. He reports that such activity is full of arguments and negotiations. He and Jean 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.

Bruce R. Conrad (Postdoc) is vice-president of International Nickel near Toronto, with worldwide responsibility for environmental and health sciences. He has traveled extensively internationally. Audrey was able

to join him for eight days in Japan. In his spare time he has been trying to compose orchestral music on a computer-based sound system.

Larry Cordell (B.A. 1963, M.D. 1967) serves on the board of the American Academy of Orthopaedic Surgeons. He practices at the Kansas City Bone and Joint Clinic and is a staff member at Research Medical Center.

Binodh DeSilva (Ph.D. 1994) continues as a senior scientist at P&G Pharmaceuticals in Norwich, New York.

J. G. Edwards (Postdoc) has been chairman of the Department of Chemistry at the University of Toledo, Ohio, on two occasions, and is nearing retirement. He maintains the web site for the Midwest High Temperature and Solid State Chemistry Conference. He presented a paper at the Gordon Research Conference on High Temperature Chemistry.

Harold A. Eick (Postdoc) is retiring from Michigan State, and he and his wife Sally hope to spend more time in their cottage near Traverse City, Michigan. They will have grandchildren close.

Edward B. Feehan (B.A. 1959, M.D. 1963) is practicing as a self-employed pediatrician in Merced, California. He testified in Congress in 1997 about rural health clinics. His article "The Challenge to Increase Medical Reimbursement and Comparison of State's Rates" was published by the American Academy of Pediatrics, California Chapter 1.

H. F. (Fritz) Franzen (Ph.D. 1962) is in phased partial retirement at Iowa State and Ames Laboratory. He continues research and teaching. They enjoy sailing on Lake Superior, sometimes with children and grandchildren, sometimes with friends. Last year they sailed all the way through the Great Lakes, taking different crews for different legs in their new boat. This year they hope to make the return trip. He is helping with the Midwest High Temperature and Solid State Chemistry Conference at Ames.

Michael Garoutte (Ph.D. 1995) is starting his second year of teaching general, organic and biochemistry at Missouri Southern State College. He previously spent a year at Mercer University in Macon, Georgia, and a year at the University of Central Oklahoma in Edmond. He is also chair-elect and U. S. National Chemistry Olympiad Coordinator for the local ACS Section, the MO-KAN-OK Section.

Donald Genson (Ph.D. 1972) is back in academe after a 20+ year career with Dow Chemical in a variety of locations and positions. Since 1994 he has been in the Dean's Office of the College of Science at the University Park campus of Penn State. Among other tasks, he directs an accelerated program for students that want to combine an undergraduate degree in science with a graduate degree in business. He also lectures in professional development courses for chemistry and chemical engineering majors as well as in spe-

Rural Kansas Physician Garners National Award

In May, **Richard Ohmart, M.D. (B.A. 1958)** brought home a national award presented at the 22nd Annual Conference of the National Rural Health Association (NRHA).

Ohmart was honored as the organization's Rural Health Practitioner of the Year. For 36 years, Ohmart has lived and practiced family medicine in Oakley, a rural town of 2,100 people in northwest Kansas. For nearly 20 of his practice years, he has been the only doctor in town.

According to NRHA, "Dr. Ohmart was nominated by two different groups, a real tribute to his place in the community and in Kansas."

Along with his busy practice Ohmart has been a preceptor of KU School of Medicine students since 1963. He also precepts physician assistant students from Wichita State University and serves as the medical education director of the School of Medicine's Northwest Kansas Medical Education site in Hays.

In addition to his profession dedication, Ohmart is active in his community and loves photography and writing. The walls of his office and the hospital are decorated with his photos of babies he has delivered as well as award-winning pictures of Oakley high school events, wildflowers, landscapes and longhorn cattle. *Excerpts from an article in Kansas Connections, Vol 7, No 1, Summer 1999.*

cialized seminars for the science BS/MBA program.

Paul Gilles (B.A. 1943), KU distinguished professor of Chemistry, was cited at the American Association of University Professors in Washington for his 50-year membership in the AAUP.

Neil Gray (Postdoc) is currently on the faculty at the University of Texas at Tyler. UT Tyler is a small undergraduate university. He is an organic/polymer chemist with an active undergraduate research group in polymers and coatings.

