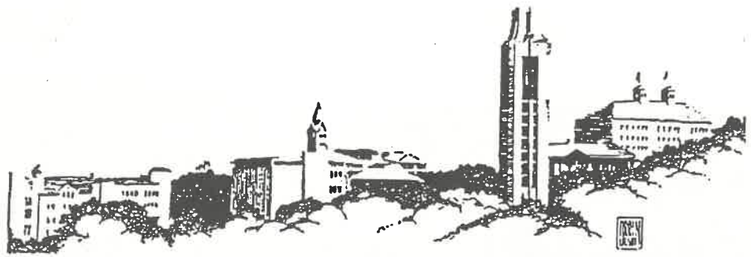


Alumni Newsletter
Department of Chemistry
University of Kansas

September, 1993

Anschutz Science Libary, completed 1990.

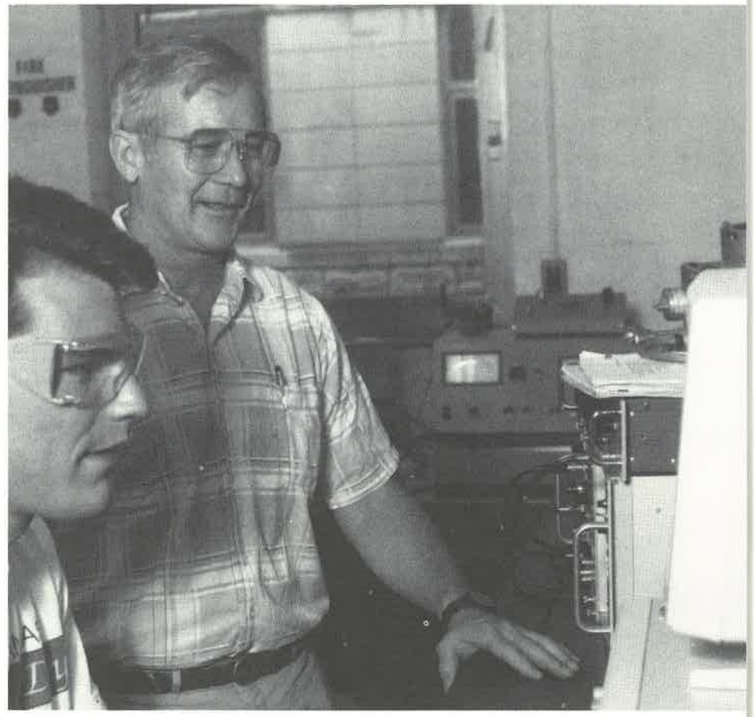
The Chemistry Department receives generous assistance from the KU Alumni Association in distributing its newsletters. We believe a strong and informed alumni group can be one of the most important supports of a department and of a university. We urge all our former students and colleagues to join the Alumni Association and assist in its exemplary efforts on behalf of the University. Annual dues for membership are $35 single or $40 joint (with spouse); life-memberships are available.

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

H.P. Cady Fellowship
Dains Memorial
Arthur V. Davidson Fund
Walter and Roy Cross Memorial Fund
Higuchi Chemistry Fund
Higuchi Fellowship Fund
Fassnacht Memorial Scholarship
Paul and Helen Gilles Award
Ernest and Marvel Griswold Fund
Elmer V. McCollum Fellowship
Chemistry Development Fund
Cornelius & Martha McCollum Fellowship
Chemistry Research Fund
George Bailey Corbin Memorial Scholarship
Leonard V. Sorg Scholarship
Susan and Stephen Snyder Chemistry Award
Reynold T. Iwamoto Award
W. Mack Barlow Memorial Award
Chemistry Fellowship Fund
Emily V. Berger Research Fund
Owen W. Maloney Scholarship
Clark E. Bricker Scholarship
Scientific Equipment Fund
Ralph N. Adams Research Fund
J.K. Lee Memorial Fund
Jacob Kleinberg Award

September, 1993

Dear Alumni and Friends:



This has been an unforgettable, if not exhausting, year! The Department, the University and the Midwest region will mark 1992-93 among the most memorable in history.

Several important milestones were reached by the Department, and they are nicely chronicled in the newsletter by Drs. Huyser and Everett with the assistance of Carol Bray. At this writing, Carol has taken a new position with the Department as Administrative Officer I. You will be hearing a great deal more from and about her in the future.

This year marked the first year of the three-year $9M NSF sponsored EPSCoR program in which the Chemistry Department is a central participant. The Department also made important faculty additions with the arrival of three assistant professors from California. The first was Cindy Larive (UC-Riverside) in bioanalytical chemistry, then David Benson (UCLA) in the organic division and next will be Brian Laird (UC-Berkeley) in the physical division. Cindy started last September, David just arrived and Brian will begin in January.

Our graduate student population continued its upward climb reaching 93 students this Fall. Twenty-two new students arrived on the 16th of August to begin their graduate studies. This group, the second largest in recent times (last year, 27 students enrolled!), hails from countries all over the world (from the Ukraine and China to Sri Lanka) and the U.S. Fourteen of the twenty-two graduated from U.S. colleges and universities and eight are from international schools. Some have already been awarded graduate scholarships to our Chemistry program.

Again this year the Department experienced a significant increase in the demand for our undergraduate courses. Increases of 15% were experienced both in General Chemistry and Organic Chemistry courses last year, an increase which has occurred again this Fall. The General Chemistry enrollment has consistently topped 1,000 while Organic Chemistry has surged past 500. This Fall the analytical **and** physical courses also enrolled much greater numbers of students.

While this renewed interest in the chemical sciences is gratifying, it has been accompanied with several somber messages. For one, the job market is very soft. Bachelor and master degree graduates have been able to find positions and in some instances have had a modest degree of selection among jobs. Ph.D. graduates have found the job market very tight and worsening this year. To date, all our graduates appear to have found positions. Less certain, however, are the prospects for the coming year.

The external funding for chemistry also is experiencing a difficult period. Both NIH and NSF have become very difficult sources for research funding as competition for the scarce research dollar has heightened. Other agencies including the American Chemical Society (through the Petroleum Research Fund) and the Research Corporation continue to be important sources of research support for our Department.

Another major concern of the Department has been the quality and space available in our undergraduate laboratories. The increase in enrollment has exacerbated an already serious shortage in resources and space. We now utilize all of our undergraduate laboratory space from 7:30 a.m. to 5:30 p.m. Monday through Friday and on Saturday mornings from 7:30 a.m. to 12:30 p.m. These laboratories are running at maximum capacity, *i.e.,* twenty students per laboratory period, utilizing the same facilities in which most of you studied when you attended KU. Renovation and expansion are sorely needed and the subject of a proposal we want the University to address as soon as possible. This Fall a formal request will be presented to the Administration proposing that a new undergraduate laboratory facility be built near Malott Hall. The Department's commitment to upgrading our undergraduate offerings including the rebuilding of Hoch as a classroom building, must also include additional laboratory facilities.

On a more personal side, the Department is proud to announce the promotion of Dr. Craig Lunte to Associate Professor with tenure. Dr. Susan Lunte was also promoted this Spring to the position of Associate Scientist. They added a new family member, Kathryn, to complete what must be considered an exceptional year. Krzysztof Kuczera and his wife Joanna also gained a new addition, Stefan, born March 24th.

We are also proud to report that Professor Richard Schowen was awarded the 47th Midwest American Chemical Society Award at the Midwest ACS meeting held in Lawrence in November. Dick joins a growing list of Midwest Award recipients from KU which include Professors Brewster, Higuchi, Kleinberg and Adams.

Sadly, we lost two of our own. Dr. Bill Argersinger and Dr. Arthur Davidson, both emeritus members of the faculty, passed away last winter. During their long tenure at KU, both of these men helped shape the future of both the University and the Department and were prominent activists in the civic life of Lawrence. Details about their careers appear in the newsletter.

Two long-time members of the Department opted for retirement this year. Buzz Adams resigned his teaching responsibilities in July, 1992, though he keeps his active research program going. Evelyn Goodrich decided to step down as the Department's accountant, a task she carried out for over 30 years! Yet another era has passed!

Finally, it would be impossible to write about the past academic year without noting the Great Flood of 1993. While I was not present for the deluge and inundations of 1951, my colleagues tell me that this year's rains and floods were in many respects much worse. Needless to say, a great deal of damage was experienced along the Kaw River basin, at the waterfront establishments, and in North Lawrence. The University has been largely spared, although I don't believe there is a roof that has not leaked or a building that did not suffer some form of water damage. Nor did Malott Hall escape its share. We now are wishing for a mild fall and winter, a time to repair and rebuild.

I finish this letter with my annual thank-you for your continued support of the Department. Our endowment continues to grow, even in these otherwise economically very difficult times. Your contributions and support are an enduring tribute to the dedication and efforts of faculty and staff of this Chemistry Department. Each of us appreciates the help and support you have shown through your donations and gifts.

Sincerely yours,

Richard S. Givens

Richard S. Givens
Professor and Chairman

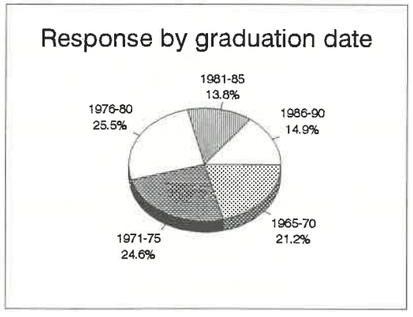
UNDERGRADUATE PROGRAM REVIEW SURVEY RESULTS

by Carol Bray

Currently there is a strong nationwide movement for accountability in higher education. In response to that movement, the Kansas Board of Regents mandated that an undergraduate program review be conducted at all the Regents institutions. In order to determine the satisfaction of alumni with their undergraduate degrees from the University of Kansas, program reviews were conducted at both the University and the major Department levels. Many of you responded to our Chemistry Department Undergraduate Survey mailed to you in March 1991. Your response was appreciated and proved invaluable to us in preparing for the undergraduate program review reporting process last Fall. We would like to share some results of that survey with you. We think you will find the results as interesting and as pleasing as we found them.

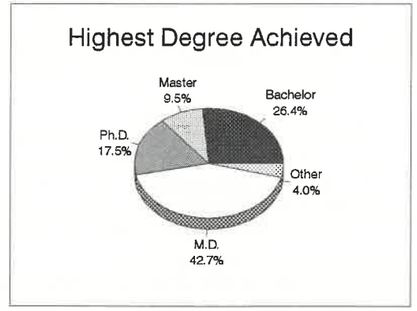
WHO ARE YOU?

The targeted group for this survey was B.A. / B.S. chemistry undergraduate alumni from 1965-1990. Due to bulk mail restrictions, we were limited to a U.S. mailing only. This total population sample included 933 alumni. Although direct-mail questionnaires are not the most effective means of conducting a survey of this type, we were pleased that we had a 37% response to a one-time/no follow-up mailing. There were 349 completed surveys quickly returned to the Department.



There was a good distribution of respondents over the entire targeted time frame of this survey. We divided the surveys into five 5-year periods for graduates from 1965-90. The last two periods *i.e.,* 1980-90 had the lesser responses (15% each). The first three (1965-80) each provided between 21% and 25% of the respondents.

Demographically, there were 271 male and 78 female respondents. Two hundred and forty-one (*69%*) have a bachelor of arts degree and 104 of you have a bachelor of science degree. There were four who earned a bachelor of general studies degree.

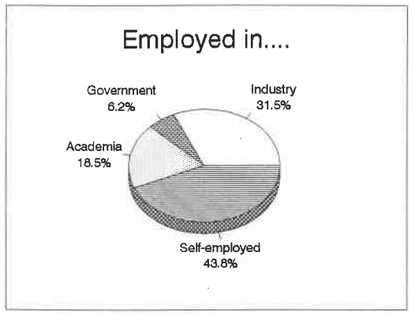


WHAT ARE YOU DOING NOW?

In response to the question asking the highest degree attained, the largest single group of you now have a medical degree--149 graduates. Of the remaining 200 survey respondents, 61 of you have a Ph.D. degree, 33 of you have a master's degree, and 92 of you have a bachelor's degree. Four percent listed other degrees, primarily in dentistry and secondary education. Of the alumni currently holding a bachelor's degree, 54 are actively involved in completing advanced degree programs. Ten of you are working toward a master's degree. There are 16 of you working toward a Ph.D. degree. Sixteen of you are working toward a M.D. degree. The remaining 12 are working at other degree programs (primarily dental or medical specialty degrees).

In the area of employment, 102 of you report working in industry, 20 of you are employed by government, and 60 of you are working in academia. Of the remaining 167 respondents, 142 reported being self-employed (which

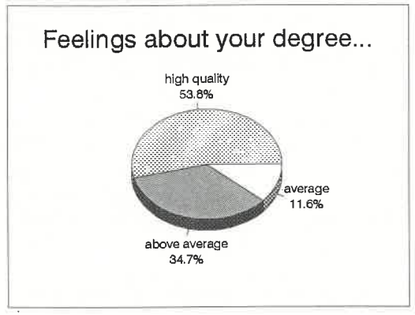
would include the MDs, dentists, etc.) The balance did not respond to the question.