Norman E. Griswold (B.A. 1957) has retired as Professor of Chemistry at Nebraska Wesleyan University in Lincoln, Nebraska, where he taught for 35 years. He was chemistry chair for ten years and the natural science division chair for three years. He published eight editions of a study guide for a major general chemistry text and over a dozen modules on lab techniques. He and his wife Ruth now live on an acre about a dozen miles west of Lincoln. Norman is the oldest son of the late Ernest Griswold, a KU chemistry faculty member.

Charles M. Groginsky (Ph.D. 1970) continues at Gambro Healthcare in Lakewood, Colorado, as Lab Group Manager.

Peter J. Hampson (Postdoc) has finished a curriculum in secondary science teaching at the University of East Anglia. A teaching job was not available, and he took an administration position at Cambridge Regional College where emphasis is placed on helping under-represented groups get an education.

Peter Hart (B.A. 1987) has accepted a tenure-track faculty position in the department of biochemistry at the University of Texas, Health Science Center at San Antonio. Previously, he was a postdoc in the DOE Laboratory of Structural Biology and Molecular Medicine at UCLA with David Eisenberg. His research interests include using X-ray crystallography to find struc-

ture/function relationships of medically relevant proteins. He is currently looking at single site point mutations in copper zinc superoxide dismutase that are implicated in causing the inherited form of Lou Gehrig's disease (amyotrophic lateral sclerosis or ALS.)

Betty Austin Hensley (B.A. 1944) toured Germany and Austria earlier this year with the American Flute Orchestra. She lives in Wichita, Kansas.

David K. Hodgson, (B.A. 1971, M.D. 1974) has been a family physician and surgeon in Washington, Kansas, for 24 years. He lives with his wife Melody and their five children, including a 14-month-old boy.

Zhen-Wei Hwan (Visiting scientist 1981-1984) has helped to establish two new multinational companies, NetChem (synthesis crystals and optical products for the laser and optics industries—<http://www.net-chem.com>) and NetQem (synthetic intermediates for the pharmaceutical industries—<http://www.erols.com/netqem>).

Born to **Rex Keith (B.S. 1981, M.D. 1988)** and Kristine, three daughters, Erin Ruth, Ainsley Ann and Lauren Elizabeth; and a son Jaden Christopher, June 16, 1998. The babies' weights ranged from 1 pound-15 ounces to 2 pounds-5 ounces. Rex is associate director of the Via Christi family practice residency program in Wichita, Kansas.

Richard M. Kellogg (Ph.D. 1965) continues as a professor at the University of Groningen, Netherlands.

Kevin Kelly (Ph.D. 1980) is a consulting chemist for ChemPlus in Columbia, Missouri.

Allen G. Kirk (Ph.D. 1966) retired in May after 32 years as a research scientist at E. I. du Pont in Wilmington, Delaware.

Paul Krieger (Ph.D. 1974) works as a research chemist with Reilly Industries in Indianapolis.

Carl Kruse (M.S. 1952) retired from the state

of Illinois/Illinois Geological Survey in 1994. He was science department head at MidAmerica Nazarene University (MNU) in Olathe, Kansas, from its opening in 1968 until 1978. In 1978, he returned to full-time research (coal science) at the Illinois State Geological Survey in Champaign, Illinois, where he remained until his retirement in 1994. Previous research (petrochemicals) was at Phillips Research Center in Bartlesville, Oklahoma, 1952-1968. Carl and his wife Marie returned to Olathe after his retirement, where he has engaged in consulting since 1996. Carl has maintained a foreign expert status in the People's Republic of China where he has taught coal science, English and technical writing at the Graduate School of the China University of Mining and Technology in Beijing. When not in China, he teaches a course in MNU.

William Kueper (Ph.D. 1995) was awarded the "3M Technical Circle of Excellence" award, recognizing outstanding technical accomplishment in 1998 for 3M, a \$15 billion company. Nomination for the award came from peers. The work in question involved a great deal of analytical work and an organic chemistry solution. The chemistry that he worked out will directly affect product sales on a large scale.