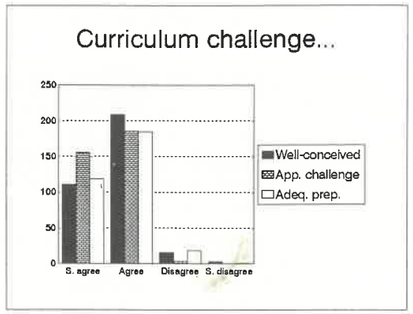
WHAT DO YOU THINK OF THE CHEMISTRY PROGRAM?

In total there were 58 questions on the undergraduate survey. Below are the responses to only nine of the questions that we feel will be of the most interest to you. They represent a summary of the data for the total effectiveness of the Chemistry program.

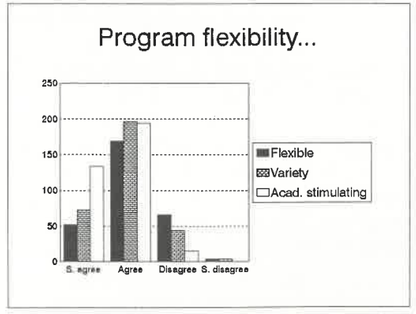
Our first chart represents your response to our question: Which of the following represents how you feel about your degree in chemistry from KU?



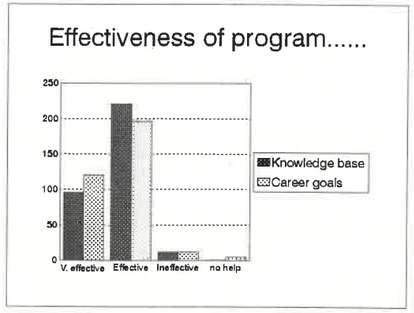
The next graph summarizes three questions from the area of the survey dealing with the curriculum. The questions represented in this graph are: (1) The required curriculum in my chemistry major was well-conceived; (2) There was appropriate intellectual challenge presented by the courses in my chemistry major; and (3) Lower division chemistry courses provided adequate preparation for upper division chemistry courses.



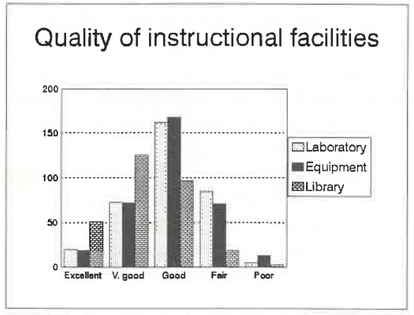
We summarized data concerning the flexibility of the chemistry program in the following graph. This graph includes responses to the following questions: (1) The Chemistry program was flexible in meeting the needs of students; (2) The Chemistry Department was an academically stimulating place in which to learn; and (3) The available variety of courses in my chemistry major afforded me comprehensive training.



Our next graph includes two questions that represent the total effectiveness of the chemistry program: (1) How effective do you believe the chemistry curriculum was in establishing the knowledge base for you in your field, and (2) How effective do you believe the chemistry program was in helping you achieve your career goals?



Overall, the Chemistry Department Survey rankings were lower on questions concerning our classroom facilities, the laboratory facilities, our laboratory equipment, and the use of computers in the chemistry curriculum. These lower scores have helped to spur major revisions in the future offerings of the Department. In addition, we began planning a major thrust in building and remodeling our undergraduate facilities. The scores on these questions are also helping us to obtain grant monies from University, State, and Federal sources.



FUTURE SURVEY USES AND PLANS

The undergraduate alumni survey will be repeated every five years to learn how our most recent alumni feel about the chemistry program. In addition, we have designed and will soon administer a new Senior Survey to learn how exiting seniors feel about their undergraduate chemistry program experience. This survey will focus on topics concerning student/faculty interaction and the opportunities for undergraduate research and the value of those research opportunities to the students. This new Senior Survey will also ask questions concerning the ease of access to and availability of needed undergraduate chemistry courses, the general satisfaction of the students with the curriculum, and student satisfaction with laboratory facilities and equipment. These data will continue to provide a wealth of information for continuous program improvement.

To those who participated in this first survey, we offer you our thanks and appreciation. We encourage you to write to us with any additional suggestions for improvement. We value the support of all our alumni from both the undergraduate and graduate chemistry programs.

27TH MIDWEST REGIONAL MEETING

by Jack Landgrebe

On November 4-6, 1992, the University of Kansas Section of the American Chemical Society was host to the 27th Midwest Regional Meeting. With 743 registrants, 213 oral presentations, and 124 posters, this was one of the most successful of the four meetings that have been held in Lawrence during the past twenty-six years. Presentations included invited symposium speakers in Analytical, Inorganic, and Physical chemistry, a keynote speaker for Chemical Education, and a special program sponsored by the Regional Young Chemists Committee. A unique feature of the Symposium of contributed papers entitled *Innovative Experiments in the Undergraduate Analytical, Computational, and Physical Chemistry Laboratory* was the reproduction and binding of the papers into a hardbound volume that was available to the participants the next morning.

One key to the success of our chemical exposition was the intimate mixing of posters among the twenty-seven exhibits in the Kansas Union Ballroom. The numerous compliments we received were consistent with our observations that the ballroom area was always bustling with individuals talking to exhibitors, reading posters, or interacting in small groups.

The National Employment Clearing House (NECH), which ran during the entire meeting, was extremely worthwhile with eleven employers registered, thirty-five positions posted, fifty-three candidates who participated (plus an additional forty-one who posted resumes *in absentia*), and fifty-seven interviews on site.

The presentation of the Midwest Award to Dick Schowen was an important highlight of this meeting (*see related story*). Woodruff Auditorium in the Kansas Union was nearly filled for his address, and the reception and banquet that was held in his honor at the Holiday Inn were also well attended. After the Midwest Awards banquet and a formal presentation of the award, Dick delighted the audience with a humorous expose on the life of a faculty member in the Midwest. A general mixer for all meeting registrants concluded a most enjoyable evening.

GRANT TEAMS KU FACULTY WITH HIGH SCHOOL CHEMISTRY TEACHERS

by Carol Bray

Two Kansas high school teachers, Michael Parrish and Anna Crabtree, received Partners in Science program awards of $14,000 each from the William Randolph Hearst Foundation and Research Corporation. These grants will support two years of collaborative summer research with a Chemistry Department faculty member for each program participant. Besides funding the basic collaborative research program, grant money received by the participant can be used for education expenses (*e.g.* software, books) and for travel expenses to the national Partners in Science meetings in January of 1994 and 1995. Both Mike and Anna are excited about their research projects and about the new knowledge and experiences they have to share with their students.

To obtain these research funds, proposals were submitted by faculty members to Research Corporation, a foundation for the advancement of science and technology located in Tucson, Arizona. Research Corporation's objective for this grant program is "...to involve high school teachers in research projects at the frontiers of science." They believe that "...teachers under the stimulation and inspiration of research will often bring a new enthusiasm to the classroom," and that these awards also "...help to bridge the gap which often exists between research scientists and high school teachers."

When asked about the size of the Partners in Science program, Brian Andreen, Vice President of Research Corporation, gave the following information: For 1993, there are 115 partnerships nationwide in fourteen states. This includes all the states in the West with the exception of Nevada and Wyoming, with the balance being comprised of the states of Nebraska, Kansas, Texas, Pennsylvania, and New Jersey. In Kansas in 1993, there are five partnerships-two in chemistry at KU and two in physics and one in chemistry at Wichita State University. Applications must be in the fields of chemistry, physics, and astronomy.

Exactly what type of projects are our collaborating teams involved in? One of the award recipients, Michael Parrish, a high school Chemistry and Physics teacher from Wyandotte High School in Kansas City, Kansas, will work with **George S. Wilson** on a proposal entitled *Practical Applications of Biosensors.* As his research project, Mike will develop several biosensors that can be used to measure important ingredients in food, drinks, and environmental samples.

The second award recipient, Anna Crabtree, a high school Chemistry I and II teacher from Shawnee Mission South High School in Shawnee Mission, Kansas, will work with **Daryle H. Busch** on a proposal entitled *Autoxidation of Transition Metal Complexes.* As her research project, Anna will be working to find simple molecules which can bind with oxygen and can therefore function like hemoglobin.

If you are interested in more information about the applying to the Partners in Science program contact Mary Lynn Grayeski, Program Officer at Research Corporation, 101 North Wilmot Road, Suite 250, Tucson, Arizona 85711-3332. TEL: 602-571-1111; FAX: 602-571-1119.

ENDOWED LECTURES

The Chemistry Department presented five endowed lectures during the 1992-93 academic year. The first lecture presented, the Forty-Third Annual E.C. Franklin Memorial Lecture, was given by **Professor Julius Rebek**, a 1966 alumnus of the KU Chemistry Department. After receiving his Ph.D. from MIT in 1970, Dr. Rebek taught at UCLA and the University of Pittsburgh before joining the faculty of MIT in 1989 as The Camille Dreyfus Professor of Chemistry. Professor Rebek's lecture entitled *Recognition and Replication* was presented on September 16, 1992.

The Sixth Annual Ray Q. Brewster Memorial Lecture was given by **Dr. John E. Bercaw** of the California Institute of Technology on October 26, 1992. The topic of Dr. Bercaw's lecture was *Synthetic Structural and Mechanistic Approaches to Ziegler-Natta Polymerization of Olefins.*

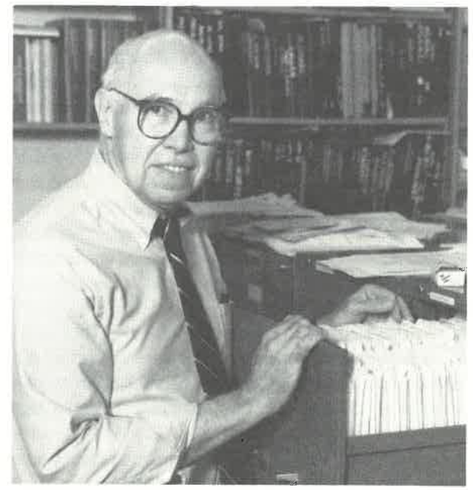
Professor Peter G. Schultz gave the Forty-fifth Annual Frank Burnett Dains Memorial Lecture on December 2, 1992. Dr. Schultz is currently Professor of Chemistry at the University of California at Berkeley; and he is also a Founder of the Affymax Research Institute, a novel pharmaceutical venture. The topic of Dr. Schultz's lecture was *Probing Protein Structure and Function with an Expanded Genetic Code.*

Fourier Transform Ion Cyclotron Resonance Mass Spectroscopy was the topic of the Thirtieth Annual Henry Werner Lecture given by **Dr. Alan G. Marshall** on April 5, 1993. Dr. Marshall is currently Professor of Chemistry and Biochemistry at The Ohio State University and is best known for his co-invention and patent with Professor M.B. Comisarow on the FT/ICR/MS system.

The final endowed lecture for the 1992-93 academic year was the Arthur William Davidson Lecture given on April 15, 1993, by **Professor Alexander Pines.** Dr. Pines is currently Professor of Chemistry at the University of California at Berkeley and Faculty Senior Scientist at the Lawrence Berkeley Laboratory. In 1991, Dr. Pines, with Richard Ernst, was awarded the Wolf Prize in Chemistry. The topic of Dr. Pines' lecture was *Magnetic Moments: The Evolution of Solid-State NMR.*

SCHOWEN RECEIVES ACS MIDWEST AWARD

A highlight of the 27th American Chemical Society Midwest Meeting held in Lawrence last fall was the presentation to Dick Schowen of the 48th Midwest Award. Dick is the fifth KU faculty member to receive this award. The previous KU faculty to be honored in this manner were: Ray Brewster (1957), Tak Higuchi (1975), Ralph Adams (1979), and Jake Kleinberg (1983).



Dick, who is the Solon E. Summerfield Distinguished Professor of Chemistry, Biochemistry and Pharmaceutical Chemistry was cited for significant contributions made in the areas of mixed solvent kinetic isotope effects, acid-base catalysis, tunneling, and enzymatic catalysis in bioorganic chemistry. The November 16, 1992, edition of **Chemical and Engineering News** states, "His treatment of solvent isotope effects through proton inventory analysis is widely recognized as the standard in the fields of chemistry and mechanistic enzymology."

In his remarks made at the Midwest Award Dinner, Dick reminisced about early

days at KU. The following is a portion of his talk relating to his early encounters with midwestern graduate students.

The midwestern graduate students were also a pleasant surprise. Thirty years ago, Easterners pictured the typical Kansas graduate students as a hybrid between a dangerous, rifle-toting chap with a complex and an abundant hairdo and a grinning fellow in bib-overalls who, on a good day, had trouble distinguishing the letters B and D. As it emerged when my first research group began to form, there were some people from the farm, but they had fewer literacy problems than the graduates of eastern prep schools that had replaced English with courses in philosophy of self-realization.

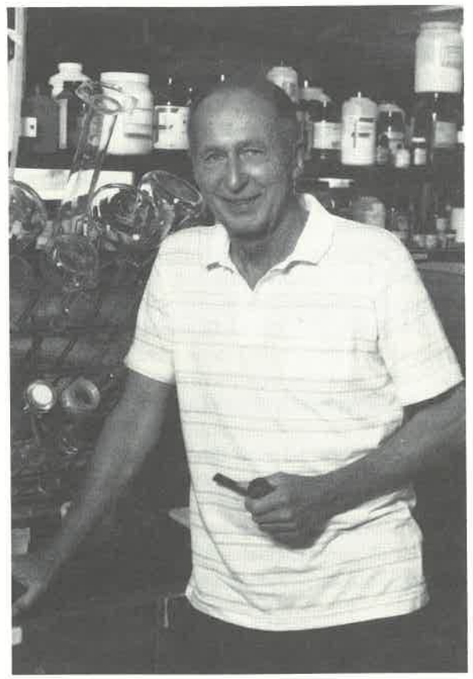
One admirable thing about graduate students from the farm, or their current midwestern equivalents who have spent an average of twenty-two hours a day repairing pick-up trucks, is an essentially unthinkable level of competence in the physical world. During my first year at KU, I found a graduate student industriously working on a dry-box that had, earlier the same day, been rendered useless by having a large bolt broken. I asked in amazement, "How did you get a new bolt so fast?" He said, "I made one in the shop." Doubtless such a measure comes easily to someone who has had to get machinery back in action in the middle of the harvest, but it was foreign to any previous experience of mine. As I told my coworkers, I had felt that "p-nitroanilides are made by fools like me, but only God can make a bolt."

RETIREMENTS

BUZZ'S TROOPS SALUTE HIM AT RETIREMENT

by Ted Kuwana

"If you love what you are doing, the rewards will take care of themselves," is a fitting tribute to Ralph N. Adams, known affectionately as "Buzz." Former students testify to his excitement and passion about science. One student noted that over the years, Buzz's enthusiasm, independent-thinking and self-reliance led him through scientific terrain that scared most away. And the rewards have come-locally and nationally, too many to enumerate here. More important to Buzz are the rewards of seeing his students thrive, becoming productive scientists and seeing his research make a contribution...and a difference.



Buzz has not really retired...at least, not from his love of doing research. With Arvin Oke, his longtime associate, he continues to probe the role of catecholamines in human behavior, thought processes and well-being. They are still pursuing the neurochemistry of schizophrenia, looking at the mechanism for the discovered excess dopamine in the thalamic region. Ralph and Kim Mitchell, his final Ph.D. student, are busy working on manuscripts. And for me, his first Ph.D. student, now being Ralph's colleague, sharing lab space with him again, and participating in Kim's final oral exam have been the great joys of

returning to KU. I speak for all of his students when we proudly say, "My academic father is Ralph Adams of Kansas."

Somehow each person, who was asked for anecdotal story, described the excitement of being in Adams' lab "in a time of transition" ...no matter when they were there. Ralph's work has spanned an incredible spectrum...so the troops included analytical to organic electrochemists, theoreticians to radical ion types, biochemists to neurochemists, and to psychiatrists. All described their fellow students as a heterogeneous, eclectic mix...a motley crew. For all their diversity, Adams' students share certain characteristics: "extreme excitement about their work, self-reliance, and a certain fearlessness in trying crazy ideas." All claim that landmark scientific "firsts" occurred during their tenure...in areas of electrode mechanisms, analytical methodology, and neuroscience, just to name a few. Each discussed not only the significance that Adams had on his/her life and career, but also his much broader impact...having inspired many students, a far larger fraction than from most labs, to pursue successful academic careers. This outstanding ability to motivate was attributed to his high expectations and standards for scientific evidence, his encouraging independence and his "amazing, unselfish moral support, so that students developed faith in "themselves."

Don Leedy (Proctor & Gamble Co.) contends that the advances to neurosciences, made by introducing *in vivo* electrochemistry and electrochemical detectors for HPLC, are Nobel Prize quality contributions. Kim points out that "Referred to as the father of *in vivo* electrochemistry in the brain, Dr. Adams' mentorship continues now with the students of his former students." She notes that at scientific meetings, she heard some of the "academic grandchildren" telling legendary stories from the earlier years in Adams' lab. We'll include just a few...some without names in order to protect the guilty...

When Nancy Harmony went to work for Buzz almost 25 years ago, she did not expect a Distinguished Professor to dress so casually, to have such a selective memory or such a great passion for his work and students. She describes his agitation when she showed him an article that he thought had scooped his work; finally he calmed down enough that she could point out that it was his own paper that had just come out. She called the years "such fun that I frequently couldn't believe they paid me for it...edifying, frustrating, maddening and joyous. I also came to see that this was a man of enormous talents, immense compassion, with a vast thirst for knowledge and an extraordinary enthusiasm for his work and that of his students and colleagues. This excitement rubbed off on them, producing chemists and neuroscientists who now attack life and their own challenges with the same unmistakable fervor."

Don Leedy (Ph.D., 1968) recalled the excitement as pure electrochemistry became more "bio", with different segments of the group going in different direction and " flying in very loose formation." The constant high level of diverse activity was held together by Ralph's enthusiasm.

At the heart of this were the animated, impromptu and productive discussions around the chalkboard in the lab. This was also the legendary site that produced the discovery of a non-patented invention in the mid-60s. As Ralph was vigorously writing on the board, he was interrupted as the chalk fell into a large hole; investigation uncovered that it had been caused by the handle end of plumber's plunger in a non-traditional use. Keen competitions among his troops in the game of Quick Draw Plunging caused the hole. Plunging came to a abrupt halt, but not before it had spread to other schools. Buzz may not share with these students the nostalgia for this example of creativity.

Rick McCreery (Ph.D., 1973) reminisces that, "as small animal brains replaced electrochemical cells," the live mice were kept in the lab with the ESR until one escaped its cage. It then disappeared in an arc of a foot-long orange spark that left a big hole in the windings of the instrument.

Arvin Oke notes that the men's room on the fifth floor of Malott is being decorated (but the plaque is not yet installed) as the Ralph N. Adams "Buzz John" in Ralph's honor. (Careful, guys, a recent article in Science

points out that at UCSF, space is so tight they are subdividing men's rooms into faculty offices).

Kim Mitchell (Ph.D., 1993) notes that his lectures will be missed, especially the introductory one about the "Adams' pinky finger reference electrode." Gus Manning (Ph.D., 1969) talks about Ralph's exceptional vitality and his innovative lab courses that started with a box of electronic parts-fostering creativity and fierce independence. Ralph continues to exemplify what I believe is the most important thing he taught...."how to actually be a real scientist."

Family and friends are uppermost in Ralph's priorities. We all send our greeting to Gini and the girls, Molly in Los Angeles, and both Kristen and Lisa along with husband Stuart and kids Caitlin, Luke, and Coleen in Lawrence. To quote Don Leedy: "To Buzz: we all wish you continued thrilling flights, perfect loops...and always... smooth landings!"

EVELYN GOODRICH

The most significant event that occurred in the Business Office last year was the retirement of Evelyn Goodrich. Evelyn came to work for the Chemistry Department in January, 1960, and was the most senior non-faculty member of the department.

She is well remembered as a person who was always friendly, cooperative, and helpful. She performed various jobs in the Business Office always in an outstanding manner. She will be remembered for her rare combination of professional competence and personal caring. She was always interested in and concerned about the welfare of employees and students.

She will be missed and we wish her well in her much deserved retirement.

SHARING = SYNERGY

by Carol Bray

In 1989, Kansas ranked 33rd among the 50 states in federal research and development (R&D) support. It received less than one-half of one percent of all federal R&D expenditures to colleges and universities. Furthermore, while federal R&D support of colleges and universities rose by 450% between 1971 and 1989, the figure for Kansas institutions was only 250%. In the R&D race, Kansas was steadily losing ground.

In 1991, Kansas and Nebraska were declared the 17th and 18th states eligible to participate in the Experimental Program to Stimulate Competitive Research (EPSCoR), funded by the NSF. EPSCoR's goal is to bring science and engineering (S&E) endeavors in EPSCoR states to nationally competitive levels. It is a model for building the Nation's S&E infrastructure. It is a stimulus for change. It is an opportunity for Kansas to broaden the base of R&D capability, to enhance the capacity, and to bring about permanent, systematic changes in how it conducts research.

To bring Kansas up to speed, **Ted Kuwana** directed a coalition of state, government, university and private interests to develop a strategic plan--K*STAR (Kansas Science and Technology Advanced Research) K*STAR's strategy for improving research competitiveness was two-fold, involving support of projects, patterned to succeed in the national grant

application domain, and development of infrastructure, which included both development of human resources and the acquisition of equipment.

Ted and his K*STAR coalition were successful! Kansas was awarded a three-year $4.44 million NSF EPSCoR grant. The state has budgeted matching funds of $4.5 million for the same time period. In total eighteen proposals were funded; there were nine proposals funded at KU, five funded at Wichita State University (WSU), and four funded at Kansas State University (KSU). Six proposals involved inter-university collaboration between faculty members. Included were proposals for shared instrumentation and facilities. The K*STAR program involves eighty-seven faculty, twenty-one post-doctoral, eighty-two graduate, and twenty-one undergraduate students. Work is already underway!

What does this mean to KU's Chemistry Department? Four chemistry faculty members were Principal Investigators (PI) on proposals ultimately funded by EPSCoR. In the Subject Category: Materials & Chemical Sciences, **Daryle H. Busch** will spearhead his Kan-Syn team on a project entitled *The Kansas Program for Molecular Design, Synthesis, and Applications of Macromolecular Materials and Supramolecular Systems.* The Kan-Syn team, comprised of five KU, three KSU and three WSU Co-PIs and their research groups in five departments, forms the core for the establishment of a proposed Kansas Center for Molecular Design and Synthesis.

Carey K. Johnson heads a group of three young investigators who are working together to build a state-of-the-art laser facility for the study of molecular energetics. Also in the Materials and Chemical Sciences Category, their project is entitled *The Kansas Ultrafast Spectroscopy Program.*

In the Subject Category: Biological Sciences, **George S. Wilson** is PI for a project entitled *Signal Transduction in Biology: Analytical Methodology.* The focus of this group's research activities will help promote a detailed understanding of biological transduction at the molecular level in the brain. Molecular, cellular, and physiological biologists/ chemists are involved. This group, comprised of eight KU, one KUMC, one KSU, and one WSU Co-PIs and their research groups in four departments, will be actively involved in the evolution of a new Center for Neuroscience and Immunological Research under the Higuchi Biosciences Center umbrella at KU.

Shih-I Chu is PI for a project entitled *Kansas Institute for Theoretical and Computational Science.* Ten Co-PIs, in the disciplines of chemistry, physics, astronomy, computer science, and mathematics, will work together to establish an institute which will focus on two goals: the support of young faculty and the transmission of research skills. Such an institute is the ideal medium for scientific collaboration and breakthroughs, and will speed-up the exchange of new mathematical and computational knowledge.

A statewide workshop titled *Networking for Career Enhancement* is planned for September 9-10, 1993, at the Kansas Expocentre in Topeka. The goal of the workshop is career enhancement of women in science, engineering and mathematics. Workshop topics are equally applicable to women and men.

Kansas looks for major scientific contributions to emerge from these EPSCoR activities including increasing our federal R&D dollars. Sharing projects is more than an efficient use of resources. It also stimulates creativity and develops the kind of major programs that attract federal mega-grants now going to better-known research universities on the East and West coasts.

REHABILITATION OF THE GREAT STONE WOMB

by Jack Landgrebe

With over 60,000 square feet of usable space, Malott Hall, the great stone womb we all know and love, is now the largest building on campus. Over a period of nearly four decades since its construction, two major additions have occurred, a modest one in 1970 that provided some additional space for the Departments of Chemistry and Physics, and a major one in 1980 that allowed the School of Pharmacy to consolidate, provided space for a modern animal care facility, and upgraded the hood

systems and drains throughout the building.

Unfortunately, many of the original areas of Malott Hall are suffering from old age! There are too few hoods, and aging utility pipes and sinks are creating maintenance problems. Environmental health and safety concerns are evident as Federal standards continue to become more stringent. Inefficient configurations of space for modern research and teaching are becoming increasingly apparent.

To begin addressing a few of the more serious problems, we have taken advantage of a new federal program (ARFMP under NSF) which provides funds for remodeling academic research space. Armed with a grant for $600,000 (half from University matching funds), we began remodeling in the Spring of 1991 and hope to complete the six-stage process by the Summer of 1994. The project will involve 17,500 square feet of space.

We are now occupying nearly 4,370 square feet of newly-remodeled space in the southwest part of the sixth floor (vacated when the Science Library moved to the Anschutz facility). That space now houses the X-Ray Crystallography Laboratory (previously in the basement and on the first floor), the Instrument Design Laboratory (previously in the basement), and the Biological Research Services Laboratory (previously on the second floor). Several vacated labs have already been refurbished to provide research laboratories for Kristin Bowman-James, Bob Bowman, and Cindy Larive. Remodeling has now begun in the organic labs on the fifth floor (Burgstahler, Carlson, Landgrebe) a process that continued through the summer of 1993 and eventually include space occupied by Engler and Givens. Other research groups that will benefit as we move toward the last two stages of the project will be those of Harmony, Heppert, Hierl, Johnson, and Lunte.

KU-CHEM NIGHT WITH THE ROYALS

by Susan McAfee
Social Director

Hey, Baseball Fans! On July 16, 1992, over fifty Chemistry Department faculty, students, staff and spouses braved the elements and went to see our mighty Royals play in Kansas City. These are always interesting trips because we never know what to expect.