James M. Leitnaker (Ph.D. 1960) retired from Oak Ridge National Laboratory several years ago. He continues to be active in several community affairs.

Gordon Lewis (Postdoc) retired from Clemson where he served as chair of his department in the engineering school. He and his wife Helen recently enjoyed a cruise.

John L. Margrave (Ph.D. 1950), Butcher professor of chemistry at Rice University, and his wife Mary Lou continue to have special interests in Kansas. He maintains his active research program in diamond-like materials, CF_x materials, fluorination of carbon nanotubes and fullerene materials. He continues his magic shows for children of all ages and sometimes adults, and serves on several committees of the National Academy of Sciences and is also editor of *High Temperatures and Materials Sciences*.

Charles Martin (Ph.D. 1973) has accepted a position with W. L. Gore and Associates to help them develop fuel cell membranes and electrodes that will help power homes and cars in the future.

Dan Miller (B.A. 1990) is an environmental mi-

crobiology researcher with the U. S. Department of Agriculture. He and his wife live in Hasting, Nebraska, with their son Noah, 1.

Robert B. Miller (B.A. 1977) is a developmental chemist at Abbott Laboratories in North Chicago, Illinois. He is currently working in the process research and development center of peptide pharmaceutical third-party business (*i.e.*, custom pharmaceuticals). He lives with his wife Loan and their 13-month daughter, Holly.

Steven Meduna (M.S. 1997) recently joined R.W. Johnson Research Institute in San Diego.

Constructing a Learning Zone

When McPherson was chosen as the KU School of Medicine South Central Medical Education Network site in 1997, medical school representatives were impressed by the entire community's active role in health delivery systems. Now two-years later, the McPherson community is proving its long-term commitment to education brick-by-brick.

The construction of a 2,150 square foot medical education center at McPherson Memorial Hospital will be complete in late August. The new center, which broke ground in April, will house a medical library, accommodations for visiting students, medical education network office and state-of-the-art interactive televideo conference room.

Gregory Thomas, M.D. (B.A. 1969), co-director, KU South Central Medical Education Network, and local physician said, "The community support of this has been fantastic. We raised more than \$220,000 and we are still in process to raise a little more to completely fund it." Thomas said the new medical education center is a winning situation for all. "It's not only going to help the education process, it will help those of us who are practicing." *Excerpts from an article in Kansas Connections, Vol 7, No 1, Summer 1999.*

William Mertin (Postdoc) has indicated, for a number of reasons that chemistry at Justus-Liebig University in Giessen is declining. The number of students has fallen, and chemistry is to be merged with biology, and physics with mathematics.

Luis A. Morales (Ph.D. 1994) has been traveling frequently in connection with his work in oxide chemistry at the Los Alamos National Laboratory.

Douglas Neckers (Ph.D. 1963) was featured in the ACS publication *CHEMISTRY*, December 1998, which focused on the field of photochemistry. In 1985, Neckers founded the country's first academic center devoted to photochemistry at Bowling Green State University. The center does research and trains the next generation of photochemists, using an endowment from industrialist Harold McMaster and his wife, Helen, in a special fellowship program for Ph.D. students. The center also originated a quarterly photochemistry publication, *The Spectrum*, provided free to 7,000 scientists worldwide.

Resident Mixes Practice of Medicine with Piloting

When second-year resident **Jason Wittmer, M.D. (B.A. 1993)** arrives in town to provide *locum tenens* coverage for a rural physician in Sedan, he cruises in at 120 miles per hour. Luckily, he reserves these speeds for air-travel in his 1956 Piper Tri-Pacer airplane.

Flying is Wittmer's hobby, but it also saves him travel time. His trip from Kansas City to Sedan would have taken him four hours by car, rather than the hour and 30 minutes he made it in by plane. In that instance, it also allowed him to arrive sooner on a Friday evening and meet the hospital's need for him to take over coverage as early as possible.

"Pilots have to manage a lot of different pieces of information from different sources at the same time," said Wittmer. "That's largely what I do in the ER. I have to put all the pieces together to determine what I am going to do for the patient."

Wittmer, a native of Emporia, plans to do a pulmonary and critical care fellowship after completing his internal medicine residency at KUMC.