We rode to the game in style by using the Jayhawk Bookstore's Briti Bus. This is the double decker bus with a right hand drive. The trip was marred by a few minutes of down time when we developed a leak in the radiator. After stopping at Eudora where we added antifreeze and water to the radiator, we continued on our way without any further problems.

Dr. Clark Bricker caught a foul ball just as we arrived at our seats showing off his ability as a ball player. Also for the first time since I have been arranging this trip, two things happened, IT DID NOT RAIN and THE ROYALS WON!

We had so much fun we are going to do it again this year. Wish us luck with the weather and the Royals winning.

HONORS BANQUET

The Annual Chemistry Department Honors Banquet was held on May 1, 1993 in the Student Union. Serving again as master of ceremonies, Al Lata introduced the distinguished guests from various areas of the University and the Emeritus Faculty attending the banquet. In his remarks to the audience, the Department Chairman, Rich Givens outlined some of the notable events of the past year with regards to the faculty and the progress of the Chemistry Department.

The speaker this year was Professor Terry Miller of Ohio State University. Terry, a 1965 graduate of KU, outlined the progress made in spectroscopy since his undergraduate days, when he worked with Professor Ralph Adams, to the present in his talk entitled *From K.U. to Near Absolute Zero and Back*. The awards presented to the students that have done outstanding work during the past year are listed below.

UNDERGRADUATE STUDENT AWARDS

GENERAL CHEMISTRY
(Students with outstanding records)

Ryan C. Knopp
Jody D. Neff
Aaron W. Richardson
Xuan Lu
Kin Cheung Poon
Amar B. Shah

THE OWEN W. MALONEY SCHOLARSHIPS
(Students with the best record in General Chemistry)

Mark C. Stover
Justin T. Teiwes

ORGANIC CHEMISTRY
(For excellence in the one-semester and two-semester courses)

Betty Jo Collins
Kent K. Huston
Todd A. Frieze
Phu Van Troung

THE ELI LILLY AWARD IN ANALYTICAL CHEMISTRY
(For superior achievement)

Jeffrey S. Johnson

THE TAFT AWARD IN PHYSICAL CHEMISTRY

One semester course
Natividad Ruiz

Two-semester course
Jeffrey S. Johnson

THE FASSNACHT SCHOLARSHIP
(An advanced student planning a career in Chemistry)

Jeffrey S. Johnson

THE SORG SCHOLARSHIP
(Students planning a career in Chemistry)

Christopher J. Aho
Scott A. Peterson
Luke Y. Shen

THE CLARK E. BRICKER SCHOLARSHIP
(A second-year student intending to major in Chemistry)

Huong M. Lam

THE JACOB KLEINBERG AWARD
(A third-year major who has made outstanding progress in research)

Matthew P. Meyer

THE SNYDER AWARD
(An upper class major in Chemistry who has demonstrated considerable promise)

Neda L. Nasseri

SPECIAL HONORS TO GRADUATING SENIORS FOR SUPERIOR PERFORMANCE
(Seniors who will enter Medical School)

Jessie Pak Dill
Jason B. Wittmer

AMERICAN INSTITUTE OF CHEMISTS AWARD
(A national award)

Fang Zhao

ALPHA CHI SIGMA AWARDS
(To a chemistry major and a chemical engineering major)

Sing Hwa Chong
Arron J. Heinerikson

GRADUATE STUDENT AWARDS

THE H.P. CADY AWARD
(An excellent performance by a first-year student)

Kandiah Anandarajah

OUTSTANDING FIRST-YEAR TEACHING ASSISTANT

Alexander Kolchinskii
Xiaozhang Liang

THE RAY Q. BREWSTER AWARD
(An advanced graduate teaching award)

Denise Barnes

THE PAUL AND HELEN GILLES AWARD IN PHYSICAL CHEMISTRY
(A. Ph.D. student for the quality of academic performance and research accomplishments)

Luis Morales

THE HIGUCHI DOCTORAL PROGRESS AWARD
(A superior post-comprehensive student in his or her final year)

L. William Kueper, III

THE REYNOLD IWAMOTO AWARD
(A graduate or undergraduate major in chemistry; award based on academic performance)

Julie Ann Stenken

THE J.K. LEE AWARD
(A graduate student of advanced standing. The award is based on academic record and research ability)

Nancy Eilerts

THE SNYDER AWARD
(A graduate student of considerable promise)

Kirsten A. Roussel

THE PHILLIPS/McCOLLUM SUMMER RESEARCH FELLOWSHIPS
(Advanced graduate students)

D. Phillip Colombo, Jr.
Gouri Sankar Jas
John O'Brien

OTHER AWARDS

NATIONAL AWARDS

BARRY M. GOLDWATER FELLOWSHIP

This spring, Jeffrey S. Johnson, a senior chemistry major, was awarded a prestigious Barry M. Goldwater Fellowship in a nationwide competition. Jeff plans to go to graduate school in chemistry. He is currently doing research with Bob Carlson and spent the summer at Columbia University working with Koji Nakanishi. Jeff is the son of Ken Johnson, Ph.D. 1967, with Earl Huyser.

UNIVERSITY AWARDS

SPAHR

Huong Lam

UNDERGRADUATE RESEARCH AWARDS
Spring 1993

Fang Zhao

Nelson Scholarship

Whitney Baxter

FACULTY NEWS

Kristin Bowman-James (formerly Kristin Bowman Mertes) successfully completed her last year as Secretary of the Inorganic Division of the ACS. She has now passed that job on to Bruce Bursten at The Ohio State University.

Last summer remodeling was completed on the group's main lab, 1014. The group is now beginning to expand to 2014 (the former Enzyme Laboratory), which is scheduled to be remodeled in the fall.

Professional highlights of the year included an invitation to speak at the Women Chemists Committee symposium, *Shattering the Glass Ceiling through Research Accomplishments,* at the Denver ACS meeting. Also, Kristin was invited to attend the Korean/ U.S. Inorganic Chemistry Conference held in Seoul in April. Only twelve inorganic chemists from the U.S. were invited to attend this conference. It was a resounding success, with the hope of new collaborative efforts with Korean colleagues.

At the end of June, Kristin attended the XVIIth International Conference on Macrocyclic Chemistry held at the University of Twente, in Enschede, Netherlands. The next conference will be held at KU from June 12-17, 1994, and will be co-chaired by Kristin and Daryle Busch; expected attendance is 300-500 participants. This conference has been held in the U.S. every other year, but always at Brigham Young University. Holding the conference in Lawrence will be a major change in tradition and is an exciting opportunity for KU.

Other than chemistry, Kristin and her husband Gary are avidly following their pursuit of speed in the sport of drag racing. Kristin still has her rear-engine dragster and Gary his 1967 Camaro which they drive in super comp and super pro categories. They have not yet made enough money from winnings to retire, so it is anticipated that Kristin will be active scientifically for many years to come.

In September 1992, **Albert Burgstahler** was in the beautiful historic city of Kyoto, Japan, to present a paper and chair a session of the XIXth Conference of the International Society for Fluoride Research, sponsored by the Department of Hygiene and Public Health, Osaka Medical College.

In the Spring semester of 1993, Albert and Dr. Krzysztof Kuczera teamed up to teach a special discussion section of CHEM 189, *Foundations of Chemistry II, Honors.* This course was taken by students with superior performance in CHEM 184.

Most demanding and rewarding for **Daryle Busch** this academic year has been the launching of Kan-Syn, a sizable part of K*STAR, the state of Kansas EPSCoR program. The eleven research programs are all staffed and research is underway; publications have appeared and more are in the works; research proposals have already been generated and that activity is also escalating.

After four years at KU, the graduate student population of the Busch research group returned to a normal level, eight in number, and their research efforts have been bolstered by four to six post-doctoral colleagues and an undergraduate or two.

In addition to numerous invited lectures, Daryle gave a plenary lecture at the XVII International Symposium on Macrocyclic Chemistry in Provo, Utah; the International Symposium on Oxygen Activation at College Station, Texas; and, the Symposium on Supramolecular Chemistry, Denver ACS Meeting. The Busch group gave eleven presentations at the 1992 Midwest Regional Meeting in Lawrence.

On the home front, a sixth grandchild, Alexander Daryle Busch, was born to biochemist Steven and biologist Becky Busch in Cincinnati. Daryle's youngest daughter Kristina completed preparatory work and was accepted into the B.S. nursing program at Baker University. Granddaughter Lisa Busch was married in her home town of West Palm Beach, Florida, and his goddaughter Sharon Melson was wed in Richmond, Virginia. Christmas was held at Big Sky, Montana, with daughter Cheryl and family.

Shih-I Chu continues his development of new theoretical formalism and numerical techniques for nonperturbative treatments of the response of atoms and molecules to intense and superintense laser fields as well as to the study of quantum chaos and fractals in Rydberg atoms and molecules. One of the recent works in his group involving the discovery of a new molecular phenomenon, namely, stabilization and chemical bond "hardening" of molecules induced by strong laser fields, has been announced by the Department of Energy national newsletter. Since October, 1992, he has been heavily involved in the initiation of various activities of the newly established Kansas Theory Institute for Theoretical and Computational Science.

Grover Everett devoted considerable time and effort this year to teaching both semesters of the general chemistry sequence.

The initial enrollment last fall was 1020 students, and the class was held in the university theater. He is also involved in designing a new, interdisciplinary, team-taught, liberal arts course in science for non-science students. His wife Carolyn continues to teach home economics in one of the junior high schools in Lawrence. His daughter Susan is a free-lance graphic designer in Chicago, and his son Mark is finishing his second year of graduate school in astronomy at Ohio State. Last August, the entire family spent two weeks vacationing in Alaska. Grover continues his athletic activities which include running, bicycling, and orienteering.

Marlin Harmony and his research group continue to make progress in their supersonic free-jet studies of reactive carbenes. Billed as "the fastest molecules in Malott Hall," the carbenes are detected and spectrally investigated approximately 20 microseconds after ejection from the free-jet nozzle. In addition to the high velocities, the species have the special virtue of being very cold, typically near 20 degrees Kelvin.

Summer activities this year, in addition to research, include continued co-direction of the National Science Foundation-Research Experiences for Undergraduates (NSF-REU for short) program. But, Harmony and spouse Nancy, who continues her technical manuscript /proposal preparation and editing activities with the Higuchi Biosciences Center, will get away for a couple weeks of relaxation as usual. This year a week on the beach (the Atlantic) is included. It is hoped that this will prepare Harmony for the Fall semester when he will teach CHEM 184--giving Professor Everett a well-deserved break.

Rich Givens' Photochemistry and Chemiluminescence Research Group now numbers six with the addition of Jeff Barnes and Dr. Kuroda. Jeff finished his first year of study, coming to K.U. from MidAmerica Nazarene College. He will join Chan-Ho Park and Bill Kueper on our photochemistry project which explores the photochemistry and applications of α-ketophosphates. Chan-Ho returned to the group after a three year mandatory stint in the Korean Army.

Dr. Kuroda joined our group as a visiting professor from Nagasaki University in Japan. He and Deepani Gunasekera are exploring the applications of the peroxyoxalate reaction for chemiluminescence-based bioanalytical assays. Sanjay Nimkar working with Professors Carlson and Stobaugh is also on an bioanalytical research project directed toward the use of polymer-based analyte derivatization reactions.

Several publications on each of these projects have appeared highlighted by a Chemical Reviews article on *Phosphate Ester Photochemistry* with Kueper and a review to appear later on photoinduced single electron transfer mediated reactions with Mariano, Koo and Atwater.

The year also included a few meetings and seminars, two Gordon Conferences, and talks at schools such as UC-Riverside (hosted by John Nuss, B.S., 1989) and at the Center for Photochemical Sciences at Bowling Green State University (hosted by Doug Neckers, Ph.D., 1963). This year, a trip to Georgia State University is planned (hosted by Lucjan Strekowski, postdoctoral, 1973), along with several other sojourns. The major efforts in the group, however, will be to increase funding for this growing enterprise.

On the personal side, the year has marked another milestone in the Givens family. On August 22, 1993, we became first-time grandparents. Barbara (Givens) Heeb gave birth to Rachel Danika Heeb at St. Lukes in Kansas City where her father, Dr. Jon Heeb, is completing his residency. In September, Beth (Givens) Porter will begin a Masters program in physical therapy at Simmons College in Boston. Her husband, Jack Porter, is in the third year of his Ph.D. program in economics at MIT. The two youngest women are continuing their successful assault on the Lawrence secondary school system.

Joe Heppert is spending the summer on a short sabbatical with the B.F. Goodrich Corporation in Brecksville, Ohio, where he will study the industrial side of polymerization. In the past year, his sixth Ph.D. student, Martha Morton, graduated. Research progress is continuing and the first papers from the group on their studies in polymerization catalysis appeared in print during the year. Other pertinent progress is that the Heppert's oldest daughter, Jennifer, finished kindergarten this spring.

This past year found **Earl S. Huyser** teaching organic chemistry in some locale other than Hoch Auditorium, namely in Woodruff Auditorium in the Kansas Union. The experience was so pleasant compared to attempting to teach in Hoch that he is going to teach organic chemistry in the same place again this year. Work is continuing in the area of using computational molecular orbital calculations to understand better some of the chemistry of free radicals. Effort is being directed presently at studying the stereoelectronic factors in the polar effects that may play a significant role in reactions of antioxidants such as vitamin E.

Carey K. Johnson is busy trying to keep up with his research group, which has expanded to include six graduate students and a postdoctoral scientist. The group is working on time-resolved measurements of protein dynamics in peptides and photoactive proteins. He is also leading the Kansas Ultrafast Spectroscopy (KUFS) project, which includes Professor Robert Bowman, and Professor Tom Squier (biochemistry) and has been funded by the NSF EPSCoR program. The KUFS program is adding new capabilities in ultrafast time-resolved spectroscopy, including a Titanium: sapphire laser system, and fluorescence lifetime capabilities. The high point of the year (literally) for the Johnsons was a camping trip to Rocky Mountain National Park with wife Jean and four-year old daughter Elizabeth.

Krzysztof Kuczera found that much of his time in his first full year at KU was spent in equipping his computational laboratory and writing grant applications. Research presently underway includes studying macromolecular normal mode analysis in internal coordinates, a thermodynamic integration approach to conformational free energy simulations, work in collaboration with Carey Johnson in conformational factors in bacteriorhodopsin and work with Professor Leimkeuhler of the KU Mathematics Department in developing algorithms for constrained macromolecular simulations. Teaching this past year included the Biological Physical Chemistry course and participation in a graduate course in the Biology Department entitled Physical Biochemistry.

On March 24, 1993, the Kuczera's welcomed a son, Stefan, into their family.

Jack Landgrebe heaved a sigh of relief as the fourth edition of his laboratory text *Theory and Practice in the Organic Laboratory with Microscale and Standard Scale Experiments* was published in early 1993 by Brooks/Cole of Pacific Grove, California. The 586 page, hard-bound volume represents a substantial revision in content and organization from previous editions. Jack continues to be actively involved with the NSF remodeling grant for research laboratories in the Department and is spearheading an effort to convince the administration of the University to build a new facility for undergraduate laboratories in Chemistry, Physics, and Biology.

In September, 1992, he and Carolyn became the guardians of two boys (age 12 and 15) from Redwood City, California, who lost their mother (Carolyn's cousin) to cancer. The boys have been living in Lawrence since November and everyone is adjusting nicely to a new life style. In other family news, son John and his wife Laura recently purchased University Floral in Lawrence, and granddaughter Julia (in Danville, Indiana) has passed the one year mark and is growing rapidly.

Cynthia Larive joined the Chemistry Department in August, 1992. In the last year, her research group has swelled to include a graduate student and two undergraduates. Research projects underway at present focus on two areas, the conformational analysis of peptides and developing methods for measuring peptide aggregation based on NMR measurements of diffusion coefficients. One of the peptides being studied is a fragment (1-28) of beta amyloid peptide. Beta amyloid peptide is the major protein component of amyloid

plaques which form in Alzheimer's Disease. NMR and Circular Dichroism are being used to examine the conformation of this peptide as a function of solution conditions such as solvent composition, pH, ionic strength, and metal ion binding.

Cindy's family have acclimated to life in Kansas and feel very much at home in Lawrence. Her husband Jim is teaching English at Wyandotte High School in Kansas City, Kansas. Daughters Erin, 8, and Megan, 6, recently completed third grade and kindergarten in Lawrence. Megan, clearly a natural-born biologist, has been having fun collecting bug, amphibian, reptile, and plant specimens, with fireflies a particular favorite. Both girls have attempted to play softball/teeball this summer between rainstorms, without much cooperation from mother nature.

Alfred J. Lata recently stepped down after three years as Chair and Co-Chair of the Committee on Computers in Chemical Education, Division of Chemical Education, ACS. However, he still remains active in the area. In June, 1992, he served as a member of the National Software Review Panel for EDUCOM Awards to select outstanding educational Chemistry programs. In August, Alfred served as co-organizer of a symposium, *Integrating Computational Chemistry into the Curriculum*, at the 12th Biennial Conference on Chemical Education, University of California-Davis. Then, in June of 1993, he was the keynote speaker and presented two papers at a Computers in Chemical Education Workshop at Case Western University in Cleveland, Ohio. The title of his keynote address was, *The Computer in Instruction: Vitalizing an Old Chemistry or Creating a New One.*

Alfred also played a role in the Midwest Regional ACS Meeting in November, 1992, by organizing the first Big Eight General Chemistry Meeting which was attended by representatives of all the Big 8 schools.

In his free time, Alfred is still active in the Lawrence Community Theater. In the last year he acted and sang in *Cole* and in *Archie and Mehitabel.*

Craig Lunte's research efforts on the development of microdialysis sampling techniques continues. The investigation of chemotherapies for solid tumors has been most exciting during the past year. New microdialysis probe designs continue to be developed which allow sampling from more sites. Excellent results have been obtained with the on-line coupling of microdialysis sampling to capillary electrophoresis and fast microbore liquid chromatography. These systems provide near real-time analysis of multicomponent systems in awake, freely-moving animals.

Craig and Susan are happy but busy following the birth of their second daughter, Kathryn Margaret, on December 4, 1992. This event prompted a move to a new house a few months later.

Many of **Barbara Schowen's** activities continue the same as reported here last year. Teaching and advising remain major activities. Last fall, in addition to teaching our one-semester organic course, Barbara joined Grover Everett, Albert Burgstahler and a number of other faculty in the physical and biological sciences in team-teaching a general interest overview-of-science course for freshmen.

This past spring, Barbara taught our new "capstone" junior/senior seminar course for chemistry majors. The twenty students in the seminar learned about literature searching, heard faculty and others speak about current trends in chemistry as well as the variety of activities engaged in by professional chemists, wrote abstracts of journal articles, and gave an oral presentation on a research topic of choice. Barbara was also one of three College faculty responsible for a biennial course *Science, Technology, and Society.* This year the topics included the environment, health-care access, and ethical issues in human and animal experimentation.

Barbara and Marlin Harmony are continuing their work as organizers of the Department's NSF-sponsored REU (Research Experiences for Undergraduates) Site. This summer eleven students from other colleges did full-time chemical research for ten weeks along with an equal number of our own undergraduates.

In July 1992, **Dick Schowen** reported his group's work on lactate dehydrogenase catalysis to the Gordon Research Conference on Enzymes, Coenzymes and Metabolic Pathways; a co-organizer of the conference was John Schloss, who has joined the Med Chem department from DuPont as its new chair.

On July 1, Dick also became a member of the Pharmaceutical Chemistry faculty. On July 11, Dick gave an after-dinner talk to the Midwestern Pharmaceutics Graduate Student Meeting. The title of his address was *My Life and Times as a Pharmaceutical Chemist, or Ten Days That Shook the World.*

Dick gave a plenary lecture on the use of stable isotopes in biochemistry to the International Symposium on Stable Isotopes in September. The symposium took place in the Biosphere in Machida, near Tokyo which is quite near Sagamihara where the Schowens lived for some weeks in the fall of 1969. He also lectured at Kyoto University and the Shionogi Company in Osaka.

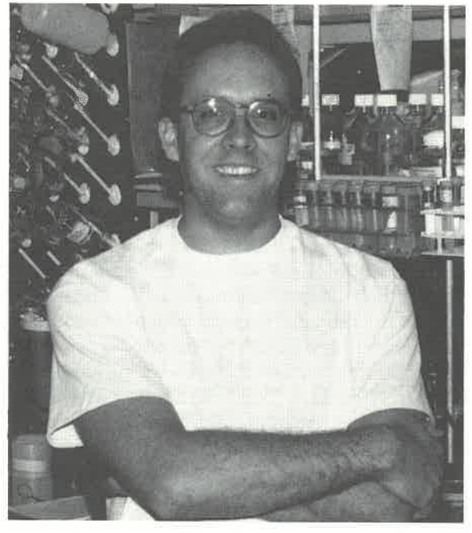
When Dick received the Midwest Award of the ACS at the Regional Meeting in Lawrence in November, Barbara and Dick were very pleased that a number of former students and coworkers (organized by Dan Quinn, now at the University of Iowa, and K. Venkatsaubban (Venkat), now at the University of North Florida) attended the meeting and held a bibulous "Group Meeting" on the following Saturday. The Meeting began in the morning at McCollum Laboratories and continued at the Schowen's house, where their daughters Susie, a physical-chemistry graduate student at Columbia, and Sarah, an education graduate of New York University, were home for the occasion.

George Wilson continued his interest in international activities by serving on the Scientific Board for the 24th International Chemistry Olympiad, held in the U.S. (Pittsburgh) for the first time. Students from 32 countries participated and George was obliged to grade exams in 24 different languages! Each country had a team of four of the very best students. Although the participants were only high school graduates, their knowledge of chemistry was impressive. It was very heartening to interact with students coming from "new" countries such as Estonia, Latvia, Lithuania, and Slovenia.

George continues his activities as Chairman of a IUPAC Commission on Electrochemistry which held its annual meeting in Coimbra, Portugal last September. Other service activities included chairing a Gordon Conference on Bioanalytical Sensors and directing a state-wide EPSCoR project on analytical chemistry in the neurosciences. George and his French collaborators received a U.S. patent for their implantable glucose sensor and this device is now undergoing testing in humans in France. If all goes well the hope is that this device might be on the market in 2-3 years.

NEW FACULTY

David R. Benson, Jr., was born August 22, 1963, in Philadelphia, Pennsylvania. In 1985, he received his B.S. degree in Chemistry from Penn State University, and then travelled to the west coast to obtain his Ph.D. degree (1990) in organic chemistry from UCLA with Francois Diederich. Scientific interests include bio-organic chemistry, physical organic chemistry, and protein structure and function.



After completing his Ph.D., Dave moved north to become an NIH Post-Doctoral Fellow with Peter G. Schultz at the University of California at Berkeley. Dave's extracurricular interests include all types of music, photography, hiking, skiing, exploring the American West and 20th century American fiction.

PROFESSIONAL STAFF

The Biochemical Research Service Laboratory (BRSL) has undergone numerous changes in the last year. The BRSL recently moved into a larger and modern lab housed in Malott 6037. Other new additions to the lab include **Hongjian Zheng**, December 1992, and **Sarah Mounter**, January 1993, both Research Assistants. Regrettably, **Su Narayanan** left the BRSL in March 1993 to pursue her research interests at Oread Laboratories, Lawrence, Kansas. In the interim, Sarah Mounter agreed to serve as the Acting Director of the facility. **Rich Freeman**, a familiar face in the lab, still serves as Research Assistant. The BRSL staff invites all to come visit our new laboratory and to become familiar with the services we provide. We offer peptide synthesis and sequencing, amino acid analysis, and oglionucleotide synthesis. In addition we will gladly perform SDS PAGE, isoelectric focusing, protein purification, and small scale batch fermentation. We would also be willing to try novel projects as an aid to ongoing research projects. Stop by to see our new space or just to say hello.

Mass Spec Lab News. The Autospec Q tandem mass spectrometer has been installed and running for about six months. Numerous ms/ms experiments have been done on it, and we are very pleased with the instrument.

Bob Drake continues to be indispensable to the lab and learned to operate the new instrument very quickly. **Tho-noc Nguyen** has been running probe EI/CIs at a furious pace on the Nermag. **Todd Williams** has gotten involved in a number of interesting projects including following fatty acid composition change with age in rats, oxidative peptide degradation, and figuring out how to get structural information on coordination compounds for the Busch and Bowman-James groups.

Charlie Judson is now the "bionic man". He had a heart valve replaced in June. As of this writing he is doing very well, he has come into the lab for his mail and to talk mass spec a number of times in the last two weeks.

EMERITUS FACULTY

Ralph Adams retired from active duty in the Department last July 31. According to his wife, Gini, "nothing has changed" and he's still in the lab most days. The last member of the Adams' troops, Kim Mitchell, finished her final oral with honors. It was a particularly delightful yet poignant experience since on the exam committee was the very first Ph.D. of the Adams' group, Regents Professor Ted Kuwana! Adams moved his office to the corner of the old "rat room" and says it is a wonderful spot--great views. Kuwana's group of mostly electrochemists now occupy the 5070 main lab. Adams says he's having to sharpen up his electrochemistry to keep up with questions from these youngsters.

Adams and Arvin Oke, a long-time research partner continue their human brain schizophrenia studies. They presently have a two-year grant from the Stanley Foundation (Natural Alliance for Mental Illness) but much of the continuing research is possible through income from the Professorship set up by Adams' former students and other individuals.

Clark Bricker has been retired for ten years and has been bored less than one minute during that time. He is still giving lectures occasionally to various school groups but is not soliciting engagements. However, he will be involved with a summer program in 1993 for middle and junior high teachers that will keep him busy during most of July.

Paul Gilles is secretary of the Inorganic Division of the International Union of Pure and Applied Chemistry. (Most high temperature work in Europe is done by people who are regarded as inorganic chemists; in the U.S. sometimes by physical chemists, sometimes by inorganic chemists).

Dr. Gilles attended IUPAC meetings in Rome and London and also the Gordon Research Conference in high temperature chemistry. When Luis Morales finishes soon, the laboratory will be dismantled, and he hopes that much of the equipment and supplies can be used either here or elsewhere. Edwards, Franzen, and Wahlbeck from elsewhere, as well as numerous people at KU have examined various items.