Paul C. Nordine (Ph.D. 1970), as president of Containerless Research, Inc., in Evanston, Illinois, directs research on their Aero-Acoustic Levitator (AAL), and the structure of liquid oxides. Containerless methods eliminate any contact with a crucible or cup, thus allowing materials to be processed without contamination or nucleation by a container. He presented a paper at the Gordon Research Conference on High-Temperature Chemistry.

Naru Patel (M.S. 1970) is a regional manager and quality systems training employer at Lyondell Chemical Company in Channelview, Texas. Following the acquisition of the ARCO Chemical Company by Lyondell, Naru was promoted to Regional manager of Quality Systems and Training and was transferred to Houston. Naru and his wife Veena are proud grandparents of a two-year-old boy, Riken. Naru and Veena's son Baku lives in Chicago with his wife and son.

Steve Pauls (Ph.D. 1998) was married to Linda Carol Wiens on June 5, 1999, in Hillsboro, Kansas.

Dean E. Peterson (Ph.D. 1972) is leader of the Superconductivity Technology Center at Los Alamos, one of three national lab centers dedicated to development of high temperature superconductors in collaboration with American industry. Center researchers have recently been successful in fabricating tapes coated with superconducting films that carry over one million A/cm² with no electrical resistance when cooled by liquid nitrogen. Several companies are partners with Los Alamos in developing power applications for these superconducting tapes such as in transformers, generators, transmission cables and motors. The Center is also involved in development of magnetic sensors based on Josephson junctions composed of superconducting films. These sensors have attained theoretical limits in detecting small magnetic fields and have many potential applications in biomagnetics and non-destructive evaluation. All these areas require multidisciplinary efforts where Chemistry is a key component for success.

Dean and his wife Suzanne recently enjoyed visiting Italy to participate in a materials conference.

Ernest R. Plante (Ph.D. 1960), after having retired from NIST, known to most scientists at the Bureau of Standards, has traveled with his wife Marie on several birdwatching trips. Recently, they traveled by auto from Oregon to the Grand Canyon.

Ananth Prabhu (Ph.D. 1974) has joined Knoll Pharma, a division of BASF Pharma, as vice president of quality control and development in Mumbai, India.

Harry E. Robson (Ph.D. 1958) has retired from LSU and a large energy company and lives in Baton Rouge, Louisiana.

Gilbert Shaw (B.S. 1988) works as a salesman for Pfizer Pharmaceuticals. He and his wife, Jennifer, live in Collinsville, Oklahoma, where he is a captain in the Oklahoma National Guard.

Robert I. Sheldon (Ph.D. 1976) presented a paper at the Gordon Research Conference on High-Temperature and enjoyed visiting with Paul Nordine and Jim Edwards. At Los Alamos National Laboratory, he is using neutron diffraction to study materials.

Kim M. Sheridan (B.A. 1978, M.D. 1985) is a physician at Comprehensive Women's Health, Leesville, Louisiana.

Karl E. Spear (Ph.D. 1967) was recently elected president of the Electrochemical Society, which publishes monthly its journal of Solid State and Electrochemical Science.

Julie Stenken (Ph.D. 1996) is an assistant professor of chemistry at the Rensselaer Polytechnic Institute in Troy, New York.

Masa Tamaki (Ph.D. 1974) continues to reside in Japan and is currently a senior project manager at the Dow Chemical Company, External Technologies Group, which is part of the corporate R&D. Job responsibilities include keeping Dow current on all technologies that are incubating in the Japanese technical community, both academic and industrial, as well as

federal laboratories.

Michael Trollope (B.A. 1964) practices surgery with the Palo Alto Medical Foundation in California.

John Volesky (B.S. 1989) and his wife Lisa have a new daughter, Erin Nicole, born August 24, 1998, in Plano, Texas. The Voleskys also have another daughter Taylor, 2.

Philip Wahlbeck (Postdoc) retired in May 1998 after teaching at the Illinois Institute of Technology and Wichita State University. His research activities have been associated with high-temperatures. Research was also conducted on surface desorption phenomena. He was co-chair of the 1998 Midwest Regional ACS meeting in Wichita in November 1998.