DR. BREWSTER'S MEMOIRS

Dr. Brewster's daughter, Doris Brewster Swift, has compiled a book built on selected entries from the diaries and various journals kept by her parents. The present volume is entitled *Life on Mississippi Street: Post-war Years 1919-1931.* It is available from the Watkins Museum (1047 Massachusetts Street, Lawrence, Kansas 66046) for $25.00 per copy plus $5.00 charge for postage and handling. The book chronicles many of the events of this period (*e.g.,* the construction of Memorial Stadium, the flu epidemic of 1928, Dr. Brinkley's goat gland surgery and unsuccessful gubernatorial race, Lindberg's historic flight, etc.) and should evoke many memories of these years in Lawrence and of KU.

ALUMNI NEWS

1921-1930

H.M. Steininger (B.A., 1921) retired from Standard Oil (now Amoco) on August 1, 1962, after 33 years of service. He was Superintendent of Research and Technical Service at the Sugar Creek, Missouri, refinery of Standard Oil. After retirement, he was a substitute teacher of chemistry and physics in the Shawnee Mission schools and also did some private tutoring. His home is now at John Knox Village, in the Kansas City area, where he has his own apartment in the residential care facility.

Wayne E. White (Ph.D., 1930) reminisces about his career in chemistry: Sixty three years ago, in the summer of 1930, he left KU with a Ph.D. in chemistry (and a new wife) for a job as an instructor in chemistry at Western Reserve University in Cleveland. These depression years with low salaries and few jobs saw the arrival of his daughter, then a son, and his organizing and presiding at a symposium on organic reagents for inorganic analysis at the ACS meeting in Kansas City.

In 1936-37, he was back at KU on a post-doctoral fellowship.

In the summer of 1937, Dr. White entered the world of industrial research in fluorine chemistry at the Aluminum Research Laboratories of Alcoa in New Kensington, Pennsylvania.

During World War II, he was an employee at the U.S. State Department on assignment as Professor of Chemistry and Physics at the American Institute in La Paz, Bolivia. (Laura, his wife, taught music and home-making and their two children were in classes taught in Spanish.)

In November, 1946, he and his family moved to Tulsa, Oklahoma, where he organized research in and development of new inorganic fluorine compounds having commercial applications. This was for what was then the Ozark-Mahoning Co. which was the principal producer of fluorspar at that time.

He retired in 1972, before and after honors from the Fluorine Division, Tulsa Section ACS, Oklahoma Sections ACS, Forsyth Dental Center, Southwestern College (Winfield, Kansas) and two books edited on chemistry in Oklahoma and another on a century of science at Southwestern College.

He is now 88 years old with the same beautiful, talented wife; a daughter who is a graduate of KU in Occupational Therapy and in charge of that department in a Fort Smith hospital; a son who is a M.D. in a hospital in Wisconsin; four grandsons, one an aerospace engineer, one an M.D.; two granddaughters; and seven great grandchildren.

1931-1940

James D. Ingle (M.S., 1934; Ph.D., 1938) has moved to Corvallis, Oregon, to be near his son and his family. His new address is 2235 H.W. Robin Hood Street, Corvallis, Oregon 97330.

Merritt E. Roberts (B.A., 1929; M.A., 1931; Ph.D., 1937) spent the first ten years of his retirement researching his family history, which goes back to Plymouth, Massachusetts, in 1640. It was a 530 page history and was current to 1984. When the research was finished he and his wife moved from the Los Angeles area to Lompoc, California. In the eleven years they have been in Lompoc, Merritt has been a docent for the local museum and the local Spanish museum. He has done book binding for the local library, the local museum, and the Historical Society.

His main endeavor for the last four years has been teaching English to foreigners in the area; primarily Asian and Hispanic. He has found this very rewarding. His main effort, right now, is trying to help keep the whole southwest part of the United States from becoming bilingual.

Merritt's wife is also making a name for herself. Last year she was inducted into the Hall of Fame for Santa Barbara County. This year she was named Woman of the Year in their Congressional District. She was one of eighty California women to receive this award. The Awards were distributed at a special session of the Assembly in Sacramento. Merritt is very proud of her.

He will be 86 on his next birthday, and he is up and still enjoying life.

Albert E. Taylor (B.A., 1930; M.A., 1934) states that it was through examples of faculty at KU including H.P. Cady (his major advisor), Robert Taft and Mary Elvira Weeks in chemistry, and C.V. Kent and Morty Rice in physics that convinced him to make college teaching his life's work. He continued summer school and a sabbatical year in residence at the University of Michigan where he received the Ph.D. in 1945.

In 1947, the Southern Branch of the University of Idaho was changed by the State Legislature to Idaho State College. Graduate work, in which Albert became involved, was begun in 1957, and in 1963 the name of the institution was changed to Idaho State University. He retired in 1973 at the age of 65 as Professor of Chemistry Emeritus and Dean Emeritus of the Graduate School after 43 years of service.

1941-1950

James Earl Barney (B.S., 1946; Ph.D., 1950) and his wife Patricia relocated to Carson City, Nevada, in 1992 following his retirement from CIBA-GEIGY in Farmington, Connecticut in 1991. His new address is 3289 Harvard Dr., Carson City, Nevada 89703. Phone (702) 884-2608. This past semester he has tutored students in chemistry and algebra at Carson High School and has encouraged high school students to pursue a career in the physical and biological sciences. The Barneys welcome visits and calls from visitors in the Reno/Tahoe area.

John L. Margrave (Ph.D., 1950) is E.D. Butcher Professor of Chemistry at Rice University and is Editor of *High Temperature Science* and vice-president of the Houston Area Research Center. His research covers many areas of synthesis and property measurements including diamond and Fullerenes.

Jay J. Stewart (B.A., 1942; M.A., 1948; Ph.D., 1952 at Ohio State University) is thoroughly enjoying retirement in Severna Park, Maryland, after an industrial career at DuPont followed by a second career in teaching.

Joseph K. Thompson (M.A., 1949; Ph.D., 1950) is retired after 40-plus years at the Naval Research Laboratory in Washington, DC. He and his wife, Jean, are living in Frederick, Maryland, about 40 miles northwest of Washington. Frederick is away from city congestion, but close enough to keep in touch with what goes on downtown. Their chief occupation is tending to their one half acre "plantation." He sends his best regards to all!

1951-1960

Fletcher S. Abbey (B.A., 1951) retired from his oral and maxillofacial surgery practice in June, 1991. He keeps himself fully occupied presently as the potentate of Aahmes Shrine Temple in Livermore, California. He is also in his seventh year as a member of the Shriner's Hospitals for Crippled Children, San Francisco Unit, Board of Governors. He is married to Donna Cathers Abbey, B.A., 1952. They moved to Northern California in 1960. They have a son, Frank Abbey of Buffalo Groves, Illinois, and a daughter, Karin McCotter, of Danville, California, and are blessed with three grandchildren. Anyone from KU is always more than welcome and refreshments are readily available.

Justo B. Bravo (Ph.D., 1953) is Professor Emeritus in the Chemistry Department at West Chester University. He and his wife Aurora M. Bravo, formerly of the Great Valley School System, Malvern, Pennsylvania, celebrated their golden wedding anniversary, Saturday, May 9, 1992, in Camarillo, California, with their children, grandchildren, and relatives.

Justo and Aurora were married in a Roman Catholic Church in Silay, Occidental Negros, Philippines on April 30, 1942.

In 1949, they came to this country with their three children. Justo attended The Graduate School at The University of Kansas, where he received his Ph.D. degree in Inorganic Chemistry in 1953 working with Professors Kleinberg and Griswold.

He worked as a Research Scientist in several industries and, in 1964, became Chemistry Professor at West Chester State College, West Chester, Pennsylvania. In 1967, the Chemistry Department was established, and Dr. Bravo was its first chairman. After nineteen years of teaching and administration, he retired in 1983, and his wife Aurora retired in the same year from the Great Valley School System after 25 years of teaching. In July, 1983, they moved to New Mexico, where they now reside at 3000 22nd Ave., SE, Rio Rancho, New Mexico 87124-1658.

K. Douglas Carlson (Ph.D., 1960), Chemistry and Materials Science Divisions at Argonne National Laboratory, has presented several papers at International Conferences in High Temperature Superconductors.

Richard E. Easton (B.A., 1958; M.D., 1962) graduated from KUMC and took an internship (Los Angeles). After a post-doctoral appointment at Harvard School of Public Health (MPH, 1964), he returned to the KUMC faculty in 1965-71, and then moved to Eastern Virginia Medical School in 1972. He wrote a book *Problem-Oriented Medical Record Concepts* (Prentice-Hall) and for the past two years has been working on translating ideas from that book into PEN-BASED COMPUTER FORMAT (IBM 710T). (He says: "I will NOT be able to send the 8"x10" color glossy prints depicting ME holding the computer in a variety of different poses, as they were all given out at the Cannes Film Festival. Sorry.")

Richard says that the IBM 710T computer operates like "an electronic clipboard" or "just like paper and pen" for ready acceptance by medical personnel who would otherwise exhibit the standard phobias and resist the implementation of any productivity tools such as computers. He says that acceptance is remarkable! They are adding wireless (narrow band or spread spectrum) radio frequency, real-time communications between the 710T and its HUB computer which will allow users to walk around and be in constant communication with the HUB. So he is still working in his first love, chemistry. It just happens to be the fostering of that all-important "chemistry" of communications among medical professionals that, if enhanced properly, results in far more efficient and efficacious outcomes for all patients.

Donald W. Fuhlhage (B.A., 1953; Ph.D., 1958) is retiring from Harcros Chemicals on October 1.

Gordon A. Gallup (Ph.D.,1953) retired in May, 1993, from the Department of Chemistry at the University of Nebraska. His retirement affair included a symposium and banquet followed by an open house at his

residence. He recently received a courtesy appointment in the Department of Physics. He plans to remain in Lincoln and to continue a research program in theory in atomic, molecular, and optical physics.

Norman Griswold (B.A., 1957) has completed 30 years at Nebraska Wesleyan University in Lincoln. He served 10 years (1979-1989) as the Chemistry Department Chair and is currently the Chair of the Division of Natural Sciences.

Jack G. Kay (Ph.D., 1960) is Professor of Chemistry at Drexel University in Philadelphia, Pennsylvania. In addition to his teaching responsibilities, Jack serves as the Chair of the Faculty Senate and as Radiation Safety Officer. Currently, he has an NSF grant involving the calibration and intercomparison of automated radon instruments designed to measure the very low levels of radon in remote marine atmospheres (they have a lower level detection of about 2 atoms of radon per liter of air). In October of 1991, he organized an international radon intercomparison and calibration in Bermuda. He is now planning other projects involving the study of radon as an atmospheric tracer, especially in maritime air.

In the American Chemical Society, Jack serves on the Committee on Committees and is starting a three-year term as Secretary of the Division of Nuclear Chemistry and Technology.

Jack states that the following KU Alumni are also members of the Drexel faculty: James C.T. Pool is Professor and Head of Mathematics and Computer Science, Donald J. Perkey is Professor (and former Acting Head) of Physics and Atmospheric Science, Loren N. Argabright is Professor (and former Head) of Mathematics and Computer Science, and Samuel K. Nash is University Lecturer in Materials Engineering.

Mary Ann Langworthy (B.A., 1958) is retired and living in the Kansas City area. She is actively involved with the musical community - playing violin in the civic orchestra and singing in a beautiful church choir.

Her sons, David and George, are graduate students. David is at Brown University in the Doctoral Program for computer science, and George is at Austin, Texas, in the James Michener writer program for talented writers.

William E. Parker (Ph.D., 1956) has retired as the president of two semiconductor companies. He still does some consulting for the photomask industry. His three children are grown and married, and he has four grandchildren. He currently lives on a golf course and plays regularly. His wife, Connie (an ex-Watkins nurse) has also retired.

Ernest R. Plante (Ph.D., 1960) has retired from the National Institute of Standards and Technology, formerly NBS, and is engaged in consulting.

Monty L. Rowe (B.A., 1955) retired in May, 1989, as Technical Director of Allied Signal's nylon carpet yarn business area. He is enjoying country living in Wabaunsee County with wife Barbara Seymour Rowe (B.A., 1955, Sociology). They enjoy travel and visiting four grown children in Virginia, North Carolina, and New Mexico. They share good times with several old school mates who live in Lawrence.

Harry Robson (Ph.D., 1959) retired during the past year from teaching at Louisiana State University in the Chemistry Department and was appointed Assistant Professor for Research in Louisiana State University Chemical Engineering. The grant he expected at that time has not yet materialized, but hope is not entirely dead. In the meantime, his professional activities include two consulting clients and the International Zeolite Association.

He was elected chair of the IZA Synthesis Commission at last year's conference in Montreal. This is a continuation of work begun in 1989 in Amsterdam. They have established a library of zeolite samples at the University of Delft and are in the process of assembling an Atlas of Zeolite Synthesis. This keeps him in correspondence with experts in synthesis worldwide and provides the incentive to read the current literature as never before. It also

requires that he attend international meetings.

George E. Walrafen (B.S., 1951) is currently Graduate Professor of Chemistry at Howard University. He was elected Vice-Chairman of the Gordon Research Conference entitled *Physics and Physical Chemistry of Water and Aqueous Solutions* to be held during the first week of August, 1994. He will be the Chairman for the 1996 conference. Any faculty members or graduate students in the physical or biological sciences, pharmacy, etc., who are interested in aspects of water dealing with hydrogen bonding, solution structure, conformation of proteins in solution, water on surfaces, *e.g.*, glasses, metals, or molecular dynamics, statistical mechanics, or vibrational spectroscopy of aqueous systems should contact Professor Walrafen at the Chemistry Department, Howard University, 525 College St., N. W., Washington, D.C. 20059. Telephone: (202) 806-6897 or -5004. FAX: (202) 806-5960 E-MAIL: YCC @ SCSLA. HOWARD.EDU

Paul Walter (Ph.D., 1960) continues teaching at Skidmore College. In December, he was elected Chairman of the Board of the American Chemical Society. In this position he earns no money but lots of frequent flyer miles! Grace retired from teaching two years ago but was almost instantaneously hired as Administrative Assistant in their church.

1961-1970

Dave Armentrout (B.S. 1961; Cornell, Ph.D., 1965) is happily in his 27th year of research at the Dow Chemical Co in Midland, Michigan. He credits the analytical and organic chemistry skills passed on by Buzz Adams, Ted Kuwana, and Earl Huyser for a large measure of his success. His son Derek (Cal-Berkeley, B.S., 1990, Chemistry) enters the University of Washington in September for a Ph.D. in Atmospheric Chemistry to carry on the family tradition.

Larry W. Becker (Ph.D., 1967) has been employed by Hoechst Celanese in Charlotte, North Carolina, for about one year. He is a Senior Chemist with the Specialty Chemicals Group that manufactures paper mill chemicals. Larry is doing research with aluminum polymers and organic polyelectrolytes.

Jo A. Beran (Ph.D., 1968) relates that January, 1992, was the release date of his co-authored textbook, *General Chemistry, 2/e*, (Scientific American Books, New York.) The completion of the project was a lifelong dream and professionally rewarding as judged by its widespread adoption, both nationally and internationally. January, 1993, was the release date of his laboratory manual, *Chemistry in the Laboratory, A Study of Chemical and Physical Changes*, (John Wiley and Sons, Inc., New York). During the 1991-92 academic year, he was on a leave of absence at the University of California, San Diego, where he was closely involved with the general chemistry program. This June, he will complete his 13th year as a faculty consultant to the Advanced Placement program in chemistry, administered by the Educational Testing Service. Jo was the recipient of the third Olan Kruse Science Faculty Award at the spring, 1993, commencement exercises at Texas A&I University

Ronald Blecke (Ph.D., 1968) is the Director of R&D for Barton Nelson, Inc., Kansas City, Missouri. Development of pressure sensitive adhesives and release systems for repositionable notepads are his goals. Carol (B.A.E., 1967) is an oncology nurse clinician at KU Medical Center. She is responsible for experimental drug programs such as Taxol. Their son, Eric, 22, is a Ranger stationed at Ft. Lewis, Washington, and their daughter Sara is a junior at KSU majoring in architectural engineering.

William H. Breckenridge (B.S., 1963), Professor of Chemistry at the University of Utah, was presented a Distinguished Teaching Award at the 1992 commencement ceremonies at the University of Utah. The following is from a University of Utah news release:

Breckenridge, or "Dr. B." as many students call him, is recognized as one of the most appreciated teachers in the College of Science as well as his own department. In

1990, he was the first recipient of the Robert W. Parry Teaching Award in Chemistry and students have twice named him the department's outstanding teacher. He has received both the Dreyfus Teacher-Scholar Award and a National Science Foundation Faculty Development Grant, both reflective of his outstanding work in the classroom.

One student wrote this succinct evaluation: "No ripoff. Shows love for students. Makes them want to learn. Makes course hard." Another said, "I appreciate how Dr. Breckenridge is genuinely concerned that his students learn what he has to offer. He is not merely teaching as a sidelight to his own research... he feels just as strongly about his students' erudition as his own."

Breckenridge is internationally recognized for innovative research in fundamental reaction dynamics and spectroscopy, utilizing laser techniques. A member of the Utah faculty since 1971, he has a B.S. from the University of Kansas and a doctorate from Stanford University

Rodolfo A. Chaves (Ph.D., 1968) is currently General Manager of Sintesis y Technologia Industrial S.A., in Costa Rica. He lives in San Josè.

Kent W. Cox (Ph.D., 1970; M.D., 1975) has been elected President of Northwest Academy of Otolaryngology - Head and Neck Surgery. This organization represents otolaryngologists in the state of Washington. Kent is in practice in Seattle. His main interests are head and neck surgery and facial plastic surgery.

H.F. Franzen (Ph.D., 1962) is currently at Iowa State University. He is American Editor of *J. Less Common Metals* and pursues research on metal-rich sulfides, incoherent structure, and Landau Theory.

Chuck Groginsky (Ph.D., 1970) is now employed at Cortech, Inc. (Denver, Colorado) as Director, Process Development/ Pilot Mfg. since November, 1992. Cortech is a ten-year-old biopharmaceutical company which has a peptide antagonist (bradykinin) in phase II/III clinical trials for sepsis and related indications. The company went public in 1992.

Fred J. Hadley (B.A., 1968) is currently professor of chemistry and chair of the faculty at Rockford College in Rockford, Illinois. He says: "Every morning that I get up for class I think to myself, 'If I can be one-tenth the teacher Clark Bricker was then I'll do alright by my students'."

After graduating from KU in 1968, he spent two years in the Peace Corps (Philippines), then came back and spent three years at Texas A&I University doing post-graduate work and working with Jo Beran in the general chemistry program there. Following that, he moved to Rice University and received his doctorate with Joe Franklin in 1977, just a few years after Peter Hierl. He then did a teaching post-doc with Gil Haight at the University of Illinois, and taught for six years at Wabash College in Indiana before moving to Rockford in 1984. He spent the 1987-88 year teaching at Regents College, an affiliate of Rockford College, in London, England.

Peter J. Hampton (Postdoc 1970) is at Ion Science, Cambridge, United Kingdom, where he directs research and manufacturing of solid state sensing devices.

Jay Janzen (B.S., 1961) lived in the home of Chemistry Professor George W. Stratton while he was a student. He received his Ph.D. in Physical Chemistry from Iowa State, and has been with Phillips Petroleum Co., Bartlesville, Oklahoma, since graduate school. He is currently a Research Associate. He thinks that twenty-two publications is not bad for an industrial scientist. He has written,"...I have come to be in awe of the uncommon dedication to effective tutelage of undergraduates that was demonstrated in Malott early every Saturday morning in the form of the then-infamous, now-legendary 'P-Chem Problem Sessions' that the entire physical chemistry faculty (Argersinger, Gilles, Rowland, and Bearman - in person - no graduate assistants!) put me and my classmates through. It was grueling, yet unmistakably and unforgettably personalized and authoritative."

Gregory L. Lauver (B.A., 1969), after finishing a residency in internal medicine at the Mayo Graduate School of Medicine and a Pulmonary Fellowship at the University of Arizona, moved to Mesa, Arizona, a contiguous suburb of Phoenix, and has been in the solo practice of pulmonary diseases since 1978. In addition to being board certified in internal medicine and pulmonary diseases, he is a Fellow with the American College of Chest Physicians and a member of the American College of Physicians. He has served as Chairman of the Departments of Medicine and Critical Care at Valley Lutheran Hospital, and Director of Respiratory Services at Desert Samaritan and Mesa Lutheran Hospitals.

He is married to Frances (Peg) Lamont Lauver, formerly of Aberdeen, South Dakota. They have two daughters, Laura, age 14, and Lindsey, age 11.

Doug McKee (A.B., 1969; Ph.D., 1973, University of California-Berkeley; M.D. 1980 University of Miami) is an obstetrician and gynecologist in Visalia, California. He was in Lawrence to attend the golden wedding anniversary of his parents.

Doug C. Neckers (Ph.D., 1963) remains as Chair of the Department of Chemistry at Bowling Green State University, a position described by Doug as having its good days and its bad days. The Center for Photochemical Sciences, which Chris Dalton and Doug started in 1985, now involves fourteen faculty from three departments. Their Ph.D. program in the photochemical sciences, started in 1989, will graduate it's first class this fall. They have matriculated approximately ten new students each year in the photochemical sciences, and will admit eleven this fall. George Hammond, whose papers Doug read during his first summer as a Ph.D. student at KU, is now his colleague serving as a Distinguished Senior Fellow of the McMaster Institute in the Center for Photochemical Sciences. *The Spectrum*, their quarterly newsletter, reaches approximately 7,000 photoscientists world wide. Doug's research program in three dimensional imaging continues to attract excellent students and post-doctorals. They were involved in the development of stereolithography, a photopolymerization technology used in rapid prototyping, in 1986. Few inventions have had the impact of stereolithography on design laboratories in heavy industry like automobiles and aircraft. Their major contribution at this point is the use of stereolithography in medical imaging - to convert CT and MRI tomographic scans to three dimensional plastic models for surgical planning and diagnosis. As a result, Doug's work is published in strange places (for an organic chemist) like the **Journal of Imaging Sciences.** One of their models actually appeared on the cover of the May issue of a journal called **Mechanical Engineering.** A business called Spectra Group has spun off from this work.

Paul C. Nordine (Ph.D.,1970) Intersonics, Inc., Chicago, reports several patents on levitation melting, containerless processing and fibers.

Narendra (Naru) Patel (M.S., 1970) is now Director of TQM at the Basic Chemicals Division of Olin Corporation based in Stamford, Connecticut. However, Naru is able to work from his office in Lake Charles, Louisiana. He celebrated his 50th birthday this year.

Carol Calhoun Powers (Ph.D., 1969) continues in product development at Fasson, a Division of Avery International. Her group includes four chemists and four technicians working on adhesive and release coating development. Her daughter, Kathy, is a chemistry major at Dickinson College, and her son, Dan, is leaning toward cartography.

Arnold W. Smalley (M.S., 1963), Professor of Chemistry at Southern University, has received the 34th annual Charles E. Coates Memorial Award. The award is named in honor of the Louisiana State University professor who founded the Audubon Sugar Institute and established the Baton Rouge sections of the American Chemical Society and the American Institute of Chemical Engineers.

Smalley has been a chemistry professor

at Southern since 1965, after receiving his Ph.D. in organic chemistry from the University of Massachusetts at Amherst. He has done research in environmental chemistry and was instrumental in establishing a master's degree program in environmental science at Southern University.

Karl E. Spear II (Ph.D., 1967) has relinquished the chairmanship of the Ceramic Science and Engineering program at Penn State. He continues research on high temperature chemistry of CVD diamond growth and is scheduled for a plenary lecture on this topic at the HTMC VIII conference in Vienna in 1994.

Robert E. Sutton (B.A., 1968; M.D., 1972) is presently in Birmingham, Alabama, and working as a Medical Director for Complete Health, Inc. Complete Health is a 160,000 member Health Maintenance Organization in the southeast. In his spare time, he reads, sails, and enjoys music and the kids.

Martin M Tessler (Ph.D., 1962) is the Director of Natural Polymer Research at the National Starch and Chemical Co., Bridgewater, New Jersey. He is currently working on synthesis of biodegradable plastics from corn starch. He has been elected Chairman of the Division of Carbohydrate Chemistry of ACS for 1994.

Michael L. Trollope (B.A., 1964) received his M.D. degree from USC in 1968, then took his internship and residency in general surgery at the University of Michigan during 1968-74. He and his wife, Judy, live in Los Altos Hills, California, where he practices gastrointestinal surgery and endoscopy at the Palo Alto Medical Foundation at Stanford University. They have three children in college and one in high school.

Wayne C. Wolsey (Ph.D., 1962) is currently Professor of Chemistry and Chair at Macalester College (St. Paul, Minnesota). He was designated the 1993 recipient of the College's Thomas Jefferson Award given annually by the McConnell Foundation. He was cited for his service and citizenship in being an advocate for academic freedom and championing unpopular causes and for the high entropy in his office.

The following statements are excerpted from the award citation:

Over the past 28 years you have served the College faithfully and well. The hundreds of students you have taught in general, inorganic, analytical, environmental, and radiochemistry testify to your commitment and effectiveness. Across the country, thousands more have learned the joys of experimental chemistry from the laboratory manuals you have co-authored.

Although these contributions to teaching and research have been of unquestioned quality, it is in your unselfish service that you most closely emulate Thomas Jefferson. No matter how demanding or onerous the assignment, you have never fled from appointment or nomination to a committee or an office.

You do not flee from championing unpopular causes, and you have often been an outspoken advocate for the rights of individuals with whom you may not agree. You embody the principles of academic freedom and the attendant responsibilities that are sometimes forgotten.

The faculty, administration, staff, and students of Macalester College are fortunate indeed that your career trajectory brought you here. We are pleased to honor your manifold contributions with the 1993 Thomas Jefferson Award.

1971-1980

Ann Cartwright (Ph.D., 1972) has been elected Chair Elect for 1994 of the Committee on Chemistry in Two-Year Colleges, which is a part of the ACS Division of Chemical Education. Ann and her husband, Lon, and daughter, Jenny, live in Houston. Ann is Head of the Chemistry Department at San Jacinto College.

Bruce R. Conrad, (Postdoctoral 1972) is now the Director of Process Research International Nickel, Ltd., J. Ray Gordon Research Laboratory, Sheridan Park, Mississauga, Ontario.