George E. Walrafen (B.S. 1951), professor of chemistry emeritus, was inducted into the Topeka High School "Hall of Fame" on Sunday, October 4, 1998. Professor Emeritus Paul W. Gilles (B.S. 1943) paid a visit to Dr. Walrafen's lab in Washington D.C. some months ago.

Michael (Wen-Jen) Wang (M.S. 1995) is living in Taiwan after working for China Petrochem. He is now in the financial industry at the National Investment Trust Company, an asset management company. After working as a securities analyst for the plastics and chemical sector, he was promoted to manager of an \$80 million fund. He also recently married in February 1998.

Sven Westman (Postdoc) has retired, more or less, from the University of Stockholm, Sweden. He continues to teach an occasional course when a shortage of faculty occurs, to manage the department's home web page, to do language revision of articles from the Chemistry Department, and to develop course materials. He also sings with two choirs.

Mark A. Williamson (Ph.D. 1990) has been traveling quite a bit for his work at Los Alamos National Laboratory.

Wayne White (Ph.D. 1930) suffered the loss of his wife, Laura, in 1998. He continues to make his home in Fort Smith, Arkansas.

Bart W. Wise (B.S. 1987) is currently a law student at the University of California, Berkeley. He is expected to earn his J.D. in May 2000. After graduating, he plans to practice intellectual property law in Silicon Valley.

Charles Wood (B.A. 1975) teaches at the University of Nebraska's Center for Biological Chemistry at Lincoln.

Richard Woods (B.A. 1972) was recently listed in the 1999-2000 edition of *The Best Lawyers in America*. He practices with Shook, Hardy & Bacon in Kansas City.

Richard L.C. Wu (Ph.D. 1971) and his wife Spring own K Systems Corporation, located near Dayton, Ohio. He presented papers at the materials Re-

search Society Conference in Boston, where they enjoyed visiting with Sing-Shong Lin and Dean Peterson. He has also attended conferences in Colorado, Palm Springs, and Huntington Beach. His writing of proposals and papers has enabled the company to participate in five research and development projects.

In Memory

Ben Buchanan (B.A. 1933), 89, passed away on May 1998 in Traverse City, Michigan. He lived in Fontana and was a food chemist and consultant. He is survived by his wife Helen, a daughter, a son, a sister and a grandson.

Helen Cady Longworth (B.A. 1929), 90, February 1, 1998, in Salisbury Township, Pennsylvania. Daughter of Hamilton P. Cady, former chemistry professor and chair. She is survived by a son; two daughters, Anne Longworth Kruger and Stella Longworth Cairns; eight grandchildren and two great grandchildren.

Charles V. Neywick (Ph.D. 1974), passed away in February 1998.

Frank Olander (B.A. 1968), 51, passed away January 8, 1998, in Littleton, Colorado, where he was a revenue agent for the Internal Revenue Service, a CPA and a certified financial planner. He is survived by his wife, Karen, and two brothers.

Clare Stewart (Ph.D. 1953), 68, passed away April 22, 1998, in Carrcroft, Delaware. He was an organic chemical researcher for du Pont and is survived by his wife Marion, two sons, two daughters, two sisters and four grandchildren.

The Department notes with sadness the death of **Albert D. Salisbury**, 98, our colleague of 44 years. He passed away October 11, 1998. He was born July 2, 1900, in St. Louis, the son of Albert and Lulabelle Delaney Salisbury. He moved to Lawrence in the early 1900s.

Mr. Salisbury worked as a chemistry store room technician from 1926 until 1970 when he retired.

Robert Slocombe (Ph.D. 1943) passed away April 2, 1998, in St. Louis, Missouri.

Thomas P. Whaley (Ph.D. 1950) passed away August 27, 1998.

We want to know how you are doing!

Please return to:

Carol Bray, Program Assistant
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EMAIL: cbray@ukans.edu

Name: _____ Degree & Date _____

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The University of Kansas
Chemistry Department
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To:

The Chemistry Department receives generous assistance from the KU Alumni Association in distribution of 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.

The KU Endowment Association maintains the following fellowships, funds, and scholarships on behalf of the Chemistry Department. Contributions are always appreciated.

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Chemistry Development Fund
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