Craig Cowles (Ph.D., 1971) has been the Chairman of the Management and Aviation Science Department at Bridgewater State College at Bridgewater, Massachusetts, since January, 1993. He recently was promoted to full professor. Craig maintains an affable relationship with the Chemistry Department there and says he's curious as to what has transpired with his fellow students from eons ago at Lawrence.

Benjamin A. Feinberg (Ph.D., 1971) is Professor of Chemistry at the University of Wisconsin - Milwaukee. After Benjamin completed his thesis work with Ralph Adams, he carried out postdoctoral research with the late Joseph Jordan at Penn State University and then completed three year's postdoctoral work in biochemistry with Emanuel Margoliash, then at Northwestern University. He joined the faculty at the University of Wisconsin-Milwaukee in 1975. He and his graduate students explore the structure/function, reactivity and redox properties of iron-sulfur proteins and enzymes; his research is supported by the National Institutes of Health. Benjamin and his wife, Ella, have one son, Eugene, who just finished his first year at Carnegie Mellon University where he's studying computer science and electrical engineering.

Richard D. Gandour (Post-doc 1973-75) was recently appointed Professor and Head of Organic Chemistry in the Chemistry Department at Virginia Polytechnic Institute and State University. The appointment was effective July 1, 1993.

John E. Higgins (B.A., 1978) has held positions at Sterling Drug Co., Inc., Astra Pharmaceutical, Allergan, Inc., and Fermenta since 1979. Currently he is Director of Operations at Fermenta and is responsible for all plant functions including quality control, plant maintenance, safety/industrial hygiene, and manufacturing. He is married and has three children.

Dick Horn (Ph.D., 1973) continues with Kodak's Health and Environment Labs and serves as environmental liaison for new products between the research labs and the Kodak business units. His wife Mary completed her master's degree in special education from Nazareth College a year ago and is now in a position in special education in the Brighton school district (a suburb of Rochester). Their daughter, Kim, is 17 and will attend college in the fall.

Peter A. Humphrey (B.A., 1978), M.D., Ph.D., and family - wife, Kay, son, Tom (age 8), and daughter, Jennifer (age 4) - have moved from Durham, North Carolina, and Duke University to St. Louis and Washington University, where Peter is an Associate Professor in the Division of Surgical Pathology at Barnes Hospital. In addition to being a General Surgical Pathologist, Peter has subspecialty interest in urologic pathology and oncology, and is continuing research on growth factors and their receptors in neoplasia.

Jon K. Jones (B.A., 1978; M.D., 1983) is currently practicing emergency medicine at HCA Wesley Medical Center in Wichita, Kansas, and is currently Board Certified in Internal Medicine. He recently received permission to take the certification examination for the American Board of Emergency Medicine this fall. Jon and his wife Pat have four children: Kevin, 11, Kathy, 9, Kegan, 5, and Kristain, 3. All are in good health.

Ann Simpson Tait received her M.D. degree from KU Medical School in 1986, and completed her residency at Indiana University in 1989. She is currently a part-time pediatrician with Holt Krock Clinic in Fort Smith, Arkansas, and is married to Dr. Layne Tait, an anesthesiologist. They have two children, Justin age 4 and Heather age 2-1/2.

Richard Steichen (Ph.D., 1971) is now in Australia. He is the General Manager, Technical, for a joint venture between Goodyear and Pacific Dunlop, called South Pacific Tyres. His office is in Melbourne.

Richard L.C. Wu (Ph.D., 1971) attended the International Conference in San Diego on Metallurgical Coating and Thin Films

and presented two papers. In August, he will speak at the 2nd International Conference on Applications of Diamond and Related Materials in Tokyo.

1981-1990

Keith B. Allen (B.A., 1982; M.D., 1986) is currently beginning his last year of residency in cardiovascular-thoracic surgery in Chicago. Keith and his wife Alison celebrated the birth of their second child, Kelsey Elizabeth, on May 22, 1993.

Phillip Athey (Ph.D. 1990) and his wife, Valerie, have finally settled down in Lake Jackson, Texas, where Phil works for the Dow Chemical Co. Their new address is 129 Frostwood, Lake Jackson, Texas 77566. Their son, Mitchell, (two and a half years old) has been keeping them very busy by doing what two years old do best...exploring. He gets into everything. Fortunately, he puts things back (even if the item has become disfigured or broken!). On April 23 of this year, they added another member to their family, Jillian Marie Athey, who checked in at a healthy 7 lb. 6 oz. She seems very content to watch her older brother zoom around the house!

At Dow, Phil has been working in the area of ethyleneamines. This area has led him into the synthesis of various azamacrocycles with potential uses as commercial chelants. On the side, Phil has become interested in the area of the development of MRI contrasting agents and their applications.

Robert L. Brown (B.A., 1982) is a family physician at Long Beach Naval Hospital. He returned from Okinawa, Japan, this year with his wife, Lorrie, and daughter, Carolyn.

Sarah Goodwin Fortino (B.S., 1988) is currently employed at Marion Merrell Dow, Inc. as an Associate Chemist in the Q.A. department working on the Cardizem family of products. She and her husband, Mark, who live in Olathe, Kansas, welcomed the birth of their first son, Anthony William, in May.

Gary Fraser (B.A., 1985; M.B.A., 1987) is currently the Director of System Development and Programming for Heartland Data Services of Hutchinson, Kansas. Heartland is involved in the development, marketing, and support of general accounting, retail, and grain management stand-alone systems for agri-businesses within the nineteen mid-western states. The programming and development staff is responsible for producing new application code, researching new operating platforms, and developing ways for their customers to move information efficiently, *i.e.,* chemical labeling. Heartland is a wholly owned subsidiary of Farmland Industries of North Kansas City, Missouri.

David R. Hardten (B.S., 1983; M.D., 1987) recently finished a fellowship in cornea and external disease at the University of Minnesota. After a two week trip to Australia, where he will visit the Ophthalmology Department at the University of New South Wales in Sydney, he will begin practicing ophthalmology in Minneapolis and St. Paul, Minnesota. He will specialize in cornea, external disease, and refractive surgery.

Samuel Ho (B.S., 1981; M.D., 1985) is currently practicing medicine as a busy internist, primary care physician. His offices are close to the KCI Airport in North Kansas City. Samuel and his wife, Jennifer, have been married nearly ten years. They are blessed with two children. Allison is five years old and will be going to kindergarten this fall and Sammy, Jr., is one and a half and eats everything in sight.

Paula Martin (Ph.D., 1987) has completed her seventh year at Dickinson State College in Dickinson, North Dakota, where she has been *exofficio* Chair of Chemistry. Last year, she was promoted and received tenure. Paula is involved in teaching general and organic chemistry, and occasionally she teaches advanced inorganic chemistry, spectroscopy, or biochemistry. She has written all the laboratory experiments for her general and organic courses. She says she really enjoys her work!

Kristina E. Paquette (B.A., Chemistry; B.A., Slavic Languages and Literature, 1983) worked as an analyst/linguist for the Federal Government in Northern Virginia for five years, then entered graduate school in analytical chemistry at the University of Maryland, College Park, Maryland, in the fall of 1989. After working with Dr. Janice Reutt-Robey for a short time on Ni surface chemistry in ultra-high vacuum, Kristina changed research programs and is currently studying, with George Helz, the solubility of HgS and the speciation of mercury-sulfur complexes in anoxic conditions approximating those found in natural waters. Kristina became a Ph.D. candidate in August, 1991, by successfully defending her research proposal, and she hopes to finish the dissertation in time for a December, 1993, graduation. She gave a talk on her research at a regional symposium held at the College of William and Mary's Virginia Institute of Marine Science (VIMS) at Gloucester Point, Virginia, in October, 1992, and she has lectured on *Mercury in the Environment* for her advisor's undergraduate environmental chemistry course. In the course of her research, she has developed a cold vapor mercury atomic absorption apparatus with a detection limit of 0.1 ppb and surprisingly good reproducibility.

Jacqueline Braly Payne (B.A., 1984) worked in research and development on the Beech Aircraft Starship (all advanced composite turbo-prop) before going to work in Product Development at Brunswick Defense (aerospace subcontractor) in Marion, Virginia. She is now home in Colorado with a daughter, Jessie, 3, and husband, Greg.

Steven A. Soper (Ph.D., 1989) and his family have recently moved to Baton Rouge, Louisiana, where Steve accepted an Assistant Professor position in Bioanalytical Chemistry at Louisiana State University. He is currently working in the area of DNA sequencing and ultrasensitive fluorescence detection. Steve's wife, Shauna, is working at a local bank in Baton Rouge. His son, Steve, Jr., is now in the second grade and is playing football, baseball and basketball. Prior to his appointment at Louisiana State University, Steve and his family lived in Los Alamos, New Mexico, where he was a post-doctoral fellow at Los Alamos National Laboratory and worked on the Human Genome Project.

M.K. Venkatramanan (M.S., 1983) is currently a Senior Research Chemist at Monsanto Company. After leaving KU, he completed a Ph.D. degree from Emory University, then worked as a Postdoctoral Associate with D. Boykin at Georgia State University. He is married and has two children, ages 1 and 4.

1991 -

Denise Barnes (M.S., 1993) has accepted a teaching position at the Mid-Plains Community College in North Platte, Nebraska. She will begin this August.

Martha Morton (Ph.D., 1993) received her degree this spring finishing her research with Professor Joe Heppert. Martha is now engaged in post-doctoral work in the Nuclear Magnetic Resonance Laboratory at KU.

Umashanker 'Pop' Sampath (Ph.D., 1992) is currently a Postdoctoral Research Associate in the Chemistry Department at Washington University in St. Louis. He is pleased that his artwork (The CHEMHAWK) has been adopted by the department to adorn the newsletter and the departmental FAX sheet, and was used as the logo for the ACS Midwest Regional Meeting held in Lawrence.

Greg Swain, (Ph.D., 1991) and family recently returned to the United States after completing a year-long, post-doctoral fellowship at Tohoku University in Sendai, Japan. The research involved the characterization of well-defined electrode surfaces using *in-situ* scanning probe microscopy and was directed by Professor Kingo Itaya. The fellowship was cosponsored by the National Science Foundation and the Japan Society for the Promotion of Science. Greg is now a staff member of the Department of Chemical Engineering and the Space Power Institute at Auburn University.

DEATHS

William J. Argersinger, Jr., died on December 4, 1992. Professor Argersinger joined the chemistry faculty at KU in 1946 as an assistant professor, was promoted to associate professor in 1949 and professor in 1956. During his tenure at KU, in addition to supervising the research work of thirteen Ph.D. students and four M.S. students and one postdoctoral student, he served the University of Kansas in an impressive variety of administrative positions. He was acting assistant dean of the graduate school (1954-56), associate dean of the graduate school (1956-63), dean of research administration (1970-72) and then served as the first vice-chancellor of research and graduate studies and dean of the graduate school (1972-78). He then returned full time to the chemistry faculty until his retirement in 1988. A memorial service for Bill attended by his friends and colleagues was held in Woodruff Auditorium on January 8, 1993.

Arthur W. Davidson passed away at the age of 96 on January 8, 1993, in Leavenworth, Kansas. At the time of his death, Professor Davidson was living with his daughter and her family in North Kansas City, Missouri. He was the senior member of KU's emeritus faculty. Davy, as he was known to all of his friends and colleagues, came to KU from New York City in 1921 to join the chemistry department and remained here until his retirement in 1966. In addition to serving as the department chairman from 1956-1961, he also was assistant to the dean of the graduate school from 1950 to 1954 and associate dean during the 1955-56 academic year. He was also a member of the editorial board of the **Journal of the American Chemical Society** for ten years. On April 26, a memorial service attended by members of his family, friends and colleagues was held in Danforth Chapel on the KU campus.

George H. Cady, former Professor of Chemistry at the University of Washington, died on March 18, 1993. Professor Cady, the son of KU chemistry pioneer Hamilton Cady, did his work for the bachelor's and master's degrees at the University of Kansas and received the Ph.D. from the University of California at Berkeley. After teaching at the University of South Dakota and Massachusetts Institute of Technology, as well as periods of industrial work with U.S. Rubber Co. and Pittsburgh Plate Glass Co., he joined the faculty at the University of Washington in 1938. He retired in 1972. Professor Cady received many national and international awards for his contributions to science and fluorine chemistry.

Frederick G. Ernick (M.S., 1961) died on May 26, 1992. He was the president and owner of New England Semiconductor, Inc., in Lawrence, Massachusetts.

Robert K. (Bob) Evans died on April 5, 1993, at the age of 78. Bob was a long time employee of the Chemistry Department serving as the storekeeper of the Chemical Storeroom from 1962 to 1980. For a number of years prior to working for the Chemistry Department, he and his wife, Dorthea, worked with the state of Kansas Mobil X-Ray unit. He joined the department after the program was terminated because it was thought tuberculous was eliminated.

C.H. Kidwell (M.S., 1917) died May 17, 1991.

Please fill in this form and return it to Carol Bray, Administrative Officer, Chemistry Department, University of Kansas, Lawrence, KS 66045 (FAX: (913) 864-5396) (Internet: bray@kuhub.cc.ukans.edu)

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PERSONAL NEWS (Please write this exactly as you would like it to appear in the next newsletter)

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